Spur Gears

MSGA/MSGB Ground Spur Gears	KSG Ground Spur Gears	SSGS Ground Spur Pinion Shafts	SSG Ground Spur Gears	SSG F Series Ground Spur Gears	SSG E Series Ground Spur Gears	SSG R Series Ground Spur Gears
	NEW		NEW		NEW	
Material: SCM415	Material: SCM440	Material: S45C	Material: S45C	Material: S45C	Material: S45C	Material: S45C
*m*1~4 Page 42	*m*1~3 Page 52	*m*1.5~3 Page 54	*m*0.5~10 Page 56	*m*2~3 Page 74	*m*1.5~6 Page 80	*m*1.5~6 Page 90

Pinion Gears for Nabtesco GH Series	SSAG Ground Spur Gears	KS-H Hardened Spur Gears	KS Thermal Refined Spur Gears	SSS Spur Pinion Shafts	SS-H Hardened Spur Gears	SS Spur Gears
NEW		NEW	NEW		NEW	NEW
Material: S45C/SCM440	Material: S45C	Material: SCM440	Material: SCM440	Material: S45C	Material: S45C	Material: S45C
*m*3~6 (CP10~20) Page 92	*m*1~6 Page 94	*m*1.5~5 Page 98	*m*1.5~5 Page 98	*m*1, 1.5 Page 100	*m*1~6 Page 104	*m*0.5~10 Page 102

SS F Series Spur Gears	SSA-H Hardened Spur Gears	SSA Spur Gears	SSA F Series Spur Gears	SSY Spur Gears	SSAY Spur Gears	SUS/SUSA Stainless Steel Spur Gears
Material: S45C	Material: S45C	Material: S45C	Material: S45C	Material: S45C	Material: S45C	Material: SUS303
*m*1.5~3 Page 128	*m*1~5 Page 136	*m*1~5 Page 136	*m*2~3 Page 144	*m*0.8, 1 Page 148	*m*1 Page 152	*m*1~4 Page 154

SUSF F-Loc Gears	DSF F-Loc Gears	NSU Plastic Spur Gears with Steel Core	PU Plastic Spur Gears with Steel Core	PS/PSA Plastic Spur Gears	SUKB Stainless Steel Hubs	PSUKB SUKB Assembled PSA Spur Gear
					PSA Dedicated	NEW
Material: SUS303	Material: Polyacetal (SUS303)	Material: MC602ST (S45C)	Material: MC901 (SUS303)	Material: MC901	Material: SUS303	Material: MC901/SUS303
*m*0.5, 1 Page 160	*m*0.5, 1 Page 162	*m*1~3 Page 164	*m*1~2 Page 168	*m*1~3 Page 170	∅ 30~100 Page 180	*m*2~3 Page 181

DS Injection Molded Spur Gears	BB Sintered Metal Bushings	BSS Spur Gears	SSR Steel Ring Gears (Spur Gears)
Material: Duracon (R) (M90-44)	Material: Oil-free copper alloy	Material: Free cutting brass (C3604)	Material: S45C
*m*0.5~1 Page 182	∅ 5~8 Page 184	*m*0.5~1 Page 186	*m*2~3 Page 188

Catalog Number of KHK Stock Gears

The Catalog Number for KHK stock gears is based on the simple formula listed below. Please order KHK gears by specifying the Catalog Numbers.

(Example) Spur Gears

S S G 1 - 15

- 15 — No. of Teeth (15)
- 1 — Module (1)
- G — Other Products (Ground Gears)
- S — Type (Spur Gear)
- S — Material (S45C)

Material

M	SCM415
K	SCM440
S	S45C
SU	Stainless Steel
P	MC901
N	MC602ST
D	Polyacetal
BS	Brass
L	Sintered Metal Alloy

Type

S	Spur Gears

Other Information

A	Without Hub
G	Ground Gears
F	F-loc Hub Gears
R	Ring Gears
S	Pinion Shafts
U	Plastic Gears with Steel Core
Y	Thin Face Gears
H	Gear Teeth Induction Hardened

Spur Gears

Features

To meet your applications, KHK stock gears are made in a variety of types, materials, configurations, modules and numbers of teeth. We also provide finished gears that are ready to use. Secondary operations can be performed to many of the products, allowing for a wider range of designs. The following table lists the main features.

Catalog Number	Module	Material	Heat Treatment	Tooth Surface Finish	Precision JIS B 1702-1:1998	Secondary Operations	Features
MSGA/MSGB	1~4	SCM415	Carburized	Ground	N5	×	Fully hardened, ground and keyway machined gears with excellent accuracy, strength and abrasion resistance.
KSG	1~3	SCM440	Thermal refined, gear teeth induction hardened	Ground	N6	△	Gears that have been tempered, hardened and ground that have excellent accuracy, strength and abrasion resistance. Secondary operations can be performed except for the teeth. This product is ideal for the pinion of the KRGF rack.
SSGS	1.5~3	S45C	Thermal refined, gear teeth induction hardened	Ground	N7	△	Gears with shafts that have been tempered, hardened and ground. Secondary operations can be performed except for the teeth.
SSG	0.5~10	S45C	Gear teeth induction hardened NOTE 1	Ground	N7	△	Gears that have been hardened and ground with a good balance of accuracy, wear resistance and cost. Secondary operations are possible except for the teeth.
SSAG	1~6						
KS	1.5~5	SCM440	Thermal refined	Cut	N8	○	Tempered gears with excellent bending strength. The teeth can be additionally hardened. This product is ideal for the pinion of the KRF rack.
SSS	1, 1.5	S45C	Thermal refined NOTE 2	Cut	N8 NOTE 3	○	Gears with a tempered shaft.
SS	0.5~10	S45C	—	Cut	N8 NOTE 3	○	Many lineups are available at a low price. The teeth can be additionally hardened.
SSA	1~5						
SSY/SSAY	0.8, 1	S45C	—	Cut	N8 NOTE 3	○	Gears with narrow teeth. Suitable for light loads.
SUS/SUSA	1~4	SUS303	—	Cut	N8	○	Stainless steel gears with rust resistance.
SUSF	0.5, 1	SUS303	—	Cut	N8 NOTE 3	×	Stainless steel gears with rust resistance. Locking Hub allows easy attachment.
DSF	0.5, 1	Polyacetal (SUS303)	—	Cut	N10 NOTE 3	×	Gears made of polyacetal. Locking Hub allows easy attachment.
NSU	1~3	MC602ST (S45C)	—	Cut	N9	○	Steel hubs are fused and fixed to reinforced nylon gears for secure fastening.
PU	1~2	MC901 (SUS303)	—	Cut	N9	○	Stainless steel hubs are fused and fixed to nylon gears for secure fastening.
PS/PSA	1~3	MC901	—	Cut	N9	○	Nylon gears can be used with no lubrication.
DS	0.5~1	Duracon (R) (M90-44) NOTE 4	—	Injection Molded	N12 equivalent	△	Low-priced gears made through injection molding. Suitable for light loads.
BSS	0.5~1	Free-cutting Brass (C3604)	—	Cut	N8 NOTE 3	○	Brass gears with excellent machinability.
SSR	2~3	S45C	—	Cut	N9	○	They have a ring shape with a large number of teeth.

[NOTE 1] Products with module under 1 are thermal refined. Gear teeth are not hardened. ○ Possible △ Partly possible × Not possible
[NOTE 2] SA-shaped products with module less than 1 have no material thermal refinement treatment.
[NOTE 3] The product accuracy class having a module under 1 corresponds to 'equivalent' as shown in the table.
[NOTE 4] "Duracon (R)" is a registered trademark of Polyplastics Co., Ltd. in Japan as well as other countries.

● KHK stock spur gears (m1.5 and higher) have semi-topping on the tooth tips.
● Black products are KHK stock gears that have an applied black oxide coating for rust resistance.

Application Examples

KHK stock spur gears are widely used in various industrial machines including food machinery.

■ Fish processing machine manufactured by TOYO SUISAN KIKAI CO.,LTD.

SS spur gears used for filleting fish

■ Carton former

SS spur gears used in automatic carton formers

■ Food machinery by Jey Machine Co.

SSA/SS spur gears used in stirrers

PS/PSA spur gears used in fully-automatic food forming machines

■ High-speed automatic wire straightening/cutting machine manufactured by Takashima Sangyo Co.

SS spur gears used for wire feeder

■ Packing machine by New Max

SS Spur Gears, segment shaped by secondary operation

■ Electric wire winder by Sakuma Tekko KK.

SS Spur Gears are used at the handgrip stopper

Selection Hints

Please select the most suitable products by carefully considering the characteristics of items and contents of the product tables. It is also important to read all applicable "CAUTION" notes shown below before the final selection.

1. Caution in Selecting the Mating Gears

① Basically, all spur gears, internal gears and racks can be paired as long as the module and pressure angle match. Products with different materials, tooth widths or accuracy can be mated.

2. Caution in Selecting Gears Based on Gear Strength

The gear strength values shown in the product pages were computed by assuming the application environment in the table below. Therefore, they should be used as reference only. We recommend that each user computes their own values by applying the actual usage conditions. Also, F-loc hub spur gears, F-loc hub spur gears and various F series that use the friction coupling method to fasten the gear shaft need additional consideration for starting torque.

■ Calculation of Bending Strength of Gears

Item \ Catalog Number	MSGA MSGB	SSGS	SSG SSAG	SSS,SS SSA,SSY SSAY,SSR	SUS SUSA SUSF	BSS	KSG	KS	SSG SSCPG Note 6	ZSTP Note 6	NSU	PU PS PSA	DSF DS
Formula NOTE 1	Formula of spur and helical gears on bending strength (JGMA401-01)										The Lewis formula		
No. of teeth of mating gears	Same number of teeth (30 for SSGS, SSS, SSR)						Racks				—		
Rotational Speed	600rpm NOTE 2			100rpm					400rpm		100rpm		
Design Life (Durability)	Over 10^7 cycles										—		
Impact from motor	Uniform load										Allowable bending stress (kgf/mm²)		
Impact from load	Uniform load										1.38 (40°C with no lubrication)	1.15 (40°C with no lubrication)	*m* 0.5 4.0 *m* 0.8 4.0 *m* 1.0 3.5 (40°C with grease lubrication)
Direction of load	Bidirectional load (calculated with allowable bending stress of 2/3)												
Allowable bending stress at root σ_{Flim} (kgf/mm²)	47	24.5	19 (24.5) Note 3	19 (24.5) Note 4	10.5	4	30	32	30	19			
Safety factor S_F	1.2												

■ Calculation of Surface Durability (Except where it is common with bending strength)

Formula NOTE 1	Formula of spur and helical gears on surface durability (JGMA402-01)									
Kinematic viscosity of lubricant	100cSt (50°C)									
Gear support	Symmetric support by bearings Note 5						Supported on one end.			
Allowable Hertz stress σ_{Hlim} (kgf/mm²)	166	99	90 (62.5) Note 3	49 (62.5) Note 4	41.3	—	112	79	112	90
Safety factor S_H	1.15									

[NOTE 1] The gear strength formula is based on JGMA (Japanese Gear Manufacturers Association) specifications, "MC Nylon Technical Data" by Mitsubishi Chemical Advanced Materials and "Duracon (R) Gear" by Polyplastics Co. The units for the rotational speed (rpm) and the stress (kgf/mm²) are adjusted to the units needed in the formula.
[NOTE 2] Semi-custom rotation speed is the value in parentheses.
[NOTE 3] For SSG Ground Spur Gears, with module under 1, thermal refining is applied. Allowable bending stress and allowable hertz stress values are shown in parentheses.
[NOTE 4] For SSS Spur Pinion Shafts, with module over 1.5, tooth induction hardening is not applied. Allowable bending stress and allowable hertz stress values are shown in parentheses.
[NOTE 5] SSS Spur Pinion Shafts with module 1 or less (SA configuration) are set to cantilever support as they are single shaft types.
[NOTE 6] For Nabtesco GH Series.

When selecting KHK standard gears, glance over the Cautions on Product Characteristics and Cautions on Performing Secondary Operations in the respective dimension tables.

① Products not listed in this catalog or materials, modules, number of teeth and the like not listed in the dimensional tables can be manufactured as custom items. Please see Page 24 for more details.
② The color and shape of the product images listed on the dimension table page of each product may differ from the actual product.
Be sure to confirm the shape in the dimension table before selection.
③ The details (specifications, dimensions, etc.) listed in the catalog may be changed without prior notice. Changes are announced on the KHK website.

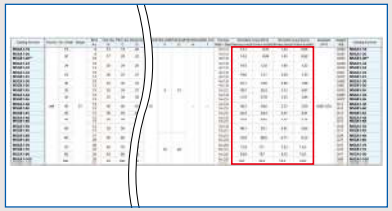
Website URL: https://khkgears.net/new/
Overseas Sales Department: Phone: +81-48-254-1744 Fax: +81-48-254-1765
E-mail: info@khkgears.net

Selecting the Gears

Step 1 Determine the calculated load torque applied to the gear and the gear type suitable for the purpose.

Step 2 Select provisionally from the allowable torque table of the Master Catalog or Web Catalog based on the load torque.

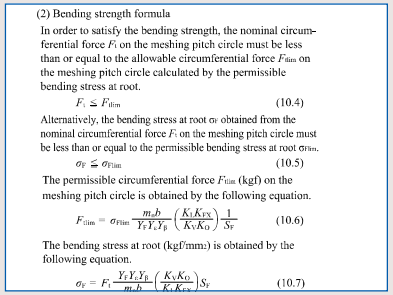
■ For provisional selection from the Master Catalog



Step 3 Calculate the strength under the actual usage conditions.

Calculate the strength formally using the various gear strength formulas. Please see our separate technical reference book for more details. We recommend using the Web Catalog that allows the strength to be easily calculated.

■ For strength calculation from the Master Catalog



(2) Bending strength formula

In order to satisfy the bending strength, the nominal circumferential force F_t on the meshing pitch circle must be less than or equal to the allowable circumferential force F_{tlim} on the meshing pitch circle calculated by the permissible bending stress at root.

$$F_t \leq F_{tlim} \quad (10.4)$$

Alternatively, the bending stress at root σ_F obtained from the nominal circumferential force F_t on the meshing pitch circle must be less than or equal to the permissible bending stress at root σ_{Flim}.

$$\sigma_F \leq \sigma_{Flim} \quad (10.5)$$

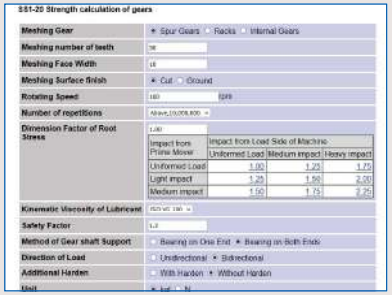
The permissible circumferential force F_{tlim} (kgf) on the meshing pitch circle is obtained by the following equation.

$$F_{tlim} = \sigma_{Flim} \frac{m_n b}{Y_\varepsilon Y_\beta} \left(\frac{K_L K_{FX}}{K_V K_O} \right) \frac{1}{S_F} \quad (10.6)$$

The bending stress at root (kgf/mm²) is obtained by the following equation.

$$\sigma_F = F_t \frac{Y_\varepsilon Y_\beta}{m_n b} \left(\frac{K_V K_O}{K_L K_{FX}} \right) S_F \quad (10.7)$$

■ For strength calculation from the Web Catalog



S51-20 Strength calculation of gears

Meshing Gear	Spur Gears / Racks / Internal Gears
Meshing number of teeth	
Meshing Face Width	
Meshing Surface finish	Cut / Ground
Rotating Speed	rpm
Number of repetitions	
Dimension Factor of Root Stress	

Impact from Prime Mover \ Impact from Load Side of Machine	Uniformed Load	Medium impact	Heavy impact
Uniformed Load	1.00	1.25	1.75
Light impact	1.25	1.50	2.00
Medium impact	1.50	1.75	2.25

Kinematic Viscosity of Lubricant	
Safety Factor	
Method of Gear shaft Support	Bearing on One End / Bearing on Both Ends
Direction of Load	Unidirectional / Bidirectional
Additional Harden	With Harden / Without Harden
Unit	kgf / N

■ Bending strength

Calculated values of the strength at which the gear teeth do not break due to fatigue.

Example of failure due to insufficient bending strength

■ Surface durability

Calculated values of the strength at which the gear teeth do not wear due to surface fatigue damage.

Example of wear due to insufficient surface durability

Application Hints

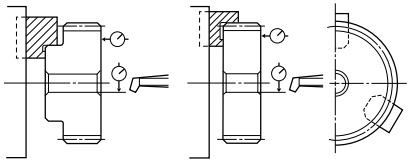
In order to use KHK stock gears safely, carefully read the Application Hints before proceeding.
If there are questions or you require clarifications, please contact our technical department or your nearest distributor.
E-mail: info@khkgears.net

1. Cautions on Handling

① KHK products are packaged one by one to prevent scratches and dents, but if you find issues such as rust, scratches, or dents when the product is removed from the box after purchase, please contact the supplier.
② Depending on the handling method, the product may become deformed or damaged. Plastic gears and ring gears deform particularly easily, so please handle with care.

2. Caution on Performing Secondary Operations

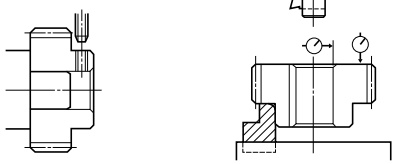
① If reboring, it is important to pay special attention to locating the center in order to avoid runout.
② The reference datum for gear machining is the bore. Therefore, use the bore for locating the center. If it is too difficult to do for small bores, the alternative is to use one spot on the bore and the runout of the side surface.
③ If reworking using scroll chucks, we recommend the use of new or rebored jaws for improved precision. Please exercise caution not to crush the teeth.



Lathe Operations

④ The maximum bore size is dictated by the requirement that the strength of the hub is to be higher than that of the gear teeth. The maximum bore size should be 60% to 70% of the hub diameter (or tooth root diameter), and 50% to 60% for keyway applied modifications.
⑤ In order to avoid stress concentration, round the keyway corners.

Tapping & Keyway Slotting



⑥ To avoid problems of reduced gear precision and other manufacturing difficulties, do not attempt to machine the gears to reduce face widths.
⑦ When induction-hardening S45C products, thermal stress cracks may appear. Also, note that the precision grade of the product declines by 1 or 2 grades, as deformation on material may occur. If you require tolerance for bore or other parts, machining is necessary after heat treatment.

Induction Hardening

If you apply induction hardening to the gear teeth of S45C products, you need to designate the hardness and where to apply the heat treatment. Below is an example of common specifications and KHK's specifications for hardening:

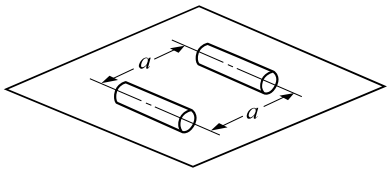
● Common Specifications for Heat Treatment
Hardened location: Tooth surface, or Tooth surface and Tooth root
Hardness: Within 10 HRC in the range from 45 to 60 HRC
(Example: 48 to 58 HRC)

● KHK's Specifications for Heat Treatment
Hardened location: Tooth surface, or Tooth surface and Tooth root
Hardness: 50 to 60 HRC

* Hardness and Depth of Gear-teeth Induction Hardening
The hardening method and the state of the hardened teeth area vary depending on the size of gears.
Since different hardening treatment is applied in accordance with the module and number of teeth, the hardness level you designate is referred to as the hardness of the reference diameter. For some of our products, the hardness at tooth tip / root may not be equal to the hardness you designated.
As to the effective case depth for S45C, it is specified by JIS, as "The distance from the surface of the case to the area with hardness HV450." The case depth differs from area to area of a tooth, so the depth cannot be specified.

3. Points of Caution during Assembly

① The recommended center distance tolerance of KHK stock spur gears is H7 for ground gears and H8 for cut gears. Backlash may be adjusted by changing the center distance of mating gears. For more information, please consult the technical section on gear backlash in our separate technical reference book.



$a=m(Z_1+Z_2)/2$

Where
a : Center distance
m : Module
Z_1 : No. of teeth of pinion
Z_2 : No. of teeth of gear

② The table below indicates the tolerance on the total length of KHK stock spur gears. Please refer to this data when designing gearboxes or other components.

■ Total Length Tolerance for Spur and Helical Gears

Total Length (mm)	Tolerance
30 or less	0 -0.10
31 to 100	0 -0.15
Over 100	0 -0.20

[Note] The following products are excluded from this table: Spur pinion shafts, Injection molded spur gears, F-loc hub spur gears, and MC nylon products.

③ Spur gears produce no thrust forces; however, be sure to fasten them firmly with stepped shafts, or collars, to prevent shifting toward the shaft.
Keyways are generally used in fastening gears to a shaft, and they should be fastened by applying drilled holes for set screws, or applying flats to the shaft, in case of fastening only with set screws.
There are also methods of secure settings using parts for engaging the hole and the axis.
④ Verify that the two shafts are parallel. Incorrect assembly will lead to uneven teeth contact which will cause noise and wear. (After assembly, check the tooth contact by painting a thin layer of red lead primer or the like on the gear teeth, meshing them together and rotating them.)

■ Test example: Abrasion occurred on SSG3-30 due to poor edge contact (only 30% with proper contact).

Poor tooth contact and pitting

In this example, the gear oil used is equivalent to the JIS gear oil category 2, No. 3
The design conditions were load torque at 278 rpm, 42.5 kg/m (12 kW), 1.5 times the allowable bending strength, and 3 times the allowable surface durability torque.
The pitting occurred on the poor tooth contact area after 60 hours of continuous operation.

4. Cautions on Starting

① Check the following items before starting.
• Are the gears fastened securely?
• Is there uneven tooth contact?
• Is there adequate backlash?
(Be sure to avoid zero-backlash.)
• Has proper lubrication been supplied?
② If gears are exposed, be sure to attach a safety cover to ensure safety. Also, be careful not to touch rotating gears.
③ For more technical information on lubricating gears, please see the section "Gear Lubrication" in our separate technical reference book.
④ If there is any abnormality such as noise or vibration during startup, stop the operation immediately and check the assembly condition such as tooth contact, eccentricity and looseness.
For more technical information, please see the section "Gear Noise and Countermeasures" in our separate technical reference book.

KHK considers safety a priority in the use of our products.
When handling, adding secondary operations, assembling, and operating KHK products, please be aware of the following issues in order to prevent accidents.

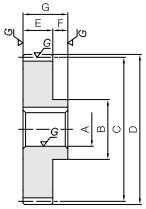
Warning: Precautions for preventing physical and property damage

1. When using KHK products, follow relevant safety regulations (Occupational Safety and Health Regulations, etc.).
2. Pay attention to the following items when installing, removing, or performing maintenance and inspection of the product.
① Turn off the power switch.
② Do not reach or crawl under the product.
③ Wear appropriate clothing and protective equipment for the work.

Caution: Cautions in preventing accidents

1. Before using a KHK product, read the precautions in the catalog carefully in order to use it correctly.
2. Avoid use in environments that may adversely affect the product.
3. Our products are manufactured under a superior quality control system based on the ISO9000 quality management system; if you notice any malfunctions upon purchasing a product, please contact the supplier.

Specifications	
Precision grade	JIS grade N5 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	SCM415
Heat treatment	Carburized
Tooth hardness	55 to 60HRC



S1

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.
				A_{H7}	B	C	D	E	F	G	H	I
MSGA1-18		18		8	15	18	20					
MSGA1-20 **MSGB1-20****		20		8 10	17	20	22					
MSGA1-24 **MSGB1-24**		24		10 12	20	24	26					
MSGA1-25 **MSGB1-25**		25		10 12	20	25	27					
MSGA1-30 **MSGB1-30**		30		10 12	25	30	32					
MSGB1-35		35		15	25	35	37		5	15		
MSGA1-36 **MSGB1-36**		36		12 15	25	36	38					
MSGA1-40 **MSGB1-40**	***m*1**	40	S1	12 15	30	40	42	10			—	—
MSGB1-45		45		15	30	45	47					
MSGA1-48 **MSGB1-48**		48		12 15	30	48	50					
MSGA1-50 **MSGB1-50**		50		12 15	35	50	52					
MSGA1-60 **MSGB1-60**		60		15 20	40	60	62					
MSGA1-70 **MSGB1-70**		70		20 25	45	70	72		10	20		
MSGA1-80		80		20	45	80	82					
MSGA1-100 **MSGB1-100**		100		20 25	45	100	102					

[Caution on Product Characteristics]
① Although the dimensions of the keyway are made to the JIS B1301 (Js9) tolerance, there may be some deviations due to the effects of the heat treatment.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
④ Products marked with "**" have a small amount of material between the corner of the keyway and the tooth root. This mode of failure must be considered when selecting these gears.
For details, please see our web site.

Keyway	Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash	Weight	Catalog Number
Width × Depth	Bending strength	Surface durability	Bending strength	Surface durability	(mm)	(kg)	
3 x 1.4	12.1	6.37	1.24	0.65		0.020	**MSGA1-18**
3 x 1.4 4 x 1.8	14.2	8.04	1.45	0.82		0.027 0.023	**MSGA1-20** **MSGB1-20****
4 x 1.8 4 x 1.8	18.5	12.0	1.88	1.22		0.038 0.034	**MSGA1-24** **MSGB1-24**
4 x 1.8 4 x 1.8	19.6	13.1	2.00	1.33		0.041 0.037	**MSGA1-25** **MSGB1-25**
4 x 1.8 4 x 1.8	25.1	19.0	2.56	1.94		0.065 0.061	**MSGA1-30** **MSGB1-30**
5 x 2.3	30.7	26.2	3.13	2.67		0.073	**MSGB1-35**
4 x 1.8 5 x 2.3	31.9	27.8	3.25	2.84		0.085 0.077	**MSGA1-36** **MSGB1-36**
4 x 1.8 5 x 2.3	36.5	34.6	3.72	3.53	0.08~0.16	0.11 0.10	**MSGA1-40** **MSGB1-40**
5 x 2.3	42.3	44.3	4.31	4.51		0.13	**MSGB1-45**
4 x 1.8 5 x 2.3	45.8	50.6	4.67	5.16		0.16 0.15	**MSGA1-48** **MSGB1-48**
4 x 1.8 5 x 2.3	48.1	55.1	4.91	5.62		0.18 0.17	**MSGA1-50** **MSGB1-50**
5 x 2.3 6 x 2.8	59.9	80.6	6.11	8.22		0.29 0.27	**MSGA1-60** **MSGB1-60**
6 x 2.8 8 x 3.3	71.9	111	7.33	11.4		0.37 0.35	**MSGA1-70** **MSGB1-70**
6 x 2.8	83.9	147	8.55	15.0		0.47	**MSGA1-80**
6 x 2.8 8 x 3.3	103	224	10.5	22.8		0.69 0.66	**MSGA1-100** **MSGB1-100**

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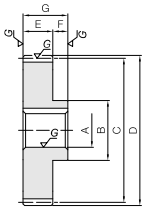
Specifications	
Precision grade	JIS grade N5 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	SCM415
Heat treatment	Carburized
Tooth hardness	55 to 60HRC



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Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.
				A_{H7}	B	C	D	E	F	G	H	I
MSGA1.5-15**	***m*1.5**	15	S1	10	18	22.5	25.5	15	10	25	—	—
MSGA1.5-18 **MSGB1.5-18**		18		10 12	22	27	30					
MSGA1.5-20 **MSGB1.5-20**		20		12 15	25	30	33					
MSGA1.5-24 **MSGB1.5-24**		24		12 15	28	36	39					
MSGB1.5-25		25		16	30	37.5	40.5					
MSGA1.5-30 **MSGB1.5-30**		30		15 18	30	45	48					
MSGA1.5-35		35		15	32	52.5	55.5					
MSGA1.5-36 **MSGB1.5-36**		36		15 18	32	54	57					
MSGA1.5-40 **MSGB1.5-40**		40		16 20	35	60	63					
MSGA1.5-45 **MSGB1.5-45**		45		16 20	40	67.5	70.5					
MSGA1.5-50 **MSGB1.5-50**		50		18 22	40	75	78					
MSGA1.5-60 **MSGB1.5-60**		60		20 25	45	90	93					
MSGA1.5-70 **MSGB1.5-70**		70		20 25	45	105	108					
MSGA1.5-80 **MSGB1.5-80**		80		20 25	45	120	123					
MSGA1.5-100		100		25	50	150	153					

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② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
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For details, please see our web site.

Keyway	Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash	Weight	Catalog Number
Width × Depth	Bending strength	Surface durability	Bending strength	Surface durability	(mm)	(kg)	
4 x 1.8	30.8	14.8	3.15	1.51	0.08~0.16	0.050	**MSGA1.5-15****
4 x 1.8 4 x 1.8	41.0	22.1	4.18	2.26		0.080 0.074	**MSGA1.5-18** **MSGB1.5-18**
4 x 1.8 5 x 2.3	48.0	27.9	4.89	2.84		0.098 0.085	**MSGA1.5-20** **MSGB1.5-20**
4 x 1.8 5 x 2.3	62.4	41.5	6.36	4.24		0.14 0.13	**MSGA1.5-24** **MSGB1.5-24**
5 x 2.3	66.0	45.4	6.73	4.63		0.14	**MSGB1.5-25**
5 x 2.3 6 x 2.8	84.7	66.4	8.63	6.77		0.21 0.19	**MSGA1.5-30** **MSGB1.5-30**
5 x 2.3	104	91.5	10.6	9.34		0.28	**MSGA1.5-35**
5 x 2.3 6 x 2.8	108	97.1	11.0	9.90		0.30 0.28	**MSGA1.5-36** **MSGB1.5-36**
5 x 2.3 6 x 2.8	123	121	12.6	12.3		0.37 0.34	**MSGA1.5-40** **MSGB1.5-40**
5 x 2.3 6 x 2.8	143	155	14.5	15.8		0.48 0.46	**MSGA1.5-45** **MSGB1.5-45**
6 x 2.8 6 x 2.8	162	193	16.6	19.7		0.57 0.54	**MSGA1.5-50** **MSGB1.5-50**
6 x 2.8 8 x 3.3	202	283	20.6	28.8		0.81 0.77	**MSGA1.5-60** **MSGB1.5-60**
6 x 2.8 8 x 3.3	231	372	23.6	38.0		1.08 1.04	**MSGA1.5-70** **MSGB1.5-70**
6 x 2.8 8 x 3.3	270	494	27.5	50.3		1.39 1.36	**MSGA1.5-80** **MSGB1.5-80**
8 x 3.3	347	787	35.4	80.2		2.13	**MSGA1.5-100**

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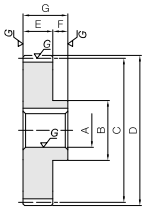
Specifications	
Precision grade	JIS grade N5 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	SCM415
Heat treatment	Carburized
Tooth hardness	55 to 60HRC



S1

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.
				A_{H7}	B	C	D	E	F	G	H	I
MSGA2-15 **MSGB2-15****		15		12 15	24	30	34					
MSGA2-18 **MSGB2-18**		18		12 15	30	36	40					
MSGA2-20 **MSGB2-20**		20		15 18	32	40	44					
MSGA2-24 **MSGB2-24**		24		15 18	35	48	52					
MSGA2-25 **MSGB2-25**		25		16 20	35	50	54					
MSGA2-30 **MSGB2-30**		30		18 22	40	60	64					
MSGA2-35 **MSGB2-35**	***m*2**	35	S1	18 22	40	70	74	20	10	30	—	—
MSGB2-36		36		22	40	72	76					
MSGA2-40 **MSGB2-40**		40		20 25	45	80	84					
MSGA2-45 **MSGB2-45**		45		20 25	45	90	94					
MSGA2-48		48		22	50	96	100					
MSGA2-50 **MSGB2-50**		50		22 28	50	100	104					
MSGA2-60 **MSGB2-60**		60		25 30	55	120	124					
MSGA2-80 **MSGB2-80**		80		30 35	60	160	164					

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③ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
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Keyway	Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash	Weight	Catalog Number
Width × Depth	Bending strength	Surface durability	Bending strength	Surface durability	(mm)	(kg)	
4 x 1.8 5 x 2.3	73.1	35.7	7.46	3.64		0.12 0.10	**MSGA2-15** **MSGB2-15****
4 x 1.8 5 x 2.3	97.2	53.5	9.91	5.46		0.19 0.17	**MSGA2-18** **MSGB2-18**
5 x 2.3 6 x 2.8	114	67.6	11.6	6.89		0.22 0.20	**MSGA2-20** **MSGB2-20**
5 x 2.3 6 x 2.8	148	101	15.1	10.3		0.32 0.30	**MSGA2-24** **MSGB2-24**
5 x 2.3 6 x 2.8	157	110	16.0	11.2		0.33 0.31	**MSGA2-25** **MSGB2-25**
6 x 2.8 6 x 2.8	201	161	20.5	16.5		0.48 0.45	**MSGA2-30** **MSGB2-30**
6 x 2.8 6 x 2.8	246	223	25.1	22.7	0.10~0.20	0.64 0.61	**MSGA2-35** **MSGB2-35**
6 x 2.8	255	236	26.0	24.1		0.64	**MSGB2-36**
6 x 2.8 8 x 3.3	292	294	29.7	30.0		0.84 0.79	**MSGA2-40** **MSGB2-40**
6 x 2.8 8 x 3.3	338	377	34.5	38.4		1.05 1.00	**MSGA2-45** **MSGB2-45**
6 x 2.8	349	411	35.6	41.9		1.20	**MSGA2-48**
6 x 2.8 8 x 3.3	367	448	37.4	45.7		1.29 1.24	**MSGA2-50** **MSGB2-50**
8 x 3.3 8 x 3.3	457	658	46.6	67.1		1.84 1.79	**MSGA2-60** **MSGB2-60**
8 x 3.3 10 x 3.3	610	1150	62.2	117		2.55 2.49	**MSGA2-80** **MSGB2-80**

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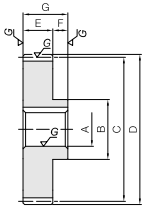
Specifications	
Precision grade	JIS grade N5 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	SCM415
Heat treatment	Carburized
Tooth hardness	55 to 60HRC



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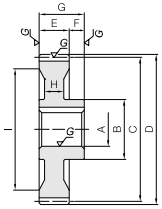

S2

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.
				A_{H7}	B	C	D	E	F	G	H	I
MSGA2.5-15 **MSGB2.5-15****	*m*2.5	15	S1	15 18	30	37.5	42.5	25	12	37	—	—
MSGA2.5-18 **MSGB2.5-18**		18		18 20	38	45	50					
MSGA2.5-20 **MSGB2.5-20**		20		18 22	40	50	55					
MSGA2.5-24 **MSGB2.5-24**		24		18 22	40	60	65					
MSGB2.5-25		25		25	45	62.5	67.5					
MSGA2.5-30 **MSGB2.5-30**		30		22 28	50	75	80					
MSGB2.5-36		36		30	55	90	95					
MSGA2.5-40 **MSGB2.5-40**		40		25 32	55	100	105					
MSGB2.5-45		45		35	60	112.5	117.5					
MSGA2.5-48		48		30	60	120	125					
MSGA2.5-50 **MSGB2.5-50**		50		30 35	60	125	130					
MSGA2.5-55		55		30	70	137.5	142.5					
MSGA2.5-60 **MSGB2.5-60**		60		30 40	70	150	155					
MSGA2.5-70 **MSGB2.5-70**		70	S2	40 50	85	175	180				17	150

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Keyway	Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash	Weight	Catalog Number
Width × Depth	Bending strength	Surface durability	Bending strength	Surface durability	(mm)	(kg)	
5 x 2.3 6 x 2.8	143	71.0	14.6	7.24	0.10~0.20	0.23 0.20	**MSGA2.5-15** **MSGB2.5-15****
6 x 2.8 6 x 2.8	190	107	19.4	10.9		0.34 0.32	**MSGA2.5-18** **MSGB2.5-18**
6 x 2.8 6 x 2.8	222	134	22.7	13.7		0.42 0.39	**MSGA2.5-20** **MSGB2.5-20**
6 x 2.8 6 x 2.8	289	201	29.4	20.5		0.59 0.56	**MSGA2.5-24** **MSGB2.5-24**
8 x 3.3	306	220	31.2	22.4		0.60	**MSGB2.5-25**
6 x 2.8 8 x 3.3	392	322	40.0	32.8		0.94 0.87	**MSGA2.5-30** **MSGB2.5-30**
8 x 3.3	498	471	50.8	48.0		1.26	**MSGB2.5-36**
8 x 3.3 10 x 3.3	543	560	55.3	57.1		1.61 1.52	**MSGA2.5-40** **MSGB2.5-40**
10 x 3.3	629	718	64.1	73.2		1.93	**MSGB2.5-45**
8 x 3.3	681	823	69.5	83.9		2.27	**MSGA2.5-48**
8 x 3.3 10 x 3.3	716	897	73.0	91.5		2.46 2.39	**MSGA2.5-50** **MSGB2.5-50**
8 x 3.3	804	1090	82.0	112		3.06	**MSGA2.5-55**
8 x 3.3 12 x 3.3	892	1310	90.9	134		3.62 3.45	**MSGA2.5-60** **MSGB2.5-60**
12 x 3.3 14 x 3.8	1020	1730	104	176		4.24 4.03	**MSGA2.5-70** **MSGB2.5-70**

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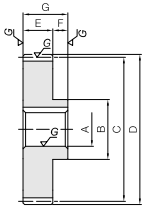
Specifications	
Precision grade	JIS grade N5 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	SCM415
Heat treatment	Carburized
Tooth hardness	55 to 60HRC



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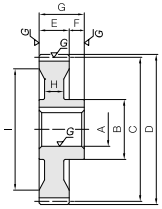

S2

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.
				A_{H7}	B	C	D	E	F	G	H	I
MSGA3-15	*m*3	15	S1	18	36	45	51	30	15	45	—	—
MSGB3-15**				22								
MSGA3-18		18		20	45	54	60					
MSGB3-18				25								
MSGA3-20		20		20	45	60	66					
MSGB3-20				25								
MSGA3-25		25		25	55	75	81					
MSGB3-25				30								
MSGA3-30		30		28	60	90	96					
MSGB3-30				35								
MSGA3-35		35		30	60	105	111					
MSGB3-35				35								
MSGA3-36		36		30	60	108	114					
MSGA3-40		40		30	70	120	126					
MSGB3-40				40								
MSGA3-45		45		30	70	135	141					
MSGB3-48		48		40	70	144	150					
MSGA3-50		50	S2	32	70	150	156				20	126
MSGB3-50				40								
MSGA3-60		60		35	80	180	186					156
MSGB3-60				45								
MSGA4-15	*m*4	15	S1	25	48	60	68	40	20	60	—	—
MSGB4-15**				30								
MSGB4-18		18		30	50	72	80					
MSGA4-20		20		28	60	80	88					
MSGB4-20				32								
MSGA4-24		24		28	60	96	104					
MSGB4-24				32								
MSGA4-25		25		30	60	100	108					
MSGB4-25				35								
MSGA4-30		30		35	70	120	128					
MSGB4-30				40								
MSGA4-35		35		35	70	140	148					
MSGB4-35				40								
MSGB4-36		36		40	70	144	152					
MSGA4-40		40		40	80	160	168					
MSGB4-40				45								
MSGA4-45		45		40	80	180	188					
MSGB4-45				45								
MSGA4-48		48	S2	40	80	192	200				26	160
MSGB4-48				45								
MSGB4-50		50		50	85	200	208					168

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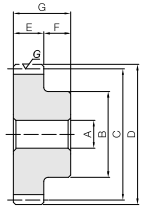
Keyway	Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash	Weight	Catalog Number
Width × Depth	Bending strength	Surface durability	Bending strength	Surface durability	(mm)	(kg)	
6 x 2.8	247	124	25.2	12.7	0.10~0.20	0.40	**MSGA3-15**
6 x 2.8						0.35	**MSGB3-15****
6 x 2.8	328	187	33.4	19.1		0.61	**MSGA3-18**
8 x 3.3						0.54	**MSGB3-18**
6 x 2.8	384	236	39.1	24.1		0.74	**MSGA3-20**
8 x 3.3						0.67	**MSGB3-20**
8 x 3.3	528	386	53.9	39.3		1.14	**MSGA3-25**
10 x 3.3						1.06	**MSGB3-25**
8 x 3.3	677	565	69.1	57.7		1.60	**MSGA3-30**
10 x 3.3						1.48	**MSGB3-30**
8 x 3.3	790	745	80.6	75.9		2.11	**MSGA3-35**
10 x 3.3						2.02	**MSGB3-35**
8 x 3.3	820	790	83.6	80.6		2.23	**MSGA3-36**
8 x 3.3	938	988	95.6	101		2.86	**MSGA3-40**
12 x 3.3						2.66	**MSGB3-40**
8 x 3.3	1090	1260	111	129		3.57	**MSGA3-45**
12 x 3.3	1180	1450	120	147		3.83	**MSGB3-48**
10 x 3.3	1240	1570	126	161		3.79	**MSGA3-50**
12 x 3.3						3.62	**MSGB3-50**
10 x 3.3	1470	2200	150	224		5.31	**MSGA3-60**
14 x 3.8						5.08	**MSGB3-60**
8 x 3.3	585	302	59.7	30.8	0.10~0.20	0.93	**MSGA4-15**
8 x 3.3						0.83	**MSGB4-15****
8 x 3.3	777	455	79.3	46.4		1.24	**MSGB4-18**
8 x 3.3	910	574	92.8	58.6		1.72	**MSGA4-20**
10 x 3.3						1.63	**MSGB4-20**
8 x 3.3	1130	819	115	83.5		2.41	**MSGA4-24**
10 x 3.3						2.32	**MSGB4-24**
8 x 3.3	1190	896	122	91.4		2.56	**MSGA4-25**
10 x 3.3						2.44	**MSGB4-25**
10 x 3.3	1530	1320	156	134		3.69	**MSGA4-30**
12 x 3.3						3.54	**MSGB4-30**
10 x 3.3	1870	1820	191	185		4.97	**MSGA4-35**
12 x 3.3						4.83	**MSGB4-35**
12 x 3.3	1940	1930	198	197		5.11	**MSGB4-36**
12 x 3.3	2120	2290	216	234		6.49	**MSGA4-40**
14 x 3.8						6.33	**MSGB4-40**
12 x 3.3	2460	2930	251	299		8.17	**MSGA4-45**
14 x 3.8						8.01	**MSGB4-45**
12 x 3.3	2660	3350	272	342		7.97	**MSGA4-48**
14 x 3.8						7.81	**MSGB4-48**
14 x 3.8	2800	3650	285	372		8.37	**MSGB4-50**

[Caution on Secondary Operations]
① No secondary operations can be performed on these precision finished gears due to the applied carburizing process. For products which are different in specifications, such as bore size, we accept custom-made gear orders and provide a price quote.

Ground Spur Gears *NEW*

Specifications	
Precision grade	JIS grade N6 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	SCM440
Heat treatment	Thermal refined, gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth

* The precision grade of J Series products is equivalent to the value shown in the table.



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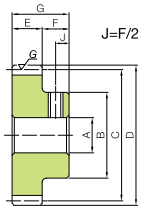
Catalog Number	Module	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N-m) Bending strength	Allowable torque (N-m) Surface durability	Allowable torque (kgf-m) Bending strength	Allowable torque (kgf-m) Surface durability	Backlash (mm)	Weight (kg)
KSG1-20		20		6	15	20	22				10.3	5.48	1.05	0.56		0.034
KSG1-25		25		8	20	25	27				13.9	9.16	1.42	0.93		0.055
KSG1-30		30		8	25	30	32				17.6	14.0	1.80	1.43		0.086
KSG1-32	***m*1**	32	S1	10	25	32	34	10	10	20	19.1	16.2	1.95	1.66	0.08~0.16	0.089
KSG1-36		36		10	30	36	38				22.1	21.3	2.25	2.17		0.12
KSG1-40		40		10	35	40	42				25.1	27.0	2.56	2.75		0.16
KSG1.5-20		20		10	24	30	33				34.8	18.5	3.55	1.89		0.12
KSG1.5-25		25		10	30	37.5	40.5				47.0	31.0	4.80	3.16		0.19
KSG1.5-30		30		15	35	45	48				59.5	47.4	6.06	4.83		0.25
KSG1.5-32	***m*1.5**	32	S1	15	40	48	51	15	14	29	64.5	55.0	6.57	5.60	0.08~0.16	0.31
KSG1.5-36		36		15	45	54	57				74.6	71.9	7.60	7.34		0.40
KSG1.5-40		40		15	50	60	63				84.7	91.3	8.64	9.31		0.51
KSG2-20		20		15	30	40	44				82.6	44.0	8.42	4.48		0.24
KSG2-25		25		15	40	50	54				111	73.5	11.4	7.50		0.42
KSG2-30		30		15	50	60	64				141	112	14.4	11.5		0.64
KSG2-32	***m*2**	32	S1	18	55	64	68	20	16	36	153	131	15.6	13.3	0.10~0.20	0.73
KSG2-36		36		18	65	72	76				177	171	18.0	17.4		0.98
KSG2-40		40		18	70	80	84				201	217	20.5	22.1		1.20
KSG2.5-20		20		15	40	50	55				161	86.0	16.5	8.77		0.50
KSG2.5-25		25		20	50	62.5	67.5				218	144	22.2	14.7		0.77
KSG2.5-30		30		20	65	75	80				275	220	28.1	22.4		1.23
KSG2.5-32	***m*2.5**	32	S1	20	70	80	85	25	18	43	298	255	30.4	26.0	0.10~0.20	1.42
KSG2.5-36		36		20	80	90	95				345	335	35.2	34.1		1.85
KSG2.5-40		40		20	90	100	105				392	425	40.0	43.3		2.33
KSG3-20		20		15	50	60	66				279	149	28.4	15.2		0.90
KSG3-25		25		20	65	75	81				376	249	38.4	25.4		1.44
KSG3-30		30		20	80	90	96				476	381	48.5	38.9		2.16
KSG3-32	***m*3**	32	S1	25	85	96	102	30	20	50	516	442	52.6	45.1	0.10~0.20	2.40
KSG3-36		36		25	90	108	114				597	579	60.8	59.1		2.96
KSG3-40		40		25	110	120	126				678	736	69.1	75.0		3.96

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).

J Series



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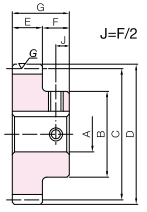


S1K

To order J Series products, please specify: Catalog No. + J + BORE.

Bore H7	* The product shapes of J Series items are identified by background color.																		
Keyway Js9	6	8	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Screw size	—		4×1.8			5×2.3			6×2.8				8×3.3			10×3.3		12×3.3	14×3.8	
Catalog Number	M4	M5	M4						M5				M6			M8			M10	
KSG1-20J BORE	S1T																			
KSG1-25J BORE		S1T																		
KSG1-30J BORE		S1T	S1K	S1K																
KSG1-32J BORE			S1K	S1K																
KSG1-36J BORE			S1K	S1K	S1K	S1K	S1K	S1K												
KSG1-40J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
KSG1.5-20J BORE			S1K	S1K																
KSG1.5-25J BORE			S1K	S1K	S1K	S1K	S1K	S1K												
KSG1.5-30J BORE						S1K	S1K	S1K	S1K	S1K										
KSG1.5-32J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K								
KSG1.5-36J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
KSG1.5-40J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
KSG2-20 J BORE						S1K	S1K	S1K												
KSG2-25 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K								
KSG2-30 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
KSG2-32 J BORE									S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
KSG2-36 J BORE									S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
KSG2-40 J BORE									S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
KSG2.5-20J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K								
KSG2.5-25J BORE											S1K	S1K	S1K	S1K	S1K					
KSG2.5-30J BORE											S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
KSG2.5-32J BORE											S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
KSG2.5-36J BORE											S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
KSG2.5-40J BORE											S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
KSG3-20J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
KSG3-25J BORE											S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
KSG3-30J BORE											S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
KSG3-32J BORE													S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
KSG3-36J BORE													S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
KSG3-40J BORE													S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K

[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.
⑦ When using S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Recommended mating rack

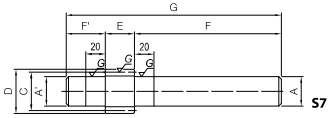
KRGF-H/KRGFD-H
Hardened Ground Racks

Please see Page 226 for more details.

SSGS Module 1.5, 2, 2.5, 3

Ground Spur Pinion Shafts

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Thermal refined, gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for ground part



Catalog Number	Module	No. of teeth	Profile shift coefficient	Shape	Shaft diameter (L)	Shaft length (L)	Pitch dia.	Outside dia.	Face width	Shaft diameter (R)	Shaft length (R)	Total Length
					A'	F'	C	D	E	A	F	G
SSGS1.5-10	***m*1.5**	10	+0.5	S7	12.2	25	15	19.35	15	12.2	100	140
SSGS1.5-11		11	+0.5		13.7		16.5	20.85		13.7		
SSGS1.5-12		12	0		13.7		18	21		13.7		
SSGS1.5-13		13	0		15.2		19.5	22.5		15.2		
SSGS2-10	***m*2**	10	+0.5	S7	16.2	30	20	25.8	20	16.2	120	170
SSGS2-11		11	+0.5		18.2		22	27.8		18.2		
SSGS2-12		12	0		18.2		24	28		18.2		
SSGS2-13		13	0		20.2		26	30		20.2		
SSGS2.5-10	***m*2.5**	10	+0.5	S7	20.2	35	25	32.25	25	20.2	135	195
SSGS2.5-11		11	+0.5		22.7		27.5	34.75		22.7		
SSGS2.5-12		12	0		22.7		30	35		22.7		
SSGS2.5-13		13	0		25.2		32.5	37.5		25.2		
SSGS3-10	***m*3**	10	+0.5	S7	24.2	40	30	38.7	30	24.2	150	220
SSGS3-11		11	+0.5		27.2		33	41.7		27.2		
SSGS3-12		12	0		27.2		36	42		27.2		
SSGS3-13		13	0		30.2		39	45		30.2		

Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog Number
Bending strength	Surface durability	Bending strength	Surface durability			
12.7	3.76	1.30	0.38	0.08~0.16	0.14	**SSGS1.5-10**
14.5	4.61	1.48	0.47		0.17	**SSGS1.5-11**
9.97	4.70	1.02	0.48		0.17	**SSGS1.5-12**
12.1	5.51	1.23	0.56		0.21	**SSGS1.5-13**
30.2	9.07	3.08	0.93	0.10~0.20	0.30	**SSGS2-10**
34.3	11.0	3.50	1.12		0.38	**SSGS2-11**
23.6	11.3	2.41	1.15		0.38	**SSGS2-12**
28.6	13.3	2.92	1.35		0.46	**SSGS2-13**
58.9	17.9	6.01	1.83	0.10~0.20	0.54	**SSGS2.5-10**
67.1	22.0	6.84	2.24		0.68	**SSGS2.5-11**
46.2	22.4	4.71	2.28		0.68	**SSGS2.5-12**
46.6	21.9	4.75	2.23		0.83	**SSGS2.5-13**
102	31.3	10.4	3.19	0.10~0.20	0.89	**SSGS3-10**
96.6	31.9	9.85	3.26		1.11	**SSGS3-11**
66.5	32.6	6.78	3.32		1.11	**SSGS3-12**
80.4	38.3	8.20	3.91		1.35	**SSGS3-13**

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② Products with modules 1.5 or higher and number of teeth of 10 and 11 are profile shifted gears (x = +0.5). Please refer to the table below for the center distance at the time of assembly.
③ The backlash values shown in the table are the theoretical values for the normal direction for the internal ring in mesh with a 30 tooth SSG spur gear.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm). Please use a carbide tool or the like when machining shafts that are close to the tooth root.

Center distance of stock spur gear meshing with profile shifted gear

The center distance of the stock gear (x = 0) that meshes with profile shifted gear (x = +0.5) of m = 1 is shown in the table at right. Please double the module of the gear to be used.

■ Center distance where number of teeth is 12 to 30 (unit: mm)

Number of teeth (x = +0.5) \ Number of teeth (x = 0)	10	11
12	11.4410	11.9428
13	11.9428	12.4446
14	12.4446	12.9462
15	12.9462	13.4477
16	13.4477	13.9492
17	13.9492	14.4505
18	14.4505	14.9518
19	14.9518	15.4530
20	15.4530	15.9542
21	15.9542	16.4553
22	16.4553	16.9564
23	16.9564	17.4574
24	17.4574	17.9583
25	17.9583	18.4592
26	18.4592	18.9601
27	18.9601	19.4610
28	19.4610	19.9618
29	19.9618	20.4625
30	20.4625	20.9633

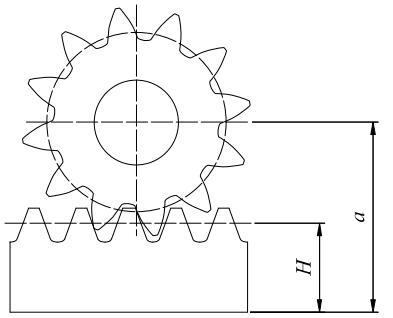
■ Center distance where number of teeth is 32 to 62 (unit: mm)

Number of teeth (x = +0.5) \ Number of teeth (x = 0)	10	11
32	21.4640	21.9647
34	22.4653	22.9660
35	22.9660	23.4666
36	23.4666	23.9671
38	24.4677	24.9683
40	25.4688	25.9693
42	26.4698	26.9703
44	27.4707	27.9712
45	27.9712	28.4716
46	28.4716	28.9721
48	29.4725	29.9729
50	30.4733	30.9736
52	31.4740	31.9744
54	32.4747	32.9750
55	32.9750	33.4754
56	33.4754	33.9757
58	34.4760	34.9763
60	35.4766	35.9769
62	36.4772	36.9774

■ Center distance where number of teeth is 64 to 200 (unit: mm)

Number of teeth (x = +0.5) \ Number of teeth (x = 0)	10	11
64	37.4777	37.9780
65	37.9780	38.4782
66	38.4782	38.9785
68	39.4787	39.9790
70	40.4792	40.9794
72	41.4796	41.9799
75	42.9803	43.4805
76	43.4805	43.9807
80	45.4813	45.9814
84	47.4820	47.9822
85	47.9822	48.4823
88	49.4826	49.9828
90	50.4830	50.9831
95	52.9837	53.4838
100	55.4844	55.9845
120	65.4866	65.9867
150	80.4890	80.9890
200	105.4915	105.9915

Mounting distance of a profile shifted gear and the meshing rack



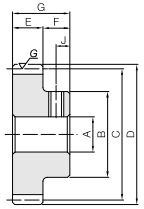
$$a = \frac{zm}{2} + H + xm$$

Where
a : Mounting distance
H : Pitch line height
m : Module
z : No. of teeth
x : Profile shift coefficient

Ground Spur Gears

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C*
Heat treatment	—
Tooth hardness	200 to 270HB
Surface treatment	Black oxide coated except for teeth

* Products with modules of 0.8 or under use S45C thermal refined equivalent materials and are not hardened.



Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Keyway
				A H7	B	C	D	E	F	G	Width × Depth
SSG0.5-30A	***m*0.5**	30	S1T	5	13	15	16	5	7	12	—
SSG0.5-30B				6							
SSG0.5-32A		32		5	14	16	17				
SSG0.5-40B		40		6	18	20	21				
SSG0.5-50B		50		6	22	25	26				
SSG0.5-60A		60		6	28	30	31				
SSG0.5-60B				8							
SSG0.5-70B		70		8	28	35	36				
SSG0.5-80A		80		8	28	40	41				
SSG0.8-20A	***m*0.8**	20	S1T	5	13	16	17.6	8	8	16	—
SSG0.8-20B				6							
SSG0.8-25A		25		6	16	20	21.6				
SSG0.8-30A		30		5	20	24	25.6				
SSG0.8-34A		34		6	22	27.2	28.8				
SSG0.8-40B		40		8	28	32	33.6				
SSG0.8-50A		50		6	28	40	41.6				
SSG0.8-60A		60		6	28	48	49.6				
SSG0.8-60B				8							
SSG0.8-70A		70		6	28	56	57.6				
SSG0.8-80A		80		6	28	64	65.6				

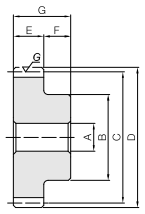
[Caution on Product Characteristics]
① For products having a tapped hole, a set screw is included.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
④ When using S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Socket head screw		Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog Number
Size	J	Bending strength	Surface durability	Bending strength	Surface durability			
M4	3.5	1.63	0.29	0.17	0.030	0~0.08	0.012	**SSG0.5-30A**
							0.011	**SSG0.5-30B**
		1.78	0.34	0.18	0.035		0.014	**SSG0.5-32A**
		2.38	0.55	0.24	0.056		0.023	**SSG0.5-40B**
		3.14	0.89	0.32	0.091		0.037	**SSG0.5-50B**
M4 M5		3.91	1.32	0.40	0.13		0.058	**SSG0.5-60A**
							0.056	**SSG0.5-60B**
M5		3.90	1.53	0.40	0.16		0.066	**SSG0.5-70B**
M4		4.55	2.04	0.46	0.21		0.080	**SSG0.5-80A**
M4	4	3.79	0.53	0.39	0.054	0~0.08	0.018	**SSG0.8-20A**
							0.017	**SSG0.8-20B**
		5.22	0.88	0.53	0.090		0.029	**SSG0.8-25A**
M4		6.70	1.30	0.68	0.13		0.045	**SSG0.8-30A**
M4		7.90	1.71	0.81	0.17		0.056	**SSG0.8-34A**
M5		8.11	2.02	0.83	0.21		0.082	**SSG0.8-40B**
M4		10.7	3.26	1.09	0.33		0.11	**SSG0.8-50A**
M4 M5		13.3	4.83	1.36	0.49		0.15	**SSG0.8-60A**
							0.14	**SSG0.8-60B**
M4		16.0	6.73	1.63	0.69		0.19	**SSG0.8-70A**
M4		18.7	8.97	1.90	0.91		0.24	**SSG0.8-80A**

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth

* The precision grade of J Series products is equivalent to the value shown in the table.



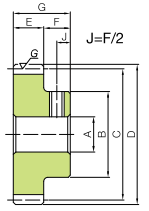
S1

Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SSG1-15	15	S1	6	12	15	17	8	10	18	2.96	1.03	0.30	0.11	0.08~0.16	0.016
SSG1-16	16			13	16	18				3.28	1.19	0.33	0.12		0.019
SSG1-17	17			14	17	19				3.60	1.36	0.37	0.14		0.022
SSG1-18	18			15	18	20				3.93	1.54	0.40	0.16		0.026
SSG1-19	19			16	19	21				4.26	1.73	0.43	0.18		0.030
SSG1-20	20		8	17	20	22				4.60	1.94	0.47	0.20		0.034
SSG1-21	21			18	21	23				4.94	2.14	0.50	0.22		0.035
SSG1-22	22			18	22	24				5.28	2.36	0.54	0.24		0.037
SSG1-23	23			20	23	25				5.63	2.59	0.57	0.26		0.044
SSG1-24	24			20	24	26				5.98	2.83	0.61	0.29		0.046
SSG1-25	25			20	25	27				6.33	3.07	0.65	0.31		0.048
SSG1-26	26			20	26	28				6.68	3.33	0.68	0.34		0.051
SSG1-27	27			20	27	29				7.04	3.60	0.72	0.37		0.054
SSG1-28	28			20	28	30				7.39	3.89	0.75	0.40		0.056
SSG1-29	29			25	29	31				7.75	4.18	0.79	0.43		0.073
SSG1-30	30		10	25	30	32				8.11	4.48	0.83	0.46		0.072
SSG1-32	32			25	32	34				7.37	4.27	0.75	0.43		0.078
SSG1-34	34			25	34	36				7.98	4.84	0.81	0.49		0.084
SSG1-35	35			25	35	37				8.28	5.14	0.84	0.52		0.088
SSG1-36	36			25	36	38				8.59	5.45	0.88	0.56		0.091
SSG1-38	38			30	38	40				9.21	6.10	0.94	0.62		0.12
SSG1-40	40			30	40	42				9.83	6.79	1.00	0.69		0.12
SSG1-42	42			30	42	44				10.5	7.51	1.07	0.77		0.13
SSG1-44	44			30	44	46				11.1	8.28	1.13	0.84		0.14
SSG1-45	45			30	45	47				11.4	8.67	1.16	0.88		0.14
SSG1-48	48		12	30	48	50				12.3	9.92	1.26	1.01		0.16
SSG1-50	50			35	50	52				13.0	10.8	1.32	1.10		0.18
SSG1-55	55			35	55	57				14.6	13.2	1.48	1.34		0.21
SSG1-56	56			35	56	58				14.9	13.7	1.52	1.40		0.21
SSG1-60	60			40	60	62				16.2	15.8	1.65	1.61		0.26
SSG1-64	64			40	64	66				17.4	18.1	1.78	1.84		0.28
SSG1-70	70			40	70	72				19.4	21.8	1.97	2.22		0.32
SSG1-75	75			40	75	77				21.0	25.2	2.14	2.57		0.36
SSG1-80	80		15	50	80	82				22.6	28.8	2.30	2.94		0.44
SSG1-90	90			50	90	92				25.8	36.9	2.64	3.77		0.53
SSG1-100	100			50	100	102				26.9	42.5	2.74	4.34		0.62
SSG1-120	120			50	120	122				32.9	62.5	3.36	6.37		0.84

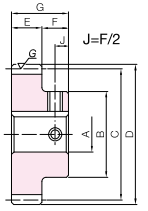
[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations] ① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).

J Series



S1T



S1K

To order J Series products, please specify: Catalog No. + J + BORE.

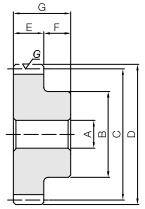
Bore H7	* The product shapes of J Series items are identified by background color.														
Keyway Js9	6	8	10	12	14	15	16	17	18	19	20	22	25	28	30
Screw size	—		4×1.8		5×2.3				6×2.8				8×3.3		
Catalog Number	M4	M5	M4						M5				M6		
SSG1-15 J BORE	S1T														
SSG1-16 J BORE	S1T														
SSG1-17 J BORE	S1T	S1T													
SSG1-18 J BORE	S1T	S1T													
SSG1-19 J BORE	S1T	S1T													
SSG1-20 J BORE	S1T	S1T													
SSG1-21 J BORE		S1T	S1K												
SSG1-22 J BORE		S1T	S1K												
SSG1-23 J BORE		S1T	S1K	S1K											
SSG1-24 J BORE		S1T	S1K	S1K											
SSG1-25 J BORE		S1T	S1K	S1K											
SSG1-26 J BORE		S1T	S1K	S1K											
SSG1-27 J BORE		S1T	S1K	S1K											
SSG1-28 J BORE		S1T	S1K	S1K											
SSG1-29 J BORE		S1T	S1K	S1K	S1K	S1K									
SSG1-30 J BORE			S1K	S1K	S1K	S1K									
SSG1-32 J BORE			S1K	S1K	S1K	S1K									
SSG1-34 J BORE			S1K	S1K	S1K	S1K									
SSG1-35 J BORE			S1K	S1K	S1K	S1K									
SSG1-36 J BORE			S1K	S1K	S1K	S1K									
SSG1-38 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SSG1-40 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SSG1-42 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SSG1-44 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SSG1-45 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SSG1-48 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SSG1-50 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SSG1-55 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SSG1-56 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SSG1-60 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG1-64 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG1-70 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG1-75 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG1-80 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SSG1-90 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SSG1-100 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SSG1-120 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K

[Caution on J series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.
⑦ When using S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Ground Spur Gears

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth

* The precision grade of J Series products is equivalent to the value shown in the table.



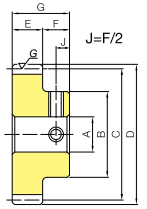
S1

Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SSG1.5-14	14	S1	10	17	21	24	15	14	29	11.1	3.73	1.13	0.38	0.08~0.16	0.048
SSG1.5-15	15			18	22.5	25.5				12.5	4.35	1.27	0.44		0.057
SSG1.5-16	16			20	24	27				13.8	5.02	1.41	0.51		0.070
SSG1.5-17	17			21	25.5	28.5				15.2	5.74	1.55	0.58		0.080
SSG1.5-18	18			22	27	30				16.6	6.51	1.69	0.66		0.091
SSG1.5-19	19		12	23	28.5	31.5				18.0	7.33	1.83	0.75		0.10
SSG1.5-20	20			24	30	33				19.4	8.20	1.98	0.84		0.12
SSG1.5-21	21			25	31.5	34.5				20.8	9.12	2.12	0.93		0.13
SSG1.5-22	22			26	33	36				18.6	8.41	1.89	0.86		0.13
SSG1.5-23	23			27	34.5	37.5				19.8	9.27	2.02	0.95		0.15
SSG1.5-24	24			28	36	39				21.0	10.2	2.14	1.04		0.16
SSG1.5-25	25			30	37.5	40.5				22.2	11.1	2.27	1.13		0.18
SSG1.5-26	26			32	39	42				23.5	12.1	2.39	1.23		0.20
SSG1.5-27	27		15	34	40.5	43.5				24.7	13.1	2.52	1.33		0.21
SSG1.5-28	28			36	42	45				26.0	14.1	2.65	1.44		0.23
SSG1.5-29	29			37	43.5	46.5				27.3	15.2	2.78	1.55		0.25
SSG1.5-30	30			38	45	48				28.5	16.3	2.91	1.66		0.27
SSG1.5-32	32			40	48	51				31.1	18.6	3.17	1.90		0.31
SSG1.5-34	34			42	51	54				33.6	21.1	3.43	2.15		0.35
SSG1.5-35	35			42	52.5	55.5				34.9	22.4	3.56	2.29		0.37
SSG1.5-36	36		18	45	54	57				36.2	23.8	3.70	2.43		0.40
SSG1.5-38	38			45	57	60				38.8	26.6	3.96	2.71		0.44
SSG1.5-40	40			50	60	63				41.5	29.6	4.23	3.02		0.51
SSG1.5-42	42			50	63	66				44.1	32.8	4.50	3.35		0.54
SSG1.5-44	44			50	66	69				46.7	36.2	4.77	3.69		0.58
SSG1.5-45	45		20	50	67.5	70.5				48.1	37.9	4.90	3.86		0.58
SSG1.5-48	48			50	72	75				52.0	43.4	5.31	4.42		0.64
SSG1.5-50	50			60	75	78				54.7	47.2	5.58	4.82		0.77
SSG1.5-55	55			60	82.5	85.5				61.4	57.7	6.26	5.88		0.88
SSG1.5-56	56			60	84	87				62.8	59.9	6.40	6.11		0.91
SSG1.5-60	60			60	90	93				68.1	69.2	6.95	7.06		0.99
SSG1.5-64	64			60	96	99				67.9	73.2	6.92	7.46		1.09
SSG1.5-70	70			60	105	108				75.4	88.4	7.69	9.01		1.26
SSG1.5-75	75			60	112.5	115.5				81.7	102	8.33	10.4		1.41
SSG1.5-80	80			70	120	123				88.0	117	8.97	12.0		1.68
SSG1.5-90	90			70	135	138				101	150	10.3	15.3		2.04
SSG1.5-100	100			70	150	153				113	187	11.6	19.1		2.43

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).

J Series



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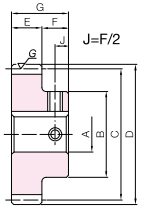


S1K

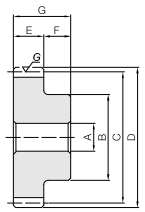
To order J Series products, please specify: Catalog No. + J + BORE.

Bore H7	* The product shapes of J Series items are identified by background color.															
Keyway Js9	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40
Screw size	4×1.8		5×2.3				6×2.8				8×3.3			10×3.3		12×3.3
Catalog Number	M4						M5				M6			M8		
SSG1.5-14 J BORE	S1T2															
SSG1.5-15 J BORE	S1T2															
SSG1.5-16 J BORE	S1K															
SSG1.5-17 J BORE	S1K	S1K														
SSG1.5-18 J BORE	S1K	S1K														
SSG1.5-19 J BORE	S1K	S1K														
SSG1.5-20 J BORE	S1K	S1K	S1K													
SSG1.5-21 J BORE	S1K	S1K	S1K	S1K												
SSG1.5-22 J BORE		S1K	S1K	S1K												
SSG1.5-23 J BORE		S1K	S1K	S1K	S1K											
SSG1.5-24 J BORE		S1K	S1K	S1K	S1K											
SSG1.5-25 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
SSG1.5-26 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
SSG1.5-27 J BORE				S1K	S1K	S1K	S1K	S1K	S1K							
SSG1.5-28 J BORE				S1K	S1K	S1K	S1K	S1K	S1K							
SSG1.5-29 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SSG1.5-30 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SSG1.5-32 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SSG1.5-34 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SSG1.5-35 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SSG1.5-36 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SSG1.5-38 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SSG1.5-40 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG1.5-42 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG1.5-44 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG1.5-45 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG1.5-48 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG1.5-50 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG1.5-55 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG1.5-56 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG1.5-60 J BORE									S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG1.5-64 J BORE									S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG1.5-70 J BORE									S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG1.5-75 J BORE									S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG1.5-80 J BORE									S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SSG1.5-90 J BORE									S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SSG1.5-100 J BORE									S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K

[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.
⑦ When using S1T2 set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth

* The precision grade of J Series products is equivalent to the value shown in the table.



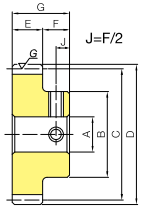
S1

Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SSG2-14	14	S1	12	22	28	32	20	16	36	26.3	9.01	2.69	0.92	0.10~0.20	0.11
SSG2-15	15			24	30	34				29.6	10.5	3.01	1.07		0.14
SSG2-16	16			26	32	36				27.3	10.1	2.78	1.03		0.16
SSG2-17	17			28	34	38				30.0	11.6	3.06	1.18		0.19
SSG2-18	18			30	36	40				32.7	13.1	3.34	1.34		0.22
SSG2-19	19		15	31	38	42				35.5	14.8	3.62	1.51		0.24
SSG2-20	20			32	40	44				38.3	16.6	3.91	1.69		0.25
SSG2-21	21			34	42	46				41.1	18.4	4.20	1.88		0.28
SSG2-22	22			36	44	48				44.0	20.4	4.49	2.08		0.32
SSG2-23	23			37	46	50				46.9	22.5	4.78	2.30		0.35
SSG2-24	24			38	48	52				49.8	24.7	5.08	2.52		0.38
SSG2-25	25			40	50	54				52.7	27.0	5.38	2.75		0.42
SSG2-26	26			42	52	56				55.7	29.3	5.68	2.99		0.46
SSG2-27	27			44	54	58				58.6	31.7	5.98	3.23		0.50
SSG2-28	28			45	56	60				61.6	34.2	6.28	3.49		0.54
SSG2-29	29		18	48	58	62				64.6	36.8	6.59	3.75		0.59
SSG2-30	30			50	60	64				67.6	39.5	6.89	4.03		0.62
SSG2-32	32			50	64	68				73.7	45.2	7.51	4.61		0.68
SSG2-34	34			50	68	72				79.8	51.3	8.13	5.23		0.74
SSG2-35	35			50	70	74				82.8	54.5	8.45	5.56		0.78
SSG2-36	36		20	50	72	76				85.9	57.8	8.76	5.90		0.81
SSG2-38	38			50	76	80				92.1	64.8	9.39	6.60		0.89
SSG2-40	40			60	80	84				98.3	72.1	10.0	7.35		1.06
SSG2-42	42			60	84	88				105	79.9	10.7	8.15		1.14
SSG2-44	44			60	88	92				111	88.1	11.3	8.98		1.22
SSG2-45	45		25	60	90	94				114	92.3	11.6	9.41		1.27
SSG2-48	48			60	96	100				114	97.6	11.6	9.95		1.40
SSG2-50	50			60	100	104				120	106	12.2	10.8		1.45
SSG2-55	55			60	110	114				134	130	13.7	13.3		1.71
SSG2-56	56			60	112	116				137	135	14.0	13.8		1.76
SSG2-60	60			65	120	124				149	156	15.2	15.9		2.05
SSG2-64	64			65	128	132				161	179	16.4	18.3		2.30
SSG2-70	70			70	140	144				179	216	18.2	22.0		2.76
SSG2-75	75			70	150	154				194	249	19.7	25.4		3.12
SSG2-80	80			80	160	164				194	265	19.8	27.0		3.65
SSG2-90	90			80	180	184				222	338	22.6	34.5		4.49
SSG2-100	100			80	200	204				250	421	25.4	43.0		5.42

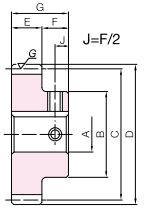
[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations] ① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).

J Series



S1T2



S1K

To order J Series products, please specify: Catalog No. + J + BORE.

Bore H7	* The product shapes of J Series items are identified by background color.															
Keyway Js9	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45
Screw size	4×1.8		5×2.3			6×2.8				8×3.3			10×3.3		12×3.3	14×3.8
Catalog Number	M4					M5				M6			M8			M10
SSG2-14 J BORE	S1T2															
SSG2-15 J BORE	S1K															
SSG2-16 J BORE	S1K	S1K														
SSG2-17 J BORE	S1K	S1K	S1K	S1K												
SSG2-18 J BORE	S1K	S1K	S1K	S1K	S1K											
SSG2-19 J BORE	S1K	S1K	S1K	S1K	S1K	S1K										
SSG2-20 J BORE			S1K	S1K	S1K	S1K										
SSG2-21 J BORE			S1K	S1K	S1K	S1K	S1K	S1K								
SSG2-22 J BORE			S1K	S1K	S1K	S1K	S1K	S1K								
SSG2-23 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SSG2-24 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SSG2-25 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SSG2-26 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SSG2-27 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SSG2-28 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SSG2-29 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SSG2-30 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SSG2-32 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SSG2-34 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SSG2-35 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SSG2-36 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SSG2-38 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SSG2-40 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SSG2-42 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SSG2-44 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SSG2-45 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SSG2-48 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SSG2-50 J BORE										S1K	S1K	S1K	S1K	S1K		
SSG2-55 J BORE										S1K	S1K	S1K	S1K	S1K		
SSG2-56 J BORE										S1K	S1K	S1K	S1K	S1K		
SSG2-60 J BORE										S1K	S1K	S1K	S1K	S1K		
SSG2-64 J BORE										S1K	S1K	S1K	S1K	S1K		
SSG2-70 J BORE										S1K	S1K	S1K	S1K	S1K	S1K	
SSG2-75 J BORE										S1K	S1K	S1K	S1K	S1K	S1K	
SSG2-80 J BORE										S1K	S1K	S1K	S1K	S1K	S1K	S1K
SSG2-90 J BORE										S1K	S1K	S1K	S1K	S1K	S1K	S1K
SSG2-100 J BORE										S1K	S1K	S1K	S1K	S1K	S1K	S1K

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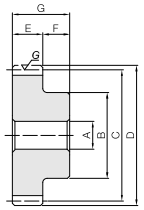
⑦ When using S1T2 set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth

* The precision grade of J Series products is equivalent to the value shown in the table.



S1

Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SSG2.5-14	14	S1	15	28	35	40	25	18	43	42.9	14.9	4.37	1.52	0.10~0.20	0.22
SSG2.5-15	15			30	37.5	42.5				48.1	17.4	4.91	1.77		0.26
SSG2.5-16	16			32	40	45				53.3	20.1	5.44	2.05		0.30
SSG2.5-17	17			35	42.5	47.5				58.6	23.0	5.97	2.34		0.35
SSG2.5-18	18			38	45	50				63.9	26.1	6.52	2.66		0.41
SSG2.5-19	19		18	39	47.5	52.5				69.4	29.4	7.07	3.00		0.46
SSG2.5-20	20			40	50	55				74.8	32.9	7.63	3.36		0.48
SSG2.5-21	21			42	52.5	57.5				80.4	36.7	8.20	3.74		0.53
SSG2.5-22	22			44	55	60				86.0	40.6	8.77	4.14		0.60
SSG2.5-23	23			46	57.5	62.5				91.6	44.8	9.34	4.57		0.66
SSG2.5-24	24		20	48	60	65				97.3	49.2	9.92	5.02		0.72
SSG2.5-25	25			50	62.5	67.5				103	53.8	10.5	5.48		0.77
SSG2.5-26	26			54	65	70				109	58.4	11.1	5.95		0.87
SSG2.5-27	27			56	67.5	72.5				115	63.2	11.7	6.44		0.94
SSG2.5-28	28			60	70	75				120	68.2	12.3	6.95		1.05
SSG2.5-29	29			60	72.5	77.5				126	73.3	12.9	7.48		1.10
SSG2.5-30	30			65	75	80				132	78.7	13.5	8.03		1.23
SSG2.5-32	32			70	80	85				144	90.1	14.7	9.19		1.42
SSG2.5-34	34			70	85	90				156	102	15.9	10.4		1.55
SSG2.5-35	35			70	87.5	92.5				162	109	16.5	11.1		1.62
SSG2.5-36	36		25	70	90	95				168	115	17.1	11.8		1.69
SSG2.5-38	38			70	95	100				180	129	18.3	13.2		1.83
SSG2.5-40	40			70	100	105				177	133	18.1	13.6		1.92
SSG2.5-42	42			75	105	110				188	147	19.2	15.0		2.16
SSG2.5-44	44			75	110	115				200	163	20.4	16.6		2.32
SSG2.5-45	45			75	112.5	117.5				205	170	20.9	17.4		2.41
SSG2.5-48	48			75	120	125				222	195	22.7	19.9		2.68
SSG2.5-50	50			80	125	130				234	213	23.8	21.7		2.95
SSG2.5-55	55			80	137.5	142.5				262	260	26.8	26.5		3.46
SSG2.5-56	56			80	140	145				268	270	27.3	27.5		3.57
SSG2.5-60	60			80	150	155				291	311	29.7	31.8		4.01
SSG2.5-70	70			80	175	180				324	399	33.1	40.7		5.26
SSG2.5-75	75			90	187.5	192.5				351	461	35.8	47.0		6.15
SSG2.5-80	80			90	200	205				378	527	38.6	53.7		6.90

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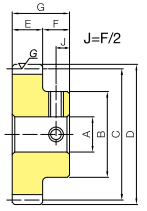
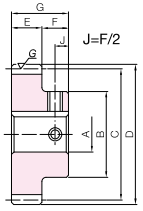
J Series



S1T2



S1K

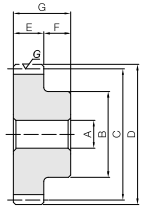
To order J Series products, please specify: Catalog No. + J + BORE.

Bore H7	* The product shapes of J Series items are identified by background color.														
Keyway Js9	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Screw size	5×2.3			6×2.8				8×3.3			10×3.3		12×3.3	14×3.8	
Catalog Number	M4			M5				M6			M8			M10	
SSG2.5-14 J BORE	S1T2														
SSG2.5-15 J BORE	S1K	S1K													
SSG2.5-16 J BORE	S1K	S1K	S1K	S1K											
SSG2.5-17 J BORE	S1K	S1K	S1K	S1K	S1K	S1K									
SSG2.5-18 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG2.5-19 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG2.5-20 J BORE				S1K	S1K	S1K	S1K								
SSG2.5-21 J BORE				S1K	S1K	S1K	S1K	S1K							
SSG2.5-22 J BORE				S1K	S1K	S1K	S1K	S1K							
SSG2.5-23 J BORE				S1K	S1K	S1K	S1K	S1K							
SSG2.5-24 J BORE				S1K	S1K	S1K	S1K	S1K	S1K						
SSG2.5-25 J BORE						S1K	S1K	S1K	S1K	S1K					
SSG2.5-26 J BORE						S1K	S1K	S1K	S1K	S1K	S1K				
SSG2.5-27 J BORE						S1K	S1K	S1K	S1K	S1K	S1K				
SSG2.5-28 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG2.5-29 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG2.5-30 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG2.5-32 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SSG2.5-34 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SSG2.5-35 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SSG2.5-36 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SSG2.5-38 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SSG2.5-40 J BORE								S1K	S1K	S1K	S1K	S1K	S1K		
SSG2.5-42 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG2.5-44 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG2.5-45 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG2.5-48 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG2.5-50 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG2.5-55 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG2.5-56 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG2.5-60 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG2.5-70 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG2.5-75 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SSG2.5-80 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K

[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.
⑦ When using S1T2 set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth

* The precision grade of J Series products is equivalent to the value shown in the table.



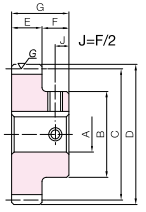
S1

Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SSG3-14	14	S1	16	34	42	48	30	20	50	74.1	26.1	7.55	2.66	0.10~0.20	0.39
SSG3-15	15			36	45	51				83.1	30.5	8.48	3.11		0.46
SSG3-16	16			38	48	54				92.1	35.2	9.39	3.59		0.53
SSG3-17	17			37	51	57				101	40.3	10.3	4.11		0.57
SSG3-18	18			40	54	60				110	45.8	11.3	4.67		0.66
SSG3-19	19		20	45	57	63				120	51.6	12.2	5.26		0.77
SSG3-20	20			50	60	66				129	57.8	13.2	5.90		0.85
SSG3-21	21			52	63	69				139	64.4	14.2	6.57		0.94
SSG3-22	22			54	66	72				149	71.3	15.1	7.28		1.04
SSG3-23	23			56	69	75				158	78.7	16.1	8.02		1.14
SSG3-24	24			58	72	78				168	86.4	17.1	8.81		1.25
SSG3-25	25			60	75	81				178	94.5	18.1	9.64		1.36
SSG3-26	26			62	78	84				188	103	19.2	10.5		1.48
SSG3-27	27			65	81	87				198	111	20.2	11.3		1.61
SSG3-28	28			70	84	90				208	120	21.2	12.2		1.79
SSG3-29	29		25	70	87	93				218	129	22.2	13.2		1.88
SSG3-30	30			75	90	96				228	138	23.3	14.1		2.00
SSG3-32	32			75	96	102				229	146	23.4	14.9		2.21
SSG3-34	34			75	102	108				248	166	25.3	17.0		2.43
SSG3-35	35			80	105	111				258	177	26.3	18.0		2.64
SSG3-36	36			80	108	114				268	188	27.3	19.1		2.75
SSG3-38	38			80	114	120				287	210	29.2	21.4		3.00
SSG3-40	40			80	120	126				306	234	31.2	23.9		3.26
SSG3-42	42			80	126	132				326	260	33.2	26.5		3.53
SSG3-44	44			80	132	138				345	286	35.2	29.2		3.82
SSG3-45	45		30	80	135	141				355	300	36.2	30.6		3.97
SSG3-48	48			85	144	150				384	343	39.2	35.0		4.53
SSG3-50	50			85	150	156				404	374	41.2	38.1		4.78
SSG3-55	55			90	165	171				421	423	42.9	43.2		5.76
SSG3-56	56			90	168	174				430	439	43.9	44.8		5.94
SSG3-60	60			100	180	186				467	508	47.6	51.8		6.95
SSG3-70	70			100	210	216				560	699	57.1	71.3		9.11
SSG3-75	75			100	225	231				607	806	61.9	82.2		10.3
SSG3-80	80			100	240	246				654	921	66.7	93.9		11.6

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).

J Series



S1K

To order J Series products, please specify: **Catalog No. + J + BORE.**

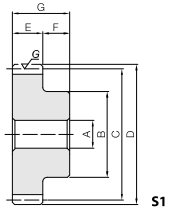
Bore H7	* The product shapes of J Series items are identified by background color.													
Keyway Js9	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Screw size	5×2.3		6×2.8				8×3.3			10×3.3		12×3.3	14×3.8	
Catalog Number	M4		M5				M6			M8			M10	
SSG3-14 J BORE	S1K	S1K												
SSG3-15 J BORE	S1K	S1K	S1K	S1K										
SSG3-16 J BORE	S1K	S1K	S1K	S1K	S1K	S1K								
SSG3-17 J BORE	S1K	S1K	S1K	S1K	S1K	S1K								
SSG3-18 J BORE	S1K	S1K	S1K	S1K	S1K	S1K								
SSG3-19 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SSG3-20 J BORE					S1K	S1K	S1K	S1K	S1K					
SSG3-21 J BORE					S1K	S1K	S1K	S1K	S1K					
SSG3-22 J BORE					S1K	S1K	S1K	S1K	S1K	S1K				
SSG3-23 J BORE					S1K	S1K	S1K	S1K	S1K	S1K				
SSG3-24 J BORE					S1K	S1K	S1K	S1K	S1K	S1K				
SSG3-25 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG3-26 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG3-27 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SSG3-28 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SSG3-29 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SSG3-30 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG3-32 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG3-34 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG3-35 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG3-36 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG3-38 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG3-40 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG3-42 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG3-44 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG3-45 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SSG3-48 J BORE							S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SSG3-50 J BORE									S1K	S1K	S1K	S1K	S1K	S1K
SSG3-55 J BORE									S1K	S1K	S1K	S1K	S1K	S1K
SSG3-56 J BORE									S1K	S1K	S1K	S1K	S1K	S1K
SSG3-60 J BORE									S1K	S1K	S1K	S1K	S1K	S1K
SSG3-70 J BORE									S1K	S1K	S1K	S1K	S1K	S1K
SSG3-75 J BORE									S1K	S1K	S1K	S1K	S1K	S1K
SSG3-80 J BORE									S1K	S1K	S1K	S1K	S1K	S1K

[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.

Ground Spur Gears NEW

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth (excludes semi-custom products)

* The precision grade of J Series products is equivalent to the value shown in the table.



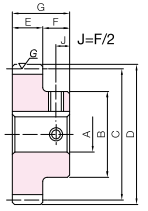
S1

Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SSG4-14	14	S1	20	40	56	64	40	25	65	176	63.4	17.9	6.47	0.10~0.20	0.86
SSG4-15	15			45	60	68				197	74.1	20.1	7.55		1.04
SSG4-16	16			50	64	72				218	85.6	22.3	8.73		1.24
SSG4-18	18			60	72	80				262	111	26.7	11.4		1.67
SSG4-20	20			65	80	88				307	141	31.3	14.3		2.07
SSG4-22	22		25	70	88	96				352	174	35.9	17.7		2.50
SSG4-24	24			75	96	104				368	194	37.5	19.8		2.98
SSG4-25	25			80	100	108				389	213	39.7	21.7		3.29
SSG4-28	28			85	112	120				455	270	46.4	27.5		4.05
SSG4-30	30			90	120	128				499	313	50.9	31.9		4.64
SSG4-32	32			90	128	136				544	358	55.5	36.5		5.04
SSG4-35	35			90	140	148				612	432	62.4	44.0		5.83
SSG4-36	36			90	144	152				634	458	64.7	46.7		6.11
SSG4-40	40			90	160	168				674	529	68.7	54.0		7.31
SSG4-42	42			90	168	176				717	586	73.1	59.7		7.96
SSG4-44	44		30	90	176	184				760	646	77.5	65.8		8.53
SSG4-45	45			90	180	188				781	677	79.6	69.0		8.88
SSG4-48	48			100	192	200				846	774	86.3	79.0		10.3
SSG4-50	50			100	200	208				889	842	90.7	85.9		11.0
SSG4-55	55			100	220	228				998	1030	102	105		13.1
SSG4-56	56			110	224	232				1020	1060	104	109		13.9
SSG4-60	60			110	240	248				1110	1230	113	125		15.7
SSG4-62S	62	S1	30	120	248	256	40	25	65	1240	1360	127	138	0.10~0.20	17.0
SSG4-64S	64			130	256	264				1290	1450	131	148		18.4
SSG4-65S	65			130	260	268				1310	1500	134	153		18.9
SSG4-66S	66			130	264	272				1340	1550	136	158		19.4
SSG4-68S	68			140	272	280				1380	1650	141	168		20.9
SSG4-70S	70			140	280	288				1430	1750	146	178		22.0
SSG4-80S	80			160	320	328				1550	2150	158	219		28.8
SSG4-90S	90		40	180	360	368				1770	2760	181	281		36.3
SSG4-100S	100			200	400	408				2000	3440	204	351		45.0
SSG4-110S	110			220	440	448				2220	4190	226	427		54.6
SSG4-120S	120			240	480	488				2450	5010	249	511		65.1

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
③ Products with S at the end of the Catalog No. are semi-custom stock products. The number of orders must be 5 or less, and the delivery will take about 25 business days after the order is received.
Please see Page 34 for more details.
④ For semi-custom standard products weighing 15 kg or more, eyebolt mounting screws (2-M12 depth 25 mm) are machined. Confirm the PCD of the screw on the website.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).

J Series



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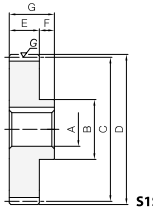


S1SK

To order J Series products, please specify: Catalog No. + J + BORE.

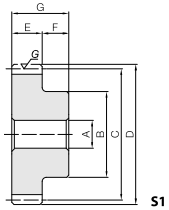
Bore H7	* The product shapes of J Series items are identified by background color.																						
Keyway Js9	20	22	25	28	30	32	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	
Screw size	6×2.8		8×3.3			10×3.3		12×3.3	14×3.8		16×4.3	18×4.4		20×4.9		22×5.4		25×5.4		28×6.4			
Catalog Number	M5		M6			M8			M10			M12			M16			—					
SSG4-14 J BORE	S1K	S1K																					
SSG4-15 J BORE	S1K	S1K	S1K																				
SSG4-16 J BORE	S1K	S1K	S1K	S1K	S1K																		
SSG4-18 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K																
SSG4-20 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K															
SSG4-22 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K															
SSG4-24 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K														
SSG4-25 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K													
SSG4-28 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K													
SSG4-30 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG4-32 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG4-35 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG4-36 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG4-40 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG4-42 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG4-44 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG4-45 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG4-48 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SSG4-50 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SSG4-55 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SSG4-56 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SSG4-60 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SSG4-62SJ BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SSG4-64SJ BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SSG4-65SJ BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SSG4-66SJ BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SSG4-68SJ BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG4-70SJ BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG4-80SJ BORE					S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK						
SSG4-90SJ BORE								S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK			
SSG4-100SJ BORE								S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	
SSG4-110SJ BORE								S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	
SSG4-120SJ BORE								S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	

[Caution on J series]
① J series inventory products with module 4 or higher require a lead-time for shipping of 7 working days (excludes the day ordered).
Because the machining starts immediately, we cannot accept cancellations. Semi-custom J series products take about 35 working days after the order is received.
Please see Page 34 for more details.
② Products with module 4 or higher can be ordered up to 5 units.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.

Ground Spur Gears NEW

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth (excludes semi-custom products)

* The precision grade of J Series products is equivalent to the value shown in the table.



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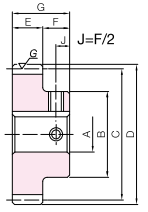
Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N-m) Bending strength	Allowable torque (N-m) Surface durability	Allowable torque (kgf-m) Bending strength	Allowable torque (kgf-m) Surface durability	Backlash (mm)	Weight (kg)
SSG5-20	20			82	100	110				553	259	56.4	26.5		3.83
SSG5-25	25	S1	25	105	125	135	50	25	75	760	426	77.5	43.4	0.10~0.22	6.23
SSG5-30	30			120	150	160				975	623	99.4	63.5		8.87
SSG5-32S	32			120	160	170				1150	735	117	75.0		9.82
SSG5-35S	35			130	175	185				1300	886	132	90.0		11.8
SSG5-36S	36			130	180	190				1340	939	137	96.0		12.3
SSG5-40S	40			140	200	210				1420	1080	145	110		15.1
SSG5-42S	42			140	210	220				1510	1200	154	122		16.3
SSG5-44S	44		25	150	220	230				1600	1320	163	135		18.1
SSG5-45S	45			150	225	235				1640	1380	168	141		18.8
SSG5-48S	48			150	240	250				1780	1580	182	161		20.9
SSG5-50S	50			150	250	260				1870	1720	191	176		22.5
SSG5-55S	55	S1		150	275	285	50	25	75	2100	2110	214	215	0.10~0.22	26.5
SSG5-56S	56			150	280	290				2150	2190	219	223		27.4
SSG5-60S	60			150	300	310				2330	2530	238	258		30.9
SSG5-62S	62			160	310	320				2420	2710	247	276		33.2
SSG5-64S	64			160	320	330				2340	2690	238	274		35.1
SSG5-65S	65			160	325	335				2380	2780	243	283		36.1
SSG5-66S	66		30	170	330	340				2420	2870	247	292		37.6
SSG5-68S	68			170	340	350				2510	3050	256	311		39.7
SSG5-70S	70			180	350	360				2600	3250	265	331		42.3
SSG5-80S	80			200	400	410				3030	4300	309	438		55.1
SSG5-90S	90		40	230	450	460				3460	5480	353	559		69.8
SSG6-20	20		25	100	120	132				955	457	97.4	46.6		6.71
SSG6-25	25	S1	30	125	150	162	60	28	88	1310	747	134	76.2	0.10~0.22	10.5
SSG6-30	30		30	150	180	192				1560	1020	160	104		15.4
SSG6-32S	32			150	192	204				1840	1190	187	121		17.0
SSG6-35S	35			160	210	222				2070	1440	211	146		20.2
SSG6-36S	36			160	216	228				2140	1520	218	155		21.2
SSG6-40S	40			170	240	252				2450	1900	250	194		25.8
SSG6-42S	42			170	252	264				2610	2100	266	215		28.0
SSG6-44S	44		30	170	264	276				2760	2320	282	237		30.3
SSG6-45S	45			180	270	282				2840	2430	290	248		32.1
SSG6-48S	48			180	288	300				3080	2790	314	284		35.8
SSG6-50S	50			180	300	312				3230	3030	330	309		38.4
SSG6-55S	55	S1		180	330	342	60	28	88	3370	3440	344	351	0.10~0.22	45.4
SSG6-56S	56			180	336	348				3440	3570	351	364		46.9
SSG6-60S	60			180	360	372				3740	4130	381	421		53.1
SSG6-62S	62			190	372	384				3890	4430	397	451		56.6
SSG6-64S	64			190	384	396				4040	4730	412	483		59.9
SSG6-65S	65			200	390	402				4110	4890	419	499		62.3
SSG6-66S	66		40	200	396	408				4190	5050	427	515		64.1
SSG6-68S	68			200	408	420				4340	5380	442	548		67.6
SSG6-70S	70			210	420	432				4480	5710	457	582		72.0
SSG6-80S	80			240	480	492				5230	7520	534	766		94.3

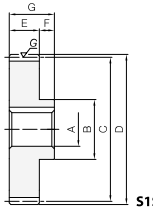
[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
③ Products with S at the end of the Catalog No. are semi-custom stock products. The number of orders must be 5 or less, and the delivery will take about 25 business days after the order is received.
Please see Page 34 for more details.
④ For semi-custom standard products weighing 15 kg or more, eyebolt mounting screws (2-M12 depth 25 mm) are machined. Confirm the PCD of the screw on the website.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).

J Series



S1K



S1SK

To order J Series products, please specify: Catalog No. + J + BORE.

Bore H7	* The product shapes of J Series items are identified by background color.																						
Keyway Js9	25	28	30	32	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	120	130	140
Screw size	8×3.3			10×3.3		12×3.3	14×3.8		16×4.3	18×4.4		20×4.9		22×5.4				28×6.4			32×7.4		36×8.4
Catalog Number	M6			M8			M10		M12			M16				M20					—		
SSG5-20 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K															
SSG5-25 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG5-30 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SSG5-32 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG5-35 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG5-36 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG5-40 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SSG5-42 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SSG5-44 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG5-45 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG5-48 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG5-50 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG5-55 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG5-56 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG5-60 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG5-62 SJ BORE			S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK								
SSG5-64 SJ BORE			S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK								
SSG5-65 SJ BORE			S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK								
SSG5-66 SJ BORE			S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK							
SSG5-68 SJ BORE			S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK							
SSG5-70 SJ BORE			S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK					
SSG5-80 SJ BORE			S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK			
SSG5-90 SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK			
SSG6-20 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG6-25 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K									
SSG6-30 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K									
SSG6-32 SJ BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG6-35 SJ BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG6-36 SJ BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SSG6-40 SJ BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SSG6-42 SJ BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SSG6-44 SJ BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SSG6-45 SJ BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SSG6-48 SJ BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SSG6-50 SJ BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SSG6-55 SJ BORE			S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK					
SSG6-56 SJ BORE			S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK					
SSG6-60 SJ BORE			S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK					
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SSG6-64 SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK		
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SSG6-66 SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK		
SSG6-68 SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK		
SSG6-70 SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK		
SSG6-80 SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK

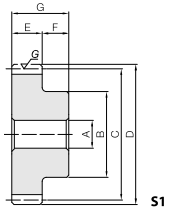
[Caution on J series]
① J series inventory products with module 4 or higher require a lead-time for shipping of 7 working days (excludes the day ordered).
Because the machining starts immediately, we cannot accept cancellations. Semi-custom J series products take about 35 working days after the order is received.
Please see Page 34 for more details.
② Products with module 4 or higher can be ordered up to 5 units.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.

For updated data, please see the KHK Web Catalog.

Ground Spur Gears NEW

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	—

* The precision grade of J Series products is equivalent to the value shown in the table.



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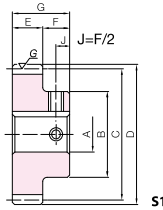
Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N-m) Bending strength	Allowable torque (N-m) Surface durability	Allowable torque (kgf-m) Bending strength	Allowable torque (kgf-m) Surface durability	Backlash (mm)	Weight (kg)
SSG8-20S	20			130	160	176				2300	573	235	58.0		14.9
SSG8-25S	25			160	200	216				2920	940	298	96.0		23.4
SSG8-30S	30			190	240	256				3750	1400	382	143		33.8
SSG8-32S	32			200	256	272				4080	1490	416	152		38.3
SSG8-35S	35			210	280	296				4590	1800	468	183		45.2
SSG8-36S	36			210	288	304				4760	1900	486	194		47.3
SSG8-40S	40			220	320	336				5060	2380	516	242		57.2
SSG8-42S	42	S1	30	230	336	352	75	35	110	5380	2630	548	268	0.10~0.22	63.0
SSG8-44S	44			230	352	368				5700	2900	581	296		68.1
SSG8-45S	45			230	360	376				5860	3040	598	310		70.7
SSG8-48S	48			240	384	400				6350	3480	647	355		80.0
SSG8-50S	50			240	400	416				6670	3790	680	387		85.8
SSG8-55S	55			240	440	456				7490	4300	764	439		101
SSG8-56S	56			240	448	464				7650	4470	780	456		105
SSG8-60S	60			240	480	496				8310	5170	848	527		118
SSG10-20S	20			160	200	220				3990	1920	406	196		27.2
SSG10-25S	25			200	250	270				5480	3100	559	317		43.3
SSG10-30S	30			240	300	320				7030	4550	717	464		62.9
SSG10-32S	32	S1	40	250	320	340	90	40	130	7990	4840	725	493	0.10~0.22	71.0
SSG10-35S	35			260	350	370				8290	5840	815	596		83.4
SSG10-36S	36			270	360	380				9480	6200	845	632		88.6
SSG10-40S	40			280	400	420				9480	7740	967	789		107

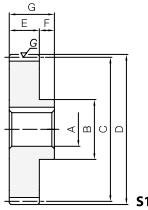
[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
③ Products with S at the end of the Catalog No. are semi-custom stock products. The number of orders must be 5 or less, and the delivery will take about 25 business days after the order is received.
Please see Page 34 for more details.
④ For semi-custom standard products weighing 15 kg or more, eyebolt mounting screws (2-M12 depth 25 mm) are machined. Confirm the PCD of the screw on the website.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).

J Series



S1K



S1SK

To order J Series products, please specify: Catalog No. + J + BORE.

Bore H7	* The product shapes of J Series items are identified by background color.																								
Keyway Js9	30	32	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	120	130	140	150	160	170	180
Screw size	8×3.3	10×3.3		12×3.3	14×3.8		16×4.3	18×4.4		20×4.9		22×5.4				28×6.4			32×7.4		36×8.4		40×9.4		45×10.4
Catalog Number	M6	M8			M10		M12			M16						M20			—						
SSG8-20 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K																
SSG8-25 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG8-30 SJ BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SSG8-32 SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK							
SSG8-35 SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK							
SSG8-36 SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK							
SSG8-40SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK						
SSG8-42 SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK					
SSG8-44 SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK					
SSG8-45 SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK					
SSG8-48 SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK				
SSG8-50 SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK				
SSG8-55 SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK				
SSG8-56 SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK				
SSG8-60 SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK				
SSG10-20 SJ BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SSG10-25 SJ BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SSG10-30 SJ BORE				S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK				
SSG10-32 SJ BORE				S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK			
SSG10-35 SJ BORE				S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK		
SSG10-36 SJ BORE				S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	
SSG10-40 SJ BORE				S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK

[Caution on J series]
① Semi-custom J series products take about 35 working days after the order is received. Please see Page 34 for more details.
② Products with module 4 or higher can be ordered up to 5 units.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth and portions given secondary operation

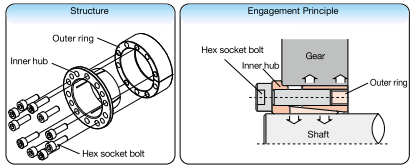
* The precision grade of F Series products is equivalent to the value shown in the table.

Features of F Series

- No rattling of shaft and gear when fastening
- Freely positionable mounting for easy meshing of teeth
- Easily mounted and removed for repeated use
- The bushing slides when overloaded to reduce damage to the gears.

Structure and Engagement Principles

The structure consists of an outer ring and inner ring with split grooves in the tapered part, and hexagon socket head cap screws that convert the force into tightening strength.
In principle, the tightening strength of hexagon socket head cap screws spreads the outer and inner rings by taper engagement, and the gear and shaft become fastened by surface pressure.



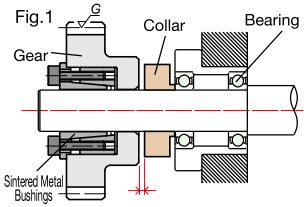
Catalog Number	No. of teeth	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Allowable torque (N-m) Bending strength	Surface durability
SSG2-25	25	40	50	54			52.7	27.0
SSG2-26	26	42	52	56			55.7	29.3
SSG2-27	27	44	54	58			58.6	31.7
SSG2-28	28	45	56	60			61.6	34.2
SSG2-29	29	48	58	62			64.6	36.8
SSG2-30	30	50	60	64			67.6	39.5
SSG2-32	32	50	64	68			73.7	45.2
SSG2-34	34	50	68	72			79.8	51.3
SSG2-35	35	50	70	74			82.8	54.5
SSG2-36	36	50	72	76			85.9	57.8
SSG2-38	38	50	76	80			92.1	64.8
SSG2-40	40	60	80	84			98.3	72.1
SSG2-42	42	60	84	88	20	16	105	79.9
SSG2-44	44	60	88	92			111	88.1
SSG2-45	45	60	90	94			114	92.3
SSG2-48	48	60	96	100			114	97.6
SSG2-50	50	60	100	104			120	106
SSG2-55	55	60	110	114			134	130
SSG2-56	56	60	112	116			137	135
SSG2-60	60	65	120	124			149	156
SSG2-64	64	65	128	132			161	179
SSG2-70	70	70	140	144			179	216
SSG2-75	75	70	150	154			194	249
SSG2-80	80	80	160	164			194	265
SSG2-90	90	80	180	184			222	338
SSG2-100	100	80	200	204			250	421

* For the backlash of each product, please refer to the dimension table of the original product.

Mounting Method and Precautions

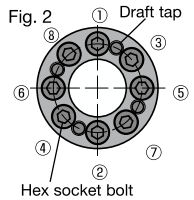
① Shaft diameter recommended tolerance is h7. The limit is h8, but we recommend h6 when minimizing runout.
Use 1.6a as reference for the surface roughness of the shaft diameter.
② Wipe away any debris, dirt or oil on the shaft surface and hole of the fastened section with thinner or the like, and lightly apply hydraulic oil #68. Do not apply molybdenum-based oil or oil with additives, as this may cause reduced fastening torque or slippage.
③ Pass completely through the shaft while pressing the bushing flange against the gear before tightening. Removal will not be possible, so be sure to leave a clearance of 1mm or more on the gear rear surface side. (Fig.1)
④ Use a torque wrench to fasten bolts on opposite sides when tightening.
First tighten at 1/4 of the regulated torque, then at 1/2 of the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
⑤ If the shaft has a keyway, the fastened section contact area is reduced and the transmission rate is decreased by 15 to 20%.

Fig.1



Clearance (Assembly conditions require clearance of 1 mm or more)

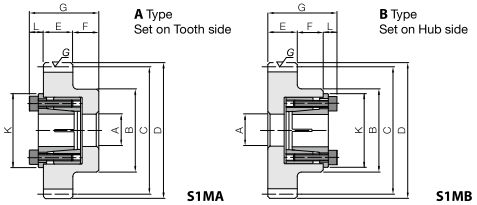
Fig. 2



Removal Method and Precautions

① Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
② Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is complete.
③ The washer and thread surfaces will be roughened, compromising tightening strength, if the bolts are reused. Consequently, we recommend using new bolts of the same size.

F Series



To order F Series products, please specify: **Catalog Number + F + BORE + Type.**

A Type Only
A/B Types

Bore A / Catalog Number	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
SSG2-25 F Bore Type	S1MA/S1MB	S1MA	S1MA												
SSG2-26 F Bore Type	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA										
SSG2-27 F Bore Type	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA										
SSG2-28 F Bore Type	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA										
SSG2-29 F Bore Type	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB										
SSG2-30 F Bore Type				S1MA/S1MB	S1MA/S1MB										
SSG2-32 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA									
SSG2-34 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA									
SSG2-35 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA									
SSG2-36 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA							
SSG2-38 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA							
SSG2-40 F Bore Type						S1MA/S1MB	S1MA	S1MA	S1MA	S1MA	S1MA				
SSG2-42 F Bore Type						S1MA/S1MB	S1MA	S1MA	S1MA	S1MA	S1MA				
SSG2-44 F Bore Type						S1MA/S1MB	S1MA	S1MA	S1MA	S1MA	S1MA				
SSG2-45 F Bore Type						S1MA/S1MB	S1MA	S1MA	S1MA	S1MA	S1MA				
SSG2-48 F Bore Type						S1MA/S1MB	S1MA	S1MA	S1MA	S1MA	S1MA				
SSG2-50 F Bore Type								S1MA	S1MA	S1MA	S1MA				
SSG2-55 F Bore Type								S1MA	S1MA	S1MA	S1MA				
SSG2-56 F Bore Type								S1MA	S1MA	S1MA	S1MA				
SSG2-60 F Bore Type								S1MA	S1MA	S1MA	S1MA	S1MA			
SSG2-64 F Bore Type								S1MA	S1MA	S1MA	S1MA	S1MA			
SSG2-70 F Bore Type								S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA		
SSG2-75 F Bore Type								S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA		
SSG2-80 F Bore Type								S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG2-90 F Bore Type								S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG2-100 F Bore Type								S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
Bore A	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Ref. slipping torque N·m	70	75	110	115	120	220	290	350	380	410	440	720	810	1200	1500
Ref. thrust load kN	9.46	9.46	12.6	12.6	12.6	21.6	26	27.2	27	27	27	41.1	40.2	52.9	56.3
Sintered Metal Bushings L	6.5					8			8.5			10		10.5	
Sintered Metal Bushings K	31.5	33	33.5	34.5	35.5	42	44	47	50	52	54	62	67	72	77
Total Length G	42.5					44			44.5			46		46.5	
Hex socket bolt Qty	6		8						10			8	10		
Hex socket bolt Size	M4×15					M5×18						M6×20			
Hex socket bolt Tightening torque N·m	3.9					8.8						15.7			
Bushing weight (g)	66	75	75	80	81	144	165	188	195	208	219	325	380	435	485

[Caution on F Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Additionally the machined parts of the fastener components and gears are not black oxide coated.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth and portions given secondary operation

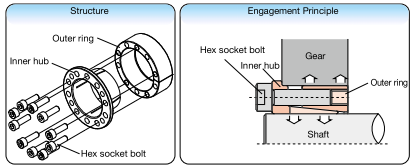
* The precision grade of F Series products is equivalent to the value shown in the table.

Features of F Series

- No rattling of shaft and gear when fastening
- Freely positionable mounting for easy meshing of teeth
- Easily mounted and removed for repeated use
- The bushing slides when overloaded to reduce damage to the gears.

Structure and Engagement Principles

The structure consists of an outer ring and inner ring with split grooves in the tapered part, and hexagon socket head cap screws that convert the force into tightening strength.
In principle, the tightening strength of hexagon socket head cap screws spreads the outer and inner rings by taper engagement, and the gear and shaft become fastened by surface pressure.



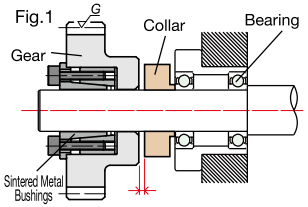
Catalog Number	No. of teeth	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Allowable torque (N-m) Bending strength	Surface durability
SSG2.5-30	30	65	75	80			132	78.7
SSG2.5-32	32	70	80	85			144	90.1
SSG2.5-34	34	70	85	90			156	102
SSG2.5-35	35	70	87.5	92.5			162	109
SSG2.5-36	36	70	90	95			168	115
SSG2.5-38	38	70	95	100			180	129
SSG2.5-40	40	70	100	105			177	133
SSG2.5-42	42	75	105	110			188	147
SSG2.5-44	44	75	110	115	25	18	200	163
SSG2.5-45	45	75	112.5	117.5			205	170
SSG2.5-48	48	75	120	125			222	195
SSG2.5-50	50	80	125	130			234	213
SSG2.5-55	55	80	137.5	142.5			262	260
SSG2.5-56	56	80	140	145			268	270
SSG2.5-60	60	80	150	155			291	311
SSG2.5-70	70	80	175	180			324	399
SSG2.5-75	75	90	187.5	192.5			351	461
SSG2.5-80	80	90	200	205			378	527

* For the backlash of each product, please refer to the dimension table of the original product.

Mounting Method and Precautions

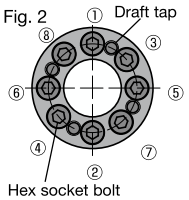
① Shaft diameter recommended tolerance is h7. The limit is h8, but we recommend h6 when minimizing runout.
Use 1.6a as reference for the surface roughness of the shaft diameter.
② Wipe away any debris, dirt or oil on the shaft surface and hole of the fastened section with thinner or the like, and lightly apply hydraulic oil #68. Do not apply molybdenum-based oil or oil with additives, as this may cause reduced fastening torque or slippage.
③ Pass completely through the shaft while pressing the bushing flange against the gear before tightening. Removal will not be possible, so be sure to leave a clearance of 1mm or more on the gear rear surface side. (Fig.1)
④ Use a torque wrench to fasten bolts on opposite sides when tightening.
First tighten at 1/4 of the regulated torque, then at 1/2 of the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
⑤ If the shaft has a keyway, the fastened section contact area is reduced and the transmission rate is decreased by 15 to 20%.

Fig.1



Clearance (Assembly conditions require clearance of 1 mm or more)

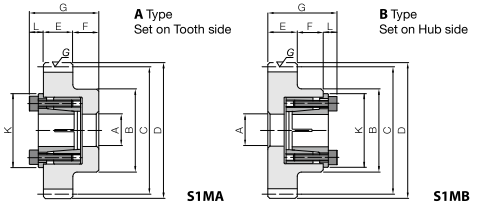
Fig. 2



Removal Method and Precautions

① Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
② Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is complete.
③ The washer and thread surfaces will be roughened, compromising tightening strength, if the bolts are reused. Consequently, we recommend using new bolts of the same size.

F Series



To order F Series products, please specify: Catalog Number + F + BORE + Type.

A Type Only
A/B Types

Bore A / Catalog Number		20	22	25	28	30	32	35	40	45	50
SSG2.5-30 F Bore Type		S1MA/S1MB	S1MA	S1MA	S1MA						
SSG2.5-32 F Bore Type		S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB				
SSG2.5-34 F Bore Type		S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB				
SSG2.5-35 F Bore Type		S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB				
SSG2.5-36 F Bore Type		S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB				
SSG2.5-38 F Bore Type		S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA			
SSG2.5-40 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA		
SSG2.5-42 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA		
SSG2.5-44 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA		
SSG2.5-45 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	
SSG2.5-48 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	
SSG2.5-50 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG2.5-55 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG2.5-56 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG2.5-60 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG2.5-70 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG2.5-75 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA
SSG2.5-80 F Bore Type				S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA
Bore A		20	22	25	28	30	32	35	40	45	50
Ref. slipping torque N·m		220	290	350	380	410	440	720	810	1200	1500
Ref. thrust load kN		21.6	26	27.2	27	27	27	41.1	40.2	52.9	56.3
Sintered Metal Bushings	L		8			8.5			10		10.5
	K	42	44	47	50	52	54	62	67	72	77
Total Length	G		51			51.5			53		53.5
Hex socket bolt	Qty		8			10		8	10		
	Size			M5×18					M6×20		
	Tightening torque N·m			8.8					15.7		
Bushing weight (g)		144	165	188	195	208	219	325	380	435	485

[Caution on F Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Additionally the machined parts of the fastener components and gears are not black oxide coated.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth and portions given secondary operation

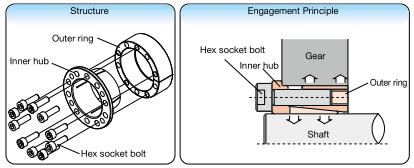
* The precision grade of F Series products is equivalent to the value shown in the table.

Features of F Series

- No rattling of shaft and gear when fastening
- Freely positionable mounting for easy meshing of teeth
- Easily mounted and removed for repeated use
- The bushing slides when overloaded to reduce damage to the gears.

Structure and Engagement Principles

The structure consists of an outer ring and inner ring with split grooves in the tapered part, and hexagon socket head cap screws that convert the force into tightening strength.
In principle, the tightening strength of hexagon socket head cap screws spreads the outer and inner rings by taper engagement, and the gear and shaft become fastened by surface pressure.



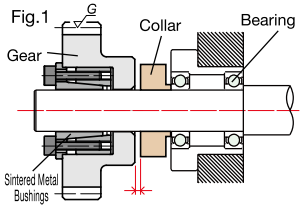
Catalog Number	No. of teeth	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Allowable torque (N·m) Bending strength	Surface durability
SSG3-25	25	60	75	81			178	94.5
SSG3-26	26	62	78	84			188	103
SSG3-27	27	65	81	87			198	111
SSG3-28	28	70	84	90			208	120
SSG3-29	29	70	87	93			218	129
SSG3-30	30	75	90	96			228	138
SSG3-32	32	75	96	102			229	146
SSG3-34	34	75	102	108			248	166
SSG3-35	35	80	105	111			258	177
SSG3-36	36	80	108	114			268	188
SSG3-38	38	80	114	120			287	210
SSG3-40	40	80	120	126	30	20	306	234
SSG3-42	42	80	126	132			326	260
SSG3-44	44	80	132	138			345	286
SSG3-45	45	80	135	141			355	300
SSG3-48	48	85	144	150			384	343
SSG3-50	50	85	150	156			404	374
SSG3-55	55	90	165	171			421	423
SSG3-56	56	90	168	174			430	439
SSG3-60	60	100	180	186			467	508
SSG3-70	70	100	210	216			560	699
SSG3-75	75	100	225	231			607	806
SSG3-80	80	100	240	246			654	921

* For the backlash of each product, please refer to the dimension table of the original product.

Mounting Method and Precautions

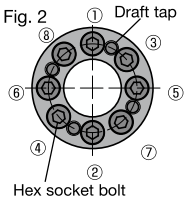
① Shaft diameter recommended tolerance is h7. The limit is h8, but we recommend h6 when minimizing runout.
Use 1.6a as reference for the surface roughness of the shaft diameter.
② Wipe away any debris, dirt or oil on the shaft surface and hole of the fastened section with thinner or the like, and lightly apply hydraulic oil #68. Do not apply molybdenum-based oil or oil with additives, as this may cause reduced fastening torque or slippage.
③ Pass completely through the shaft while pressing the bushing flange against the gear before tightening. Removal will not be possible, so be sure to leave a clearance of 1mm or more on the gear rear surface side. (Fig.1)
④ Use a torque wrench to fasten bolts on opposite sides when tightening.
First tighten at 1/4 of the regulated torque, then at 1/2 of the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
⑤ If the shaft has a keyway, the fastened section contact area is reduced and the transmission rate is decreased by 15 to 20%.

Fig.1



Clearance (Assembly conditions require clearance of 1 mm or more)

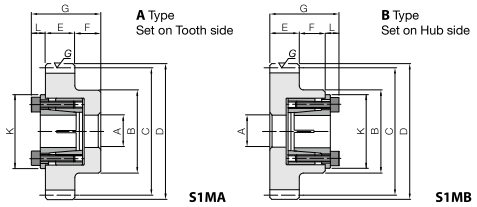
Fig. 2



Removal Method and Precautions

① Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
② Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is complete.
③ The washer and thread surfaces will be roughened, compromising tightening strength, if the bolts are reused. Consequently, we recommend using new bolts of the same size.

F Series



To order F Series products, please specify: **Catalog Number + F + BORE + Type.**

A Type Only
A/B Types

Bore A / Catalog Number	20	22	25	28	30	32	35	40	45	50
SSG3-25 F Bore Type	S1MA/S1MB	S1MA	S1MA							
SSG3-26 F Bore Type	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA	S1MA				
SSG3-27 F Bore Type	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA	S1MA				
SSG3-28 F Bore Type	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB				
SSG3-29 F Bore Type	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB				
SSG3-30 F Bore Type			S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB				
SSG3-32 F Bore Type			S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA			
SSG3-34 F Bore Type			S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA		
SSG3-35 F Bore Type			S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA		
SSG3-36 F Bore Type			S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA		
SSG3-38 F Bore Type			S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	
SSG3-40 F Bore Type			S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG3-42 F Bore Type			S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG3-44 F Bore Type			S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG3-45 F Bore Type			S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG3-48 F Bore Type			S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG3-50 F Bore Type					S1MA/S1MB	S1MA/S1MB	S1MA	S1MA	S1MA	S1MA
SSG3-55 F Bore Type					S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA
SSG3-56 F Bore Type					S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA
SSG3-60 F Bore Type					S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA
SSG3-70 F Bore Type					S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA
SSG3-75 F Bore Type					S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA
SSG3-80 F Bore Type					S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA/S1MB	S1MA	S1MA
Bore A	20	22	25	28	30	32	35	40	45	50
Ref. slipping torque N·m	220	290	350	380	410	440	720	810	1200	1500
Ref. thrust load kN	21.6	26	27.2	27	27	27	41.1	40.2	52.9	56.3
Sintered Metal Bushings L		8			8.5			10		10.5
Sintered Metal Bushings K	42	44	47	50	52	54	62	67	72	77
Total Length G		58			58.5			60		60.5
Hex socket bolt Qty		8			10		8	10		
Hex socket bolt Size	M5×18						M6×20			
Hex socket bolt Tightening torque N·m	8.8						15.7			
Bushing weight (g)	144	165	188	195	208	219	325	380	435	485

[Caution on F Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Additionally the machined parts of the fastener components and gears are not black oxide coated.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth and portions given secondary operation

* The E Series is given secondary operations and has accuracy grades "equivalent" to the original products.

KHK E Series

Delivered with this marking.

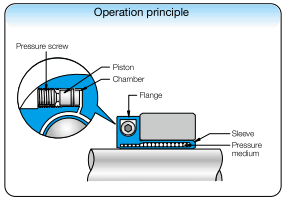
Please see Page 18 for more details.

Features of E Series

- Can be easily installed with one bolt (shortens work time)
- Concentricity 0. 02mm
- Zero backlash between the gear and shaft
- No decrease in shaft strength due to fretting wear (worn or seized shaft)
- No need to machine keyways on the shaft, reducing the number of parts such as keyway materials and set screws
- Does not take up mounting space and easy to position and match the phase
- Finished by the manufacturer in 2 working days (excluding the day ordered)

Operation principle of ETP-E Plus

The pressure medium enclosed in the chamber is pressurized due to the tightening of the pressure screw and moves into the sleeve. The pressure of this pressure medium causes the sleeve to receive pressure from the inside, which causes the shaft side sleeve to contract, the hub side sleeve to expand, allowing the shaft and hub to be fastened via the sleeve.

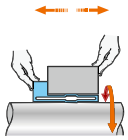


Catalog Number	No. of teeth	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Allowable torque (N-m) Bending strength	Surface durability
SSG1.5-22	22	26	33	36		18.6	8.41
SSG1.5-23	23	27	34.5	37.5		19.8	9.27
SSG1.5-24	24	28	36	39		21.0	10.2
SSG1.5-25	25	30	37.5	40.5		22.2	11.1
SSG1.5-26	26	32	39	42		23.5	12.1
SSG1.5-27	27	34	40.5	43.5		24.7	13.1
SSG1.5-28	28	36	42	45		26.0	14.1
SSG1.5-29	29	37	43.5	46.5		27.3	15.2
SSG1.5-30	30	38	45	48		28.5	16.3
SSG1.5-32	32	40	48	51		31.1	18.6
SSG1.5-34	34	42	51	54		33.6	21.1
SSG1.5-35	35	42	52.5	55.5		34.9	22.4
SSG1.5-36	36	45	54	57		36.2	23.8
SSG1.5-38	38	45	57	60		38.8	26.6
SSG1.5-40	40	50	60	63	15	41.5	29.6
SSG1.5-42	42	50	63	66		44.1	32.8
SSG1.5-44	44	50	66	69		46.7	36.2
SSG1.5-45	45	50	67.5	70.5		48.1	37.9
SSG1.5-48	48	50	72	75		52.0	43.4
SSG1.5-50	50	60	75	78		54.7	47.2
SSG1.5-55	55	60	82.5	85.5		61.4	57.7
SSG1.5-56	56	60	84	87		62.8	59.9
SSG1.5-60	60	60	90	93		68.1	69.2
SSG1.5-64	64	60	96	99		67.9	73.2
SSG1.5-70	70	60	105	108		75.4	88.4
SSG1.5-75	75	60	112.5	115.5		81.7	102
SSG1.5-80	80	70	120	123		88.0	117
SSG1.5-90	90	70	135	138		101	150
SSG1.5-100	100	70	150	153		113	187

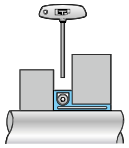
* For the backlash of each product, please refer to the dimension table of the original product.

Effects of ETP-E Plus

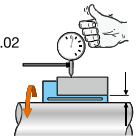
Easy and accurate positioning



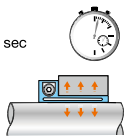
Helps save space



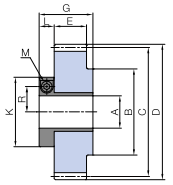
High concentricity



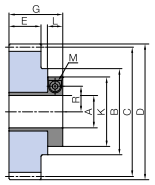
Secure and speedy installation



E Series



S1EA



S1EB

To order E Series products, please specify: **Catalog Number + E + BORE.**

Bore A / Catalog Number	* The product shapes of E Series items are identified by background color. 15	19	20	22
SSG1.5-22 E Bore	S1EA/S1EB			
SSG1.5-23 E Bore	S1EA/S1EB			
SSG1.5-24 E Bore	S1EA/S1EB			
SSG1.5-25 E Bore	S1EA/S1EB			
SSG1.5-26 E Bore	S1EA/S1EB	S1EA/S1EB		
SSG1.5-27 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	
SSG1.5-28 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	
SSG1.5-29 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	
SSG1.5-30 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-32 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-34 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-35 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-36 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-38 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-40 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-42 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-44 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-45 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-48 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-50 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-55 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-56 E Bore	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-60 E Bore		S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-64 E Bore		S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-70 E Bore		S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-75 E Bore		S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-80 E Bore		S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-90 E Bore		S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG1.5-100 E Bore		S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
Bore A	15	19	20	22
K	50	55	56	61
G	37	39	41	43
R	15.1	17.4	18	19.3
L	14			
Screw M	1-M10			
Recommended fastening torque of screw M (N-m)	7			
ETP allowable fastening torque (N-m)	46	85	110	130
ETP allowable thrust force N	5100	7300	9100	9600
ETP allowable radial load N	500	1000	1000	1200
Bushing weight (kg)	0.16	0.2	0.21	0.25

* Allowable torque is the value when the thrust force is 0, and allowable thrust force is when the torque is 0.
* Allowable torque and allowable thrust force are the values at 20°C.
* Tolerance of the target shaft diameter is h7 (g6, h6).

[Caution on E Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
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③ Additionally the machined parts of the fastener components and gears are not black oxide coated.

For updated data, please see the KHK Web Catalog.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth and portions given secondary operation

* The E Series is given secondary operations and has accuracy grades "equivalent" to the original products.

KHK E Series

Delivered with this marking.

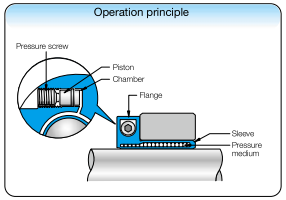
Please see Page 18 for more details.

Features of E Series

- Can be easily installed with one bolt (shortens work time)
- Concentricity 0. 02mm
- Zero backlash between the gear and shaft
- No decrease in shaft strength due to fretting wear (worn or seized shaft)
- No need to machine keyways on the shaft, reducing the number of parts such as keyway materials and set screws
- Does not take up mounting space and easy to position and match the phase
- Finished by the manufacturer in 2 working days (excluding the day ordered)

Operation principle of ETP-E Plus

The pressure medium enclosed in the chamber is pressurized due to the tightening of the pressure screw and moves into the sleeve. The pressure of this pressure medium causes the sleeve to receive pressure from the inside, which causes the shaft side sleeve to contract, the hub side sleeve to expand, allowing the shaft and hub to be fastened via the sleeve.

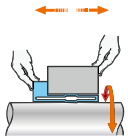


Catalog Number	No. of teeth	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Allowable torque (N-m) Bending strength	Allowable torque (N-m) Surface durability
SSG2-18	18	30	36	40		32.7	13.1
SSG2-19	19	31	38	42		35.5	14.8
SSG2-20	20	32	40	44		38.3	16.6
SSG2-21	21	34	42	46		41.1	18.4
SSG2-22	22	36	44	48		44.0	20.4
SSG2-23	23	37	46	50		46.9	22.5
SSG2-24	24	38	48	52		49.8	24.7
SSG2-25	25	40	50	54		52.7	27.0
SSG2-26	26	42	52	56		55.7	29.3
SSG2-27	27	44	54	58		58.6	31.7
SSG2-28	28	45	56	60		61.6	34.2
SSG2-29	29	48	58	62		64.6	36.8
SSG2-30	30	50	60	64		67.6	39.5
SSG2-32	32	50	64	68		73.7	45.2
SSG2-34	34	50	68	72		79.8	51.3
SSG2-35	35	50	70	74		82.8	54.5
SSG2-36	36	50	72	76	20	85.9	57.8
SSG2-38	38	50	76	80		92.1	64.8
SSG2-40	40	60	80	84		98.3	72.1
SSG2-42	42	60	84	88		105	79.9
SSG2-44	44	60	88	92		111	88.1
SSG2-45	45	60	90	94		114	92.3
SSG2-48	48	60	96	100		114	97.6
SSG2-50	50	60	100	104		120	106
SSG2-55	55	60	110	114		134	130
SSG2-56	56	60	112	116		137	135
SSG2-60	60	65	120	124		149	156
SSG2-64	64	65	128	132		161	179
SSG2-70	70	70	140	144		179	216
SSG2-75	75	70	150	154		194	249
SSG2-80	80	80	160	164		194	265
SSG2-90	90	80	180	184		222	338
SSG2-100	100	80	200	204		250	421

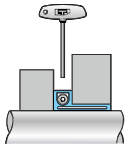
* For the backlash of each product, please refer to the dimension table of the original product.

Effects of ETP-E Plus

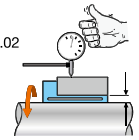
Easy and accurate positioning



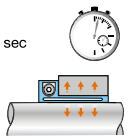
Helps save space



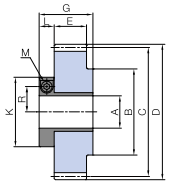
High concentricity



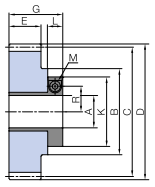
Secure and speedy installation



E Series



S1EA



S1EB

To order E Series products, please specify: Catalog Number + E + BORE.

Bore A / Catalog Number	* The product shapes of E Series items are identified by background color. 15	19	20	22	24	25	28	30
SSG2-18 E BORE	S1EA/S1EB							
SSG2-19 E BORE	S1EA/S1EB							
SSG2-20 E BORE	S1EA/S1EB							
SSG2-21 E BORE	S1EA/S1EB	S1EA/S1EB						
SSG2-22 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB					
SSG2-23 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB					
SSG2-24 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB				
SSG2-25 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB			
SSG2-26 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG2-27 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG2-28 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	
SSG2-29 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	
SSG2-30 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-32 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-34 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-35 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-36 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-38 E BORE	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-40 E BORE		S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-42 E BORE		S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-44 E BORE		S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-45 E BORE		S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-48 E BORE		S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-50 E BORE				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-55 E BORE				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-56 E BORE				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-60 E BORE				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-64 E BORE				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-70 E BORE				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-75 E BORE				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-80 E BORE				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-90 E BORE				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2-100 E BORE				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
Bore A	15	19	20	22	24	25	28	30
K	50	55	56	61	63	63	70	71
G	37	39	41	43	44	46	48	50
R	15.1	17.4	18	19.3	20.3	20.8	22.6	23.6
L	14							
Screw M	1-M10							
Recommended fastening torque of screw M (N-m)	7							
ETP allowable fastening torque (N-m)	46	85	110	130	190	230	280	380
ETP allowable thrust force N	5100	7300	9100	9600	13000	15000	16000	21000
ETP allowable radial load N	500	1000	1000	1200	1400	1500	1800	2000
Bushing weight (kg)	0.16	0.2	0.21	0.25	0.26	0.27	0.33	0.35

* Allowable torque is the value when the thrust force is 0, and allowable thrust force is when the torque is 0.
* Allowable torque and allowable thrust force are the values at 20°C.
* Tolerance of the target shaft diameter is h7 (g6, h6).

[Caution on E Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Additionally the machined parts of the fastener components and gears are not black oxide coated.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth and portions given secondary operation

* The E Series is given secondary operations and has accuracy grades "equivalent" to the original products.

KHK E Series

Delivered with this marking.

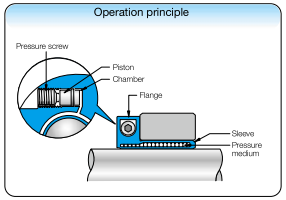
Please see Page 18 for more details.

Features of E Series

- Can be easily installed with one bolt (shortens work time)
- Concentricity 0. 02mm
- Zero backlash between the gear and shaft
- No decrease in shaft strength due to fretting wear (worn or seized shaft)
- No need to machine keyways on the shaft, reducing the number of parts such as keyway materials and set screws
- Does not take up mounting space and easy to position and match the phase
- Finished by the manufacturer in 2 working days (excluding the day ordered)

Operation principle of ETP-E Plus

The pressure medium enclosed in the chamber is pressurized due to the tightening of the pressure screw and moves into the sleeve. The pressure of this pressure medium causes the sleeve to receive pressure from the inside, which causes the shaft side sleeve to contract, the hub side sleeve to expand, allowing the shaft and hub to be fastened via the sleeve.

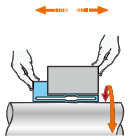


Catalog Number	No. of teeth	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Allowable torque (N-m) Bending strength	Surface durability
SSG2.5-16	16	32	40	45	25	53.3	20.1
SSG2.5-17	17	35	42.5	47.5		58.6	23.0
SSG2.5-18	18	38	45	50		63.9	26.1
SSG2.5-19	19	39	47.5	52.5		69.4	29.4
SSG2.5-20	20	40	50	55		74.8	32.9
SSG2.5-21	21	42	52.5	57.5		80.4	36.7
SSG2.5-22	22	44	55	60		86.0	40.6
SSG2.5-23	23	46	57.5	62.5		91.6	44.8
SSG2.5-24	24	48	60	65		97.3	49.2
SSG2.5-25	25	50	62.5	67.5		103	53.8
SSG2.5-26	26	54	65	70		109	58.4
SSG2.5-27	27	56	67.5	72.5		115	63.2
SSG2.5-28	28	60	70	75		120	68.2
SSG2.5-29	29	60	72.5	77.5		126	73.3
SSG2.5-30	30	65	75	80		132	78.7
SSG2.5-32	32	70	80	85		144	90.1
SSG2.5-34	34	70	85	90		156	102
SSG2.5-35	35	70	87.5	92.5		162	109
SSG2.5-36	36	70	90	95		168	115
SSG2.5-38	38	70	95	100		180	129
SSG2.5-40	40	70	100	105		177	133
SSG2.5-42	42	75	105	110		188	147
SSG2.5-44	44	75	110	115		200	163
SSG2.5-45	45	75	112.5	117.5		205	170
SSG2.5-48	48	75	120	125		222	195
SSG2.5-50	50	80	125	130		234	213
SSG2.5-55	55	80	137.5	142.5		262	260
SSG2.5-56	56	80	140	145		268	270
SSG2.5-60	60	80	150	155		291	311
SSG2.5-70	70	80	175	180		324	399
SSG2.5-75	75	90	187.5	192.5		351	461
SSG2.5-80	80	90	200	205		378	527

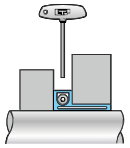
* For the backlash of each product, please refer to the dimension table of the original product.

Effects of ETP-E Plus

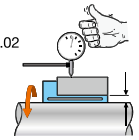
Easy and accurate positioning



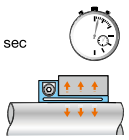
Helps save space



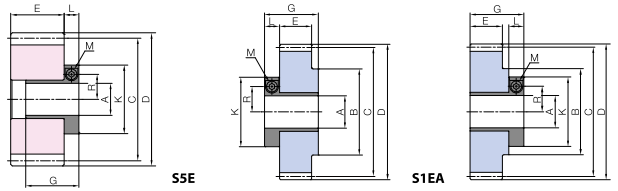
High concentricity



Secure and speedy installation



E Series



To order E Series products, please specify: Catalog Number + E + BORE.

Bore A	* The product shapes of E Series items are identified by background color.									
Catalog Number	15	19	20	22	24	25	28	30	32	35
SSG2.5-16 E Bore	* S5E									
SSG2.5-17 E Bore	S5E									
SSG2.5-18 E Bore	* S5E									
SSG2.5-19 E Bore	S5E	S5E	S1EA/S1EB							
SSG2.5-20 E Bore	* S5E	* S5E	S1EA/S1EB							
SSG2.5-21 E Bore	S5E	S5E	S1EA/S1EB	S1EA/S1EB						
SSG2.5-22 E Bore	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB				
SSG2.5-23 E Bore	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB				
SSG2.5-24 E Bore	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB			
SSG2.5-25 E Bore		* S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG2.5-26 E Bore		S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG2.5-27 E Bore		S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	
SSG2.5-28 E Bore		S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-29 E Bore		S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-30 E Bore		* S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-32 E Bore		* S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-34 E Bore		S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-35 E Bore		S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-36 E Bore		* S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-38 E Bore		S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-40 E Bore				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-42 E Bore				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-44 E Bore				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-45 E Bore				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-48 E Bore				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-50 E Bore				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-55 E Bore				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-56 E Bore				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-60 E Bore				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-70 E Bore				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-75 E Bore				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG2.5-80 E Bore				S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
Bore A	15	19	20	22	24	25	28	30	32	35
K	50	55	56	61	63	63	70	71	78	86
G	37	39	41	43	44	46	48	50	52	55
R	15.1	17.4	18	19.3	20.3	20.8	22.6	23.6	24.8	26.4
L	14									
Screw M	1-M10									
Recommended fastening torque of screw M (N-m)	7									
ETP allowable fastening torque (N-m)	46	85	110	130	190	230	280	380	440	640
ETP allowable thrust force N	5100	7300	9100	9600	13000	15000	16000	21000	22000	30000
ETP allowable radial load N	500	1000	1000	1200	1400	1500	1800	2000	2200	2500
Bushing weight (kg)	0.16	0.2	0.21	0.25	0.26	0.27	0.33	0.35	0.41	0.47

* Allowable torque is the value when the thrust force is 0, and allowable thrust force is when the torque is 0.
* Allowable torque and allowable thrust force are the values at 20°C.
* Tolerance of the target shaft diameter is h7 (g6, h6).

[Caution on E Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Additionally the machined parts of the fastener components and gears are not black oxide coated.
④ * is an SSAG product that's given secondary operations.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth and portions given secondary operation

* The E Series is given secondary operations and has accuracy grades "equivalent" to the original products.

KHK E Series

Delivered with this marking.

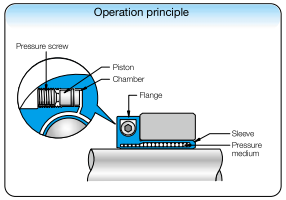
Please see Page 18 for more details.

Features of E Series

- Can be easily installed with one bolt (shortens work time)
- Concentricity 0. 02mm
- Zero backlash between the gear and shaft
- No decrease in shaft strength due to fretting wear (worn or seized shaft)
- No need to machine keyways on the shaft, reducing the number of parts such as keyway materials and set screws
- Does not take up mounting space and easy to position and match the phase
- Finished by the manufacturer in 2 working days (excluding the day ordered)

Operation principle of ETP-E Plus

The pressure medium enclosed in the chamber is pressurized due to the tightening of the pressure screw and moves into the sleeve. The pressure of this pressure medium causes the sleeve to receive pressure from the inside, which causes the shaft side sleeve to contract, the hub side sleeve to expand, allowing the shaft and hub to be fastened via the sleeve.

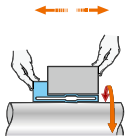


Catalog Number	No. of teeth	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Allowable torque (N-m) Bending strength	Surface durability
SSG3-15	15	36	45	51		83.1	30.5
SSG3-16	16	38	48	54		92.1	35.2
SSG3-17	17	37	51	57		101	40.3
SSG3-18	18	40	54	60		110	45.8
SSG3-19	19	45	57	63		120	51.6
SSG3-20	20	50	60	66		129	57.8
SSG3-21	21	52	63	69		139	64.4
SSG3-22	22	54	66	72		149	71.3
SSG3-23	23	56	69	75		158	78.7
SSG3-24	24	58	72	78		168	86.4
SSG3-25	25	60	75	81		178	94.5
SSG3-26	26	62	78	84		188	103
SSG3-27	27	65	81	87		198	111
SSG3-28	28	70	84	90		208	120
SSG3-29	29	70	87	93		218	129
SSG3-30	30	75	90	96		228	138
SSG3-32	32	75	96	102	30	229	146
SSG3-34	34	75	102	108		248	166
SSG3-35	35	80	105	111		258	177
SSG3-36	36	80	108	114		268	188
SSG3-38	38	80	114	120		287	210
SSG3-40	40	80	120	126		306	234
SSG3-42	42	80	126	132		326	260
SSG3-44	44	80	132	138		345	286
SSG3-45	45	80	135	141		355	300
SSG3-48	48	85	144	150		384	343
SSG3-50	50	85	150	156		404	374
SSG3-55	55	90	165	171		421	423
SSG3-56	56	90	168	174		430	439
SSG3-60	60	100	180	186		467	508
SSG3-70	70	100	210	216		560	699
SSG3-75	75	100	225	231		607	806
SSG3-80	80	100	240	246		654	921

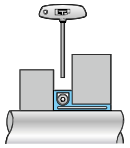
* For the backlash of each product, please refer to the dimension table of the original product.

Effects of ETP-E Plus

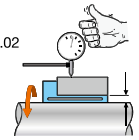
Easy and accurate positioning



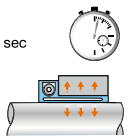
Helps save space



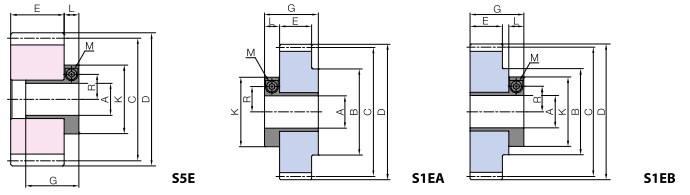
High concentricity



Secure and speedy installation



E Series



To order E Series products, please specify: Catalog Number + E + BORE.

Bore A	* The product shapes of E Series items are identified by background color.												
Catalog Number	15	19	20	22	24	25	28	30	32	35	38	40	42
SSG3-15 E BORE	*S5E												
SSG3-16 E BORE	*S5E												
SSG3-17 E BORE	S5E	S5E	S5E										
SSG3-18 E BORE	*S5E	*S5E	*S5E	*S5E									
SSG3-19 E BORE	S5E	S5E	S5E	S5E	S5E								
SSG3-20 E BORE		*S5E	*S5E	*S5E	*S5E	S1EA/S1EB							
SSG3-21 E BORE		S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB						
SSG3-22 E BORE		S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB					
SSG3-23 E BORE		S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB				
SSG3-24 E BORE		S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB				
SSG3-25 E BORE		*S5E	*S5E	*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB			
SSG3-26 E BORE		S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG3-27 E BORE		S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	
SSG3-28 E BORE		S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-29 E BORE		S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-30 E BORE				*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-32 E BORE				*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-34 E BORE				S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-35 E BORE				S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-36 E BORE				*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-38 E BORE				S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-40 E BORE				*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-42 E BORE				S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-44 E BORE				S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-45 E BORE				S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-48 E BORE				S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-50 E BORE						S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-55 E BORE						S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-56 E BORE						S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-60 E BORE						S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-70 E BORE						S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-75 E BORE						S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
SSG3-80 E BORE						S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
Bore A	15	19	20	22	24	25	28	30	32	35	38	40	42
K	50	55	56	61	63	63	70	71	78	86	92.5	94	96.5
G	37	39	41	43	44	46	48	50	52	55	67	70	70
R	15.1	17.4	18	19.3	20.3	20.8	22.6	23.6	24.8	26.4	31	32	33.2
L	14										20		
Screw M	1-M10										1-M16		
Recommended fastening torque of screw M (N-m)	7										24		
ETP allowable fastening torque (N-m)	46	85	110	130	190	230	280	380	440	640	890	1100	1100
ETP allowable thrust force N	5100	7300	9100	9600	13000	15000	16000	21000	22000	30000	38000	45000	43000
ETP allowable radial load N	500	1000	1000	1200	1400	1500	1800	2000	2200	2500	2800	3000	3200
Bushing weight (kg)	0.16	0.2	0.21	0.25	0.26	0.27	0.33	0.35	0.41	0.47	0.83	0.88	0.95

* Allowable torque is the value when the thrust force is 0, and allowable thrust force is when the torque is 0.
* Allowable torque and allowable thrust force are the values at 20°C.
* Tolerance of the target shaft diameter is h7 (g6, h6).

[Caution on E Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
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③ Additionally the machined parts of the fastener components and gears are not black oxide coated.
④ * is an SSAG product that's given secondary operations.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth and portions given secondary operation

* The E Series is given secondary operations and has accuracy grades "equivalent" to the original products.

KHK E Series

Delivered with this marking.

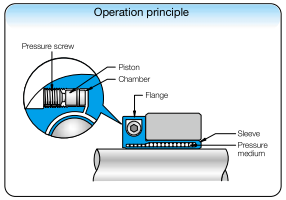
Please see Page 18 for more details.

Features of E Series

- Can be easily installed with one bolt (shortens work time)
- Concentricity 0. 02mm
- Zero backlash between the gear and shaft
- No decrease in shaft strength due to fretting wear (worn or seized shaft)
- No need to machine keyways on the shaft, reducing the number of parts such as keyway materials and set screws
- Does not take up mounting space and easy to position and match the phase
- Finished by the manufacturer in 2 working days (excluding the day ordered)

Operation principle of ETP-E Plus

The pressure medium enclosed in the chamber is pressurized due to the tightening of the pressure screw and moves into the sleeve. The pressure of this pressure medium causes the sleeve to receive pressure from the inside, which causes the shaft side sleeve to contract, the hub side sleeve to expand, allowing the shaft and hub to be fastened via the sleeve.

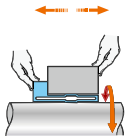


Catalog Number	No. of teeth	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Allowable torque (N-m) Bending strength	Surface durability
SSG4-15	15	45	60	68		197	74.1
SSG4-16	16	50	64	72		218	85.6
SSG4-18	18	60	72	80		262	111
SSG4-20	20	65	80	88		307	141
SSG4-22	22	70	88	96		352	174
SSG4-24	24	75	96	104		368	194
SSG4-25	25	80	100	108		389	213
SSG4-28	28	85	112	120		455	270
SSG4-30	30	90	120	128		499	313
SSG4-32	32	90	128	136		544	358
SSG4-35	35	90	140	148	40	612	432
SSG4-36	36	90	144	152		634	458
SSG4-40	40	90	160	168		674	529
SSG4-42	42	90	168	176		717	586
SSG4-44	44	90	176	184		760	646
SSG4-45	45	90	180	188		781	677
SSG4-48	48	100	192	200		846	774
SSG4-50	50	100	200	208		889	842
SSG4-55	55	100	220	228		998	1030
SSG4-56	56	110	224	232		1020	1060
SSG4-60	60	110	240	248		1110	1230
SSG5-20	20	82	100	110		553	259
SSG5-25	25	105	125	135	50	760	426
SSG5-30	30	120	150	160		975	623
SSG6-20	20	100	120	132		955	457
SSG6-25	25	125	150	162	60	1310	747
SSG6-30	30	150	180	192		1560	1020

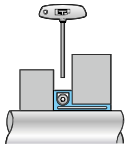
* For the backlash of each product, please refer to the dimension table of the original product.

Effects of ETP-E Plus

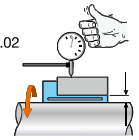
Easy and accurate positioning



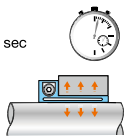
Helps save space



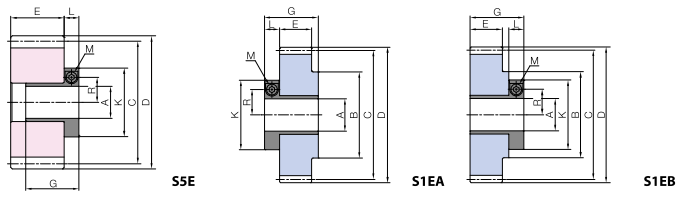
High concentricity



Secure and speedy installation



E Series



To order E Series products, please specify: Catalog Number + E + BORE.

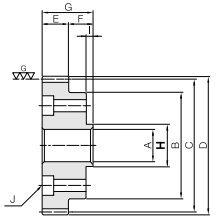
Bore A	* The product shapes of E Series items are identified by background color.																
Catalog Number	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60	70	80
SSG4-15 E BORE	*S5E	*S5E																
SSG4-16 E BORE	*S5E	*S5E	*S5E	*S5E														
SSG4-18 E BORE	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E												
SSG4-20 E BORE	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	S1EA/S1EB										
SSG4-22 E BORE	S5E	S5E	S5E	S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB							
SSG4-24 E BORE	S5E	S5E	S5E	S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB					
SSG4-25 E BORE	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB					
SSG4-28 E BORE	S5E	S5E	S5E	S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG4-30 E BORE	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG4-32 E BORE		*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG4-35 E BORE		S5E	S5E	S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG4-36 E BORE		*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG4-40 E BORE		*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG4-42 E BORE		S5E	S5E	S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG4-44 E BORE				S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG4-45 E BORE				S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG4-48 E BORE				S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	
SSG4-50 E BORE				*S5E	*S5E	*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	
SSG4-55 E BORE				S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	
SSG4-56 E BORE				S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	
SSG4-60 E BORE				S5E	S5E	S5E	S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	
SSG5-20 E BORE					*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E							
SSG5-25 E BORE					*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG5-30 E BORE					*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB		
SSG6-20 E BORE								*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E				
SSG6-25 E BORE								*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	
SSG6-30 E BORE								*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	*S5E	S1EA/S1EB	S1EA/S1EB	S1EA/S1EB
Bore A	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60	70	80
K	56	61	63	63	70	71	78	86	92.5	94	96.5	101	104	106	116	123.5	150	160
G	41	43	44	46	48	50	52	55	67	70	70	72	73	74	79	83	101	110
R	18	19.3	20.3	20.8	22.6	23.6	24.8	26.4	31	32	33.2	34.8	36.8	37.5	40.5	43.3	50.8	56.3
L	14								20								24	
Screw M	1-M10								1-M16								1-M20	
Recommended fastening torque of screw M (N-m)	7								24								40	
ETP allowable fastening torque (N-m)	110	130	190	230	280	380	440	640	890	1100	1100	1400	1700	1900	2400	3300	5600	8700
ETP allowable thrust force N	9100	9600	13000	15000	16000	21000	22000	30000	38000	45000	43000	51000	57000	63000	71000	90000	130000	180000
ETP allowable radial load N	1000	1200	1400	1500	1800	2000	2200	2500	2800	3000	3200	3500	4000	4500	5000	5300	6400	7500
Bushing weight (kg)	0.21	0.25	0.26	0.27	0.33	0.35	0.41	0.47	0.83	0.88	0.95	1.03	1.09	1.18	1.46	1.79	2.93	3.58

* Allowable torque is the value when the thrust force is 0, and allowable thrust force is when the torque is 0.
* Allowable torque and allowable thrust force are the values at 20°C.
* Tolerance of the target shaft diameter is h7 (g6, h6).

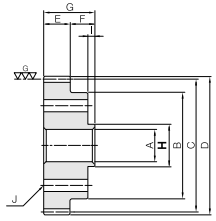
[Caution on E Series] ① Products with module 4 or higher require a lead-time for shipping of 7 working days (excludes the day ordered). Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Products with module 4 or higher can be ordered up to 5 units.
③ Additionally the machined parts of the fastener components and gears are not black oxide coated.
④ * is an SSAG product that's given secondary operations.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth and portions given secondary operation

* The R Series is given secondary operations and has accuracy grades "equivalent" to the original products.



S1Z



S1U

Recommended mating rack

SRGF/SRGFD
Hardened Ground Racks

Please see Page 230 for more details.

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Mounting hub dia.	Mounting hub width
				A	B	C	D	E	F	G	H_{h7}	I
SSG1.5-50R24	***m*1.5**	50	S1Z	18	60	75	78	15	14	29	24	4
SSG2-40R24	***m*2**	40	S1Z	20	60	80	84	20	16	36	24	4
SSG2.5-27R24	***m*2.5**	27	S1U	20	56	67.5	72.5	25	18	43	24	4
SSG2.5-28R24		28	S1Z		60	70	75					
SSG2.5-29R24		29			60	72.5	77.5					
SSG2.5-30R24		30			65	75	80					
SSG2.5-42R32		42		25	75	105	110				32	
SSG3-23R24	***m*3**	23	S1U	20	56	69	75	30	20	50	24	4
SSG3-24R24		24	S1Z		58	72	78					
SSG3-25R24		25			60	75	81					
SSG3-26R24		26			62	78	84					
SSG3-30R32		30		25	75	90	96				32	
SSG3-32R32		32			75	96	102					
SSG3-34R32		34			75	102	108					
SSG3-35R32		35			80	105	111					
SSG3-36R32		36			80	108	114					
SSG4-24R32	***m*4**	24	S1Z	20	75	96	104	40	25	65	32	4
SSG4-25R32		25			80	100	108					
SSG5-20R32	***m*5**	20	S1Z	25	82	100	110	50	25	75	32	4
SSG5-30R47		30			120	150	160				47	6
SSG6-25R47	***m*6**	25	S1Z	30	125	150	162	60	28	88	47	6
SSG6-30R60		30			150	180	192				60	

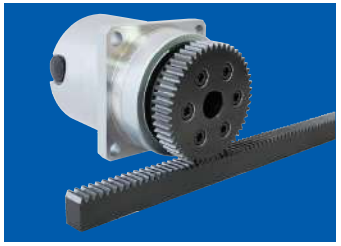
Mounting hole specification J						Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog Number
Drilled hole dia.	Counterbore dia.	Counterbore depth	Quantity	P.C.D.	Included screws	Bending strength	Surface durability	Bending strength	Surface durability			
6.6	11	9	6	45	M6×20	54.7	47.2	5.58	4.82	0.08~0.16	0.63	**SSG1.5-50R24**
6.6	11	14	6	45	M6×25	98.3	72.1	10.0	7.35	0.10~0.20	0.89	**SSG2-40R24**
6.6	-	-	6	45	M6×45	115	63.2	11.7	6.44	0.10~0.20	0.82	**SSG2.5-27R24**
	11	19			M6×25	120	68.2	12.3	6.95		0.86	**SSG2.5-28R24**
						126	73.3	12.9	7.48		0.91	**SSG2.5-29R24**
						132	78.7	13.5	8.03		1.02	**SSG2.5-30R24**
9	14	17		60	M8×30	188	147	19.2	15.0		1.86	**SSG2.5-42R32**
6.6	-	-	6	45	M6×50	158	78.7	16.1	8.02	0.10~0.20	1.01	**SSG3-23R24**
	11	24			M6×30	168	86.4	17.1	8.81		1.04	**SSG3-24R24**
						178	94.5	18.1	9.64		1.14	**SSG3-25R24**
						188	103	19.2	10.5		1.25	**SSG3-26R24**
9	14	22		60	M8×35	228	138	23.3	14.1		1.65	**SSG3-30R32**
						229	146	23.4	14.9		1.86	**SSG3-32R32**
						248	166	25.3	17.0		2.08	**SSG3-34R32**
						258	177	26.3	18.0		2.27	**SSG3-35R32**
						268	188	27.3	19.1		2.39	**SSG3-36R32**
9	14	32	6	60	M8×40	368	194	37.5	19.8	0.10~0.20	2.55	**SSG4-24R32**
						389	213	39.7	21.7		2.84	**SSG4-25R32**
9	14	42	6	60	M8×40	553	259	56.4	26.5	0.10~0.22	3.30	**SSG5-20R32**
			14	100	M8×35	975	623	99.4	63.5		7.52	**SSG5-30R47**
9	14	52	14	100	M8×40	1310	747	134	76.2	0.10~0.22	8.95	**SSG6-25R47**
18	26	44	6	120	M16×60	1560	1020	160	104		13.1	**SSG6-30R60**

[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on R Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Portions subject to secondary operations such as the counter bore holes are not black oxide coated.
④ Required number of hexagon socket head cap screws are included.
⑤ Be sure to calculate the strength under actual usage conditions before use.

■ Features of R Series

- Products matching the mounting holes of the corresponding speed reducer series.
- They come with set bolts and can be used immediately.
- As flange mounting types, they have high rigidity and the gear does not bend.
- Ideal for the mating pinion of racks.



■ Rack and pinion for corresponding flange output speed reducers

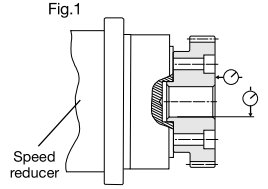
Mounting hub dia. H (Common to all speed reducers)	Nidec Shimpo VRG Series	Sumitomo Heavy Industries IB Series	Harmonic Drive Systems HPG Series	R Series Catalog Numbers		KHK recommended mating rack
24	C90	P120	20	SSG Module - No. of teeth	R24	KRGF Series SRGF Series SRF Series See Page 213
32	D120	P130	32		R32	
47	E170	-	50		R47	
60	-	-	65		R60	

(R Series Catalog Numbers)
R series catalog numbers are composed as follows:
(Base SSG ground spur gear catalog number) + R + (mounting hub diameter)

■ Mounting Method and Precautions

① Clean the gear mounting surface and flange surface of the speed reducer and make sure that there are no scratches or dents.
② Set the mounting hub of the gear in the hole at the rotational center of the flange, and temporarily tighten the hexagon socket head cap screws.
③ Tighten the hexagon socket head cap screws on the diagonals while checking the runout of the gear reference face (Fig. 1). (Fig.2)

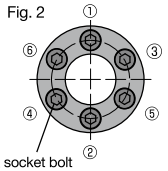
Fig.1



■ Removal Method and Precautions

① Turn off the power source (supply) and check that no load is applied to the gear.
② Loosen the hexagon socket head cap screws and make sure that the gear moves freely.
③ Remove the hexagon socket head cap screws while making sure that there is no danger of falling, etc.

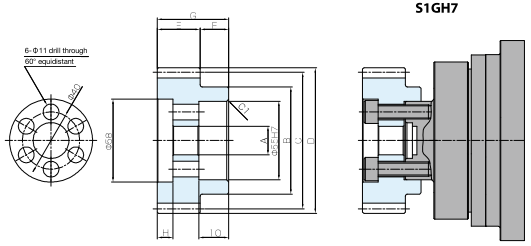
Fig. 2



■ We recommend ideal pinions for speed reducers

① CP type and helical type stock gears can be given secondary operations according to the customer's specifications at "KHK Quick-Mod Gears". See Page 22 for more details
② High-precision gears for reduction gears are also available with a short delivery time. Estimates are available upon the submission of production drawings.
③ Feel free to contact us about selecting racks and pinions.

Speed reducer model number GH7 pinion S1GH7



SSG Series

Common Specifications	
Precision grade	JIS N7 grade (JIS B 1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth and portions given secondary operation

SSCPG Series

Common Specifications	
Precision grade	JIS N7 grade (JIS B 1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth and portions given secondary operation

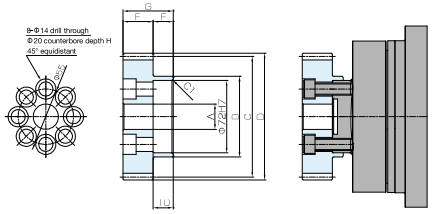
ZSTP Series

Common Specifications	
Precision grade	JIS B 1702-1:1998 N6 grade
Reference section of gear	Normal plane
Gear teeth	Standard full depth
Pressure angle	20°
Helix angle/direction	19° 31' 41" left helix
Material	SCM440
Heat treatment	Thermal refined, gear teeth induction hardened
Tooth hardness	HRC50 to 60
Surface treatment	Black oxide coated except for teeth and portions given secondary operation

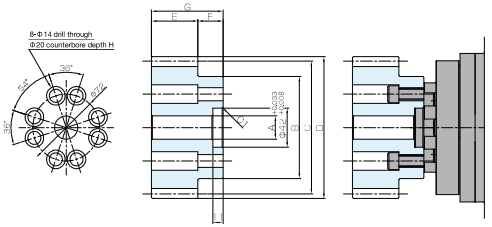
Speed reducer model number	Catalog Number	Module/pitch	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length
					A_{H7}	B	C	D	E	F	G
GH7	SSG3-30RGH7	*m*3	30	S1GH7	25	75	90	96	30	20	50
	SSCPG10-30RGH7	CP10 (*m*3.1831)	30	S1GH7	20	75	95.49	101.86	30	20	50
	ZSTP3-30LRGH7	*m*3(CP10)	30	S1GH7	25	85	95.49	104	30	20	50
GH17	SSG3-40RGH17	*m*3	40	S1GH17	25	80	120	126	30	20	50
	SSCPG10-40RGH17	CP10 (*m*3.1831)	40	S1GH17	25	80	127.32	133.69	30	20	50
	ZSTP3-30LRGH17	*m*3(CP10)	30	S1GH17	25	85	95.49	104	30	20	50
GH24	SSG4-30RGH24	*m*4	30	S1GH24	20	90	120	128	40	25	65
	SSCPG15-30RGH24	CP15 (*m*4.7746)	30	S1GH24	25	110	143.24	152.79	50	27	77
	ZSTP4-30LRGH24	*m*4(CP13.333)	30	S1GH24	25	110	127.32	138	40	25	65
GH40	SSG5-30RGH40	*m*5	30	S1GH40	25	120	150	160	50	25	75
	SSCPG15-30RGH40	CP15 (*m*4.7746)	30	S1GH40	25	110	143.24	152.79	50	27	77
	ZSTP5-24LRGH40	*m*5(CP16.667)	24	S1GH40	25	110	127.32	142	50	25	75
GH100	SSG6-30RGH100	*m*6	30	S1GH100	30	150	180	192	60	28	88
	SSCPG20-30RGH100	CP20 (*m*6.3662)	30	S1GH100	30	150	190.986	203.72	60	30	90

[Cautions on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The R Series is given secondary operations and has accuracy grades "equivalent" to the original products.

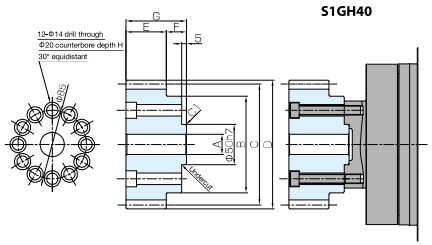
Speed reducer model number GH17 pinion S1GH17



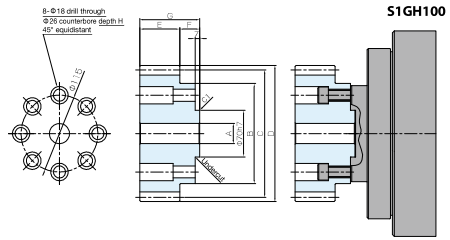
Speed reducer model number GH24 pinion S1GH24



Speed reducer model number GH40 pinion S1GH40



Speed reducer model number GH100 pinion S1GH100



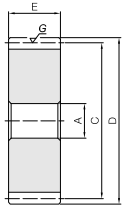
Counterbore depth H	Included screws	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Weight (kg)	Mating rack	Catalog Number	Speed reducer model number
11	M10×45	251	209	1.422	SRGF3-1000	SSG3-30RGH7	GH7
11	M10×45	283	240	1.635	SRGCPF10-1000	SSCPG10-30RGH7	
11	M10×45	551	676	1.808	ZST3-1000R	ZSTP3-30LRGH7	
13	M12×45	358	407	2.281	SRGF3-1000	SSG3-40RGH17	GH17
13	M12×45	403	466	2.616	SRGCPF10-1000	SSCPG10-40RGH17	
13	M12×45	551	676	1.406	ZST3-1000R	ZSTP3-30LRGH17	
29	M12×55	595	501	3.627	SRGF4-1000	SSG4-30RGH24	GH24
41	M12×55	978	821	6.808	SRGCPF15-1000	SSCPG15-30RGH24	
29	M12×55	986	972	4.615	ZST4-1000R	ZSTP4-30LRGH24	
13	M12×75	1070	916	7.230	SRGF5-1000	SSG5-30RGH40	GH40
15	M12×75	978	821	6.431	SRGCPF15-1000	SSCPG15-30RGH40	
13	M12×75	1980	1850	5.022	ZST5-1000R	ZSTP5-24LRGH40	
33	M16×75	1850	1600	12.754	SRGF6-1000	SSG6-30RGH100	GH100
35	M16×75	2090	1850	14.462	SRGCPF20-1000	SSCPG20-30RGH100	

[Cautions on R Series]
① As "available-on-request" products, these items are completed within two working days (excluding the order date). Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process on one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Portions subject to secondary operations such as the counter bore holes are not black oxide coated.
④ Required number of hexagon socket head cap screws are included.
⑤ Be sure to calculate the strength under actual usage conditions before use.

Ground Spur Gears

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth

* The precision grade of J Series products is equivalent to the value shown in the table.



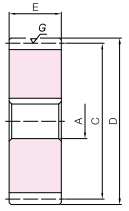
S5

Catalog Number	Module	No. of teeth	Shape	Bore A_{H7}	Pitch dia. C	Outside dia. D	Face width E	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SSAG1-25		25		8	25	27		7.92	3.82	0.81	0.39		0.035
SSAG1-30		30			30	32		10.2	5.57	1.04	0.57		0.052
SSAG1-32		32			32	34		9.22	5.30	0.94	0.54		0.059
SSAG1-36	***m*1**	36	S5	10	36	38	10	10.7	6.77	1.10	0.69	0.08~0.16	0.074
SSAG1-40		40			40	42		12.3	8.42	1.25	0.86		0.092
SSAG1-50		50			50	52		16.2	13.4	1.65	1.36		0.15
SSAG1.5-16		16		10	24	27		13.8	5.02	1.41	0.51		0.044
SSAG1.5-18		18			27	30		16.6	6.51	1.69	0.66		0.058
SSAG1.5-20		20			30	33		19.4	8.20	1.98	0.84		0.074
SSAG1.5-25		25			37.5	40.5		22.2	11.1	2.27	1.13		0.12
SSAG1.5-30	***m*1.5**	30	S5	15	45	48	15	28.5	16.3	2.91	1.66	0.08~0.16	0.17
SSAG1.5-32		32			48	51		31.1	18.6	3.17	1.90		0.19
SSAG1.5-36		36			54	57		36.2	23.8	3.70	2.43		0.25
SSAG1.5-40		40			60	63		41.5	29.6	4.23	3.02		0.31
SSAG1.5-50		50			75	78		54.7	47.2	5.58	4.82		0.50
SSAG2-15		15		10	30	34		29.6	10.5	3.01	1.07		0.099
SSAG2-16		16			32	36		27.3	10.1	2.78	1.03		0.11
SSAG2-18		18			36	40		32.7	13.1	3.34	1.34		0.15
SSAG2-20		20		15	40	44		38.3	16.6	3.91	1.69		0.17
SSAG2-25		25			50	54		52.7	27.0	5.38	2.75		0.28
SSAG2-30	***m*2**	30	S5		60	64	20	67.6	39.5	6.89	4.03	0.10~0.20	0.42
SSAG2-32		32		18	64	68		73.7	45.2	7.51	4.61		0.47
SSAG2-36		36			72	76		85.9	57.8	8.76	5.90		0.60
SSAG2-40		40			80	84		98.3	72.1	10.0	7.35		0.75
SSAG2-50		50			100	104		120	106	12.2	10.8		1.19
SSAG2.5-15		15		15	37.5	42.5		48.1	17.4	4.91	1.77		0.18
SSAG2.5-16		16			40	45		53.3	20.1	5.44	2.05		0.21
SSAG2.5-18		18			45	50		63.9	26.1	6.52	2.66		0.28
SSAG2.5-20		20			50	55		74.8	32.9	7.63	3.36		0.35
SSAG2.5-25	***m*2.5**	25	S5	20	62.5	67.5	25	103	53.8	10.5	5.48	0.10~0.20	0.54
SSAG2.5-30		30			75	80		132	78.7	13.5	8.03		0.81
SSAG2.5-32		32			80	85		144	90.1	14.7	9.19		0.92
SSAG2.5-36		36			90	95		168	115	17.1	11.8		1.19
SSAG2.5-40		40			100	105		177	133	18.1	13.6		1.48
SSAG2.5-50		50			125	130		234	213	23.8	21.7		2.35

[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations] ① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).
③ A reference surface is set for gear grinding. Use the surface opposite from the markings as the reference surface for secondary operation.

J Series



S5K

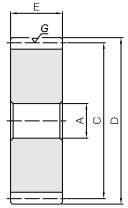
To order J Series products, please specify: Catalog No. + J + BORE.

Bore $_{H7}$	* The product shapes of J Series items are identified by background color.																	
Keyway $_{Js9}$	8	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Screw size	3×1.4	4×1.8			5×2.3			6×2.8				8×3.3			10×3.3		12×3.3	14×3.8	
Catalog Number	—																		
SSAG1-25J BORE	S5K	S5K																	
SSAG1-30J BORE	S5K	S5K	S5K																
SSAG1-32J BORE	S5K	S5K	S5K	S5K															
SSAG1-36J BORE		S5K	S5K	S5K	S5K	S5K													
SSAG1-40J BORE		S5K	S5K	S5K	S5K	S5K	S5K	S5K											
SSAG1-50J BORE		S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K								
SSAG1.5-16J BORE		S5K																	
SSAG1.5-18J BORE		S5K																	
SSAG1.5-20J BORE		S5K	S5K																
SSAG1.5-25J BORE		S5K	S5K	S5K	S5K	S5K													
SSAG1.5-30J BORE					S5K	S5K	S5K	S5K	S5K	S5K									
SSAG1.5-32J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K								
SSAG1.5-36J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K							
SSAG1.5-40J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K						
SSAG1.5-50J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSAG2-15J BORE		S5K	S5K																
SSAG2-16J BORE		S5K	S5K																
SSAG2-18J BORE		S5K	S5K	S5K	S5K														
SSAG2-20J BORE					S5K	S5K	S5K												
SSAG2-25J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K								
SSAG2-30J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K							
SSAG2-32J BORE								S5K	S5K	S5K	S5K	S5K	S5K						
SSAG2-36J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
SSAG2-40J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSAG2-50J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SSAG2.5-15J BORE					S5K														
SSAG2.5-16J BORE					S5K	S5K													
SSAG2.5-18J BORE					S5K	S5K	S5K	S5K	S5K										
SSAG2.5-20J BORE					S5K	S5K	S5K	S5K	S5K	S5K									
SSAG2.5-25J BORE										S5K	S5K	S5K	S5K						
SSAG2.5-30J BORE										S5K	S5K	S5K	S5K	S5K	S5K				
SSAG2.5-32J BORE										S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSAG2.5-36J BORE										S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SSAG2.5-40J BORE										S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SSAG2.5-50J BORE										S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K

[Caution on J series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Black oxide is not re-applied after hole and key secondary operations.

Specifications	
Precision grade	JIS grade N7 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for teeth

* The precision grade of J Series products is equivalent to the value shown in the table.



S5

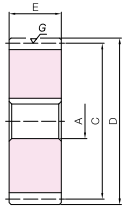
Catalog Number	Module	No. of teeth	Shape	Bore A_{H7}	Pitch dia. C	Outside dia. D	Face width E	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SSAG3-15		15		15	45	51		83.1	30.5	8.48	3.11		0.33
SSAG3-16		16			48	54		92.1	35.2	9.39	3.59		0.38
SSAG3-18		18			54	60		110	45.8	11.3	4.67		0.50
SSAG3-20		20			60	66		129	57.8	13.2	5.90		0.62
SSAG3-25		25		20	75	81		178	94.5	18.1	9.64		0.97
SSAG3-30	*m3*	30	S5		90	96	30	228	138	23.3	14.1	0.10~0.20	1.42
SSAG3-32		32			96	102		229	146	23.4	14.9		1.59
SSAG3-36		36		25	108	114		268	188	27.3	19.1		2.04
SSAG3-40		40			120	126		306	234	31.2	23.9		2.55
SSAG3-50		50			150	156		404	374	41.2	38.1		4.05

Catalog Number	Module	No. of teeth	Shape	Bore A_{H7}	Pitch dia. C	Outside dia. D	Face width E	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SSAG4-15		15		20	60	68		197	74.1	20.1	7.55		0.79
SSAG4-16		16			64	72		218	85.6	22.3	8.73		0.91
SSAG4-18		18			72	80		262	111	26.7	11.4		1.18
SSAG4-20		20			80	88		307	141	31.3	14.3		1.48
SSAG4-25		25			100	108		389	213	39.7	21.7		2.37
SSAG4-30	*m4*	30	S5		120	128	40	499	313	50.9	31.9	0.10~0.20	3.45
SSAG4-32		32		25	128	136		544	358	55.5	36.5		3.89
SSAG4-36		36			144	152		634	458	64.7	46.7		4.96
SSAG4-40		40			160	168		674	529	68.7	54.0		6.16
SSAG4-50		50			200	208		889	842	90.7	85.9		9.71
SSAG5-20		20		25	100	110	50	553	259	56.4	26.5	0.10~0.22	2.89
SSAG5-25	*m5*	25	S5		125	135		760	426	77.5	43.4		4.62
SSAG5-30		30			150	160		975	623	99.4	63.5		6.74
SSAG6-20		20		25	120	132	60	955	457	97.4	46.6	0.10~0.22	5.10
SSAG6-25	*m6*	25	S5		150	162		1310	747	134	76.2		8.09
SSAG6-30		30			180	192		1560	1020	160	104		11.8

[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations] ① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).
③ A reference surface is set for gear grinding. Use the surface opposite from the markings as the reference surface for secondary operation.

J Series



S5K

To order J Series products, please specify: Catalog No. + J + BORE.

Bore H_7	* The product shapes of J Series items are identified by background color.														
Keyway Js9	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Screw size	5×2.3			6×2.8				8×3.3			10×3.3		12×3.3	14×3.8	
Catalog Number	—														
SSAG3-15J BORE	S5K	S5K	S5K	S5K											
SSAG3-16J BORE	S5K	S5K	S5K	S5K	S5K	S5K									
SSAG3-18J BORE	S5K	S5K	S5K	S5K	S5K	S5K	S5K								
SSAG3-20J BORE	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K							
SSAG3-25J BORE						S5K	S5K	S5K	S5K	S5K	S5K				
SSAG3-30J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SSAG3-32J BORE								S5K	S5K	S5K	S5K	S5K	S5K		
SSAG3-36J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSAG3-40J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSAG3-50J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K

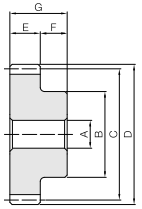
To order J Series products, please specify: Catalog No. + J + BORE.

Bore H_7	* The product shapes of J Series items are identified by background color.															
Keyway Js9	20	22	25	28	30	32	35	40	45	50	55	60	65	70	75	80
Screw size	6×2.8		8×3.3			10×3.3		12×3.3	14×3.8		16×4.3	18×4.4		20×4.9		22×5.4
Catalog Number	—															
SSAG4-15J BORE	S5K	S5K	S5K													
SSAG4-16J BORE	S5K	S5K	S5K													
SSAG4-18J BORE	S5K	S5K	S5K	S5K	S5K											
SSAG4-20J BORE	S5K	S5K	S5K	S5K	S5K	S5K	S5K									
SSAG4-25J BORE	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K							
SSAG4-30J BORE	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K					
SSAG4-32J BORE			S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K					
SSAG4-36J BORE			S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSAG4-40J BORE			S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SSAG4-50J BORE			S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSAG5-20J BORE			S5K	S5K	S5K	S5K	S5K	S5K								
SSAG5-25J BORE			S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K					
SSAG5-30J BORE			S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSAG6-20J BORE			S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K						
SSAG6-25J BORE			S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSAG6-30J BORE			S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K

[Caution on J series] ① Production is completed by the manufacturer in 2 working days excluding the day ordered for products with module 3 or under, and 7 days for products with module 4 or higher. Because the machining starts immediately, we cannot accept cancellations.
Please see Page 34 for more details.
② Number of products is 1 to 20 units for products with module 3 or under, and up to 5 units for products with module 4 or higher.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Black oxide is not re-applied after hole and key secondary operations.

Thermal Refined Spur Gears NEW

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	SCM440
Heat treatment	Thermal refining only
Tooth hardness	225 to 352HB
Surface treatment	Black oxide coating
Shape	S1



S1

To order Hardened Plus, please specify Catalog No. + H. **Example: KS1.5-20H**

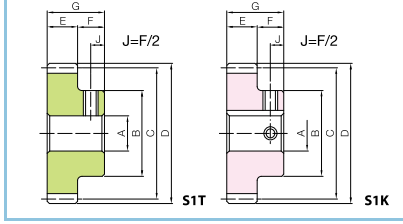
Catalog Number	Module	No. of teeth	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Allowable torque: Bending strength N·m	Bending strength kgf·m	Surface durability N·m	Surface durability kgf·m	Surface durability (H) N·m	Surface durability (H) kgf·m	Backlash (mm)	Weight (kg)
			A_{H7}	B	C	D	E	F	G								
KS1.5-20	*m*1.5	20	8	24	30	33	15	14	29	37.2	3.79	7.38	0.75	14.8	1.51	0.10~0.22	0.12
KS1.5-25		25		30	37.5	40.5				50.2	5.12	12.6	1.29	25.0	2.55		0.20
KS1.5-30		30	10	38	45	48				63.4	6.47	19.7	2.01	38.5	3.93		0.29
KS2-20	*m*2	20	12	32	40	44	20	16	36	88.1	8.98	18.1	1.84	35.6	3.63	0.12~0.26	0.27
KS2-25		25		40	50	54				119	12.1	30.9	3.15	60.1	6.13		0.43
KS2-30		30		50	60	64				150	15.3	48.3	4.92	92.7	9.45		0.66
KS2.5-20	*m*2.5	20	15	40	50	55	25	18	43	172	17.5	36.2	3.69	70.3	7.17	0.14~0.28	0.50
KS2.5-25		25		50	62.5	67.5				232	23.7	62.0	6.32	119	12.1		0.82
KS2.5-30		30		65	75	80				294	29.9	96.7	9.86	183	18.7		1.28
KS3-20	*m*3	20	20	50	60	66	30	20	50	297	30.3	63.8	6.51	123	12.5	0.14~0.32	0.90
KS3-25		25		60	75	81				401	40.9	109	11.2	207	21.1		1.36
KS3-30		30		75	90	96				507	51.7	171	17.4	320	32.6		2.07
KS4-20	*m*4	20	20	65	80	88	40	25	65	705	71.9	156	16.0	295	30.1	0.18~0.38	2.07
KS4-25		25		80	100	108				951	97.0	268	27.4	500	51.0		3.29
KS4-30		30		90	120	128				1203	123	419	42.7	772	78.7		4.64
KS5-20	*m*5	20	25	82	100	110	50	25	75	1377	140	314	32.0	584	59.6	0.20~0.44	3.90
KS5-25		25		105	125	135				1858	189	538	54.9	989	101		6.23
KS5-30		30		120	150	160				2349	240	841	85.8	1530	156		8.87

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus] ① See Page 6 for more details on Hardened Plus.

J Series



To order J Series products, please specify: **Catalog No. + J + BORE.** **Example: KS1.5-20J8**

Bore H7	* The product shapes of J Series items are identified by background color.																								
Keyway Js9	8	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50	55	60	65	70	75
Screw size	–	4×1.8			5×2.3			6×2.8				8×3.3			10×3.3		12×3.3	14×3.8		16×4.3	18×4.4		20×4.9	
Catalog Number	M5	M4						M5				M6			M8			M10		M12			M14	
KS1.5-20J BORE	*S1T	S1K	S1K																					
KS1.5-25J BORE	*S1T	S1K	S1K	S1K	S1K	S1K	S1K																	
KS1.5-30J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K													
KS2-20 J BORE			*S1K	S1K	S1K	S1K	S1K																	
KS2-25 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K													
KS2-30 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
KS2.5-20J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K													
KS2.5-25J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
KS2.5-30J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
KS3-20 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
KS3-25 J BORE										*S1K	S1K	S1K	S1K	S1K	S1K	S1K								
KS3-30 J BORE										*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
KS4-20 J BORE										*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
KS4-25 J BORE										*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
KS4-30 J BORE										*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
KS5-20 J BORE											*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
KS5-25 J BORE												*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
KS5-30 J BORE												*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K

To order J Series Hardened Plus, please specify: Catalog No. + H + J + BORE.
Example: KS1.5-20HJ10

[Caution on J series]
① Production is completed by the manufacturer in 2 working days (6 working days for Hardened Plus) excluding the day ordered for products with module 3 or under, and 7 working days (11 working days for Hardened Plus) for products with module 4 or higher. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of products is 1 to 20 units for products with module 3 or under, and up to 5 units for products with module 4 or higher.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.
⑦ When using S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.
⑧ * is a product with the original bore diameter, so Hardened Plus is not available. See Page 6 for more details on Hardened Plus.

KS-(H) Hardened Spur Gear recommended mating racks

KRF-H/KRFD-H Hardened Racks
Please see Page 232 for more details.

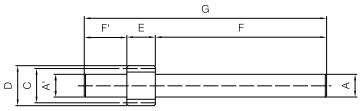
KS Thermal Refined Spur Gear recommended mating racks

KRF/KRFD Thermal Refined Racks
Please see Page 238 for more details.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Thermal refined*
Tooth hardness	200 to 270HB*
Surface treatment	Black oxide coating

* SA-shaped products have no material thermal refinement treatment. The gear teeth hardness is 194 HB or less.

SA



SB

Catalog Number	Module	No. of teeth	Profile shift coefficient	Shape	Shaft diameter (L)	Shaft length (L)	Pitch dia.	Outside dia.	Face width	Shaft diameter (R)	Shaft length (R)	Total Length
					A'	F'	C	D	E	A	F	G
SSS1-10	***m*1**	10	0	SA	—	—	10	12	12	12	78	90
SSS1-11		11					11	13		13		
SSS1-12		12					12	14		14		
SSS1-13		13					13	15		15		
SSS1.5-10	***m*1.5**	10	+0.5	SB	12.2	25	15	19.35	15	12.2	100	140
SSS1.5-11		11	+0.5		13.7		16.5	20.85		13.7		
SSS1.5-12		12	0		13.7		18	21		13.7		
SSS1.5-13		13	0		15.2		19.5	22.5		15.2		

Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog Number
Bending strength	Surface durability	Bending strength	Surface durability			
1.62	0.063	0.16	0.0064	0.08~0.18	0.077	**SSS1-10**
2.04	0.077	0.21	0.0078		0.090	**SSS1-11**
2.52	0.092	0.26	0.0094		0.10	**SSS1-12**
3.05	0.11	0.31	0.011		0.12	**SSS1-13**
12.7	0.71	1.30	0.073	0.10~0.22	0.14	**SSS1.5-10**
14.5	0.88	1.48	0.089		0.17	**SSS1.5-11**
9.97	0.89	1.02	0.091		0.17	**SSS1.5-12**
12.1	1.05	1.23	0.11		0.21	**SSS1.5-13**

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② Products with modules 1.5 or higher and number of teeth of 10 and 11 are profile shifted gears (x = +0.5). Please refer to the table below for the center distance at the time of assembly.
③ The backlash values shown in the table are the theoretical values for the normal direction for the internal ring in mesh with a 30 tooth SS spur gear.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

■ Center distance of stock spur gear meshing with profile shifted gear

The center distance of the stock gear (x = 0) that meshes with profile shifted gear (x = +0.5) of m = 1 is shown in the table at right. Please double the module of the gear to be used.

■ Center distance where number of teeth is 12 to 30 (unit: mm)

Number of teeth (x = 0) \ Number of teeth (x = +0.5)	10	11
12	11.4410	11.9428
13	11.9428	12.4446
14	12.4446	12.9462
15	12.9462	13.4477
16	13.4477	13.9492
17	13.9492	14.4505
18	14.4505	14.9518
19	14.9518	15.4530
20	15.4530	15.9542
21	15.9542	16.4553
22	16.4553	16.9564
23	16.9564	17.4574
24	17.4574	17.9583
25	17.9583	18.4592
26	18.4592	18.9601
27	18.9601	19.4610
28	19.4610	19.9618
29	19.9618	20.4625
30	20.4625	20.9633

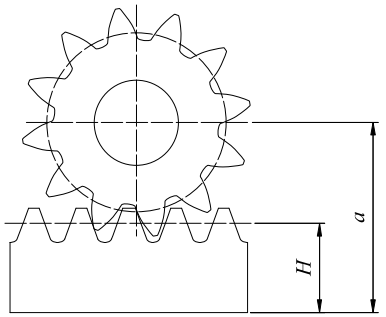
■ Center distance where number of teeth is 32 to 62 (unit: mm)

Number of teeth (x = 0) \ Number of teeth (x = +0.5)	10	11
32	21.4640	21.9647
34	22.4653	22.9660
35	22.9660	23.4666
36	23.4666	23.9671
38	24.4677	24.9683
40	25.4688	25.9693
42	26.4698	26.9703
44	27.4707	27.9712
45	27.9712	28.4716
46	28.4716	28.9721
48	29.4725	29.9729
50	30.4733	30.9736
52	31.4740	31.9744
54	32.4747	32.9750
55	32.9750	33.4754
56	33.4754	33.9757
58	34.4760	34.9763
60	35.4766	35.9769
62	36.4772	36.9774

■ Center distance where number of teeth is 64 to 200 (unit: mm)

Number of teeth (x = 0) \ Number of teeth (x = +0.5)	10	11
64	37.4777	37.9780
65	37.9780	38.4782
66	38.4782	38.9785
68	39.4787	39.9790
70	40.4792	40.9794
72	41.4796	41.9799
75	42.9803	43.4805
76	43.4805	43.9807
80	45.4813	45.9814
84	47.4820	47.9822
85	47.9822	48.4823
88	49.4826	49.9828
90	50.4830	50.9831
95	52.9837	53.4838
100	55.4844	55.9845
120	65.4866	65.9867
150	80.4890	80.9890
200	105.4915	105.9915

■ Mounting distance of a profile shifted gear and the meshing rack



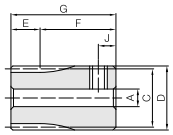
$$a = \frac{zm}{2} + H + xm$$

Where
a : Mounting distance
H : Pitch line height
m : Module
z : No. of teeth
x : Profile shift coefficient

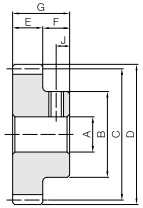
Please make use of GCSW for Web (gear calculation software).

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating

* The precision grade of products with a module of less than 0.8 is equivalent to the value shown in the table.



S3T



S1T

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Keyway
				$A_{H7(H8)}$	B	C	D	E	F	G	Width × Depth
SS0.5-15A	***m*0.5**	15	S3T	3_{H8}	8.5	7.5	8.5	5	11	16	–
SS0.5-18A		18		4_{H8}	10	9	10				
SS0.5-20A		20		3_{H8}	11	10	11				
SS0.5-20B				4_{H8}							
SS0.5-22A		22		4_{H8}	12	11	12				
SS0.5-24A		24		4_{H8}	13	12	13				
SS0.5-24B				5_{H8}							
SS0.5-25B		25		5_{H8}	13.5	12.5	13.5				
SS0.5-28A		28	S1T	4_{H8}	12	14	15		7	12	
SS0.5-30B		30		5	13	15	16				
SS0.5-50B		50		6	22	25	26				
SS0.5-54A		54		5	25	27	28				
SS0.5-60A		60		6	28	30	31				
SS0.5-80A		80		6	28	40	41				
SS0.5-80B				8							
SS0.5-96A		96		8	28	48	49				
SS0.5-120A		120		8	28	60	61				
SS0.8-15A	***m*0.8**	15	S3T	5_{H8}	13.6	12	13.6	8	14	22	–
SS0.8-20A		20	S1T	5_{H8}	13	16	17.6		8	16	
SS0.8-20B				6							
SS0.8-25A		25		5_{H8}	16	20	21.6				
SS0.8-28A		28		6	18	22.4	24				
SS0.8-30A		30		5_{H8}	20	24	25.6				
SS0.8-30C				8							
SS0.8-40A		40		6	28	32	33.6				
SS0.8-45A		45		6	28	36	37.6				

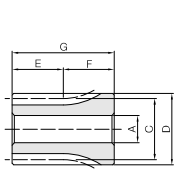
[Caution on Product Characteristics]
① The key groove used is a JIS B 1301 normal type (Js9) and a set screw is included for products with a tapped hole.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
④ When using S3T and S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Socket head screw		Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog Number
Size	J	Bending strength	Surface durability	Bending strength	Surface durability			
M3	2.5	0.46	0.022	0.047	0.0022	0~0.10	0.0056	**SS0.5-15A**
M3		0.61	0.032	0.063	0.0033		0.0076	**SS0.5-18A**
M3		0.72	0.040	0.073	0.0041		0.010	**SS0.5-20A**
M3							0.0095	**SS0.5-20B**
M3		0.83	0.049	0.084	0.0050		0.012	**SS0.5-22A**
M3	2.5	0.93	0.059	0.095	0.0060		0.014	**SS0.5-24A**
M4	3						0.013	**SS0.5-24B**
M4	3	0.99	0.064	0.10	0.0065		0.014	**SS0.5-25B**
M3	3.5	1.16	0.081	0.12	0.0082		0.011	**SS0.5-28A**
M4		1.27	0.093	0.13	0.0095		0.012	**SS0.5-30B**
M4		2.43	0.27	0.25	0.027		0.037	**SS0.5-50B**
M4		2.67	0.32	0.27	0.032		0.047	**SS0.5-54A**
M4		3.03	0.39	0.31	0.040		0.058	**SS0.5-60A**
M4		4.24	0.72	0.43	0.074		0.079	**SS0.5-80A**
M5							0.077	**SS0.5-80B**
M5		5.21	1.06	0.53	0.11		0.099	**SS0.5-96A**
M5		6.68	1.70	0.68	0.17		0.14	**SS0.5-120A**
M4	3.5	1.89	0.088	0.19	0.0090	0~0.10	0.019	**SS0.8-15A**
M4	4	2.94	0.17	0.30	0.017		0.018	**SS0.8-20A**
M4							0.017	**SS0.8-20B**
M4		4.05	0.27	0.41	0.027		0.029	**SS0.8-25A**
M4		4.73	0.34	0.48	0.035		0.037	**SS0.8-28A**
M4		5.19	0.39	0.53	0.040		0.045	**SS0.8-30A**
M5							0.041	**SS0.8-30C**
M4		7.55	0.72	0.77	0.074		0.085	**SS0.8-40A**
M4		8.75	0.93	0.89	0.095		0.098	**SS0.8-45A**

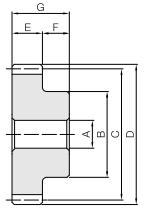
[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

SS Module 1 Spur Gears

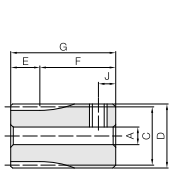
Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating



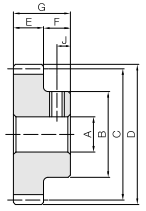
S3



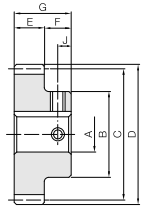
S1



S3T



S1T



S1K

To order Hardened Plus, please specify Catalog No. + H.

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Keyway	Socket head screw	
				A_{H7}	B	C	D	E	F	G	Width × Depth	Size	J
SS1-15	*m*1	15	S3	8	17	15	17	10	20	30	–	–	–
SS1-15A			S3T	5								M4	4
SS1-15B			S3T	6								M4	4
SS1-16		16	S3	8	18	16	18					–	–
SS1-16B			S3T	6								M4	4
SS1-17		17	S3	8	19	17	19					–	–
SS1-18		18	S3	8	20	18	20					–	–
SS1-19		19	S3	8	21	19	21					–	–
SS1-20		20	S1	8	16	20	22		10	20		–	–
SS1-20A			S1T	5								M4	5
SS1-20B			S1T	6								M4	5
SS1-20C			S1T	8								M5	5
SS1-21		21	S1	8	17	21	23					–	–
SS1-22		22	S1	8	18	22	24					–	–
SS1-23		23	S1	8	18	23	25					–	–
SS1-24		24	S1	8	20	24	26				–	–	–
SS1-24A			S1T	6							–	M4	5
SS1-24C			S1K	10							4 x 1.8	M4	5
SS1-25		25	S1	8	20	25	27				–	–	–
SS1-25B			S1T	8							–	M5	5
SS1-25C			S1K	10							4 x 1.8	M4	5
SS1-26		26	S1	8	22	26	28				–	–	–
SS1-27		27	S1	8	22	27	29				–	–	–
SS1-28		28	S1	8	22	28	30				–	–	–
SS1-29		29	S1	8	24	29	31				–	–	–
SS1-30		30	S1	10	25	30	32				–	–	–
SS1-30A			S1T	6							–	M4	5
SS1-30B			S1T	8							–	M5	5
SS1-32		32	S1	10	26	32	34				–	–	–
SS1-32A			S1T	8								M5	5
SS1-34		34	S1	10	26	34	36				–	–	–
SS1-35		35	S1	10	26	35	37				–	–	–
SS1-36		36	S1	10	28	36	38				–	–	–
SS1-38		38	S1	10	32	38	40				–	–	–
SS1-40		40	S1	10	35	40	42				–	–	–
SS1-40B			S1K	10							4 x 1.8	M4	5
SS1-42		42	S1	10	35	42	44				–	–	–
SS1-44		44	S1	10	35	44	46				–	–	–
SS1-45		45	S1	10	35	45	47				–	–	–
SS1-45A			S1T	8							–	M5	5
SS1-45B			S1K	10							4 x 1.8	M4	5
SS1-46		46	S1	10	35	46	48				–	–	–
SS1-48		48	S1	10	35	48	50				–	–	–

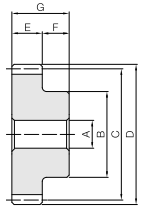
Allowable torque						Backlash (mm)	Weight (kg)	Catalog Number
Bending strength		Surface durability		Surface durability (H)				
N·m	kgf·m	N·m	kgf·m	N·m	kgf·m			
3.69	0.38	0.17	0.018	0.85	0.086	0.08~0.18	0.038	**SS1-15**
							0.044	**SS1-15A**
							0.042	**SS1-15B**
4.09	0.42	0.2	0.021	0.98	0.10		0.044	**SS1-16**
							0.049	**SS1-16B**
4.5	0.46	0.23	0.023	1.12	0.11		0.050	**SS1-17**
4.91	0.5	0.26	0.027	1.26	0.13		0.057	**SS1-18**
5.33	0.54	0.29	0.030	1.42	0.14		0.065	**SS1-19**
5.75	0.59	0.33	0.033	1.59	0.16		0.033	**SS1-20**
							0.037	**SS1-20A**
							0.036	**SS1-20B**
							0.032	**SS1-20C**
6.17	0.63	0.36	0.037	1.77	0.18		0.037	**SS1-21**
6.6	0.67	0.4	0.041	1.95	0.20		0.042	**SS1-22**
7.03	0.72	0.45	0.045	2.15	0.22		0.045	**SS1-23**
7.47	0.76	0.49	0.050	2.36	0.24		0.052	**SS1-24**
							0.055	**SS1-24A**
							0.046	**SS1-24C**
7.91	0.81	0.54	0.055	2.57	0.26		0.055	**SS1-25**
							0.054	**SS1-25B**
							0.049	**SS1-25C**
8.35	0.85	0.58	0.059	2.79	0.28		0.064	**SS1-26**
8.79	0.9	0.63	0.064	3.01	0.31		0.067	**SS1-27**
9.24	0.94	0.68	0.070	3.25	0.33		0.070	**SS1-28**
9.69	0.99	0.73	0.075	3.49	0.36		0.079	**SS1-29**
10.1	1.03	0.79	0.081	3.74	0.38		0.082	**SS1-30**
							0.089	**SS1-30A**
							0.085	**SS1-30B**
11.1	1.13	0.90	0.092	4.27	0.44		0.092	**SS1-32**
							0.096	**SS1-32A**
12.0	1.22	1.03	0.10	4.83	0.49		0.10	**SS1-34**
12.4	1.27	1.09	0.11	5.13	0.52		0.10	**SS1-35**
12.9	1.31	1.16	0.12	5.44	0.55		0.12	**SS1-36**
13.8	1.41	1.30	0.13	6.08	0.62		0.14	**SS1-38**
14.7	1.50	1.45	0.15	6.76	0.69		0.16	**SS1-40**
							0.16	**SS1-40B**
15.7	1.60	1.61	0.16	7.47	0.76		0.17	**SS1-42**
16.6	1.69	1.77	0.18	8.23	0.84		0.18	**SS1-44**
17.1	1.74	1.86	0.19	8.62	0.88		0.19	**SS1-45**
							0.19	**SS1-45A**
							0.19	**SS1-45B**
17.6	1.79	1.95	0.20	9.02	0.92		0.19	**SS1-46**
18.5	1.89	2.13	0.22	9.84	1.00		0.21	**SS1-48**

[Caution on Product Characteristics]
① The key groove used is a JIS B 1301 normal type (Js9) and a set screw is included for products with a tapped hole.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
④ When using S3T and S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

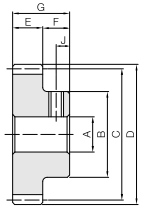
[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus]
① See Page 6 for more details on Hardened Plus.

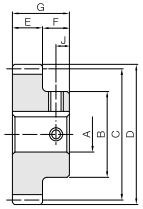
Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating



S1



S1T



S1K

To order Hardened Plus, please specify Catalog No. + H.

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Keyway	Socket head screw	
				A_{H7}	B	C	D	E	F	G	Width × Depth	Size	J
SS1-50	*m*1	50	S1	10	35	50	52	10	10	20	—	—	—
SS1-50A			S1T	8							—	M5	5
SS1-52		52	S1	10		52	54				—	—	—
SS1-54		54	S1	10		54	56				—	—	—
SS1-55		55	S1	10		55	57				—	—	—
SS1-56		56	S1	10		56	58				—	—	—
SS1-58		58	S1	10		58	60				—	—	—
SS1-60		60	S1	10		60	62				—	—	—
SS1-60C			S1K	15							5 x 2.3	M4	5
SS1-62		62	S1	10	40	62	64				—	—	—
SS1-64		64	S1	10		64	66				—	—	—
SS1-65		65	S1	10		65	67				—	—	—
SS1-66		66	S1	10		66	68				—	—	—
SS1-68		68	S1	10		68	70				—	—	—
SS1-70		70	S1	10		70	72				—	—	—
SS1-72		72	S1	10		72	74				—	—	—
SS1-75		75	S1	10		75	77				—	—	—
SS1-76		76	S1	10		76	78				—	—	—
SS1-80		80	S1	10	40	80	82				—	—	—
SS1-84		84	S1	10		84	86				—	—	—
SS1-85		85	S1	10		85	87				—	—	—
SS1-88		88	S1	10		88	90				—	—	—
SS1-90		90	S1	10		90	92				—	—	—
SS1-95		95	S1	10		95	97				—	—	—
SS1-96		96	S1	10		96	98				—	—	—
SS1-100		100	S1	10		100	102				—	—	—
SS1-110		110	S1	15	50	110	112				—	—	—
SS1-120		120	S1	15	50	120	122				—	—	—
SS1-150		150	S1	20	120	150	152				—	—	—
SS1-200		200	S1	20	160	200	202				—	—	—

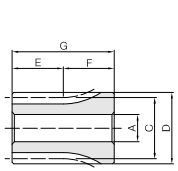
[Caution on Product Characteristics]
① The key groove used is a JIS B 1301 normal type (Js9) and a set screw is included for products with a tapped hole.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
④ When using S3T and S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Allowable torque						Backlash (mm)	Weight (kg)	Catalog Number
Bending strength		Surface durability		Surface durability (H)				
N·m	kgf·m	N·m	kgf·m	N·m	kgf·m			
19.5	1.98	2.32	0.24	10.7	1.09	0.08~0.18	0.22	**SS1-50**
							0.22	**SS1-50A**
20.4	2.08	2.52	0.26	11.6	1.18		0.23	**SS1-52**
21.4	2.18	2.73	0.28	12.5	1.28		0.24	**SS1-54**
21.8	2.23	2.83	0.29	13.0	1.33		0.25	**SS1-55**
22.3	2.28	2.94	0.30	13.5	1.38		0.26	**SS1-56**
23.3	2.37	3.17	0.32	14.5	1.48		0.27	**SS1-58**
24.2	2.47	3.40	0.35	15.6	1.59		0.29	**SS1-60**
							0.27	**SS1-60C**
25.2	2.57	3.64	0.37	16.7	1.70		0.32	**SS1-62**
26.2	2.67	3.89	0.40	17.8	1.81		0.34	**SS1-64**
26.6	2.72	4.02	0.41	18.4	1.87		0.35	**SS1-65**
27.1	2.77	4.15	0.42	18.9	1.93		0.35	**SS1-66**
28.1	2.86	4.42	0.45	20.1	2.05		0.37	**SS1-68**
29.1	2.96	4.70	0.48	21.4	2.18		0.39	**SS1-70**
30.0	3.06	4.98	0.51	22.6	2.31		0.41	**SS1-72**
31.5	3.21	5.43	0.55	24.6	2.51		0.43	**SS1-75**
32.0	3.26	5.59	0.57	25.3	2.58		0.44	**SS1-76**
33.9	3.46	6.23	0.63	28.1	2.87		0.48	**SS1-80**
35.8	3.66	6.90	0.7	31.1	3.17		0.52	**SS1-84**
36.3	3.71	7.08	0.72	31.8	3.25		0.53	**SS1-85**
37.8	3.85	7.62	0.78	34.2	3.48		0.56	**SS1-88**
38.8	3.95	7.98	0.81	35.8	3.65		0.59	**SS1-90**
41.2	4.20	8.95	0.91	40.0	4.08		0.64	**SS1-95**
41.7	4.25	9.15	0.93	40.8	4.16		0.65	**SS1-96**
43.7	4.45	9.97	1.02	44.4	4.53		0.70	**SS1-100**
48.6	4.95	12.2	1.24	53.9	5.50		0.87	**SS1-110**
53.5	5.45	14.7	1.50	64.4	6.57		1.01	**SS1-120**
68.2	6.96	23.6	2.41	102	10.4		2.23	**SS1-150**
71.5	7.29	33.6	3.42	144	14.7		4.00	**SS1-200**

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus] ① See Page 6 for more details on Hardened Plus.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating



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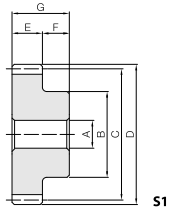
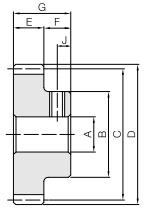
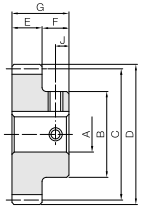


S1



S1T



S1K

To order Hardened Plus, please specify Catalog No. + H.

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Keyway	Socket head screw	
				A_{H7}	B	C	D	E	F	G	Width × Depth	Size	J
SS1.5-12	*m*1.5	12	S3	8	21	18	21	15	15	30	—	—	—
SS1.5-13		13	S3	8	22.5	19.5	22.5				—	—	—
SS1.5-14 **SS1.5-14B**		14	S1 S1T	8 8	16	21	24		10	25	— —	— M5	— 5
SS1.5-15		15	S1	8	18	22.5	25.5				—	—	—
SS1.5-16 **SS1.5-16B**		16	S1 S1T	8 8	20	24	27				— —	— M5	— 5
SS1.5-17		17	S1	8	21	25.5	28.5				—	—	—
SS1.5-18		18	S1	8	22	27	30				—	—	—
SS1.5-19		19	S1	8	23	28.5	31.5				—	—	—
SS1.5-20		20	S1	8	24	30	33				—	—	—
SS1.5-21		21	S1	8	25	31.5	34.5				—	—	—
SS1.5-22		22	S1	8	26	33	36				—	—	—
SS1.5-23		23	S1	8	27	34.5	37.5				—	—	—
SS1.5-24		24	S1	8	28	36	39				—	—	—
SS1.5-25		25	S1	8	30	37.5	40.5				—	—	—
SS1.5-26 **SS1.5-26A**		26	S1 S1K	10 12	32	39	42				— 4 x 1.8	— M4	— 5
SS1.5-27		27	S1	10	34	40.5	43.5				—	—	—
SS1.5-28 **SS1.5-28A**		28	S1 S1K	10 12	36	42	45				— 4 x 1.8	— M4	— 5
SS1.5-29		29	S1	10	37	43.5	46.5				—	—	—
SS1.5-30 **SS1.5-30C**		30	S1 S1K	10 15	38	45	48				— 5 x 2.3	— M4	— 5
SS1.5-32 **SS1.5-32B**		32	S1 S1K	10 12	40 38	48	51				— 4 x 1.8	— M4	— 5
SS1.5-34		34	S1	10	40	51	54				—	—	—
SS1.5-35		35	S1	10	42	52.5	55.5				—	—	—
SS1.5-36		36	S1	10	45	54	57				—	—	—
SS1.5-38		38	S1	12	45	57	60				—	—	—
SS1.5-40		40	S1	12	45	60	63				—	—	—

[Caution on Product Characteristics]
① The key groove used is a JIS B 1301 normal type (Js9) and a set screw is included for products with a tapped hole.
② The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
④ When using S3T and S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

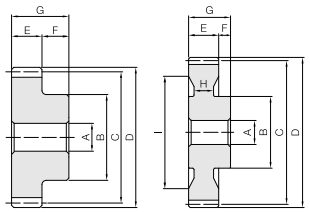
Allowable torque						Backlash (mm)	Weight (kg)	Catalog Number
Bending strength		Surface durability		Surface durability (H)				
N·m	kgf·m	N·m	kgf·m	N·m	kgf·m			
6.86	0.70	0.36	0.037	1.76	0.18	0.10~0.22	0.059	**SS1.5-12**
8.84	0.90	0.44	0.045	2.12	0.22		0.070	**SS1.5-13**
11.1	1.13	0.52	0.053	2.50	0.26		0.047 0.046	**SS1.5-14** **SS1.5-14B**
12.5	1.27	0.60	0.062	2.91	0.30		0.057	**SS1.5-15**
13.8	1.41	0.70	0.071	3.36	0.34		0.068 0.067	**SS1.5-16** **SS1.5-16B**
15.2	1.55	0.80	0.082	3.84	0.39		0.077	**SS1.5-17**
16.6	1.69	0.91	0.093	4.35	0.44		0.087	**SS1.5-18**
18.0	1.83	1.03	0.11	4.89	0.50		0.098	**SS1.5-19**
19.4	1.98	1.15	0.12	5.47	0.56		0.11	**SS1.5-20**
20.8	2.12	1.29	0.13	6.08	0.62		0.12	**SS1.5-21**
22.3	2.27	1.43	0.15	6.72	0.69		0.13	**SS1.5-22**
23.7	2.42	1.58	0.16	7.40	0.75		0.15	**SS1.5-23**
25.2	2.57	1.73	0.18	8.12	0.83		0.16	**SS1.5-24**
26.7	2.72	1.90	0.19	8.87	0.90		0.18	**SS1.5-25**
28.2	2.87	2.06	0.21	9.62	0.98		0.19 0.18	**SS1.5-26** **SS1.5-26A**
29.7	3.03	2.23	0.23	10.4	1.06		0.21	**SS1.5-27**
31.2	3.18	2.41	0.25	11.2	1.14		0.23 0.22	**SS1.5-28** **SS1.5-28A**
32.7	3.34	2.60	0.26	12.1	1.23		0.24	**SS1.5-29**
34.2	3.49	2.79	0.28	12.9	1.32		0.26 0.24	**SS1.5-30** **SS1.5-30C**
37.3	3.80	3.19	0.33	14.8	1.51		0.30 0.28	**SS1.5-32** **SS1.5-32B**
40.4	4.12	3.63	0.37	16.7	1.71		0.32	**SS1.5-34**
41.9	4.28	3.85	0.39	17.8	1.81		0.35	**SS1.5-35**
43.5	4.43	4.09	0.42	18.8	1.92		0.38	**SS1.5-36**
46.6	4.75	4.58	0.47	21.0	2.14		0.40	**SS1.5-38**
49.8	5.07	5.10	0.52	23.4	2.38		0.44	**SS1.5-40**

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus]
① See Page 6 for more details on Hardened Plus.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	—
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating
Backlash	0.10 to 0.22

* The precision grade of J Series products is equivalent to the value shown in the table.



H To order Hardened Plus, please specify Catalog No. + H. **Example: SS1.5-42H**

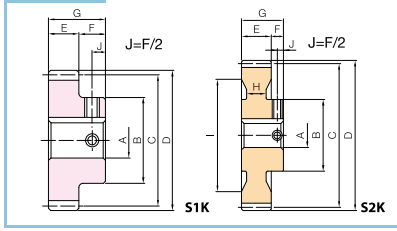
Catalog Number		No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.	Allowable torque: Bending strength N·m	Bending strength kgf·m	Surface durability N·m	Surface durability kgf·m	Surface durability (H) N·m	Surface durability (H) kgf·m	Weight (kg)
				A_{H7}	B	C	D	E	F	G	(H)	(I)							
SS1.5-42	H	42	S1	12	45	63	66	15	10	25	—	—	52.9	5.40	5.65	0.58	25.8	2.63	0.47
SS1.5-44	H	44				66	69						56.1	5.72	6.23	0.64	28.4	2.90	0.51
SS1.5-45	H	45				67.5	70.5						57.7	5.88	6.53	0.67	29.8	3.03	0.52
SS1.5-46	H	46				69	72						59.3	6.04	6.83	0.70	31.1	3.17	0.54
SS1.5-48	H	48				72	75						62.4	6.37	7.47	0.76	34.0	3.46	0.58
SS1.5-50	H	50				75	78						65.7	6.69	8.15	0.83	36.9	3.77	0.62
SS1.5-52	H	52			50	78	81						68.9	7.02	8.85	0.90	40.0	4.08	0.68
SS1.5-54	H	54				81	84						72.1	7.35	9.59	0.98	43.3	4.41	0.73
SS1.5-55	H	55				82.5	85.5						73.7	7.51	9.96	1.02	44.9	4.58	0.75
SS1.5-56	H	56				84	87						75.3	7.68	10.4	1.06	46.6	4.75	0.77
SS1.5-58	H	58			55	87	90						78.5	8.01	11.2	1.14	50.1	5.11	0.82
SS1.5-60	H	60				90	93						81.8	8.34	12.0	1.22	53.7	5.47	0.87
SS1.5-62	H	62		15		93	96						85.0	8.67	12.8	1.31	57.4	5.85	0.95
SS1.5-64	H	64				96	99						88.3	9.00	13.7	1.40	61.3	6.25	1.00
SS1.5-65	H	65				97.5	100.5						89.9	9.17	14.2	1.45	63.2	6.45	1.03
SS1.5-66	H	66				99	102						91.5	9.33	14.6	1.49	65.2	6.65	1.06
SS1.5-68	H	68				102	105						94.8	9.66	15.6	1.59	69.3	7.07	1.11
SS1.5-70	H	70				105	108						98.0	10.0	16.6	1.69	73.6	7.50	1.17
SS1.5-72	H	72				108	111						101	10.3	17.6	1.79	77.9	7.95	1.23
SS1.5-75	H	75			60	112.5	115.5						106	10.8	19.2	1.95	84.7	8.64	1.36
SS1.5-76	H	76				114	117						108	11.0	19.7	2.01	87.0	8.88	1.39
SS1.5-80	H	80				120	123						114	11.7	22.0	2.24	96.7	9.86	1.52
SS1.5-84	H	84				126	129						121	12.3	24.4	2.49	107	10.9	1.66
SS1.5-85	H	85				127.5	130.5						123	12.5	25.1	2.56	109	11.2	1.69
SS1.5-88	H	88				132	135						128	13.0	27.0	2.75	117	12.0	1.80
SS1.5-90	H	90				135	138						131	13.3	28.3	2.89	123	12.5	1.87
SS1.5-95	H	95				142.5	145.5						139	14.2	31.8	3.24	137	14.0	2.07
SS1.5-100	H	100	S2			150	153				9	125	147	15.0	35.5	3.62	152	15.5	1.88
SS1.5-120	H	120			70	180	183				10	153	180	18.4	52.3	5.33	221	22.5	2.74
SS1.5-150	H	150	S1	20	180	225	228				—	—	192	19.6	70.3	7.17	276	28.1	6.62
SS1.5-200	H	200		25	240	300	303						261	26.7	131	13.3	504	51.4	11.8

[Caution on Product Characteristics]
① The key groove used is a JIS B 1301 normal type (Js9) and a set screw is included for products with a tapped hole.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus]
① See Page 6 for more details on Hardened Plus.

J Series



To order J Series products, please specify: **Catalog No. + J + BORE.** **Example: SS1.5-42J12**

Bore H7 / Keyway Js9	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35
Screw size	4×1.8		5×2.3				6×2.8				8×3.3			10×3.3	
Catalog Number	M4						M5				M6			M8	
SS1.5-42 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS1.5-44 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS1.5-45 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS1.5-46 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS1.5-48 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS1.5-50 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS1.5-52 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS1.5-54 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS1.5-55 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS1.5-56 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS1.5-58 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS1.5-60 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS1.5-62 J BORE	To order J Series Hardened Plus products, please specify: Catalog No. + H + J + BORE. **Example: SS1.5-42HJ14**			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS1.5-64 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS1.5-65 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS1.5-66 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS1.5-68 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS1.5-70 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS1.5-72 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS1.5-75 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS1.5-76 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS1.5-80 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS1.5-84 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS1.5-85 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS1.5-88 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS1.5-90 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS1.5-95 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS1.5-100 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS1.5-120 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS1.5-150															
SS1.5-200															

* The product shapes of J Series items are identified by background color.

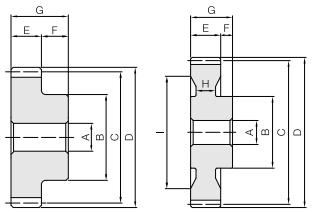
[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered) after placing an order, and 6 working days for Hardened Plus products.
Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.
⑦ * is a product with the original bore diameter, so Hardened Plus is not available. See Page 6 for more details on Hardened Plus.

SS Module 2

Spur Gears

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	—
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating
Backlash	0.12 to 0.26

* The precision grade of J Series products is equivalent to the value shown in the table.



S1 S2

(H) To order Hardened Plus, please specify Catalog No. + H. Example: SS2-12H

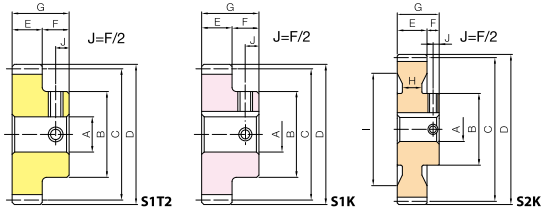
Catalog Number		No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.	Allowable torque						Weight (kg)
													Bending strength		Surface durability		Surface durability (H)		
				A_{H7}	B	C	D	E	F	G	(H)	(I)	N·m	kgf·m	N·m	kgf·m	N·m	kgf·m	
SS2-12	(H)	12	S1	10	18	24	28						16.3	1.66	0.88	0.090	4.24	0.43	0.073
SS2-13	(H)	13			20	26	30						21.0	2.14	1.07	0.11	5.11	0.52	0.090
SS2-14	(H)	14			20	28	32						26.3	2.69	1.26	0.13	6.02	0.61	0.10
SS2-15	(H)	15		12	24	30	34						29.6	3.01	1.48	0.15	7.01	0.71	0.12
SS2-16	(H)	16			26	32	36						32.7	3.34	1.71	0.17	8.08	0.82	0.14
SS2-17	(H)	17			28	34	38						36.0	3.67	1.96	0.20	9.23	0.94	0.16
SS2-18	(H)	18			30	36	40						39.3	4.01	2.23	0.23	10.5	1.07	0.19
SS2-19	(H)	19			31	38	42						42.6	4.35	2.52	0.26	11.8	1.20	0.21
SS2-20	(H)	20			32	40	44						46.0	4.69	2.83	0.29	13.2	1.34	0.23
SS2-21	(H)	21			34	42	46						49.4	5.04	3.15	0.32	14.7	1.50	0.26
SS2-22	(H)	22			36	44	48						52.8	5.39	3.50	0.36	16.2	1.66	0.29
SS2-23	(H)	23			37	46	50						56.3	5.74	3.86	0.39	17.9	1.82	0.32
SS2-24	(H)	24			38	48	52						59.8	6.09	4.24	0.43	19.6	2.00	0.35
SS2-25	(H)	25			40	50	54						63.3	6.45	4.64	0.47	21.4	2.18	0.38
SS2-26	(H)	26			42	52	56						66.8	6.81	5.04	0.51	23.2	2.37	0.42
SS2-27	(H)	27			45	54	58						70.4	7.17	5.45	0.56	25.1	2.56	0.46
SS2-28	(H)	28			45	56	60						73.9	7.54	5.89	0.60	27.0	2.76	0.48
SS2-29	(H)	29			47	58	62						77.5	7.91	6.33	0.65	29.1	2.96	0.52
SS2-30	(H)	30			50	60	64						81.1	8.27	6.80	0.69	31.2	3.18	0.57
SS2-32	(H)	32			50	64	68						88.4	9.01	7.78	0.79	35.6	3.63	0.63
SS2-34	(H)	34			50	68	72						95.7	9.76	8.84	0.90	40.3	4.11	0.70
SS2-35	(H)	35			52	70	74						99.3	10.1	9.39	0.96	42.8	4.36	0.74
SS2-36	(H)	36			55	72	76				—	—	103	10.5	9.96	1.02	45.3	4.62	0.80
SS2-38	(H)	38			55	76	80						111	11.3	11.2	1.14	50.6	5.16	0.87
SS2-40	(H)	40			55	80	84						118	12.0	12.5	1.27	56.2	5.73	0.93
SS2-42	(H)	42				84	88						125	12.8	13.8	1.41	62.1	6.34	1.01
SS2-44	(H)	44				88	92						133	13.6	15.2	1.55	68.3	6.97	1.10
SS2-45	(H)	45			55	90	94	20	10	30			137	13.9	16.0	1.63	71.6	7.30	1.14
SS2-46	(H)	46				92	96						140	14.3	16.7	1.71	74.9	7.63	1.19
SS2-48	(H)	48				96	100						148	15.1	18.3	1.87	81.7	8.33	1.28
SS2-50	(H)	50				100	104						156	15.9	19.9	2.03	88.8	9.05	1.38
SS2-52	(H)	52				104	108						163	16.6	21.7	2.21	96.2	9.81	1.48
SS2-54	(H)	54			55	108	112						171	17.4	23.4	2.39	104	10.6	1.58
SS2-55	(H)	55		15		110	114						175	17.8	24.4	2.48	108	11.0	1.64
SS2-56	(H)	56				112	116						179	18.2	25.3	2.58	112	11.4	1.69
SS2-58	(H)	58				116	120						186	19.0	27.3	2.78	120	12.3	1.84
SS2-60	(H)	60				120	124						194	19.8	29.3	2.99	129	13.1	1.96
SS2-62	(H)	62			60	124	128						202	20.6	31.5	3.21	138	14.1	2.08
SS2-64	(H)	64				128	132						209	21.3	33.7	3.44	147	15.0	2.20
SS2-65	(H)	65				130	134						213	21.7	34.8	3.55	152	15.5	2.26
SS2-66	(H)	66				132	136						217	22.1	36.0	3.67	157	16.0	2.33
SS2-68	(H)	68				136	140						225	22.9	38.4	3.91	166	17.0	2.46
SS2-70	(H)	70			60	140	144						232	23.7	40.8	4.16	177	18.0	2.60
SS2-72	(H)	72				144	148						240	24.5	43.3	4.42	187	19.1	2.74
SS2-75	(H)	75				150	154						252	25.7	47.3	4.82	203	20.7	2.92
SS2-76	(H)	76			60	152	156						256	26.1	48.6	4.96	209	21.3	3.00
SS2-80	(H)	80	S2		60	160	164					136	271	27.7	54.3	5.53	232	23.6	2.67
SS2-84	(H)	84			70	168	172					140	287	29.2	60.2	6.14	256	26.1	3.09
SS2-85	(H)	85		20	70	170	174					146	291	29.6	61.7	6.30	262	26.8	3.09
SS2-88	(H)	88			70	176	180				12	150	302	30.8	66.5	6.78	282	28.7	3.29
SS2-90	(H)	90			70	180	184					156	310	31.6	69.7	7.11	295	30.1	3.38
SS2-95	(H)	95			70	190	194					166	330	33.6	78.2	7.97	329	33.6	3.69
SS2-100	(H)	100			70	200	204					176	291	29.7	72.7	7.42	288	29.3	4.01
SS2-120	(H)	120			90	240	244					210	357	36.4	108	11.0	421	43.0	5.91
SS2-150	(H)	150	S1	25	240	300	304				—	—	455	46.4	174	17.7	672	68.5	14.5

[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations] ① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus] ① See Page 6 for more details on Hardened Plus.

J Series



To order J Series products, please specify: Catalog No. + J + BORE. Example: SS2-12J10

* The product shapes of J Series items are identified by background color.

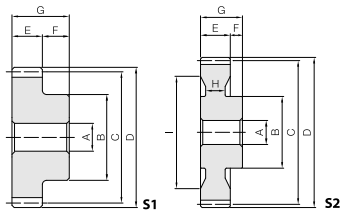
Bore H7	Keyway Js9	Screw size	Catalog Number	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35
		4×1.8	M4	5×2.3						6×2.8				8×3.3			10×3.3	
										M5				M6			M8	
SS2-12 J BORE				*S1T2														
SS2-13 J BORE				*S1T2														
SS2-14 J BORE				*S1K														
SS2-15 J BORE					*S1K													
SS2-16 J BORE					*S1K	S1K												
SS2-17 J BORE					*S1K	S1K	S1K	S1K										
SS2-18 J BORE					*S1K	S1K	S1K	S1K	S1K									
SS2-19 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K								
SS2-20 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SS2-21 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SS2-22 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SS2-23 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS2-24 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS2-25 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS2-26 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS2-27 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS2-28 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS2-29 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS2-30 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS2-32 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS2-34 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS2-35 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS2-36 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-38 J BORE					*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-40 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-42 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-44 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-45 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-46 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-48 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-50 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-52 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-54 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-55 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-56 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2-58 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS2-60 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS2-62 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS2-64 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS2-65 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS2-66 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS2-68 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS2-70 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS2-72 J BORE							*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS2-75 J BORE												*S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS2-76 J BORE												*S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS2-80 J BORE												*S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS2-84 J BORE												*S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS2-85 J BORE												*S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS2-88 J BORE												*S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS2-90 J BORE												*S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS2-95 J BORE												*S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS2-100 J BORE												*S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS2-120 J BORE												*S2K	S2K	S2K	S2K	S2K	S2K	S2K

To order J Series Hardened Plus products, please specify: Catalog No. + H + J + BORE.
Example: SS2-16HJ14

[Caution on J series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered) after placing an order, and 6 working days for Hardened Plus products. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.
⑦ When using S1T2 set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.
⑧ * is a product with the original bore diameter, so Hardened Plus is not available. See Page 6 for more details on Hardened Plus.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating
Backlash	0.14 to 0.28

* The precision grade of J Series products is equivalent to the value shown in the table.



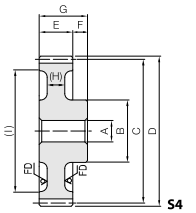
To order Hardened Plus, please specify Catalog No. + H. **Example: SS2.5-12H**

Catalog Number		No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Web thickness (H)	Web O.D. (l)	Allowable torque: Bending strength N·m	Bending strength kgf·m	Surface durability N·m	Surface durability kgf·m	Surface durability (H) N·m	Surface durability (H) kgf·m	Weight (kg)
SS2.5-12	(H)	12	S1	12	23	30	35	25	12	37	—	—	31.8	3.24	1.77	0.18	8.37	0.85	0.15
SS2.5-13	(H)	13			25	32.5	37.5						40.9	4.17	2.14	0.22	10.1	1.03	0.18
SS2.5-14	(H)	14			25	35	40						51.5	5.25	2.53	0.26	11.9	1.21	0.20
SS2.5-15	(H)	15		15	30	37.5	42.5						57.7	5.89	2.96	0.30	13.9	1.41	0.23
SS2.5-16	(H)	16			32	40	45						64.0	6.52	3.43	0.35	16.0	1.63	0.27
SS2.5-17	(H)	17			35	42.5	47.5						70.3	7.17	3.93	0.40	18.3	1.86	0.32
SS2.5-18	(H)	18			38	45	50						76.7	7.82	4.47	0.46	20.7	2.11	0.37
SS2.5-19	(H)	19			39	47.5	52.5						83.2	8.49	5.05	0.51	23.3	2.38	0.41
SS2.5-20	(H)	20			40	50	55						89.8	9.16	5.66	0.58	26.1	2.66	0.45
SS2.5-21	(H)	21			42	52.5	57.5						96.4	9.83	6.30	0.64	29.0	2.96	0.50
SS2.5-22	(H)	22			44	55	60						103	10.5	6.99	0.71	32.1	3.28	0.56
SS2.5-23	(H)	23			46	57.5	62.5						110	11.2	7.71	0.79	35.4	3.61	0.61
SS2.5-24	(H)	24			48	60	65						117	11.9	8.47	0.86	38.8	3.95	0.67
SS2.5-25	(H)	25			50	62.5	67.5						124	12.6	9.26	0.94	42.3	4.32	0.74
SS2.5-26	(H)	26			55	65	70						130	13.3	10.1	1.03	45.9	4.68	0.82
SS2.5-27	(H)	27			60	67.5	72.5						137	14.0	10.9	1.11	49.6	5.06	0.92
SS2.5-28	(H)	28			60	70	75						144	14.7	11.7	1.20	53.4	5.45	0.97
SS2.5-29	(H)	29			62	72.5	77.5						151	15.4	12.6	1.29	57.4	5.86	1.04
SS2.5-30	(H)	30			65	75	80						159	16.2	13.6	1.39	61.6	6.28	1.13
SS2.5-32	(H)	32			70	80	85						173	17.6	15.6	1.59	70.3	7.17	1.30
SS2.5-34	(H)	34				85	90						187	19.1	17.7	1.80	79.6	8.11	1.42
SS2.5-35	(H)	35				87.5	92.5						194	19.8	18.8	1.92	84.4	8.61	1.49
SS2.5-36	(H)	36			70	90	95						201	20.5	20.0	2.04	89.5	9.12	1.56
SS2.5-38	(H)	38				95	100						216	22.0	22.4	2.28	99.9	10.2	1.66
SS2.5-40	(H)	40		20		100	105						230	23.5	24.9	2.54	111	11.3	1.81
SS2.5-42	(H)	42				105	110						245	25.0	27.6	2.82	123	12.5	1.97
SS2.5-44	(H)	44				110	115						260	26.5	30.5	3.11	135	13.8	2.14
SS2.5-45	(H)	45			70	112.5	117.5						267	27.2	31.9	3.26	141	14.4	2.22
SS2.5-46	(H)	46				115	120						274	28.0	33.5	3.41	148	15.1	2.31
SS2.5-48	(H)	48				120	125						289	29.5	36.7	3.74	161	16.4	2.49
SS2.5-50	(H)	50				125	130						304	31.0	40.0	4.08	175	17.9	2.68
SS2.5-52	(H)	52				130	135						319	32.5	43.5	4.44	190	19.3	2.88
SS2.5-54	(H)	54			70	135	140						334	34.0	47.2	4.81	205	20.9	3.08
SS2.5-55	(H)	55				137.5	142.5						341	34.8	49.1	5.01	213	21.7	3.19
SS2.5-56	(H)	56				140	145						349	35.6	51.0	5.20	221	22.5	3.29
SS2.5-58	(H)	58			70	145	150						364	37.1	55.0	5.61	237	24.2	3.51
SS2.5-60	(H)	60	S4		70	150	155				(10)	(127)	379	38.6	59.1	6.03	254	25.9	2.80
SS2.5-62	(H)	62	S2		80	155	160					130	394	40.1	63.4	6.46	272	27.7	3.54
SS2.5-64	(H)	64			80	160	165					131	409	41.7	67.8	6.92	290	29.6	3.76
SS2.5-65	(H)	65		25	80	162.5	167.5					134	416	42.4	70.1	7.15	299	30.5	3.84
SS2.5-66	(H)	66				165	170					140	424	43.2	72.4	7.39	309	31.5	3.87
SS2.5-68	(H)	68				170	175				15	140	439	44.7	77.2	7.87	328	33.4	4.13
SS2.5-70	(H)	70			80	175	180					146	454	46.3	82.1	8.37	348	35.5	4.30
SS2.5-72	(H)	72				180	185					151	469	47.8	87.1	8.89	368	37.6	4.49
SS2.5-75	(H)	75				187.5	192.5					159	492	50.1	95.0	9.69	400	40.8	4.77
SS2.5-76	(H)	76			80	190	195					160	499	50.9	97.7	9.97	411	41.9	4.90
SS2.5-80	(H)	80	S4		80	200	205					(177)	441	45.0	90.9	9.27	359	36.7	4.42
SS2.5-90	(H)	90		30	90	225	230				(10)	(202)	505	51.5	117	12.0	460	46.9	5.64
SS2.5-100	(H)	100			90	250	255					(227)	569	58.0	147	15.0	573	58.5	6.78
SS2.5-120	(H)	120			100	300	305					(277)	696	71.0	218	22.2	840	85.7	9.38

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

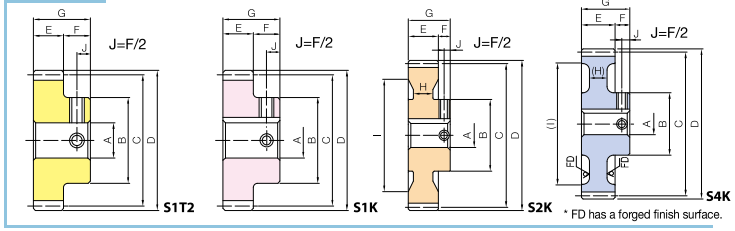
[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus]
① See Page 6 for more details on Hardened Plus.



* FD has a forged finish surface.

J Series



* FD has a forged finish surface.

To order J Series products, please specify: Catalog No. + J + BORE. **Example: SS2.5-12J12**

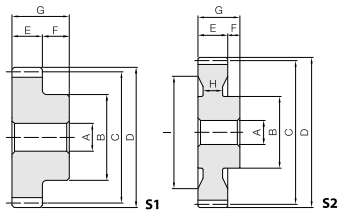
Bore H7	* The product shapes of J Series items are identified by background color.															
Keyway Js9	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	
Screw size	4×1.8	5×2.3				6×2.8				8×3.3			10×3.3		12×3.3	
Catalog Number	M4					M5				M6			M8			
SS2.5-12 J BORE	*S1T2															
SS2.5-13 J BORE	*S1K															
SS2.5-14 J BORE	*S1K	S1K														
SS2.5-15 J BORE			*S1K	S1K												
SS2.5-16 J BORE			*S1K	S1K	S1K	S1K										
SS2.5-17 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K								
SS2.5-18 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SS2.5-19 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SS2.5-20 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SS2.5-21 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SS2.5-22 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SS2.5-23 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SS2.5-24 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS2.5-25 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS2.5-26 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS2.5-27 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS2.5-28 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS2.5-29 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS2.5-30 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS2.5-32 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-34 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-35 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-36 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-38 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-40 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-42 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-44 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-45 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-46 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-48 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-50 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-52 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-54 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-55 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-56 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-58 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS2.5-60 J BORE										*S4K	S4K	S4K	S4K	S4K	S4K	
SS2.5-62 J BORE										*S2K	S2K	S2K	S2K	S2K	S2K	
SS2.5-64 J BORE										*S2K	S2K	S2K	S2K	S2K	S2K	
SS2.5-65 J BORE										*S2K	S2K	S2K	S2K	S2K	S2K	
SS2.5-66 J BORE										*S2K	S2K	S2K	S2K	S2K	S2K	
SS2.5-68 J BORE										*S2K	S2K	S2K	S2K	S2K	S2K	
SS2.5-70 J BORE										*S2K	S2K	S2K	S2K	S2K	S2K	
SS2.5-72 J BORE										*S2K	S2K	S2K	S2K	S2K	S2K	
SS2.5-75 J BORE										*S2K	S2K	S2K	S2K	S2K	S2K	
SS2.5-76 J BORE										*S2K	S2K	S2K	S2K	S2K	S2K	
SS2.5-80 J BORE										*S4K	S4K	S4K	S4K	S4K	S4K	
SS2.5-90 J BORE												*S4K	S4K	S4K	S4K	
SS2.5-100 J BORE												*S4K	S4K	S4K	S4K	
SS2.5-120 J BORE												*S4K	S4K	S4K	S4K	

To order J Series Hardened Plus products, please specify: Catalog No. + H + J + BORE.
Example: SS2.5-14HJ14

[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered) after placing an order, and 6 working days for Hardened Plus products. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.
⑦ When using S1T2 set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.
⑧ * is a product with the original bore diameter, so Hardened Plus is not available. See Page 6 for more details on Hardened Plus.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating
Backlash	0.14 to 0.32

* The precision grade of J Series products is equivalent to the value shown in the table.



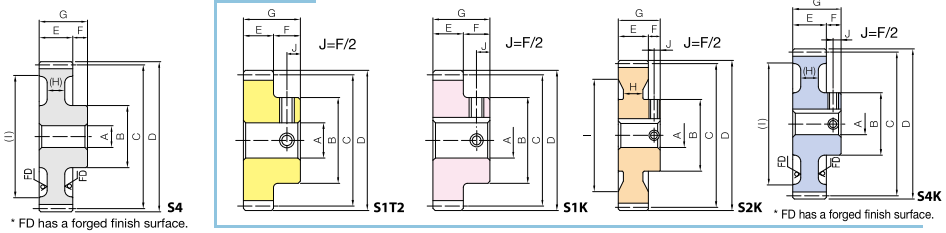
H To order Hardened Plus, please specify Catalog No. + H. **Example: SS3-12H**

Catalog Number		No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.	Allowable torque: Bending strength		Allowable torque: Surface durability		Allowable torque: Surface durability (H)		Weight (kg)
				A_{H7}	B	C	D	E	F	G	(H)	(I)	N·m	kgf·m	N·m	kgf·m	N·m	kgf·m	
SS3-12	H	12	S1	15	28	36	42	30	15	45	—	—	54.9	5.59	3.12	0.32	14.6	1.49	0.25
SS3-13	H	13			30	39	45						70.7	7.21	3.77	0.38	17.6	1.80	0.30
SS3-14	H	14			32	42	48						88.9	9.07	4.47	0.46	20.8	2.12	0.36
SS3-15	H	15			36	45	51						99.7	10.2	5.23	0.53	24.2	2.47	0.43
SS3-16	H	16			38	48	54						111	11.3	6.05	0.62	28.0	2.85	0.50
SS3-17	H	17			39	51	57						122	12.4	6.93	0.71	31.9	3.26	0.56
SS3-18	H	18			40	54	60						133	13.5	7.87	0.80	36.2	3.69	0.62
SS3-19	H	19			45	57	63						144	14.7	8.88	0.91	40.8	4.16	0.73
SS3-20	H	20			50	60	66						155	15.8	9.95	1.02	45.6	4.65	0.83
SS3-21	H	21			52	63	69						167	17.0	11.1	1.13	50.7	5.17	0.92
SS3-22	H	22			54	66	72						178	18.2	12.3	1.25	56.1	5.72	1.01
SS3-23	H	23			56	69	75						190	19.4	13.6	1.38	61.7	6.29	1.11
SS3-24	H	24			58	72	78						202	20.6	14.9	1.52	67.7	6.90	1.21
SS3-25	H	25		20	60	75	81						214	21.8	16.3	1.66	73.9	7.53	1.26
SS3-26	H	26			65	78	84						226	23.0	17.7	1.81	80.1	8.16	1.41
SS3-27	H	27			65	81	87						237	24.2	19.2	1.96	86.5	8.82	1.49
SS3-28	H	28			70	84	90						250	25.4	20.7	2.11	93.2	9.50	1.65
SS3-29	H	29			70	87	93						262	26.7	22.3	2.27	100	10.2	1.74
SS3-30	H	30			75	90	96						274	27.9	24.0	2.44	107	10.9	1.91
SS3-32	H	32			75	96	102						298	30.4	27.4	2.80	123	12.5	2.11
SS3-34	H	34				102	108						323	32.9	31.2	3.18	139	14.1	2.41
SS3-35	H	35				105	111						335	34.2	33.1	3.38	147	15.0	2.52
SS3-36	H	36			80	108	114						348	35.5	35.2	3.59	156	15.9	2.64
SS3-38	H	38				114	120						373	38.0	39.4	4.02	174	17.8	2.82
SS3-40	H	40				120	126						398	40.6	44.0	4.49	193	19.1	3.08
SS3-42	H	42				126	132						423	43.2	48.9	4.98	214	21.8	3.35
SS3-44	H	44				132	138						449	45.7	54.0	5.50	235	24.0	3.64
SS3-45	H	45			80	135	141						461	47.0	56.6	5.78	246	25.1	3.79
SS3-46	H	46				138	144						474	48.3	59.4	6.05	257	26.2	3.94
SS3-48	H	48				144	150						500	50.9	65.0	6.63	281	28.6	4.25
SS3-50	H	50	S4	25		150	156				(10)	(123)	525	53.6	70.9	7.23	305	31.1	3.72
SS3-52	H	52	S2			156	162					126	551	56.2	77.1	7.86	330	33.7	4.38
SS3-54	H	54			80	162	168					132	577	58.8	83.6	8.52	357	36.4	4.61
SS3-55	H	55				165	171				16	131	590	60.1	86.9	8.86	370	37.8	4.81
SS3-56	H	56				168	174					134	602	61.4	90.3	9.21	384	39.2	4.94
SS3-58	H	58				174	180					144	628	64.1	97.3	9.92	413	42.1	5.10
SS3-60	H	60	S4			180	186				(10)	(153)	654	66.7	105	10.7	442	45.1	4.60
SS3-62	H	62	S2		80	186	192					150	680	69.4	112	11.4	473	48.2	5.76
SS3-64	H	64				192	198					158	588	60.0	99.9	10.2	396	40.4	5.99
SS3-65	H	65				195	201					161	599	61.1	103	10.5	409	41.7	6.13
SS3-66	H	66				198	204					160	610	62.2	107	10.9	422	43.1	6.67
SS3-68	H	68				204	210				16	170	632	64.4	114	11.6	450	45.8	6.86
SS3-70	H	70			90	210	216					176	654	66.6	121	12.4	478	48.7	7.15
SS3-72	H	72				216	222					182	675	68.9	129	13.1	507	51.7	7.46
SS3-75	H	75				225	231					190	708	72.2	141	14.3	552	56.3	7.95
SS3-76	H	76			90	228	234					190	719	73.3	145	14.8	567	57.9	8.20
SS3-80	H	80	S4	30	90	240	246				(10)	(213)	763	77.8	162	16.5	632	64.4	6.92
SS3-90	H	90	S2		100	270	276				16	240	872	89.0	208	21.2	809	82.4	10.6
SS3-100	H	100	S4		100	300	306				(10)	(273)	983	100	261	26.6	1010	103	10.8
SS3-120	H	120			130	360	366					(333)	1200	123	386	39.4	1480	151	15.7

[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations] ① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus] ① See Page 6 for more details on Hardened Plus.



* FD has a forged finish surface.

To order J Series products, please specify: **Catalog No. + J + BORE.** **Example: SS3-12J15**

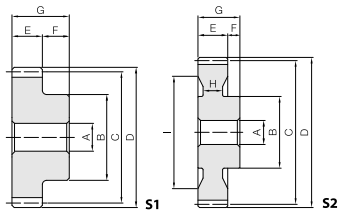
Bore H7	* The product shapes of J Series items are identified by background color.														
Keyway Js9	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Screw size	5×2.3			6×2.8				8×3.3			10×3.3		12×3.3	14×3.8	
Catalog Number	M4			M5				M6			M8			M10	
SS3-12 J BORE	*S1T2														
SS3-13 J BORE	*S1T2														
SS3-14 J BORE	*S1K	S1K	S1K												
SS3-15 J BORE	*S1K	S1K	S1K	S1K	S1K										
SS3-16 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SS3-17 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SS3-18 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SS3-19 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SS3-20 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS3-21 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS3-22 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS3-23 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS3-24 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS3-25 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS3-26 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS3-27 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS3-28 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS3-29 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS3-30 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS3-32 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS3-34 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS3-35 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS3-36 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS3-38 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS3-40 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS3-42 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS3-44 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS3-45 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS3-46 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS3-48 J BORE								*S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS3-50 J BORE								*S4K	S4K	S4K	S4K	S4K	S4K	S4K	
SS3-52 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	
SS3-54 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	
SS3-55 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	
SS3-56 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	
SS3-58 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	
SS3-60 J BORE								*S4K	S4K	S4K	S4K	S4K	S4K	S4K	
SS3-62 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	
SS3-64 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	
SS3-65 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	
SS3-66 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS3-68 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS3-70 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS3-72 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS3-75 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS3-76 J BORE								*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS3-80 J BORE										*S4K	S4K	S4K	S4K	S4K	S4K
SS3-90 J BORE										*S2K	S2K	S2K	S2K	S2K	S2K
SS3-100 J BORE										*S4K	S4K	S4K	S4K	S4K	S4K
SS3-120 J BORE										*S4K	S4K	S4K	S4K	S4K	S4K

To order J Series Hardened Plus products, please specify: Catalog No. + H + J + BORE.
Example: SS3-14HJ16

[Caution on J series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered) after placing an order, and 6 working days for Hardened Plus products. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.
⑦ When using S1T2 set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.
⑧ * is a product with the original bore diameter, so Hardened Plus is not available. See Page 6 for more details on Hardened Plus.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated (excludes semi-custom products)
Backlash	0.18 to 0.38

* The precision grade of J Series products is equivalent to the value shown in the table.



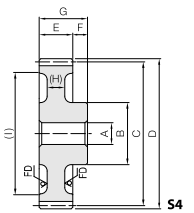
H To order Hardened Plus, please specify Catalog No. + H. **Example: SS4-12H**

Catalog Number		No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.	Allowable torque: Bending strength		Allowable torque: Surface durability		Allowable torque: Surface durability (H)		Weight (kg)
				A_{H7}	B	C	D	E	F	G	(H)	(I)	N·m	kgf·m	N·m	kgf·m	N·m	kgf·m	
SS4-12	H	12	S1	20	35	48	56	40	20	60	–	–	130	13.3	7.62	0.78	35.3	3.59	0.57
SS4-13	H	13			38	52	60						168	17.1	9.22	0.94	42.5	4.33	0.70
SS4-14	H	14			40	56	64						211	21.5	10.9	1.11	50.1	5.11	0.82
SS4-15	H	15			45	60	68						236	24.1	12.8	1.30	58.4	5.96	0.99
SS4-16	H	16			50	64	72						262	26.7	14.7	1.50	67.3	6.87	1.17
SS4-17	H	17			53	68	76						288	29.4	16.9	1.72	76.9	7.85	1.34
SS4-18	H	18			55	72	80						314	32.0	19.2	1.96	87.2	8.89	1.50
SS4-19	H	19			60	76	84						341	34.8	21.7	2.21	98.1	10.0	1.72
SS4-20	H	20			65	80	88						368	37.5	24.3	2.48	110	11.2	1.95
SS4-21	H	21			69	84	92						395	40.3	27.1	2.76	122	12.4	2.18
SS4-22	H	22			73	88	96						423	43.1	30.1	3.06	135	13.8	2.42
SS4-23	H	23			77	92	100						450	45.9	33.2	3.38	148	15.1	2.67
SS4-24	H	24			80	96	104						478	48.8	36.4	3.72	163	16.6	2.91
SS4-25	H	25			84	100	108						506	51.6	39.9	4.07	178	18.1	3.19
SS4-26	H	26			87	104	112						534	54.5	43.3	4.42	192	19.6	3.45
SS4-27	H	27			90	108	116						563	57.4	46.9	4.78	208	21.2	3.73
SS4-28	H	28			95	112	120						591	60.3	50.6	5.16	224	22.8	4.06
SS4-29	H	29			95	116	124						620	63.2	54.5	5.56	241	24.5	4.28
SS4-30	H	30			100	120	128						649	66.2	58.7	5.98	258	26.3	4.64
SS4-32	H	32		22	100	128	136						707	72.1	67.4	6.87	294	30.0	4.86
SS4-34	H	34			100	136	144						766	78.1	76.7	7.82	333	33.9	5.38
SS4-35	H	35				140	148						795	81.1	81.6	8.32	353	36.0	5.65
SS4-36	H	36				144	152						825	84.1	86.7	8.84	374	38.1	5.93
SS4-38	H	38				152	160						884	90.1	97.3	9.92	418	42.6	6.52
SS4-40	H	40		25		160	168						943	96.2	109	11.1	464	47.3	7.08
SS4-42	H	42				168	176						1000	102	120	12.3	512	52.2	7.73
SS4-44	H	44				176	184						1060	108	133	13.6	563	57.4	8.41
SS4-45	H	45				180	188						1090	112	139	14.2	590	60.1	8.76
SS4-46	H	46				184	192						1120	115	146	14.9	617	62.9	9.12
SS4-48	H	48				192	200					150	987	101	133	13.6	528	53.9	9.12
SS4-50	H	50	S2	30		200	208		16	56	26	158	1040	106	146	14.8	575	58.6	9.60
SS4-52	H	52				208	216					165	1090	111	158	16.1	624	63.7	10.2
SS4-54	H	54				216	224					175	1140	116	172	17.5	676	68.9	10.8
SS4-55	H	55				220	228					178	1160	119	179	18.2	702	71.6	11.1
SS4-56	H	56				224	232					182	1190	121	186	18.9	729	74.3	11.5
SS4-58	H	58			110	232	240					190	1240	127	200	20.4	785	80.0	12.5
SS4-60	H	60				240	248					198	1290	132	215	22	842	85.9	13.2
SS4-62	H	62				248	256				20	210	1340	137	231	23.6	902	92.0	13.1
SS4-64	H	64				256	264				16	214	1390	142	248	25.2	964	98.3	13.4
SS4-65	H	65				260	268					218	1420	145	256	26.1	996	102	13.7
SS4-66	H	66			120	264	272					220	1450	148	265	27	1030	105	14.7
SS4-68	H	68				272	280					225	1500	153	282	28.8	1090	112	15.5
SS4-70	H	70	S4			280	288				(12)	(248)	1550	158	300	30.6	1160	119	13.6
SS4-80	H	80				320	328					(288)	1810	184	400	40.8	1540	157	16.3
SS4-90S		90	S1	40	180	360	368	40	16	56	–	–	1910	195	467	48.0	–	–	34.6
SS4-100S		100			200	400	408						2150	219	586	60.0			42.9
SS4-110S		110			220	440	448						2390	244	720	73.0			52.0
SS4-120S		120			240	480	488						2630	269	869	89.0			62.0

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
③ Products with S at the end of the Catalog No. are semi-custom stock products. The maximum number of pieces per order must be 5 or less, and the delivery will take about 15 business days after the order is received.
④ For semi-custom standard products weighing 15 kg or more, eyebolt mounting screws (2-M12 depth 25 mm) are machined. Confirm the PCD of the screw on the website.

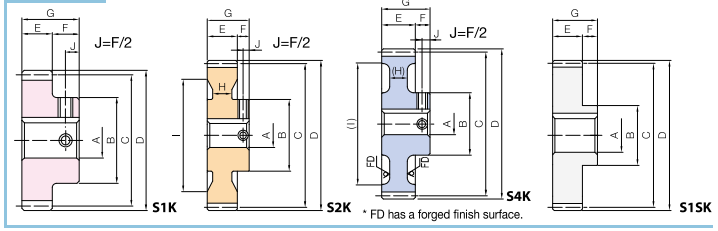
[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus]
① See Page 6 for more details on Hardened Plus.



* FD has a forged finish surface.

J Series



* FD has a forged finish surface.

To order J Series products, please specify: **Catalog No. + J + BORE.** **Example: SS4-14J20**

Bore H7	* The product shapes of J Series items are identified by background color.											
Keyway Js9	20	22	25	28	30	32	35	40	45	50	55	60	65
Screw size	6×2.8		8×3.3			10×3.3		12×3.3	14×3.8		16×4.3	18×4.4	
Catalog Number	M5		M6			M8			M10		M12		
SS4-12													
SS4-13													
SS4-14 J BORE	*S1K	S1K											
SS4-15 J BORE	*S1K	S1K	S1K										
SS4-16 J BORE	*S1K	S1K	S1K	S1K	S1K								
SS4-17 J BORE	*S1K	S1K	S1K	S1K	S1K								
SS4-18 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K							
SS4-19 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SS4-20 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS4-21 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS4-22 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS4-23 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS4-24 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS4-25 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS4-26 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS4-27 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS4-28 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS4-29 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS4-30 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS4-32 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS4-34 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS4-35 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS4-36 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS4-38 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS4-40 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS4-42 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS4-44 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS4-45 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS4-46 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SS4-48 J BORE			*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-50 J BORE					*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-52 J BORE					*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-54 J BORE					*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-55 J BORE					*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-56 J BORE					*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-58 J BORE					*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-60 J BORE					*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-62 J BORE					*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-64 J BORE					*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-65 J BORE					*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-66 J BORE					*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-68 J BORE					*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K
SS4-70 J BORE					*S4K	S4K	S4K	S4K	S4K	S4K	S4K	S4K	S4K
SS4-80 J BORE					*S4K	S4K	S4K	S4K	S4K	S4K	S4K	S4K	S4K
SS4-90SJ BORE								S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS4-100SJ BORE								S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS4-110SJ BORE								S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS4-120SJ BORE								S1SK	S1SK	S1SK	S1SK	S1SK	S1SK

To order J Series Hardened Plus products, please specify: Catalog No. + H + J + BORE.
Example: SS4-14HJ22

[Caution on J series]
① Products with module 4 or higher require a lead-time for shipping of 7 working days (excludes the day ordered) after placing an order, and 11 working days for Hardened Plus products. Because the machining starts immediately, we cannot accept cancellations. Semi-custom products take about 25 working days after the order is received.
Please see Page 34 for more details.
② Products with module 4 or higher can be ordered up to 5 units.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.
⑦ * is a product with the original bore diameter, so Hardened Plus is not available. See Page 6 for more details on Hardened Plus.

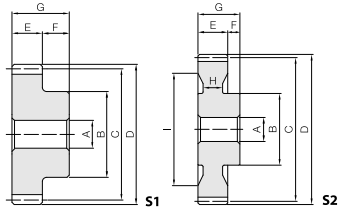
Please make use of GCSW for Web (gear calculation software).

SS Module 5

Spur Gears NEW

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated (excludes semi-custom products)
Backlash	0.20 to 0.44

* The precision grade of J Series products is equivalent to the value shown in the table.



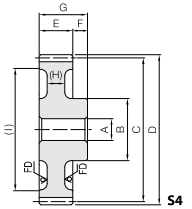
H To order Hardened Plus, please specify Catalog No. + H. **Example: SS5-12H**

Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Web thickness (H)	Web O.D. (I)	Allowable torque: Bending strength N·m	Bending strength kgf·m	Surface durability N·m	Surface durability kgf·m	Surface durability (H) N·m	Surface durability (H) kgf·m	Weight (kg)
SS5-12	12	S1	22	46	60	70	50	25	75	–	–	254	25.9	15.2	1.55	69.7	7.11	1.21
SS5-13	13			50	65	75						327	33.4	18.4	1.88	84.0	8.57	1.46
SS5-14	14			52	70	80						412	42.0	21.8	2.22	99.1	10.1	1.70
SS5-15	15			60	75	85						462	47.1	25.5	2.60	115	11.8	2.07
SS5-16	16			65	80	90						512	52.2	29.5	3.01	133	13.6	2.40
SS5-17	17		25	68	85	95						562	57.3	33.8	3.45	152	15.5	2.72
SS5-18	18			70	90	100						614	62.6	38.4	3.92	172	17.6	3.03
SS5-19	19			76	95	105						666	67.9	43.4	4.42	194	19.8	3.45
SS5-20	20			82	100	110						718	73.3	48.6	4.96	217	22.1	3.90
SS5-21	21			90	105	115						772	78.7	54.2	5.53	241	24.5	4.36
SS5-22	22			95	110	120						825	84.1	60.1	6.13	266	27.1	4.83
SS5-23	23			100	115	125						879	89.7	66.3	6.77	293	29.9	5.33
SS5-24	24			100	120	130						934	95.2	73.0	7.45	321	32.7	5.69
SS5-25	25			105	125	135						989	101	80.0	8.16	350	35.7	6.23
SS5-26	26			110	130	140						1040	106	87.1	8.88	379	38.7	6.79
SS5-27	27		30	110	135	145						1100	112	94.4	9.62	410	41.8	7.19
SS5-28	28			110	140	150						1160	118	102	10.4	441	45.0	7.62
SS5-29	29			115	145	155						1210	124	110	11.2	474	48.4	8.23
SS5-30	30			120	150	160						1270	129	118	12.1	508	51.8	8.87
SS5-32	32			120	160	170						1380	141	136	13.8	580	59.1	9.36
SS5-34	34			120	170	180						1500	153	154	15.7	656	66.9	10.4
SS5-35	35			120	175	185						1550	158	164	16.7	696	71.0	10.9
SS5-36	36			120	180	190						1610	164	174	17.8	737	75.1	11.5
SS5-38	38			120	190	200						1730	176	195	19.9	823	83.9	12.6
SS5-40	40	S2		120	200	210				36	160	1540	157	182	18.5	719	73.3	13.2
SS5-42	42			120	210	220				36	170	1630	167	202	20.6	796	81.2	14.2
SS5-44	44			120	220	230				36	175	1730	177	223	22.8	878	89.5	15.4
SS5-45	45			120	225	235		21	71	36	185	1780	182	234	23.9	920	93.8	15.8
SS5-46	46			120	230	240				30	185	1830	187	246	25.1	963	98.2	16.2
SS5-48	48			120	240	250				30	200	1930	197	269	27.5	1050	107	17.0
SS5-50	50	S4		120	250	260				(16)	(212)	2030	207	294	30.0	1150	117	15.0
SS5-52	52	S2		130	260	270				30	220	2130	217	320	32.6	1250	127	19.8
SS5-54	54			130	270	280				30	230	2220	227	347	35.4	1350	137	20.9
SS5-55	55			130	275	285				30	235	2270	232	361	36.8	1400	143	21.5
SS5-56	56			130	280	290				30	240	2320	237	375	38.3	1450	148	22.0
SS5-58	58			130	290	300				30	240	2420	247	405	41.3	1570	160	23.8
SS5-60	60			130	300	310				30	250	2520	257	435	44.4	1680	171	25.1
SS5-62S	62	S1	30	160	310	320	50	21	71	–	–	2420	247	423	43.0	–	–	32.6
SS5-64S	64			160	320	330						2520	257	453	46.0			34.5
SS5-65S	65			160	325	335						2560	261	468	48.0			35.5
SS5-66S	66			170	330	340						2610	266	484	49.0			36.9
SS5-68S	68			170	340	350						2700	275	516	53.0			39.0
SS5-70S	70			180	350	360						2790	285	549	56.0			41.6
SS5-80S	80			200	400	410						3260	333	732	75.0			54.1
SS5-90S	90		40	230	450	460						3730	380	944	96.0			68.6
SS5-100S	100			250	500	510						4200	428	1190	121			84.5
SS5-110S	110			280	550	560						4670	476	1460	149			103
SS5-120S	120			300	600	610						4780	487	1640	167			122

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
③ Products with S at the end of the Catalog No. are semi-custom stock products. The maximum number of pieces per order must be 5 or less, and the delivery will take about 15 business days after the order is received.Please see Page 34 for more details.
④ For semi-custom standard products weighing 15 kg or more, eyebolt mounting screws (2-M12 depth 25 mm) are machined. Confirm the PCD of the screw on the website.

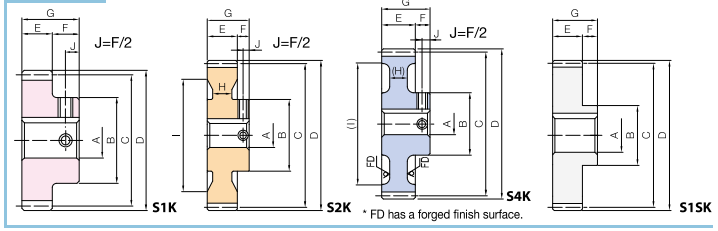
[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus] ① See Page 6 for more details on Hardened Plus.



* FD has a forged finish surface.

J Series



* FD has a forged finish surface.

To order J Series products, please specify: **Catalog No. + J + BORE.** **Example: SS5-13J22**

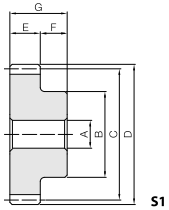
Bore H7	* The product shapes of J Series items are identified by background color.																
Keyway Js9	22	25	28	30	32	35	40	45	50	55	60	65	70	75	80	85	
Screw size	6×2.8	8×3.3			10×3.3		12×3.3	14×3.8		16×4.3	18×4.4		20×4.9		22×5.4		
Catalog Number	M5	M6			M8			M10		M12			M16				
SS5-12																	
SS5-13 J BORE	*S1K																
SS5-14 J BORE	*S1K	S1K	S1K	S1K													
SS5-15 J BORE	*S1K	S1K	S1K	S1K	S1K												
SS5-16 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K											
SS5-17 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SS5-18 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SS5-19 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K									
SS5-20 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SS5-21 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SS5-22 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SS5-23 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS5-24 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS5-25 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS5-26 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS5-27 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS5-28 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS5-29 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS5-30 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS5-32 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS5-34 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS5-35 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS5-36 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS5-38 J BORE				*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS5-40 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K			
SS5-42 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K			
SS5-44 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K			
SS5-45 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K			
SS5-46 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K			
SS5-48 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K			
SS5-50 J BORE				*S4K	S4K	S4K	S4K	S4K	S4K	S4K	S4K	S4K	S4K	S4K			
SS5-52 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K		
SS5-54 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K		
SS5-55 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K		
SS5-56 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K		
SS5-58 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K		
SS5-60 J BORE				*S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K	S2K		
SS5-62SJ BORE				S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS5-64SJ BORE				S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS5-65SJ BORE				S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS5-66SJ BORE				S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS5-68SJ BORE				S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS5-70SJ BORE				S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS5-80SJ BORE				S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS5-90SJ BORE							S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS5-100SJ BORE							S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS5-110SJ BORE							S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS5-120SJ BORE							S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK

To order J Series Hardened Plus products, please specify: Catalog No. + H + J + BORE.
Example: SS5-14HJ25

[Caution on J series]
① Products with module 4 or higher require a lead-time for shipping of 7 working days (excludes the day ordered) after placing an order, and 11 working days for Hardened Plus products. Because the machining starts immediately, we cannot accept cancellations. Semi-custom products take about 25 working days after the order is received. Please see Page 34 for more details.
② Products with module 4 or higher can be ordered up to 5 units.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.
⑦ * is a product with the original bore diameter, so Hardened Plus is not available. See Page 6 for more details on Hardened Plus.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated (excludes semi-custom products)
Backlash	0.22 to 0.48

* The precision grade of J Series products is equivalent to the value shown in the table.



S1

(H) To order Hardened Plus, please specify Catalog No. + H. **Example: SS6-12H**

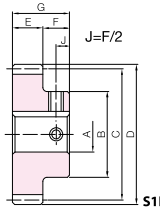
Catalog Number	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.	Allowable torque: Bending strength		Surface durability		Surface durability (H)		Weight (kg)
			A_{H7}	B	C	D	E	F	G	(H)	(I)	N·m	kgf·m	N·m	kgf·m	N·m	kgf·m	
SS6-12 (H)	12	S1	25	55	72	84	60	28	88	—	—	439	44.8	26.8	2.73	122	12.4	2.10
SS6-13 (H)	13			58	78	90						566	57.7	32.4	3.31	147	14.9	2.49
SS6-14 (H)	14			60	84	96						711	72.5	38.4	3.92	173	17.6	2.89
SS6-15 (H)	15			70	90	102						798	81.4	44.9	4.58	201	20.5	3.50
SS6-16 (H)	16			75	96	108						884	90.2	52.0	5.30	232	23.7	4.04
SS6-17 (H)	17		28	78	102	114						972	99.1	59.6	6.07	265	27.0	4.56
SS6-18 (H)	18			80	108	120						1060	108	67.7	6.90	300	30.6	5.08
SS6-19 (H)	19			90	114	126						1150	117	76.4	7.79	338	34.4	5.87
SS6-20 (H)	20			100	120	132						1240	127	85.9	8.75	377	38.5	6.71
SS6-21 (H)	21			105	126	138						1330	136	95.9	9.78	419	42.7	7.35
SS6-22 (H)	22		28	110	132	144						1430	145	107	10.9	463	47.3	8.11
SS6-23 (H)	23			115	138	150						1520	155	118	12.0	510	52.0	8.90
SS6-24 (H)	24			120	144	156						1610	165	129	13.2	559	57.0	9.73
SS6-25 (H)	25			125	150	162						1710	174	142	14.5	610	62.2	10.6
SS6-26 (H)	26			130	156	168						1800	184	154	15.7	661	67.4	11.5
SS6-27 (H)	27		30	135	162	174		23	83			1900	194	167	17.0	713	72.7	12.4
SS6-28 (H)	28			140	168	180						2000	204	181	18.4	768	78.3	13.4
SS6-30 (H)	30			150	180	192						2190	223	209	21.3	884	90.2	15.4
SS6-32 (H)	32			150	192	204						1990	203	200	20.4	792	80.8	16.4
SS6-34 (H)	34			150	204	216						2150	220	228	23.2	899	91.7	18.1
SS6-35 (H)	35		40	150	210	222						2240	228	242	24.7	955	97.4	19.0
SS6-36 (H)	36			150	216	228						2320	237	258	26.3	1010	103	20.0
SS6-38 (H)	38			150	228	240						2490	254	289	29.5	1130	116	22.0
SS6-40 (H)	40			150	240	252						2650	271	323	33.0	1260	129	24.0
SS6-42 (H)	42			150	252	264						2820	288	359	36.6	1400	143	25.9
SS6-44 (H)	44			150	264	276						2990	305	397	40.5	1540	157	28.2
SS6-45 (H)	45			180	270	282						3080	314	416	42.5	1620	165	30.7
SS6-46 (H)	46			180	276	288						3160	322	436	44.5	1690	173	32.0
SS6-48 (H)	48			180	288	300						3330	340	478	48.8	1850	189	34.5
SS6-50 (H)	50			180	300	312						3500	357	522	53.2	2020	206	37.1
SS6-52S	52	S1	40	180	312	324	60	23	83	—	—	3390	346	515	52.0	—	—	39.8
SS6-54S	54			180	324	336						3550	362	558	57.0			42.6
SS6-55S	55			180	330	342						3630	370	581	59.0			44.1
SS6-56S	56			180	336	348						3710	378	603	62.0			45.5
SS6-58S	58			180	348	360						3870	394	651	66.0			48.6
SS6-60S	60			180	360	372						4030	411	700	71.0			51.7
SS6-62S	62			190	372	384						4190	427	751	77.0			55.5
SS6-64S	64			190	384	396						4350	443	804	82.0			58.9
SS6-65S	65			200	390	402						4430	451	832	85.0			61.1
SS6-66S	66			200	396	408						4510	460	860	88.0			62.9
SS6-68S	68			200	408	420						4670	476	917	93.0			66.4
SS6-70S	70			210	420	432						4830	492	976	100			70.7
SS6-80S	80			240	480	492						5640	575	1300	133			92.6
SS6-90S	90			270	540	552						6440	657	1680	172			117
SS6-100S	100			300	600	612						6740	687	1970	200			145

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
③ Products with S at the end of the Catalog No. are semi-custom stock products. The maximum number of pieces per order must be 5 or less, and the delivery will take about 15 business days after the order is received. Please see Page 34 for more details.
④ For semi-custom standard products weighing 15 kg or more, eyebolt mounting screws (2-M12 depth 25 mm) are machined. Confirm the PCD of the screw on the website.

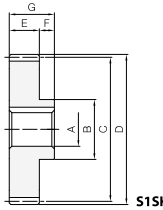
[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus]
① See Page 6 for more details on Hardened Plus.

J Series



S1K



S1SK

To order J Series products, please specify: Catalog No. + J + BORE. **Example: SS6-12J25**

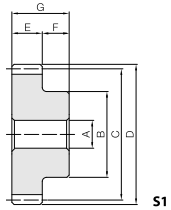
Bore H7	* The product shapes of J Series items are identified by background color.														
Keyway Js9	25	28	30	32	35	40	45	50	55	60	65	70	75	80	85
Screw size	8×3.3			10×3.3		12×3.3	14×3.8		16×4.3	18×4.4		20×4.9		22×5.4	
Catalog Number	M6			M8			M10		M12			M16			
SS6-12 J BORE	*S1K														
SS6-13 J BORE	*S1K	S1K	S1K												
SS6-14 J BORE	*S1K	S1K	S1K	S1K	S1K										
SS6-15 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K									
SS6-16 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SS6-17 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SS6-18 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SS6-19 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SS6-20 J BORE	*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS6-21 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS6-22 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SS6-23 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SS6-24 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SS6-25 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-26 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-27 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-28 J BORE		*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-30 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-32 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-34 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-35 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-36 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-38 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-40 J BORE			*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-42 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-44 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-45 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-46 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-48 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-50 J BORE						*S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SS6-52SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-54SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-55SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-56SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-58SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-60SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-62SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-64SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-65SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-66SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-68SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-70SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-80SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-90SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS6-100SJ BORE						S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK

To order J Series Hardened Plus products, please specify: Catalog No. + H + J + BORE.
Example: SS6-13HJ28

[Caution on J series]
① Products with module 4 or higher require a lead-time for shipping of 7 working days (excludes the day ordered) after placing an order, and 11 working days for Hardened Plus products. Because the machining starts immediately, we cannot accept cancellations. Semi-custom products take about 25 working days after the order is received. Please see Page 34 for more details.
② Products with module 4 or higher can be ordered up to 5 units.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.
⑦ * is a product with the original bore diameter, so Hardened Plus is not available. See Page 6 for more details on Hardened Plus.

Please make use of GCSW for Web (gear calculation software).

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated (excludes semi-custom products)



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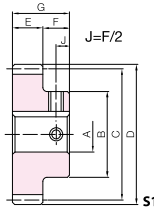
Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Web thickness H	Web O.D. I	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SS8-12	12	S1	28	75	96	112	75	35	110	—	—	975	62.6	99.5	6.39	0.28~0.58	4.94
SS8-13	13			80	104	120						1260	75.2	128	7.66		5.85
SS8-14	14			85	112	128						1580	88.9	161	9.06		6.83
SS8-15	15			90	120	136						1770	104	181	10.6		7.87
SS8-16	16			100	128	144						1970	121	200	12.3		9.20
SS8-17	17			105	136	152						2160	139	220	14.1		10.4
SS8-18	18			110	144	160						2360	158	240	16.1		11.7
SS8-19	19			120	152	168						2560	178	261	18.2		13.3
SS8-20	20			130	160	176						2760	200	281	20.4		15.0
SS8-21	21			140	168	184						2960	223	302	22.8		16.7
SS8-22	22		30	150	176	192						3170	248	323	25.3		18.6
SS8-23	23			155	184	200						3380	273	344	27.9		20.2
SS8-24	24			160	192	208						2990	250	305	25.5		22.0
SS8-25	25			170	200	216						3160	273	323	27.8		24.1
SS8-26	26			170	208	224						3340	297	341	30.3		25.6
SS8-27	27			170	216	232						3520	322	359	32.8		27.2
SS8-28	28			180	224	240						3700	348	377	35.5		29.6
SS8-30	30			180	240	256						4060	404	414	41.2		33.0
SS8-32S	32	S1	30	200	256	272	75	35	110	—	—	4080	421	416	43.0	0.28~0.58	38.3
SS8-34S	34			210	272	288						4420	479	451	49.0		43.1
SS8-35S	35			210	280	296						4590	510	468	52.0		45.2
SS8-36S	36			210	288	304						4760	542	486	55.0		47.3
SS8-38S	38			220	304	320						5100	608	520	62.0		52.6
SS8-40S	40			220	320	336						5450	679	555	69.0		57.2
SS8-42S	42			230	336	352						5790	754	591	77.0		63.0
SS8-44S	44			230	352	368						6140	834	626	85.0		68.1
SS8-45S	45			230	360	376						6310	875	644	89.0		70.7
SS8-46S	46			240	368	384						6490	917	662	94.0		74.4
SS8-48S	48			240	384	400						6840	1010	697	103		80.0
SS8-50S	50			240	400	416						7190	1100	733	112		85.8
SS8-52S	52			240	416	432						7540	1200	769	122		91.8
SS8-54S	54			240	432	448						7890	1300	805	132		98.1
SS8-55S	55			240	440	456						8070	1350	823	138		101
SS8-56S	56			240	448	464						8240	1400	841	143		105
SS8-58S	58			240	464	480						8600	1510	877	154		111
SS8-59S	59			240	472	488						8770	1570	895	160		115
SS8-60S	60			240	480	496						8950	1630	913	166		118

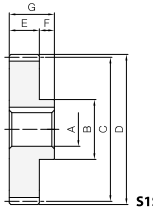
[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
③ Products with S at the end of the Catalog No. are semi-custom stock products. The maximum number of pieces per order must be 5 or less, and the delivery will take about 15 business days after the order is received.
Please see Page 34 for more details.
④ For semi-custom standard products weighing 15 kg or more, eyebolt mounting screws (2-M12 depth 25 mm) are machined.
Confirm the PCD of the screw on the website.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

J Series



S1K



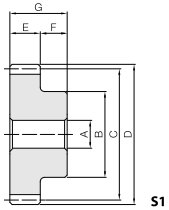
S1SK

To order J Series products, please specify: **Catalog No. + J + BORE.**

Bore H7	* The product shapes of J Series items are identified by background color.																					
Keyway Js9	28	30	32	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	120	130	140
Screw size	8×3.3		10×3.3		12×3.3	14×3.8		16×4.3	18×4.4		20×4.9		22×5.4		25×5.4		28×6.4			32×7.4		36×8.4
Catalog Number	M6		M8			M10		M12			M16				M20					M24		
SS8-12 J BORE	S1K	S1K	S1K	S1K	S1K																	
SS8-13 J BORE	S1K	S1K	S1K	S1K	S1K																	
SS8-14 J BORE	S1K	S1K	S1K	S1K	S1K	S1K																
SS8-15 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K															
SS8-16 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K															
SS8-17 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K															
SS8-18 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K													
SS8-19 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SS8-20 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K												
SS8-21 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SS8-22 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SS8-23 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SS8-24 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SS8-25 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SS8-26 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SS8-27 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SS8-28 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS8-30 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS8-32SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK			
SS8-34SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK			
SS8-35SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK			
SS8-36SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK			
SS8-38SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK		
SS8-40SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK		
SS8-42SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	
SS8-44SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	
SS8-45SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	
SS8-46SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS8-48SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS8-50SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS8-52SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS8-54SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS8-55SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS8-56SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS8-58SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS8-59SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS8-60SJ BORE		S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK

[Caution on J series]
① Products with module 4 or higher require a lead-time for shipping of 7 working days (excludes the day ordered). Because the machining starts immediately, we cannot accept cancellations.
Semi-custom products take about 25 working days after the order is received. Please see Page 34 for more details.
② Products with module 4 or higher can be ordered up to 5 units.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap.
For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	—
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated (excludes semi-custom products)



S1

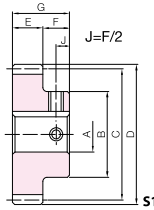
Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Web thickness H	Web O.D. I	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SS10-15	15	S1	30	115	150	170	90	40	130	—	—	3330	203	339	20.7	0.34~0.68	15.0
SS10-20	20		30	165	200	220						4310	323	440	33.0		28.2
SS10-25	25		40	200	250	270						5930	529	605	54.0		43.3

Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Web thickness H	Web O.D. I	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SS10-26S	26	S1	40	210	260	280	90	40	130	—	—	5790	522	590	53.0	0.34~0.68	47.1
SS10-27S	27			220	270	290						6100	566	622	58.0		51.1
SS10-28S	28			220	280	300						6410	612	653	62.0		54.2
SS10-29S	29			230	290	310						6720	660	685	67.0		58.4
SS10-30S	30			240	300	320						7030	710	717	72.0		62.9
SS10-32S	32			250	320	340						7660	815	781	83.0		71.0
SS10-34S	34			260	340	360						8290	929	845	95.0		79.5
SS10-35S	35			260	350	370						8610	988	878	101		83.4
SS10-36S	36			270	360	380						8930	1050	910	107		88.6
SS10-38S	38			270	380	400						9570	1180	976	120		96.8
SS10-40S	40			280	400	420						10200	1320	1040	134		107
SS10-42S	42			290	420	440						10900	1460	1110	149		117
SS10-44S	44			290	440	460						11500	1620	1170	165		127
SS10-45S	45			290	450	470						11800	1700	1210	173		132
SS10-46S	46			290	460	480						12200	1780	1240	182		137
SS10-48S	48			300	480	500						12800	1960	1310	199		149
SS10-50S	50			300	500	520						13500	2140	1370	218		160

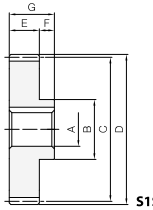
[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
③ Products with S at the end of the Catalog No. are semi-custom stock products. The maximum number of pieces per order must be 5 or less, and the delivery will take about 15 business days after the order is received. Please see Page 34 for more details.
④ For semi-custom standard products weighing 15 kg or more, eyebolt mounting screws (2-M12 depth 25 mm) are machined. Confirm the PCD of the screw on the website.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

J Series



S1K



S1SK

To order J Series products, please specify: **Catalog No. + J + BORE.**

Bore H7	* The product shapes of J Series items are identified by background color.																	
Keyway Js9	30	32	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110
Screw size	8×3.3	10×3.3		12×3.3	14×3.8		16×4.3	18×4.4		20×4.9		22×5.4		25×5.4		28×6.4		
Catalog Number	M6	M8			M10		M12			M16				M20				
SS10-15 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
SS10-20 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SS10-25 J BORE				S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K

Bore H7	* The product shapes of J Series items are identified by background color.																						
Keyway Js9	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	120	130	140	150	160	170	180	190	200
Catalog Number	12×3.3	14×3.8		16×4.3	18×4.4		20×4.9		22×5.4		25×5.4		28×6.4			32×7.4		36×8.4		40×9.4		45×10.4		
SS10-26SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK									
SS10-27SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK								
SS10-28SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK								
SS10-29SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK							
SS10-30SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK						
SS10-32SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK					
SS10-34SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK				
SS10-35SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK				
SS10-36SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK			
SS10-38SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK			
SS10-40SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK		
SS10-42SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	
SS10-44SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	
SS10-45SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	
SS10-46SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	
SS10-48SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK
SS10-50SJ BORE	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK	S1SK

[Caution on J series]
① Products with module 4 or higher require a lead-time for shipping of 7 working days (excludes the day ordered). Because the machining starts immediately, we cannot accept cancellations. Semi-custom products take about 25 working days after the order is received. Please see Page 34 for more details.
② Products with module 4 or higher can be ordered up to 5 units.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ Areas of products which have been re-worked will not be black oxide coated.
⑥ For products having a tapped hole, a set screw is included.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	—
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated except for portions given secondary operation

* The precision grade of F Series products is equivalent to the value shown in the table.

■ Features of F Series

- No rattling of shaft and gear when fastening
- Freely positionable mounting for easy meshing of teeth
- Easily mounted and removed for repeated use
- The bushing slides when overloaded to reduce damage to the gears.

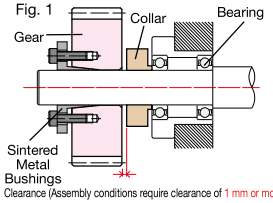
■ Mounting Method and Precautions

① Shaft diameter recommended tolerance is h7. The limit is h8, but we recommend h6 when minimizing runout. Use 1.6a as reference for the surface roughness of the shaft diameter.
② Wipe away any debris, dirt or oil on the shaft surface and hole of the fastened section with thinner or the like, and lightly apply hydraulic oil #68. Do not apply molybdenum-based oil or oil with additives, as this may cause reduced fastening torque or slippage.
③ Pass completely through the shaft while pressing the bushing flange against the gear before tightening. Removal will not be possible, so be sure to leave a clearance of 1mm or more on the gear rear surface side. (Fig.1)
④ Use a torque wrench to fasten bolts on opposite sides when tightening. First tighten at 1/4 of the regulated torque, then at 1/2 of the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
⑤ If the shaft has a keyway, the fastened section contact area is reduced and the transmission rate is decreased by 15 to 20%.

Catalog Number	No. of teeth	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Web thickness (H)	Web O.D. (I)	Allowable torque (N·m) Bending strength	Surface durability
SS1.5-26	26	32	39	42					28.2	2.06
SS1.5-27	27	34	40.5	43.5					29.7	2.23
SS1.5-28	28	36	42	45					31.2	2.41
SS1.5-29	29	37	43.5	46.5					32.7	2.60
SS1.5-30	30	38	45	48					34.2	2.79
SS1.5-32	32	40	48	51					37.3	3.19
SS1.5-34	34	40	51	54					40.4	3.63
SS1.5-35	35	42	52.5	55.5					41.9	3.85
SS1.5-36	36	45	54	57					43.5	4.09
SS1.5-38	38	45	57	60					46.6	4.58
SS1.5-40	40	45	60	63					49.8	5.10
SS1.5-42	42	45	63	66					52.9	5.40
SS1.5-44	44	45	66	69					56.1	5.72
SS1.5-45	45	45	67.5	70.5					57.7	5.88
SS1.5-46	46	45	69	72					59.3	6.04
SS1.5-48	48	45	72	75					62.4	6.37
SS1.5-50	50	45	75	78					65.7	6.69
SS1.5-52	52	50	78	81					68.9	7.02
SS1.5-54	54	50	81	84					72.1	7.35
SS1.5-55	55	50	82.5	85.5			—	—	73.7	7.51
SS1.5-56	56	50	84	87	15	10			75.3	7.68
SS1.5-58	58	50	87	90					78.5	8.01
SS1.5-60	60	50	90	93					81.8	8.34
SS1.5-62	62	55	93	96					85.0	8.67
SS1.5-64	64	55	96	99					88.3	9.00
SS1.5-65	65	55	97.5	100.5					89.9	9.17
SS1.5-66	66	55	99	102					91.5	9.33
SS1.5-68	68	55	102	105					94.8	9.66
SS1.5-70	70	55	105	108					98.0	10.0
SS1.5-72	72	55	108	111					101	10.3
SS1.5-75	75	60	112.5	115.5					106	10.8
SS1.5-76	76	60	114	117					108	11.0
SS1.5-80	80	60	120	123					114	11.7
SS1.5-84	84	60	126	129					121	12.3
SS1.5-85	85	60	127.5	130.5					123	12.5
SS1.5-88	88	60	132	135					128	13.0
SS1.5-90	90	60	135	138					131	13.3
SS1.5-95	95	60	142.5	145.5					139	14.2
SS1.5-100	100	60	150	153			9	125	147	15.0
SS1.5-120	120	70	180	183			10	153	180	18.4
SS1.5-150	150	180	225	228			—	—	192	19.6

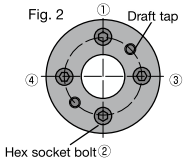
* For the backlash of each product, please refer to the dimension table of the original product.

Fig. 1



Clearance (Assembly conditions require clearance of 1 mm or more)

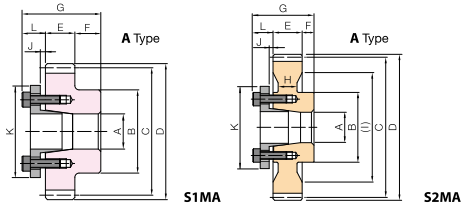
Fig. 2



■ Removal Method and Precautions

① Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
② Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is complete.
③ The washer and thread surfaces will be roughened, compromising tightening strength, if the bolts are reused. Consequently, we recommend using new bolts of the same size.

F Series



To order F Series products, please specify: **Catalog Number + F + BORE + A.**

Bore A / Catalog Number	* The product shapes of F Series items are identified by background color. 10	12	14	15	16	17	18	19	20	22	25	28	30	32	35
SS1.5-26 F Bore A	S1MA														
SS1.5-27 F Bore A	S1MA														
SS1.5-28 F Bore A	S1MA	S1MA													
SS1.5-29 F Bore A	S1MA	S1MA													
SS1.5-30 F Bore A	S1MA	S1MA													
SS1.5-32 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA										
SS1.5-34 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA									
SS1.5-35 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA								
SS1.5-36 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-38 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-40 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-42 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-44 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-45 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-46 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-48 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-50 F Bore A		S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-52 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-54 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-55 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-56 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-58 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-60 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA							
SS1.5-62 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-64 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-65 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-66 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-68 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-70 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-72 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS1.5-75 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-76 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-80 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-84 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-85 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-88 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-90 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-95 F Bore A				S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA			
SS1.5-100 F Bore A				S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA			
SS1.5-120 F Bore A				S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS1.5-150 F Bore A									S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
Bore A	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35
Ref. slipping torque N·m	18	23	37	39	42	45	48	49	97	110	124	141	149	163	173
Ref. thrust load kN	3.59	3.76	5.21	5.1	5.17	5.23	5.28	5.12	9.68	9.98	9.90	10.0	9.89	10.1	9.88
Sintered Metal Bushings L	10			12					14						
Sintered Metal Bushings K	29	31	36	37	38	39	40	42	46	47	51	53	56	58	61
Clearance J	2			3											
Total Length G	35			37					39						
Hex socket bolt Qty	3			4											
Hex socket bolt Size	M4×12			M4×15					M5×18						
Hex socket bolt Tightening torque N·m	3.9								7.8						
Bushing weight (g)	20	22	38	40	41	43	45	49	71	71	81	84	93	97	106

[Caution on F Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Additionally the machined parts of the fastener components and gears are not black oxide coated.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	—
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated except for portions given secondary operation

* The precision grade of F Series products is equivalent to the value shown in the table.

■ Features of F Series

- No rattling of shaft and gear when fastening
- Freely positionable mounting for easy meshing of teeth
- Easily mounted and removed for repeated use
- The bushing slides when overloaded to reduce damage to the gears.

■ Mounting Method and Precautions

① Shaft diameter recommended tolerance is h7. The limit is h8, but we recommend h6 when minimizing runout. Use 1.6a as reference for the surface roughness of the shaft diameter.
② Wipe away any debris, dirt or oil on the shaft surface and hole of the fastened section with thinner or the like, and lightly apply hydraulic oil #68. Do not apply molybdenum-based oil or oil with additives, as this may cause reduced fastening torque or slippage.
③ Pass completely through the shaft while pressing the bushing flange against the gear before tightening. Removal will not be possible, so be sure to leave a clearance of 1mm or more on the gear rear surface side. (Fig.1)
④ Use a torque wrench to fasten bolts on opposite sides when tightening. First tighten at 1/4 of the regulated torque, then at 1/2 of the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
⑤ If the shaft has a keyway, the fastened section contact area is reduced and the transmission rate is decreased by 15 to 20%.

Catalog Number	No. of teeth	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Web thickness (H)	Web O.D. (I)	Allowable torque (N·m) Bending strength	Surface durability
SS2-23	23	37	46	50					56.3	3.86
SS2-24	24	38	48	52					59.8	4.24
SS2-25	25	40	50	54					63.3	4.64
SS2-26	26	42	52	56					66.8	5.04
SS2-27	27	45	54	58					70.4	5.45
SS2-28	28	45	56	60					73.9	5.89
SS2-29	29	47	58	62					77.5	6.33
SS2-30	30	50	60	64					81.1	6.80
SS2-32	32	50	64	68					88.4	7.78
SS2-34	34	50	68	72					95.7	8.84
SS2-35	35	52	70	74					99.3	9.39
SS2-36	36	55	72	76					103	9.96
SS2-38	38	55	76	80					111	11.2
SS2-40	40	55	80	84					118	12.5
SS2-42	42	55	84	88					125	13.8
SS2-44	44	55	88	92					133	15.2
SS2-45	45	55	90	94					137	16.0
SS2-46	46	55	92	96			—	—	140	16.7
SS2-48	48	55	96	100					148	18.3
SS2-50	50	55	100	104					156	19.9
SS2-52	52	55	104	108					163	21.7
SS2-54	54	55	108	112	20	10			171	23.4
SS2-55	55	55	110	114					175	24.4
SS2-56	56	55	112	116					179	25.3
SS2-58	58	60	116	120					186	27.3
SS2-60	60	60	120	124					194	29.3
SS2-62	62	60	124	128					202	31.5
SS2-64	64	60	128	132					209	33.7
SS2-65	65	60	130	134					213	34.8
SS2-66	66	60	132	136					217	36.0
SS2-68	68	60	136	140					225	38.4
SS2-70	70	60	140	144					232	40.8
SS2-72	72	60	144	148					240	43.3
SS2-75	75	60	150	154					252	47.3
SS2-76	76	60	152	156					256	48.6
SS2-80	80	60	160	164				136	271	54.3
SS2-84	84	70	168	172				140	287	60.2
SS2-85	85	70	170	174				146	291	61.7
SS2-88	88	70	176	180			12	150	302	66.5
SS2-90	90	70	180	184				156	310	69.7
SS2-95	95	70	190	194				166	330	78.2
SS2-100	100	70	200	204				176	291	72.7
SS2-120	120	90	240	244				210	357	108

* For the backlash of each product, please refer to the dimension table of the original product.

Fig. 1

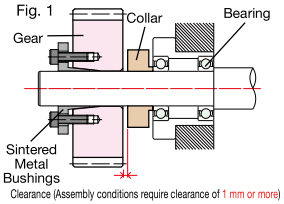
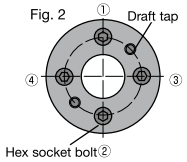


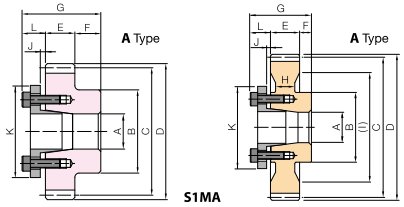
Fig. 2



■ Removal Method and Precautions

① Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
② Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is complete.
③ The washer and thread surfaces will be roughened, compromising tightening strength, if the bolts are reused. Consequently, we recommend using new bolts of the same size.

F Series



To order F Series products, please specify: **Catalog Number + F + BORE + A.**

Bore A / Catalog Number	* The product shapes of F Series items are identified by background color. 12	14	15	16	17	18	19	20	22	25	28	30	32	35	40
SS2-23 F Bore A	S1MA														
SS2-24 F Bore A	S1MA														
SS2-25 F Bore A	S1MA	S1MA													
SS2-26 F Bore A	S1MA	S1MA	S1MA	S1MA											
SS2-27 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA									
SS2-28 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA								
SS2-29 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA								
SS2-30 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA								
SS2-32 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA								
SS2-34 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA							
SS2-35 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS2-36 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA					
SS2-38 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-40 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-42 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-44 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-45 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-46 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-48 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-50 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-52 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-54 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-55 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-56 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-58 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-60 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-62 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-64 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-65 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-66 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-68 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-70 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-72 F Bore A			S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-75 F Bore A								S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-76 F Bore A								S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2-80 F Bore A								S2MA	S2MA	S2MA	S2MA				
SS2-84 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	
SS2-85 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	
SS2-88 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	
SS2-90 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	
SS2-95 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	
SS2-100 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	
SS2-120 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
Bore A	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40
Ref. slipping torque N·m	23	37	39	42	45	48	49	97	110	124	141	149	163	173	725
Ref. thrust load kN	3.76	5.21	5.10	5.17	5.23	5.28	5.12	9.68	9.98	9.90	10.0	9.89	10.1	9.88	12.3
Sintered Metal Bushings L	10	12						14							19
Sintered Metal Bushings K	31	36	37	38	39	40	42	46	47	51	53	56	58	61	71
Clearance J	2	3													
Total Length G	40	42						44							49
Hex socket bolt Qty	3	4													6
Hex socket bolt Size	M4×12	M4×15						M5×18							M6×25
Hex socket bolt Tightening torque N·m	3.9							7.8							13.7
Bushing weight (g)	22	38	40	41	43	45	49	71	71	81	84	93	97	106	237

[Caution on F Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Additionally the machined parts of the fastener components and gears are not black oxide coated.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated except for portions given secondary operation

* The precision grade of F Series products is equivalent to the value shown in the table.

■ Features of F Series

- No rattling of shaft and gear when fastening
- Freely positionable mounting for easy meshing of teeth
- Easily mounted and removed for repeated use
- The bushing slides when overloaded to reduce damage to the gears.

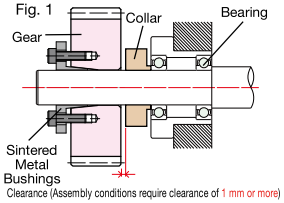
■ Mounting Method and Precautions

① Shaft diameter recommended tolerance is h7. The limit is h8, but we recommend h6 when minimizing runout. Use 1.6a as reference for the surface roughness of the shaft diameter.
② Wipe away any debris, dirt or oil on the shaft surface and hole of the fastened section with thinner or the like, and lightly apply hydraulic oil #68. Do not apply molybdenum-based oil or oil with additives, as this may cause reduced fastening torque or slippage.
③ Pass completely through the shaft while pressing the bushing flange against the gear before tightening. Removal will not be possible, so be sure to leave a clearance of 1mm or more on the gear rear surface side. (Fig.1)
④ Use a torque wrench to fasten bolts on opposite sides when tightening. First tighten at 1/4 of the regulated torque, then at 1/2 of the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
⑤ If the shaft has a keyway, the fastened section contact area is reduced and the transmission rate is decreased by 15 to 20%.

Catalog Number	No. of teeth	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Web thickness (H)	Web O.D. (I)	Allowable torque (N·m) Bending strength	Surface durability
SS2.5-22	22	44	55	60					103	6.99
SS2.5-23	23	46	57.5	62.5					110	7.71
SS2.5-24	24	48	60	65					117	8.47
SS2.5-25	25	50	62.5	67.5					124	9.26
SS2.5-26	26	55	65	70					130	10.1
SS2.5-27	27	60	67.5	72.5					137	10.9
SS2.5-28	28	60	70	75					144	11.7
SS2.5-29	29	62	72.5	77.5					151	12.6
SS2.5-30	30	65	75	80					159	13.6
SS2.5-32	32	70	80	85					173	15.6
SS2.5-34	34	70	85	90					187	17.7
SS2.5-35	35	70	87.5	92.5					194	18.8
SS2.5-36	36	70	90	95					201	20.0
SS2.5-38	38	70	95	100					216	22.4
SS2.5-40	40	70	100	105					230	24.9
SS2.5-42	42	70	105	110					245	27.6
SS2.5-44	44	70	110	115					260	30.5
SS2.5-45	45	70	112.5	117.5					267	31.9
SS2.5-46	46	70	115	120					274	33.5
SS2.5-48	48	70	120	125	25	12	–	–	289	36.7
SS2.5-50	50	70	125	130					304	40.0
SS2.5-52	52	70	130	135					319	43.5
SS2.5-54	54	70	135	140					334	47.2
SS2.5-55	55	70	137.5	142.5					341	49.1
SS2.5-56	56	70	140	145					349	51.0
SS2.5-58	58	70	145	150					364	55.0
SS2.5-60	60	70	150	155			(10)	(127)	379	59.1
SS2.5-62	62	80	155	160				130	394	63.4
SS2.5-64	64	80	160	165				131	409	67.8
SS2.5-65	65	80	162.5	167.5				134	416	70.1
SS2.5-66	66	80	165	170				140	424	72.4
SS2.5-68	68	80	170	175			15	140	439	77.2
SS2.5-70	70	80	175	180				146	454	82.1
SS2.5-72	72	80	180	185				151	469	87.1
SS2.5-75	75	80	187.5	192.5				159	492	95.0
SS2.5-76	76	80	190	195				160	499	97.7
SS2.5-80	80	80	200	205			(10)	(177)	441	90.9
SS2.5-90	90	90	225	230				(202)	505	117

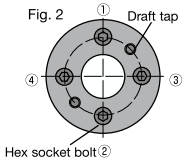
* For the backlash of each product, please refer to the dimension table of the original product.

Fig. 1



Clearance (Assembly conditions require clearance of 1 mm or more)

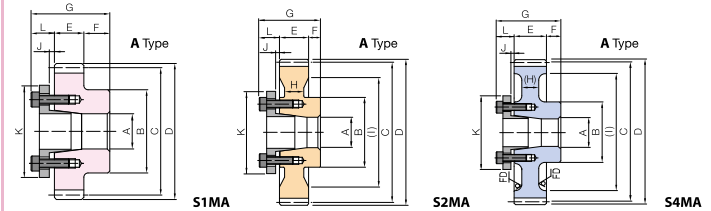
Fig. 2



■ Removal Method and Precautions

① Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
② Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is complete.
③ The washer and thread surfaces will be roughened, compromising tightening strength, if the bolts are reused. Consequently, we recommend using new bolts of the same size.

F Series



To order F Series products, please specify: **Catalog Number + F + BORE + A.**

* The product shapes of F Series items are identified by background color.

Bore A / Catalog Number	15	16	17	18	19	20	22	25	28	30	32	35	40
SS2.5-22 F Bore A	S1MA	S1MA											
SS2.5-23 F Bore A	S1MA	S1MA	S1MA	S1MA									
SS2.5-24 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA								
SS2.5-25 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA								
SS2.5-26 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA								
SS2.5-27 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA								
SS2.5-28 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA								
SS2.5-29 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA						
SS2.5-30 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA					
SS2.5-32 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-34 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-35 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-36 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-38 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-40 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-42 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-44 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-45 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-46 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-48 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-50 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-52 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-54 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-55 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-56 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-58 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS2.5-60 F Bore A								S4MA	S4MA	S4MA	S4MA	S4MA	
SS2.5-62 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-64 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-65 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-66 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-68 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-70 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-72 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-75 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-76 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS2.5-80 F Bore A								S4MA	S4MA	S4MA	S4MA	S4MA	S4MA
SS2.5-90 F Bore A										S4MA	S4MA	S4MA	S4MA
Bore A	15	16	17	18	19	20	22	25	28	30	32	35	40
Ref. slipping torque N·m	39	42	45	48	49	97	110	124	141	149	163	173	725
Ref. thrust load kN	5.10	5.17	5.23	5.28	5.12	9.68	9.98	9.90	10.0	9.89	10.1	9.88	12.3
Sintered Metal Bushings L			12						14				19
Sintered Metal Bushings K	37	38	39	40	42	46	47	51	53	56	58	61	71
Clearance J						3							
Total Length G			49					51					56
With hex socket Bolt Qty						4							6
With hex socket Bolt Size			M4×15					M5×18					M6×25
With hex socket Bolt Tightening torque N·m			3.9					7.8					13.7
Bushing weight (g)	40	41	43	45	49	71	71	81	84	93	97	106	237

[Caution on F Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Additionally the machined parts of the fastener components and gears are not black oxide coated.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated except for portions given secondary operation

* The precision grade of F Series products is equivalent to the value shown in the table.

■ Features of F Series

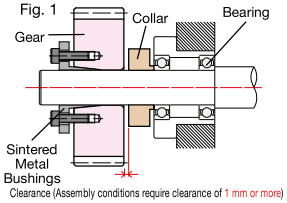
- No rattling of shaft and gear when fastening
- Freely positionable mounting for easy meshing of teeth
- Easily mounted and removed for repeated use
- The bushing slides when overloaded to reduce damage to the gears

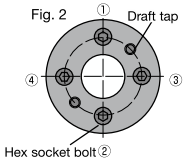
■ Mounting Method and Precautions

① Shaft diameter recommended tolerance is h7. The limit is h8, but we recommend h6 when minimizing runout. Use 1.6a as reference for the surface roughness of the shaft diameter.
② Wipe away any debris, dirt or oil on the shaft surface and hole of the fastened section with thinner or the like, and lightly apply hydraulic oil #68. Do not apply molybdenum-based oil or oil with additives, as this may cause reduced fastening torque or slippage.
③ Pass completely through the shaft while pressing the bushing flange against the gear before tightening. Removal will not be possible, so be sure to leave a clearance of 1mm or more on the gear rear surface side. (Fig.1)
④ Use a torque wrench to fasten bolts on opposite sides when tightening. First tighten at 1/4 of the regulated torque, then at 1/2 of the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
⑤ If the shaft has a keyway, the fastened section contact area is reduced and the transmission rate is decreased by 15 to 20%.

Catalog Number	No. of teeth	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Web thickness (H)	Web O.D. (I)	Allowable torque (N·m) Bending strength	Surface durability
SS3-19	19	45	57	63					144	8.88
SS3-20	20	50	60	66					155	9.95
SS3-21	21	52	63	69					167	11.1
SS3-22	22	54	66	72					178	12.3
SS3-23	23	56	69	75					190	13.6
SS3-24	24	58	72	78					202	14.9
SS3-25	25	60	75	81					214	16.3
SS3-26	26	65	78	84					226	17.7
SS3-27	27	65	81	87					237	19.2
SS3-28	28	70	84	90					250	20.7
SS3-29	29	70	87	93					262	22.3
SS3-30	30	75	90	96			—	—	274	24.0
SS3-32	32	75	96	102					298	27.4
SS3-34	34	80	102	108					323	31.2
SS3-35	35	80	105	111					335	33.1
SS3-36	36	80	108	114					348	35.2
SS3-38	38	80	114	120					373	39.4
SS3-40	40	80	120	126					398	44.0
SS3-42	42	80	126	132					423	48.9
SS3-44	44	80	132	138					449	54.0
SS3-45	45	80	135	141	30	15			461	56.6
SS3-46	46	80	138	144					474	59.4
SS3-48	48	80	144	150					500	65.0
SS3-50	50	80	150	156			(10)	(123)	525	70.9
SS3-52	52	80	156	162				126	551	77.1
SS3-54	54	80	162	168				132	577	83.6
SS3-55	55	80	165	171			16	131	590	86.9
SS3-56	56	80	168	174				134	602	90.3
SS3-58	58	80	174	180				144	628	97.3
SS3-60	60	80	180	186			(10)	(153)	654	105
SS3-62	62	80	186	192				150	680	112
SS3-64	64	80	192	198				158	588	99.9
SS3-65	65	80	195	201				161	599	103
SS3-66	66	90	198	204				160	610	107
SS3-68	68	90	204	210			16	170	632	114
SS3-70	70	90	210	216				176	654	121
SS3-72	72	90	216	222				182	675	129
SS3-75	75	90	225	231				190	708	141
SS3-76	76	90	228	234				190	719	145
SS3-80	80	90	240	246			(10)	(213)	763	162

* For the backlash of each product, please refer to the dimension table of the original product.





■ Removal Method and Precautions

① Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
② Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is complete.
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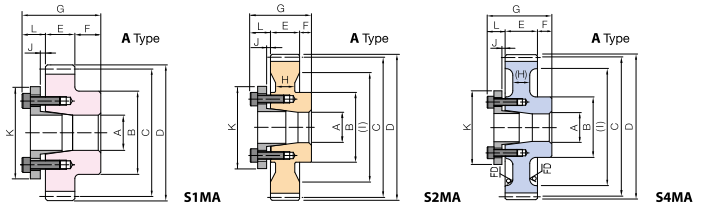
F Series



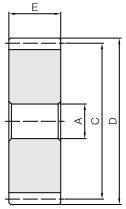
To order F Series products, please specify: **Catalog Number + F + BORE + A.**

Bore A / Catalog Number	15	16	17	18	19	20	22	25	28	30	32	35	40
	* The product shapes of F Series items are identified by background color.												
SS3-19 F Bore A	S1MA												
SS3-20 F Bore A	S1MA	S1MA	S1MA	S1MA									
SS3-21 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA								
SS3-22 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA								
SS3-23 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA								
SS3-24 F Bore A	S1MA	S1MA	S1MA	S1MA	S1MA								
SS3-25 F Bore A						S1MA	S1MA						
SS3-26 F Bore A						S1MA	S1MA	S1MA					
SS3-27 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA			
SS3-28 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS3-29 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS3-30 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS3-32 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	
SS3-34 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-35 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-36 F Bore A						S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-38 F Bore A								S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-40 F Bore A								S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-42 F Bore A								S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-44 F Bore A								S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-45 F Bore A								S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-46 F Bore A								S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-48 F Bore A								S1MA	S1MA	S1MA	S1MA	S1MA	S1MA
SS3-50 F Bore A								S4MA	S4MA	S4MA	S4MA	S4MA	S4MA
SS3-52 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-54 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-55 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-56 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-58 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-60 F Bore A								S4MA	S4MA	S4MA	S4MA	S4MA	S4MA
SS3-62 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-64 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-65 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-66 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-68 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-70 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-72 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-75 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-76 F Bore A								S2MA	S2MA	S2MA	S2MA	S2MA	S2MA
SS3-80 F Bore A										S4MA	S4MA	S4MA	S4MA
Bore A	15	16	17	18	19	20	22	25	28	30	32	35	40
Ref. slipping torque N·m	39	42	45	48	49	97	110	124	141	149	163	173	725
Ref. thrust load kN	5.10	5.17	5.23	5.28	5.12	9.68	9.98	9.90	10.0	9.89	10.1	9.88	12.3
Sintered Metal Bushings L			12						14				19
Sintered Metal Bushings K	37	38	39	40	42	46	47	51	53	56	58	61	71
Clearance J							3						
Total Length G			57						59				64
With hex socket Bolt Qty							4						6
With hex socket Bolt Size			M4×15						M5×18				M6×25
With hex socket Bolt Tightening torque N·m			3.9						7.8				13.7
Bushing weight (g)	40	41	43	45	49	71	71	81	84	93	97	106	237

[Caution on F Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Additionally the machined parts of the fastener components and gears are not black oxide coated.

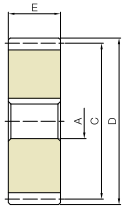
Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating

* The precision grade of J Series products is equivalent to the value shown in the table.



S5

J Series



S5K

To order Hardened Plus, please specify Catalog No. + H. **Example: SSA1-20H**

Catalog Number	Module	No. of teeth	Shape	Bore	Pitch dia.	Outside dia.	Face width	Allowable torque: Bending strength		Allowable torque: Surface durability		Allowable torque: Surface durability (H)		Backlash (mm)	Weight (kg)
				A_{H7}	C	D	E	N·m	kgf·m	N·m	kgf·m	N·m	kgf·m		
SSA1-20		20			20	22		5.75	0.59	0.33	0.033	1.59	0.16		0.021
SSA1-24		24			24	26		7.47	0.76	0.49	0.050	2.36	0.24		0.032
SSA1-25		25			25	27		7.91	0.81	0.54	0.055	2.57	0.26		0.035
SSA1-28		28			28	30		9.24	0.94	0.68	0.070	3.25	0.33		0.044
SSA1-30		30			30	32		10.1	1.03	0.79	0.081	3.74	0.38		0.052
SSA1-32		32		8	32	34		11.1	1.13	0.90	0.092	4.27	0.44		0.059
SSA1-35		35			35	37		12.4	1.27	1.09	0.11	5.13	0.52		0.072
SSA1-36		36			36	38		12.9	1.31	1.16	0.12	5.44	0.55		0.076
SSA1-40		40			40	42		14.7	1.50	1.45	0.15	6.76	0.69		0.095
SSA1-45	***m*1**	45	S5		45	47	10	17.1	1.74	1.86	0.19	8.62	0.88	0.08~0.18	0.12
SSA1-48		48			48	50		18.5	1.89	2.13	0.22	9.84	1.00		0.14
SSA1-50		50		10	50	52		19.5	1.98	2.32	0.24	10.7	1.09		0.15
SSA1-55		55			55	57		21.8	2.23	2.83	0.29	13.0	1.33		0.18
SSA1-56		56			56	58		22.3	2.28	2.94	0.30	13.5	1.38		0.19
SSA1-60		60			60	62		24.2	2.47	3.40	0.35	15.6	1.59		0.22
SSA1-70		70			70	72		29.1	2.96	4.70	0.48	21.4	2.18		0.30
SSA1-80		80			80	82		33.9	3.46	6.23	0.63	28.1	2.87		0.39
SSA1-100		100			100	102		43.7	4.45	9.97	1.02	44.4	4.53		0.61
SSA1-120		120			120	122		53.5	5.45	14.7	1.50	64.4	6.57		0.88
SSA1.5-20		20			30	33		19.4	1.98	1.15	0.12	5.47	0.56		0.074
SSA1.5-24		24			36	39		25.2	2.57	1.73	0.18	8.12	0.83		0.11
SSA1.5-25		25			37.5	40.5		26.7	2.72	1.90	0.19	8.87	0.90		0.12
SSA1.5-28		28		10	42	45		31.2	3.18	2.41	0.25	11.2	1.14		0.15
SSA1.5-30		30			45	48		34.2	3.49	2.79	0.28	12.9	1.32		0.18
SSA1.5-32		32			48	51		37.3	3.80	3.19	0.33	14.8	1.51		0.20
SSA1.5-35		35			52.5	55.5		41.9	4.28	3.85	0.39	17.8	1.81		0.25
SSA1.5-36		36			54	57		43.5	4.43	4.09	0.42	18.8	1.92		0.26
SSA1.5-40	***m*1.5**	40	S5		60	63	15	49.8	5.07	5.10	0.52	23.4	2.38	0.10~0.22	0.31
SSA1.5-45		45		15	67.5	70.5		57.7	5.88	6.53	0.67	29.8	3.03		0.40
SSA1.5-48		48			72	75		62.4	6.37	7.47	0.76	34.0	3.46		0.46
SSA1.5-50		50			75	78		65.7	6.69	8.15	0.83	36.9	3.77		0.50
SSA1.5-55		55			82.5	85.5		73.7	7.51	9.96	1.02	44.9	4.58		0.61
SSA1.5-56		56			84	87		75.3	7.68	10.4	1.06	46.6	4.75		0.63
SSA1.5-60		60			90	93		81.8	8.34	12.0	1.22	53.7	5.47		0.73
SSA1.5-70		70			105	108		98.0	10.0	16.6	1.69	73.6	7.50		1.00
SSA1.5-80		80			120	123		114	11.7	22.0	2.24	96.7	9.86		1.31
SSA1.5-100		100			150	153		147	15.0	35.5	3.62	152	15.5		2.06

[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations] ① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus] ① See Page 6 for more details on Hardened Plus.

To order J Series products, please specify: **Catalog No. + J + BORE.** **Example: SSA1-20J8**

Bore $_{H7}$	* The product shapes of J Series items are identified by background color.																		
Keyway $_{Js9}$	8	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Screw size	3×1.4	4×1.8		5×2.3				6×2.8				8×3.3			10×3.3		12×3.3	14×3.8	
Catalog Number	—																		
SSA1-20 J BORE	*S5K																		
SSA1-24 J BORE	*S5K	S5K																	
SSA1-25 J BORE	*S5K	S5K																	
SSA1-28 J BORE	*S5K	S5K	S5K																
SSA1-30 J BORE	*S5K	S5K	S5K																
SSA1-32 J BORE	*S5K	S5K	S5K	S5K															
SSA1-35 J BORE	*S5K	S5K	S5K	S5K	S5K	S5K													
SSA1-36 J BORE	*S5K	S5K	S5K	S5K	S5K	S5K													
SSA1-40 J BORE	*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K											
SSA1-45 J BORE	*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K									
SSA1-48 J BORE	*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K								
SSA1-50 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K								
SSA1-55 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K							
SSA1-56 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K							
SSA1-60 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K						
SSA1-70 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
SSA1-80 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSA1-100 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SSA1-120 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA1.5-20 J BORE		*S5K	S5K																
SSA1.5-24 J BORE		*S5K	S5K	S5K	S5K	S5K													
SSA1.5-25 J BORE		*S5K	S5K	S5K	S5K	S5K													
SSA1.5-28 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K										
SSA1.5-30 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K									
SSA1.5-32 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K								
SSA1.5-35 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K								
SSA1.5-36 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K							
SSA1.5-40 J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K						
SSA1.5-45 J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K					
SSA1.5-48 J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
SSA1.5-50 J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSA1.5-55 J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSA1.5-56 J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SSA1.5-60 J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SSA1.5-70 J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA1.5-80 J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA1.5-100 J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		

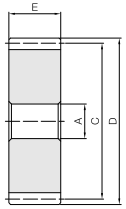
To order J Series Hardened Plus products, please specify: Catalog No. + H + J + BORE.
Example: SSA1-24HJ10

[Caution on J series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered) after placing an order, and 6 working days for Hardened Plus products. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Black oxide is not re-applied after hole and key secondary operations.
⑤ * is a product with the original bore diameter, so Hardened Plus is not available. See Page 6 for more details on Hardened Plus.

You can download CAD data (DXF format) of KHK Products from the Web Catalog.

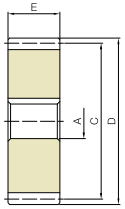
Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating

* The precision grade of J Series products is equivalent to the value shown in the table.



S5

J Series



S5K

To order Hardened Plus, please specify Catalog No. + H. **Example: SSA2-15H**

Catalog Number	Module	No. of teeth	Shape	Bore	Pitch dia.	Outside dia.	Face width	Allowable torque: Bending strength		Surface durability		Surface durability (H)		Backlash (mm)	Weight (kg)
				A_{H7}	C	D	E	N·m	kgf·m	N·m	kgf·m	N·m	kgf·m		
SSA2-15	m2	15	S5	10	30	34	20	29.6	3.01	1.48	0.15	7.01	0.71	0.12~0.26	0.099
SSA2-18		18			36	40		39.3	4.01	2.23	0.23	10.5	1.07		0.15
SSA2-20		20		12	40	44		46.0	4.69	2.83	0.29	13.2	1.34		0.18
SSA2-24		24			48	52		59.8	6.09	4.24	0.43	19.6	2.00		0.27
SSA2-25		25			50	54		63.3	6.45	4.64	0.47	21.4	2.18		0.29
SSA2-28		28		15	56	60		73.9	7.54	5.89	0.60	27.0	2.76		0.36
SSA2-30		30			60	64		81.1	8.27	6.80	0.69	31.2	3.18		0.42
SSA2-32		32			64	68		88.4	9.01	7.78	0.79	35.6	3.63		0.48
SSA2-35		35			70	74		99.3	10.1	9.39	0.96	42.8	4.36		0.58
SSA2-36		36			72	76		103	10.5	9.96	1.02	45.3	4.62		0.61
SSA2-40		40		18	80	84		118	12.0	12.5	1.27	56.2	5.73		0.75
SSA2-45		45			90	94		137	13.9	16.0	1.63	71.6	7.30		0.96
SSA2-48		48			96	100		148	15.1	18.3	1.87	81.7	8.33		1.10
SSA2-50		50			100	104		156	15.9	19.9	2.03	88.8	9.05		1.19
SSA2-55		55			110	114		175	17.8	24.4	2.48	108	11.0		1.45
SSA2-56		56			112	116		179	18.2	25.3	2.58	112	11.4		1.51
SSA2-60		60			120	124		194	19.8	29.3	2.99	129	13.1		1.74
SSA2-70		70			140	144		232	23.7	40.8	4.16	177	18.0		2.38
SSA2-80		80			160	164		271	27.7	54.3	5.53	232	23.6		3.12
SSA2-100		100			200	204		291	29.7	72.7	7.42	288	29.3		4.89
SSA2.5-15	m2.5	15	S5	12	37.5	42.5	25	57.7	5.89	2.96	0.30	13.9	1.41	0.14~0.28	0.19
SSA2.5-18		18			45	50		76.7	7.82	4.47	0.46	20.7	2.11		0.29
SSA2.5-20		20		15	50	55		89.8	9.16	5.66	0.58	26.1	2.66		0.35
SSA2.5-24		24			60	65		117	11.9	8.47	0.86	38.8	3.95		0.52
SSA2.5-25		25			62.5	67.5		124	12.6	9.26	0.94	42.3	4.32		0.57
SSA2.5-28		28		18	70	75		144	14.7	11.7	1.20	53.4	5.45		0.71
SSA2.5-30		30			75	80		159	16.2	13.6	1.39	61.6	6.28		0.82
SSA2.5-32		32			80	85		173	17.6	15.6	1.59	70.3	7.17		0.94
SSA2.5-35		35			87.5	92.5		194	19.8	18.8	1.92	84.4	8.61		1.13
SSA2.5-36		36			90	95		201	20.5	20.0	2.04	89.5	9.12		1.20
SSA2.5-40		40		22	100	105		230	23.5	24.9	2.54	111	11.3		1.47
SSA2.5-45		45			112.5	117.5		267	27.2	31.9	3.26	141	14.4		1.88
SSA2.5-48		48			120	125		289	29.5	36.7	3.74	161	16.4		2.14
SSA2.5-50		50			125	130		304	31.0	40.0	4.08	175	17.9		2.33
SSA2.5-55		55			137.5	142.5		341	34.8	49.1	5.01	213	21.7		2.84
SSA2.5-56		56			140	145		349	35.6	51.0	5.20	221	22.5		2.95
SSA2.5-60		60			150	155		379	38.6	59.1	6.03	254	25.9		3.39
SSA2.5-70		70			175	180		454	46.3	82.1	8.37	348	35.5		4.65
SSA2.5-80		80			200	205		441	45.0	90.9	9.27	359	36.7		6.09

[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations] ① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus] ① See Page 6 for more details on Hardened Plus.

To order J Series products, please specify: **Catalog No. + J + BORE.** **Example: SSA2-15J10**

Bore $_{H7}$	* The product shapes of J Series items are identified by background color.																	
Keyway $_{Js9}$	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Screw size	4×1.8			5×2.3			6×2.8				8×3.3			10×3.3		12×3.3	14×3.8	
Catalog Number	—																	
SSA2-15 J BORE	*S5K	S5K																
SSA2-18 J BORE	*S5K	S5K	S5K	S5K														
SSA2-20 J BORE		*S5K	S5K	S5K	S5K	S5K												
SSA2-24 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K									
SSA2-25 J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K								
SSA2-28 J BORE				*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K							
SSA2-30 J BORE				*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K							
SSA2-32 J BORE				*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K						
SSA2-35 J BORE				*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
SSA2-36 J BORE				*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
SSA2-40 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSA2-45 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SSA2-48 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SSA2-50 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SSA2-55 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA2-56 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA2-60 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA2-70 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA2-80 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SSA2-100 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA2.5-15J BORE		*S5K	S5K	S5K														
SSA2.5-18J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K										
SSA2.5-20 J BORE				*S5K	S5K	S5K	S5K	S5K	S5K									
SSA2.5-24 J BORE				*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K							
SSA2.5-25 J BORE				*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K						
SSA2.5-28 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K					
SSA2.5-30 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
SSA2.5-32 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSA2.5-35 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SSA2.5-36 J BORE							*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SSA2.5-40 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SSA2.5-45 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA2.5-48 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA2.5-50 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA2.5-55 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA2.5-56 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA2.5-60 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SSA2.5-70 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SSA2.5-80 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K

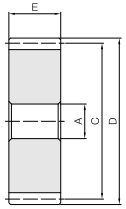
To order J Series Hardened Plus products, please specify: Catalog No. + H + J + BORE.
Example: SSA2-15HJ12

[Caution on J series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered) after placing an order, and 6 working days for Hardened Plus products. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Black oxide is not re-applied after hole and key secondary operations.
⑤ * is a product with the original bore diameter, so Hardened Plus is not available. See Page 6 for more details on Hardened Plus.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating

* The precision grade of J Series products is equivalent to the value shown in the table.

J H



S5

To order Hardened Plus, please specify Catalog No. + H. **Example: SSA3-15H**

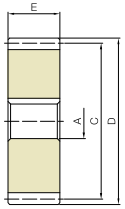
Catalog Number		No. of teeth	Shape	Bore A_{H7}	Pitch dia. C	Outside dia. D	Face width E	Allowable torque: Bending strength N·m	Bending strength kgf·m	Surface durability N·m	Surface durability kgf·m	Surface durability (H) N·m	Surface durability (H) kgf·m	Backlash (mm)	Weight (kg)
SSA3-15	H	15	S5	12	45	51	30	99.7	10.2	5.22	0.53	24.2	2.47	0.14~0.32	0.35
SSA3-18	H	18			54	60		133	13.5	7.87	0.80	36.2	3.69		0.51
SSA3-20	H	20		15	60	66		155	15.8	9.95	1.02	45.6	4.65		0.62
SSA3-24	H	24			72	78		202	20.6	14.9	1.52	67.7	6.90		0.92
SSA3-25	H	25			75	81		214	21.8	16.3	1.66	73.9	7.53		1.00
SSA3-28	H	28		20	84	90		250	25.4	20.7	2.11	93.2	9.50		1.23
SSA3-30	H	30			90	96		274	27.9	24.0	2.44	107	10.9		1.42
SSA3-32	H	32			96	102		298	30.4	27.4	2.80	123	12.5		1.63
SSA3-35	H	35			105	111		335	34.2	33.1	3.38	147	15.0		1.97
SSA3-36	H	36			108	114		348	35.5	35.2	3.59	156	15.9		2.08
SSA3-40	H	40		25	120	126		398	40.6	44.0	4.49	193	19.1		2.55
SSA3-45	H	45			135	141		461	47.0	56.6	5.78	246	25.1		3.26
SSA3-48	H	48			144	150		500	50.9	65.0	6.63	281	28.6		3.72
SSA3-50	H	50			150	156		525	53.6	70.9	7.23	305	31.1		4.05
SSA3-55	H	55			165	171		590	60.1	86.9	8.86	370	37.8		4.92
SSA3-56	H	56			168	174		602	61.4	90.3	9.21	384	39.2		5.10
SSA3-60	H	60			180	186		654	66.7	105	10.7	442	45.1		5.88
SSA3-70	H	70			210	216		654	66.6	121	12.4	478	48.7		8.04
SSA3-80	H	80			240	246		763	77.8	162	16.5	632	64.4		10.5

[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations] ① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus] ① See Page 6 for more details on Hardened Plus.

J Series



S5K

To order J Series products, please specify: **Catalog No. + J + BORE.** **Example: SSA3-15J12**

Bore H7 / Keyway Js9 / Screw size / Catalog Number	12 4×1.8	14	15 5×2.3	16	17	18 6×2.8	19	20	22	25 8×3.3	28	30	32 10×3.3	35	40 12×3.3	45 14×3.8	50
SSA3-15 J BORE	*S5K	S5K	S5K	S5K	S5K	S5K											
SSA3-18 J BORE	*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K								
SSA3-20 J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K							
SSA3-24 J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
SSA3-25 J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
SSA3-28 J BORE								*S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSA3-30 J BORE								*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SSA3-32 J BORE								*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SSA3-35 J BORE								*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SSA3-36 J BORE								*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA3-40 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA3-45 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA3-48 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA3-50 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K		
SSA3-55 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SSA3-56 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SSA3-60 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA3-70 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA3-80 J BORE										*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K

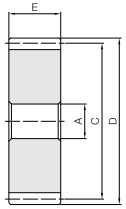
* The product shapes of J Series items are identified by background color.

To order J Series Hardened Plus products, please specify: Catalog No. + H + J + BORE.
Example: SSA3-15HJ14

[Caution on J series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered) after placing an order, and 6 working days for Hardened Plus products. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Black oxide is not re-applied after hole and key secondary operations.
⑤ * is a product with the original bore diameter, so Hardened Plus is not available. See Page 6 for more details on Hardened Plus.

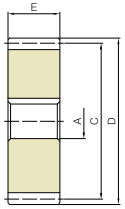
Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating

* The precision grade of J Series products is equivalent to the value shown in the table.



S5

J Series



S5K

To order Hardened Plus, please specify Catalog No. + H. **Example: SSA4-15H**

Catalog Number	Module	No. of teeth	Shape	Bore	Pitch dia.	Outside dia.	Face width	Allowable torque: Bending strength		Allowable torque: Surface durability		Allowable torque: Surface durability (H)		Backlash (mm)	Weight (kg)
				A_{H7}	C	D	E	N·m	kgf·m	N·m	kgf·m	N·m	kgf·m		
SSA4-15		15			60	68		236	24.1	12.8	1.30	58.4	5.96		0.79
SSA4-18		18			72	80		314	32.0	19.2	1.96	87.2	8.89		1.18
SSA4-20		20		20	80	88		368	37.5	24.3	2.48	110	11.2		1.48
SSA4-24		24			96	104		478	48.8	36.4	3.72	163	16.6		2.17
SSA4-25		25			100	108		506	51.6	39.9	4.07	178	18.1		2.37
SSA4-28		28			112	120		591	60.3	50.6	5.16	224	22.8		2.94
SSA4-30		30			120	128		649	66.2	58.7	5.98	258	26.3		3.40
SSA4-32		32		25	128	136		707	72.1	67.4	6.87	294	30.0		3.89
SSA4-35	*m4*	35	S5		140	148	40	795	81.1	81.6	8.32	353	36.0	0.18~0.38	4.68
SSA4-36		36			144	152		825	84.1	86.7	8.84	374	38.1		4.96
SSA4-40		40			160	168		943	96.2	109	11.1	464	47.3		6.09
SSA4-45		45			180	188		1090	112	139	14.2	590	60.1		7.77
SSA4-48		48			192	200		987	101	133	13.6	528	53.9		8.87
SSA4-50		50		30	200	208		1040	106	146	14.8	575	58.6		9.64
SSA4-55		55			220	228		1160	119	179	18.2	702	71.6		11.7
SSA4-56		56			224	232		1190	121	186	18.9	729	74.3		12.2
SSA4-60		60			240	248		1290	132	215	22.0	842	85.9		14.0
SSA5-15		15		20	75	85		462	47.1	25.5	2.60	115	11.8		1.61
SSA5-18		18			90	100		614	62.6	38.4	3.92	172	17.6		2.37
SSA5-20		20			100	110		718	73.3	48.6	4.96	217	22.1		2.93
SSA5-24		24		22	120	130		934	95.2	73.0	7.45	321	32.7		4.29
SSA5-25		25			125	135		989	101	80.0	8.16	350	35.7		4.67
SSA5-28		28			140	150		1160	118	102	10.4	441	45.0		5.85
SSA5-30	*m5*	30	S5		150	160		1270	129	118	12.1	508	51.8		6.74
SSA5-32		32		25	160	170	50	1380	141	136	13.8	580	59.1	0.20~0.44	7.70
SSA5-35		35			175	185		1550	158	164	16.7	696	71.0		9.25
SSA5-36		36			180	190		1610	164	174	17.8	737	75.1		9.80
SSA5-40		40			200	210		1540	157	182	18.5	719	73.3		12.1
SSA5-45		45		30	225	235		1780	182	234	23.9	920	93.8		15.3
SSA5-48		48			240	250		1930	197	269	27.5	1050	107		17.5
SSA5-50		50			250	260		2030	207	294	30.0	1150	117		19.0

[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations] ① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

[Caution on Hardened Plus] ① See Page 6 for more details on Hardened Plus.

To order J Series products, please specify: **Catalog No. + J + BORE.** **Example: SSA4-15J20**

Bore H7 / Keyway Js9 / Screw size / Catalog Number	* The product shapes of J Series items are identified by background color.															
	20	22	25	28	30	32	35	40	45	50	55	60	65	70	75	80
	6×2.8		8×3.3			10×3.3		12×3.3	14×3.8		16×4.3	18×4.4		20×4.9		22×5.4
	–															
SSA4-15J BORE	*S5K	S5K	S5K													
SSA4-18J BORE	*S5K	S5K	S5K	S5K	S5K											
SSA4-20J BORE	*S5K	S5K	S5K	S5K	S5K	S5K	S5K									
SSA4-24J BORE	*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K								
SSA4-25J BORE	*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K							
SSA4-28J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K						
SSA4-30J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K					
SSA4-32J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K					
SSA4-35J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSA4-36J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSA4-40J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SSA4-45J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA4-48J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA4-50J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA4-55J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA4-56J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA4-60J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA5-15J BORE	*S5K	S5K	S5K	S5K	S5K											
SSA5-18J BORE	*S5K	S5K	S5K	S5K	S5K	S5K	S5K									
SSA5-20J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K								
SSA5-24J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K						
SSA5-25J BORE		*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K					
SSA5-28J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
SSA5-30J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SSA5-32J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SSA5-35J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA5-36J BORE			*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA5-40J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA5-45J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA5-48J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SSA5-50J BORE					*S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K

To order J Series Hardened Plus products, please specify: Catalog No. + H + J + BORE.
Example: SSA4-15HJ22

[Caution on J series] ① Products with module 4 or higher require a lead-time for shipping of 7 working days (excludes the day ordered) after placing an order, and 11 working days for Hardened Plus products. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Products with module 4 or higher can only be ordered up to 5 units.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Black oxide is not re-applied after hole and key secondary operations.
⑤ * is a product with the original bore diameter, so Hardened Plus is not available. See Page 6 for more details on Hardened Plus.

You can download CAD data (DXF format) of KHK Products from the Web Catalog.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated except for portions given secondary operation

* The precision grade of F Series products is equivalent to the value shown in the table.

■ Features of F Series

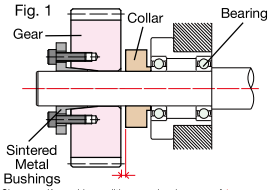
- No rattling of shaft and gear when fastening
- Freely positionable mounting for easy meshing of teeth
- Easily mounted and removed for repeated use
- The bushing slides when overloaded to reduce damage to the gears.

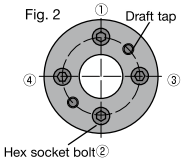
■ Mounting Method and Precautions

① Shaft diameter recommended tolerance is h7. The limit is h8, but we recommend h6 when minimizing runout. Use 1.6a as reference for the surface roughness of the shaft diameter.
② Wipe away any debris, dirt or oil on the shaft surface and hole of the fastened section with thinner or the like, and lightly apply hydraulic oil #68. Do not apply molybdenum-based oil or oil with additives, as this may cause reduced fastening torque or slippage.
③ Pass completely through the shaft while pressing the bushing flange against the gear before tightening. Removal will not be possible, so be sure to leave a clearance of 1mm or more on the gear rear surface side. (Fig.1)
④ Use a torque wrench to fasten bolts on opposite sides when tightening. First tighten at 1/4 of the regulated torque, then at 1/2 of the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
⑤ If the shaft has a keyway, the fastened section contact area is reduced and the transmission rate is decreased by 15 to 20%.

Catalog Number	Module	No. of teeth	Pitch dia. C	Outside dia. D	Face width E	Allowable torque (N·m) Bending strength	Surface durability
SSA2-24		24	48	52		59.8	4.24
SSA2-25		25	50	54		63.3	4.64
SSA2-28		28	56	60		73.9	5.89
SSA2-30		30	60	64		81.1	6.80
SSA2-32		32	64	68		88.4	7.78
SSA2-35		35	70	74		99.3	9.39
SSA2-36		36	72	76		103	9.96
SSA2-40		40	80	84		118	12.5
SSA2-45	***m2***	45	90	94	20	137	16.0
SSA2-48		48	96	100		148	18.3
SSA2-50		50	100	104		156	19.9
SSA2-55		55	110	114		175	24.4
SSA2-56		56	112	116		179	25.3
SSA2-60		60	120	124		194	29.3
SSA2-70		70	140	144		232	40.8
SSA2-80		80	160	164		271	54.3
SSA2-100		100	200	204		291	72.7
SSA2.5-24		24	60	65		117	8.47
SSA2.5-25		25	62.5	67.5		124	9.26
SSA2.5-28		28	70	75		144	11.7
SSA2.5-30		30	75	80		159	13.6
SSA2.5-32		32	80	85		173	15.6
SSA2.5-35		35	87.5	92.5		194	18.8
SSA2.5-36		36	90	95		201	20.0
SSA2.5-40		40	100	105		230	24.9
SSA2.5-45	***m2.5***	45	112.5	117.5	25	267	31.9
SSA2.5-48		48	120	125		289	36.7
SSA2.5-50		50	125	130		304	40.0
SSA2.5-55		55	137.5	142.5		341	49.1
SSA2.5-56		56	140	145		349	51.0
SSA2.5-60		60	150	155		379	59.1
SSA2.5-70		70	175	180		454	82.1
SSA2.5-80		80	200	205		441	90.9

* For the backlash of each product, please refer to the dimension table of the original product.

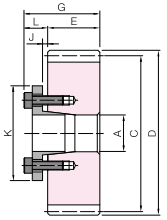




■ Removal Method and Precautions

① Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
② Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is complete.
③ The washer and thread surfaces will be roughened, compromising tightening strength, if the bolts are reused. Consequently, we recommend using new bolts of the same size.

F Series



S5M

To order F Series products, please specify: **Catalog Number + F + BORE.**

Bore A	* The product shapes of F Series items are identified by background color.													
Catalog Number	12	14	15	16	17	18	19	20	22	25	28	30	32	35
SSA2-24 F Bore	S5M													
SSA2-25 F Bore	S5M	S5M	S5M											
SSA2-28 F Bore			S5M	S5M	S5M	S5M	S5M							
SSA2-30 F Bore			S5M	S5M	S5M	S5M	S5M							
SSA2-32 F Bore			S5M	S5M	S5M	S5M	S5M							
SSA2-35 F Bore			S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M				
SSA2-36 F Bore			S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M			
SSA2-40 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2-45 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2-48 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2-50 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2-55 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2-56 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2-60 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2-70 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2-80 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2-100 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2.5-24 F Bore			S5M	S5M	S5M	S5M	S5M							
SSA2.5-25 F Bore			S5M	S5M	S5M	S5M	S5M							
SSA2.5-28 F Bore						S5M	S5M							
SSA2.5-30 F Bore						S5M	S5M	S5M	S5M	S5M				
SSA2.5-32 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2.5-35 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2.5-36 F Bore						S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA2.5-40 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA2.5-45 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA2.5-48 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA2.5-50 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA2.5-55 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA2.5-56 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA2.5-60 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA2.5-70 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA2.5-80 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
Bore A	12	14	15	16	17	18	19	20	22	25	28	30	32	35
Ref. slipping torque N·m	23	37	39	42	45	48	49	97	110	124	141	149	163	173
Ref. thrust load kN	3.76	5.21	5.1	5.17	5.23	5.28	5.12	9.68	9.98	9.9	10	9.89	10.1	9.88
Sintered Metal Bushings L	10	12						14						
Sintered Metal Bushings K	31	36	37	38	39	40	42	46	47	51	53	56	58	61
Clearance J	2	3												
Total Length G ***m2***	30	32						34						
Total Length G ***m2.5***	35	37						39						
Hex socket bolt Qty	3	4												
Hex socket bolt Size	M4×12	M4×15						M5×18						
Hex socket bolt Tightening torque N·m	3.9							7.8						
Bushing weight (g)	22	38	40	41	43	45	49	71	71	81	84	93	97	106

[Caution on F Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Additionally the machined parts of the fastener components and gears are not black oxide coated.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coated except for portions given secondary operation

* The precision grade of F Series products is equivalent to the value shown in the table.

■ Features of F Series

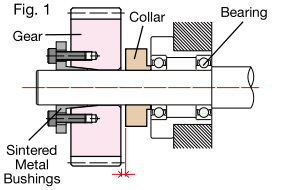
- No rattling of shaft and gear when fastening
- Freely positionable mounting for easy meshing of teeth
- Easily mounted and removed for repeated use
- The bushing slides when overloaded to reduce damage to the gears.

■ Mounting Method and Precautions

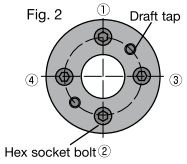
① Shaft diameter recommended tolerance is h7. The limit is h8, but we recommend h6 when minimizing runout. Use 1.6a as reference for the surface roughness of the shaft diameter.
② Wipe away any debris, dirt or oil on the shaft surface and hole of the fastened section with thinner or the like, and lightly apply hydraulic oil #68. Do not apply molybdenum-based oil or oil with additives, as this may cause reduced fastening torque or slippage.
③ Pass completely through the shaft while pressing the bushing flange against the gear before tightening. Removal will not be possible, so be sure to leave a clearance of 1mm or more on the gear rear surface side. (Fig.1)
④ Use a torque wrench to fasten bolts on opposite sides when tightening. First tighten at 1/4 of the regulated torque, then at 1/2 of the regulated torque, before finally tightening up to the regulated torque. Do not tighten without passing through the shaft, or fasten the bolts after insertion on the draft tap side. (Fig.2)
⑤ If the shaft has a keyway, the fastened section contact area is reduced and the transmission rate is decreased by 15 to 20%.

Catalog Number	Module	No. of teeth	Pitch dia. C	Outside dia. D	Face width E	Allowable torque (N·m) Bending strength	Surface durability
SSA3-20		20	60	66		155	9.95
SSA3-24		24	72	78		202	14.9
SSA3-25		25	75	81		214	16.3
SSA3-28		28	84	90		250	20.7
SSA3-30		30	90	96		274	24.0
SSA3-32		32	96	102		298	27.4
SSA3-35		35	105	111		335	33.1
SSA3-36		36	108	114		348	35.2
SSA3-40	***m*3**	40	120	126	30	398	44.0
SSA3-45		45	135	141		461	56.6
SSA3-48		48	144	150		500	65.0
SSA3-50		50	150	156		525	70.9
SSA3-55		55	165	171		590	86.9
SSA3-56		56	168	174		602	90.3
SSA3-60		60	180	186		654	105
SSA3-70		70	210	216		654	121
SSA3-80		80	240	246		763	162

* For the backlash of each product, please refer to the dimension table of the original product.

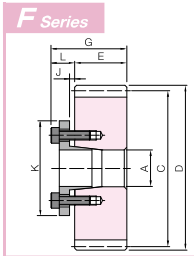


Clearance (Assembly conditions require clearance of 1 mm or more)



■ Removal Method and Precautions

① Turn off the power source (supply), check that no load is applied to the gear, and confirm that there is no danger due to falling, etc.
② Insert removed bolts into all draft taps, and gradually and evenly tighten each bolt in diagonal order until removal is complete.
③ The washer and thread surfaces will be roughened, compromising tightening strength, if the bolts are reused. Consequently, we recommend using new bolts of the same size.



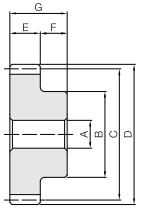
To order F Series products, please specify: **Catalog Number + F + BORE.**

Bore A		* The product shapes of F Series items are identified by background color.												
Catalog Number		15	16	17	18	19	20	22	25	28	30	32	35	40
SSA3-20 F Bore		S5M	S5M	S5M	S5M									
SSA3-24 F Bore		S5M	S5M	S5M	S5M	S5M								
SSA3-25 F Bore		S5M	S5M	S5M	S5M	S5M	S5M	S5M						
SSA3-28 F Bore							S5M	S5M	S5M	S5M	S5M	S5M	S5M	
SSA3-30 F Bore							S5M	S5M	S5M	S5M	S5M	S5M	S5M	
SSA3-32 F Bore							S5M	S5M	S5M	S5M	S5M	S5M	S5M	
SSA3-35 F Bore							S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA3-36 F Bore							S5M	S5M	S5M	S5M	S5M	S5M	S5M	S5M
SSA3-40 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA3-45 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA3-48 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA3-50 F Bore									S5M	S5M	S5M	S5M	S5M	
SSA3-55 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA3-56 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA3-60 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA3-70 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
SSA3-80 F Bore									S5M	S5M	S5M	S5M	S5M	S5M
Bore A		15	16	17	18	19	20	22	25	28	30	32	35	40
Ref. slipping torque N·m		39	42	45	48	49	97	110	124	141	149	163	173	725
Ref. thrust load kN		5.10	5.17	5.23	5.28	5.12	9.68	9.98	9.90	10.0	9.89	10.1	9.88	12.3
Sintered Metal Bushings	L			12						14				19
	K	37	38	39	40	42	46	47	51	53	56	58	61	71
Clearance	J						3							
Total Length	G			42					44					49
Hex socket bolt	Qty						4							6
	Size			M4×15					M5×18					M6×25
	Tightening torque N·m			3.9					7.8					13.7
Bushing weight (g)		40	41	43	45	49	71	71	81	84	93	97	106	237

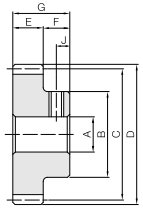
[Caution on F Series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Additionally the machined parts of the fastener components and gears are not black oxide coated.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	—
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating

* The precision grade of products with a module of less than 0.8 is equivalent to the value shown in the table.



S1



S1T

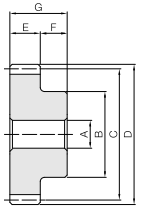
Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Keyway
				A_{H7}	B	C	D	E	F	G	Width × Depth
SSY0.8-20	***m*0.8**	20	S1	5	13.5	16	17.6	4	8	12	—
SSY0.8-25		25	S1	5	17	20	21.6				
SSY0.8-30		30	S1	5	20	24	25.6				
SSY0.8-40 **SSY0.8-40A**		40	S1 S1T	5 6	25	32	33.6				
SSY0.8-50 **SSY0.8-50A**		50	S1 S1T	5 6	25	40	41.6				
SSY1-12 **SSY1-12A**	***m*1**	12	S1 S1T	5	9	12	14	6	8	14	—
SSY1-14 **SSY1-14A**		14	S1 S1T	5	11	14	16				
SSY1-15 **SSY1-15A**		15	S1 S1T	6	12	15	17				
SSY1-16 **SSY1-16A**		16	S1 S1T	6	13	16	18				
SSY1-18 **SSY1-18A**		18	S1 S1T	6	14	18	20				
SSY1-20 **SSY1-20A** **SSY1-20B**		20	S1 S1T S1T	6 6 8	16	20	22				
SSY1-24 **SSY1-24A**		24	S1 S1T	6	16	24	26				
SSY1-25		25	S1	6	16	25	27				
SSY1-28 **SSY1-28A**		28	S1 S1T	6	16	28	30				
SSY1-30 **SSY1-30A** **SSY1-30B**		30	S1 S1T S1T	6 6 8	25	30	32				
SSY1-32		32	S1	6	25	32	34				
SSY1-35 **SSY1-35A**		35	S1 S1T	6 8	25	35	37				
SSY1-36		36	S1	6	25	36	38				
SSY1-40 **SSY1-40A**		40	S1 S1T	8	28	40	42				
SSY1-45		45	S1	8	28	45	47				
SSY1-48 **SSY1-48A**		48	S1 S1T	8	28	48	50				

[Caution on Product Characteristics]
① Keyways are made according to JIS B1301 standards, Js9 tolerance, and a set screw is included for products with a tapped hole.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

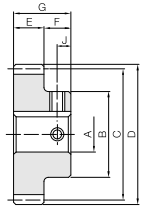
Socket head screw		Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog Number
Size	J	Bending strength	Surface durability	Bending strength	Surface durability			
—	—	1.47	0.085	0.15	0.0087	0~0.10	0.013	**SSY0.8-20**
—	—	2.03	0.134	0.21	0.014		0.022	**SSY0.8-25**
—	—	2.60	0.197	0.27	0.020		0.032	**SSY0.8-30**
— M4	— 4	3.77	0.362	0.39	0.037		0.054 0.053	**SSY0.8-40** **SSY0.8-40A**
— M4	— 4	4.98	0.580	0.51	0.059		0.068 0.067	**SSY0.8-50** **SSY0.8-50A**
— M4	— 4	1.22	0.069	0.12	0.0070	0.08~0.18	0.0072 0.0070	**SSY1-12** **SSY1-12A**
— M4	— 4	1.98	0.096	0.20	0.010		0.011 0.011	**SSY1-14** **SSY1-14A**
— M4	— 4	2.22	0.11	0.23	0.011		0.012 0.012	**SSY1-15** **SSY1-15A**
— M4	— 4	2.46	0.13	0.25	0.013		0.015 0.014	**SSY1-16** **SSY1-16A**
— M4	— 4	2.95	0.16	0.30	0.017		0.019 0.018	**SSY1-18** **SSY1-18A**
— M4 M5	— 4 4	3.45	0.20	0.35	0.021		0.024 0.024 0.021	**SSY1-20** **SSY1-20A** **SSY1-20B**
— M4	— 4	4.48	0.30	0.46	0.030		0.031 0.030	**SSY1-24** **SSY1-24A**
—	—	4.74	0.32	0.48	0.033		0.033	**SSY1-25**
— M4	— 4	5.55	0.41	0.57	0.042		0.039 0.038	**SSY1-28** **SSY1-28A**
— M4 M5	— 4 4	6.08	0.47	0.62	0.048		0.061 0.060 0.057	**SSY1-30** **SSY1-30A** **SSY1-30B**
—	—	6.63	0.54	0.68	0.055		0.066	**SSY1-32**
— M5	— 4	7.45	0.66	0.76	0.067		0.073 0.069	**SSY1-35** **SSY1-35A**
—	—	7.73	0.70	0.79	0.071		0.076	**SSY1-36**
— M5	— 4	8.84	0.87	0.90	0.089		0.092 0.091	**SSY1-40** **SSY1-40A**
—	—	10.3	1.12	1.05	0.11		0.11	**SSY1-45**
— M5	— 4	11.1	1.28	1.13	0.13		0.12 0.12	**SSY1-48** **SSY1-48A**

[Caution on Secondary Operations]
① Please read “Cautions on Performing Secondary Operations” (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② When using a product with secondary operations applied, please be careful of runout and deformation as the tooth width is thin. Heat treatment in particular may cause the gear to warp.
③ Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating



S1



S1K

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Keyway	Socket head screw		Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog Number
				A_{H7}	B	C	D	E	F	G	Width × Depth	Size	J	Bending strength	Surface durability	Bending strength	Surface durability			
SSY1-50		50	S1	8	28	50	52				—	—	—	11.7	1.39	1.19	0.14		0.13	**SSY1-50**
SSY1-55		55	S1	8	28	55	57				—	—	—	13.1	1.70	1.34	0.17		0.15	**SSY1-55**
SSY1-56		56	S1	8	28	56	58				—	—	—	13.4	1.77	1.37	0.18		0.15	**SSY1-56**
SSY1-60		60	S1	8	35	60	62				—	—	—	14.5	2.04	1.48	0.21		0.19	**SSY1-60**
SSY1-60A			S1K	10							4 x 1.8	M4	4						0.18	**SSY1-60A**
SSY1-64		64	S1	8	35	64	66				—	—	—	15.7	2.34	1.60	0.24		0.21	**SSY1-64**
SSY1-65		65	S1	8	35	65	67				—	—	—	16.0	2.41	1.63	0.25		0.21	**SSY1-65**
SSY1-70		70	S1	8	35	70	72				—	—	—	17.4	2.82	1.78	0.29		0.24	**SSY1-70**
SSY1-72		72	S1	8	35	72	74				—	—	—	18.0	2.99	1.84	0.30		0.25	**SSY1-72**
SSY1-75	***m*1**	75	S1	8	35	75	77	6	8	14	—	—	—	18.9	3.26	1.93	0.33	0.08~0.18	0.26	**SSY1-75**
SSY1-80		80	S1	10	40	80	82				—	—	—	20.3	3.74	2.07	0.38		0.31	**SSY1-80**
SSY1-85		85	S1	10	40	85	87				—	—	—	21.8	4.25	2.22	0.43		0.34	**SSY1-85**
SSY1-90		90	S1	10	40	90	92				—	—	—	23.3	4.79	2.37	0.49		0.37	**SSY1-90**
SSY1-95		95	S1	10	40	95	97				—	—	—	24.7	5.37	2.52	0.55		0.40	**SSY1-95**
SSY1-96		96	S1	10	40	96	98				—	—	—	25.0	5.49	2.55	0.56		0.41	**SSY1-96**
SSY1-100		100	S1	10	50	100	102				—	—	—	26.2	5.98	2.67	0.61		0.48	**SSY1-100**
SSY1-110		110	S1	10	50	110	112				—	—	—	29.1	7.31	2.97	0.75		0.56	**SSY1-110**
SSY1-120		120	S1	10	50	120	122				—	—	—	32.1	8.80	3.27	0.90		0.65	**SSY1-120**
SSY1-120A			S1K	12	35						4 x 1.8	M4	4						0.58	**SSY1-120A**

[Caution on Product Characteristics]
① Keyways are made according to JIS B1301 standards, Js9 tolerance, and a set screw is included for products with a tapped hole.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
① Please read “Cautions on Performing Secondary Operations” (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
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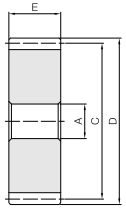
③ Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)
Surface treatment	Black oxide coating



S5

Catalog Number	Module	No. of teeth	Shape	Bore	Pitch dia.	Outside dia.	Face width	Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog Number
				A_{H7}	C	D	E	Bending strength	Surface durability	Bending strength	Surface durability			
SSAY1-20		20			20	22		3.45	0.20	0.35	0.021		0.013	**SSAY1-20**
SSAY1-24		24			24	26		4.48	0.30	0.46	0.030		0.020	**SSAY1-24**
SSAY1-25		25		6	25	27		4.74	0.32	0.48	0.033		0.022	**SSAY1-25**
SSAY1-28		28			28	30		5.55	0.41	0.57	0.042		0.028	**SSAY1-28**
SSAY1-30		30			30	32		6.08	0.47	0.62	0.048		0.032	**SSAY1-30**
SSAY1-32		32			32	34		6.63	0.54	0.68	0.055		0.037	**SSAY1-32**
SSAY1-35		35			35	37		7.45	0.66	0.76	0.067		0.044	**SSAY1-35**
SSAY1-36		36		6	36	38		7.73	0.70	0.79	0.071		0.047	**SSAY1-36**
SSAY1-40		40			40	42		8.84	0.87	0.90	0.089		0.058	**SSAY1-40**
SSAY1-45	***m*1**	45	S5		45	47	6	10.3	1.12	1.05	0.11	0.08~0.18	0.074	**SSAY1-45**
SSAY1-48		48		6	48	50		11.1	1.28	1.13	0.13		0.084	**SSAY1-48**
SSAY1-50		50		8	50	52		11.7	1.39	1.19	0.14		0.090	**SSAY1-50**
SSAY1-55		55		8	55	57		13.1	1.70	1.34	0.17		0.11	**SSAY1-55**
SSAY1-56		56		8	56	58		13.4	1.77	1.37	0.18		0.11	**SSAY1-56**
SSAY1-60		60		8	60	62		14.5	2.04	1.48	0.21		0.13	**SSAY1-60**
SSAY1-70		70		8	70	72		17.4	2.82	1.78	0.29		0.18	**SSAY1-70**
SSAY1-80		80		10	80	82		20.3	3.74	2.07	0.38		0.23	**SSAY1-80**
SSAY1-100		100		10	100	102		26.2	5.98	2.67	0.61		0.37	**SSAY1-100**

[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations] ① Please read “Cautions on Performing Secondary Operations” (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
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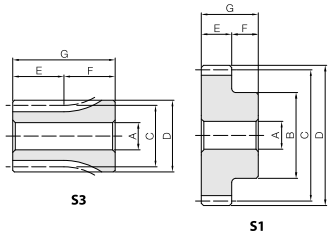
Stainless Steel Spur Gears

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	SUS303
Heat treatment	—
Tooth hardness	(less than 187HB)

* The precision grade of J Series products is equivalent to the value shown in the table.



Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SUS1-15	15	S3	8	17	15	17	10	20	30	2.04	0.12	0.21	0.013	0.08~0.18	0.037
SUS1-16	16			18	16	18				2.26	0.14	0.23	0.015		0.044
SUS1-18	18			20	18	20				2.71	0.18	0.28	0.019		0.057
SUS1-20	20	S1		16	20	22		10	20	3.18	0.23	0.32	0.024		0.032
SUS1-22	22			18	22	24				3.65	0.29	0.37	0.029		0.042
SUS1-24	24			20	24	26				4.13	0.35	0.42	0.036		0.052
SUS1-25	25			20	25	27				4.37	0.38	0.45	0.039		0.055
SUS1-28	28			23	28	30				5.11	0.48	0.52	0.049		0.073
SUS1-30	30			25	30	32				5.60	0.56	0.57	0.057		0.086
SUS1-32	32			26	32	34				6.11	0.64	0.62	0.066		0.096
SUS1-35	35			26	35	37				6.87	0.78	0.70	0.079		0.11
SUS1-36	36			28	36	38				7.12	0.82	0.73	0.084		0.12
SUS1-40	40		10	35	40	42				8.15	1.03	0.83	0.11		0.16
SUS1-42	42			35	42	44				8.66	1.14	0.88	0.12		0.17
SUS1-45	45			35	45	47				9.44	1.32	0.96	0.13		0.19
SUS1-48	48			35	48	50				10.2	1.51	1.04	0.15		0.20
SUS1-50	50			35	50	52				10.8	1.65	1.10	0.17		0.22
SUS1-55	55			40	55	57				12.1	2.01	1.23	0.21		0.27
SUS1-56	56			40	56	58				12.3	2.09	1.26	0.21		0.28
SUS1-60	60			40	60	62				13.4	2.42	1.37	0.25		0.31
SUS1-64	64			45	64	66				14.5	2.77	1.47	0.28		0.36
SUS1-70	70			50	70	72				16.1	3.34	1.64	0.34		0.44
SUS1-75	75			55	75	77				17.4	3.86	1.77	0.39		0.52
SUS1-80	80			60	80	82				18.7	4.42	1.91	0.45		0.60
SUS1-90	90			60	90	92				21.4	5.67	2.19	0.58		0.70
SUS1-100	100		12	60	100	102				24.1	7.08	2.46	0.72		0.82
SUS1-120	120			60	120	122				29.6	10.4	3.01	1.06		1.09

[Caution on Product Characteristics]
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② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
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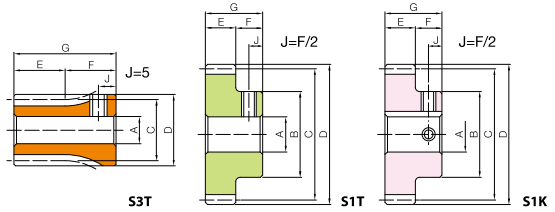
J Series



To order J Series products, please specify: Catalog No. + J + BORE.

Bore H7	* The product shapes of J Series items are identified by background color.																
Keyway Js9	8	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35
Screw size	-	4×1.8		5×2.3				6×2.8				8×3.3			10×3.3	
Catalog Number	M5	M4						M5				M6			M8	
SUS1-15 J BORE	S3T															
SUS1-16 J BORE	S3T															
SUS1-18 J BORE	S3T															
SUS1-20 J BORE	S1T															
SUS1-22 J BORE	S1T															
SUS1-24 J BORE	S1T															
SUS1-25 J BORE	S1T															
SUS1-28 J BORE	S1T	S1K	S1K													
SUS1-30 J BORE	S1T	S1K	S1K													
SUS1-32 J BORE	S1T	S1K	S1K	S1K												
SUS1-35 J BORE	S1T	S1K	S1K	S1K												
SUS1-36 J BORE	S1T	S1K	S1K	S1K	S1K	S1K										
SUS1-40 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SUS1-42 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SUS1-45 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SUS1-48 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SUS1-50 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SUS1-55 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SUS1-56 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SUS1-60 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SUS1-64 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SUS1-70 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SUS1-75 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SUS1-80 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SUS1-90 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SUS1-100 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SUS1-120 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K

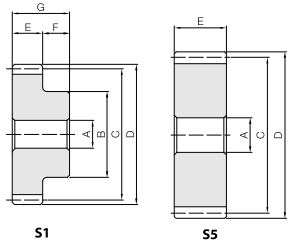
[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ For products having a tapped hole, a set screw is included.
⑥ When using S3T and S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Stainless Steel Spur Gears

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	SUS303
Heat treatment	–
Tooth hardness	(less than 187HB)

* The precision grade of J Series products is equivalent to the value shown in the table.

J

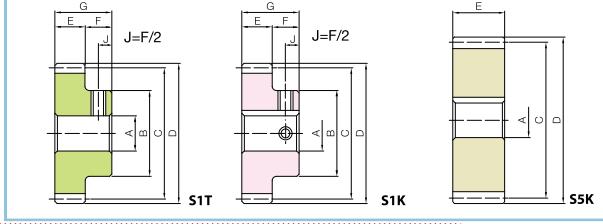


Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SUS1.5-15	15	S1	8	18	22.5	25.5	15	14	29	6.89	0.43	0.70	0.044	0.10~0.22	0.063
SUS1.5-16	16			20	24	27				7.63	0.50	0.78	0.051		0.076
SUS1.5-18	18			22	27	30				9.16	0.65	0.93	0.066		0.097
SUS1.5-20	20			24	30	33				10.7	0.82	1.09	0.084		0.12
SUS1.5-22	22			26	33	36				12.3	1.01	1.26	0.10		0.15
SUS1.5-24	24		10	28	36	39				13.9	1.23	1.42	0.13		0.17
SUS1.5-25	25			30	37.5	40.5				14.8	1.35	1.50	0.14		0.20
SUS1.5-28	28			36	42	45				17.2	1.71	1.76	0.17		0.26
SUS1.5-30	30			38	45	48				18.9	1.98	1.93	0.20		0.29
SUS1.5-32	32			40	48	51				20.6	2.27	2.10	0.23		0.33
SUS1.5-35	35		12	42	52.5	55.5				23.2	2.74	2.36	0.28		0.39
SUS1.5-36	36			45	54	57				24.0	2.91	2.45	0.30		0.42
SUS1.5-40	40			45	60	63				27.5	3.62	2.80	0.37		0.48
SUS1.5-42	42			45	63	66				29.2	4.01	2.98	0.41		0.51
SUS1.5-45	45			45	67.5	70.5				31.9	4.64	3.25	0.47		0.57
SUS1.5-48	48		15	60	72	75				34.5	5.31	3.52	0.54		0.62
SUS1.5-50	50			50	75	78				36.3	5.79	3.70	0.59		0.71
SUS1.5-55	55			55	82.5	85.5				40.7	7.08	4.15	0.72		0.86
SUS1.5-56	56			55	84	87				41.6	7.36	4.24	0.75		0.88
SUS1.5-60	60			60	90	93				45.2	8.51	4.61	0.87		1.01
SUS1.5-64	64			60	96	99				48.8	9.75	4.97	0.99		1.12
SUS1.5-70	70			70	105	108				54.2	11.8	5.52	1.20		1.39
SUS1.5-75	75			70	112.5	115.5				58.7	13.6	5.99	1.39		1.54
SUS1.5-80	80			80	120	123				63.2	15.6	6.45	1.59		1.83
SUS1.5-90	90			80	135	138				72.3	20.1	7.37	2.05		2.18
SUS1.5-100	100			80	150	153				81.4	25.2	8.30	2.57		2.58
SUS2-15	15	S1	12	24	30	34	20	16	36	16.3	1.05	1.67	0.11	0.12~0.26	0.13
SUS2-16	16			26	32	36				18.1	1.22	1.85	0.12		0.16
SUS2-18	18			30	36	40				21.7	1.59	2.21	0.16		0.22
SUS2-20	20			32	40	44				25.4	2.01	2.59	0.20		0.26
SUS2-22	22			36	44	48				29.2	2.48	2.98	0.25		0.33
SUS2-24	24			38	48	52				33.0	3.01	3.37	0.31		0.39
SUS2-25	25			40	50	54				35.0	3.30	3.57	0.34		0.43
SUS2-28	28			45	56	60				40.9	4.18	4.17	0.43		0.55
SUS2-30	30			50	60	64				44.8	4.83	4.57	0.49		0.65
SUSA2-32	32	S5	15	–	64	68	20	–	–	48.9	5.53	4.98	0.56	0.12~0.26	0.47
SUSA2-35	35				70	74				54.9	6.67	5.60	0.68		0.57
SUSA2-36	36				72	76				57.0	7.08	5.81	0.72		0.61
SUSA2-40	40				80	84				65.2	8.85	6.65	0.90		0.76
SUSA2-42	42				84	88				69.3	9.81	7.07	1.00		0.84
SUSA2-45	45				90	94				75.5	11.4	7.70	1.16		0.96
SUSA2-48	48				96	100				81.8	13.0	8.34	1.33		1.10
SUSA2-50	50				100	104				86.0	14.2	8.77	1.44		1.20
SUSA2-55	55				110	114				96.5	17.3	9.84	1.77		1.45
SUSA2-56	56				112	116				98.7	18.0	10.1	1.83		1.51
SUSA2-60	60				120	124				107	20.8	10.9	2.13		1.74
SUSA2-64	64				128	132				116	23.9	11.8	2.44		1.98
SUSA2-70	70				140	144				128	29.0	13.1	2.96		2.37

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

J Series



To order J Series products, please specify: Catalog No. + J + BORE.

* The product shapes of J Series items are identified by background color.

Bore $_{H7}$	8	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Keyway $_{Js9}$	-	4×1.8		5×2.3				6×2.8				8×3.3			10×3.3		12×3.3	14×3.8	
Screw size	M5	M4						M5				M6			M8			M10	-
Catalog Number																			
SUS1.5-15 J BORE	S1T																		
SUS1.5-16 J BORE	S1T																		
SUS1.5-18 J BORE	S1T	S1K																	
SUS1.5-20 J BORE	S1T	S1K	S1K																
SUS1.5-22 J BORE	S1T	S1K	S1K	S1K															
SUS1.5-24 J BORE	S1T	S1K	S1K	S1K	S1K	S1K													
SUS1.5-25 J BORE	S1T	S1K	S1K	S1K	S1K	S1K	S1K												
SUS1.5-28 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K									
SUS1.5-30 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SUS1.5-32 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SUS1.5-35 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SUS1.5-36 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SUS1.5-40 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SUS1.5-42 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SUS1.5-45 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SUS1.5-48 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SUS1.5-50 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SUS1.5-55 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SUS1.5-56 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SUS1.5-60 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SUS1.5-64 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SUS1.5-70 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SUS1.5-75 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SUS1.5-80 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SUS1.5-90 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SUS1.5-100 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SUS2-15 J BORE			S1K																
SUS2-16 J BORE			S1K																
SUS2-18 J BORE			S1K	S1K	S1K	S1K	S1K												
SUS2-20 J BORE			S1K	S1K	S1K	S1K	S1K	S1K											
SUS2-22 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K									
SUS2-24 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SUS2-25 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SUS2-28 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SUS2-30 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SUSA2-32 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K					
SUSA2-35 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
SUSA2-36 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
SUSA2-40 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SUSA2-42 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SUSA2-45 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SUSA2-48 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SUSA2-50 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SUSA2-55 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA2-56 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA2-60 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA2-64 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA2-70 J BORE					S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K

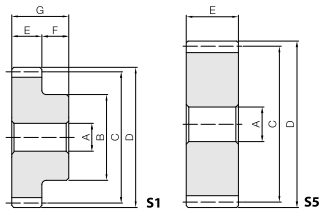
[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ For products having a tapped hole, a set screw is included.
⑥ When using S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

You can download CAD data (DXF format) of KHK Products from the Web Catalog.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	SUS303
Heat treatment	–
Tooth hardness	(less than 187HB)

* The precision grade of J Series products is equivalent to the value shown in the table.

J



Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N·m) Bending strength	Allowable torque (N·m) Surface durability	Allowable torque (kgf·m) Bending strength	Allowable torque (kgf·m) Surface durability	Backlash (mm)	Weight (kg)
SUS2.5-15	15	S1	15	30	37.5	42.5	25	18	43	31.9	2.11	3.25	0.21	0.14~0.28	0.26
SUS2.5-16	16			32	40	45				35.3	2.44	3.60	0.25		0.30
SUS2.5-18	18			38	45	50				42.4	3.18	4.32	0.32		0.41
SUS2.5-20	20			40	50	55				49.6	4.02	5.06	0.41		0.50
SUS2.5-22	22			44	55	60				57.0	4.96	5.81	0.51		0.62
SUS2.5-24	24			48	60	65				64.5	6.01	6.58	0.61		0.75
SUS2.5-25	25			50	62.5	67.5				68.3	6.58	6.96	0.67		0.81
SUS2.5-28	28			60	70	75				79.8	8.34	8.14	0.85		1.09
SUS2.5-30	30			65	75	80				87.6	9.65	8.93	0.98		1.27
SUSA2.5-32	32	S5	—		80	85				95.4	11.1	9.73	1.13		0.95
SUSA2.5-35	35				87.5	92.5				107	13.4	10.9	1.36		1.14
SUSA2.5-36	36				90	95				111	14.2	11.3	1.45		1.21
SUSA2.5-40	40		20		100	105				127	17.7	13.0	1.81		1.47
SUSA2.5-42	42				105	110				135	19.6	13.8	2.00		1.63
SUSA2.5-45	45				112.5	117.5		—	—	148	22.7	15.0	2.31		1.88
SUSA2.5-48	48				120	125				160	26.1	16.3	2.66		2.14
SUSA2.5-50	50				125	130				168	28.4	17.1	2.90		2.33
SUSA2.5-55	55				137.5	142.5				189	34.9	19.2	3.56		2.83
SUSA2.5-56	56				140	145				193	36.2	19.6	3.70		2.94
SUSA2.5-60	60				150	155				209	42.0	21.3	4.28		3.38
SUSA2.5-64	64				160	165				226	48.2	23.0	4.91		3.86
SUS3-15	15	S1	15	36	45	51	30	20	50	55.1	3.71	5.62	0.38	0.14~0.32	0.46
SUS3-16	16			38	48	54				61.1	4.29	6.23	0.44		0.53
SUS3-18	18			40	54	60				73.3	5.59	7.47	0.57		0.66
SUS3-20	20			50	60	66				85.8	7.07	8.74	0.72		0.90
SUS3-22	22			54	66	72				98.5	8.73	10.0	0.89		1.09
SUS3-24	24		20	58	72	78				111	10.6	11.4	1.08		1.30
SUS3-25	25			60	75	81				118	11.6	12.0	1.18		1.35
SUS3-28	28			70	84	90				138	14.7	14.1	1.50		1.77
SUS3-30	30			75	90	96				151	17.0	15.4	1.74		2.06
SUSA3-32	32	S5	—		96	102				165	19.5	16.8	1.99		1.62
SUSA3-35	35				105	111				185	23.6	18.9	2.40		1.95
SUSA3-36	36				108	114				192	25.0	19.6	2.55		2.07
SUSA3-40	40		25		120	126				220	31.3	22.4	3.19		2.53
SUSA3-42	42				126	132				234	34.7	23.9	3.54		2.80
SUSA3-45	45				135	141		—	—	255	40.2	26.0	4.10		3.23
SUSA3-48	48				144	150				276	46.2	28.2	4.71		3.70
SUSA3-50	50				150	156				290	50.4	29.6	5.14		4.02
SUSA3-55	55				165	171				326	61.7	33.2	6.30		4.89
SUSA3-56	56				168	174				333	64.1	33.9	6.54		5.07
SUSA3-60	60				180	186				362	74.3	36.9	7.58		5.84
SUS4-15	15	S1	20	45	60	68	40	25	65	131	9.06	13.3	0.92	0.18~0.38	1.03
SUS4-20	20			65	80	88				203	17.3	20.7	1.76		2.06
SUS4-25	25			84	100	108				280	28.3	28.5	2.89		3.37
SUS4-30	30			100	120	128				359	41.7	36.6	4.25		4.90
SUSA4-40	40	S5	30	—	160	168		—	—	521	77.1	53.2	7.86		6.05
SUSA4-50	50				200	208				573	103	58.5	10.5		9.58

[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations] ① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
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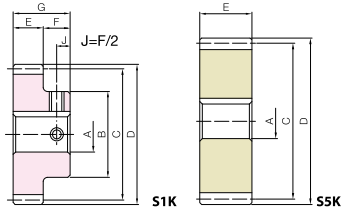
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

J Series



To order J Series products, please specify: **Catalog No. + J + BORE.**

Bore H_7 / Keyway Js9	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Screw size	5×2.3			6×2.8				8×3.3			10×3.3		12×3.3	14×3.8	
Catalog Number	M4			M5				M6			M8			M10	
SUS2.5-15 J BORE	S1K	S1K													
SUS2.5-16 J BORE	S1K	S1K	S1K												
SUS2.5-18 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SUS2.5-20 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SUS2.5-22 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
SUS2.5-24 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
SUS2.5-25 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SUS2.5-28 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SUS2.5-30 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SUSA2.5-32 J BORE	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
SUSA2.5-35 J BORE	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SUSA2.5-36 J BORE	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
SUSA2.5-40 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SUSA2.5-42 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SUSA2.5-45 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA2.5-48 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA2.5-50 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA2.5-55 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA2.5-56 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA2.5-60 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA2.5-64 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUS3-15 J BORE	S1K	S1K	S1K	S1K	S1K										
SUS3-16 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SUS3-18 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
SUS3-20 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
SUS3-22 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SUS3-24 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
SUS3-25 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K			
SUS3-28 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SUS3-30 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
SUSA3-32 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SUSA3-35 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
SUSA3-36 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA3-40 J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA3-42 J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA3-45 J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA3-48 J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA3-50 J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA3-55 J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA3-56 J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUSA3-60 J BORE								S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
SUS4-15 J BORE						S1K	S1K	S1K							
SUS4-20 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
SUS4-25 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SUS4-30 J BORE						S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
SUSA4-40 J BORE										S5K	S5K	S5K	S5K	S5K	S5K
SUSA4-50 J BORE										S5K	S5K	S5K	S5K	S5K	S5K

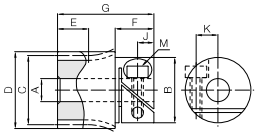
* The product shapes of J Series items are identified by background color.

[Caution on J series] ① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ For products having a tapped hole, a set screw is included.

You can download CAD data (DXF format) of KHK Products from the Web Catalog.

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	SUS303
Heat treatment	–
Tooth hardness	(less than 187HB)

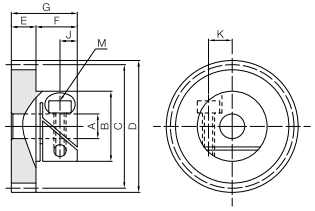
* The gear grade listed is the value before clamping. The precision grade of products with a module of 0.5 or less is equivalent to the value shown in the table.



S3

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Hex socket screw		
				A_{H7}	B	C	D	E	F	G	M	J	K
SUSF0.5-16	***m*0.5**	16	S3	4	14	8	9	7	8	22	M2.5	3.3	4.4
SUSF0.5-18		18				9	10						
SUSF0.5-20		20				10	11						
SUSF0.5-24		24		5		12	13						
SUSF0.5-25		25				12.5	13.5						
SUSF0.5-28		28	S1			14	15	5	10	15	M3	4.5	5.7
SUSF0.5-30		30				15	16						
SUSF0.5-32		32		6	17	16	17						
SUSF0.5-35		35				17.5	18.5						
SUSF0.5-36		36				18	19						
SUSF0.5-40		40				20	21						
SUSF0.5-45		45				22.5	23.5						
SUSF0.5-48		48				24	25						
SUSF0.5-50		50				25	26						
SUSF0.5-60		60		8	19	30	31						6
SUSF0.5-64		64				32	33						
SUSF0.5-70		70				35	36						
SUSF0.5-80		80		10	24	40	41		14	19	M4	5.3	7.7
SUSF0.5-90		90				45	46						
SUSF0.5-100		100				50	51						
SUSF0.5-120		120				60	61						
SUSF1-14	***m*1**	14	S3	6	17	14	16	8	10	25	M3	4.5	5.7
SUSF1-15		15				15	17						
SUSF1-16		16				16	18						
SUSF1-18		18	S1			18	20	6		16			
SUSF1-20		20				20	22						
SUSF1-24		24				24	26						
SUSF1-25		25				25	27						
SUSF1-28		28				28	30						
SUSF1-30		30		8	19	30	32						6
SUSF1-32		32				32	34						
SUSF1-35		35				35	37						
SUSF1-36		36				36	38						
SUSF1-40		40				40	42						
SUSF1-45		45				45	47						
SUSF1-48		48				48	50						
SUSF1-50		50		10	24	50	52	6	14	20	M4	5.3	7.7
SUSF1-60		60				60	62						
SUSF1-64		64				64	66						
SUSF1-70		70				70	72						
SUSF1-80		80				80	82						
SUSF1-90		90				90	92						
SUSF1-100		100				100	102						

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
③ F-Loc gears are attached to the shaft by a friction coupling. Recommended shaft tolerances are g6, h6, or h7. Torque slippage should be considered when making a selection.
④ Do not tighten the clamping screw without inserting a shaft, or the bore will be permanently deformed and will not accept a shaft.
⑤ The tooth (SUS303) and hub (SUS303) mating section has a rotation-stop pin inserted.



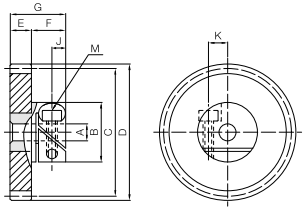
S1

Allowable torque (N·m)		Allowable torque (kgf·m)		Ref. slipping torque	Standard screw tightening torque (N·m)	Backlash (mm)	Weight (g)	Catalog Number
Bending strength	Surface durability	Bending strength	Surface durability					
0.40	0.023	0.040	0.0023	0.62	0.36	0~0.10	13.7	**SUSF0.5-16**
0.47	0.030	0.048	0.0031				15.2	**SUSF0.5-18**
0.56	0.038	0.057	0.0039				16.9	**SUSF0.5-20**
0.72	0.056	0.074	0.0057	0.62	0.36		19.7	**SUSF0.5-24**
0.76	0.061	0.078	0.0062				20.8	**SUSF0.5-25**
0.89	0.079	0.091	0.0080				15.7	**SUSF0.5-28**
0.98	0.091	0.10	0.0093				16.6	**SUSF0.5-30**
0.76	0.075	0.078	0.0077	1.79	0.63		22.2	**SUSF0.5-32**
0.86	0.088	0.088	0.009				23.8	**SUSF0.5-35**
0.89	0.096	0.091	0.010				24.3	**SUSF0.5-36**
1.02	0.12	0.10	0.012				26.6	**SUSF0.5-40**
1.18	0.15	0.12	0.015				29.9	**SUSF0.5-45**
1.28	0.17	0.13	0.018				32.0	**SUSF0.5-48**
1.34	0.19	0.14	0.019				33.5	**SUSF0.5-50**
1.67	0.28	0.17	0.029				43.8	**SUSF0.5-60**
1.81	0.32	0.18	0.033	2.22	0.63		47.6	**SUSF0.5-64**
2.01	0.39	0.20	0.040				53.8	**SUSF0.5-70**
2.34	0.51	0.24	0.052				86.8	**SUSF0.5-80**
2.68	0.66	0.27	0.067	4.50	1.50		99.8	**SUSF0.5-90**
3.02	0.82	0.31	0.084				114	**SUSF0.5-100**
3.69	1.21	0.38	0.123				148	**SUSF0.5-120**
1.46	0.088	0.15	0.0090				32.8	**SUSF1-14**
1.63	0.10	0.17	0.010				35.6	**SUSF1-15**
1.81	0.12	0.18	0.012				38.6	**SUSF1-16**
2.17	0.15	0.22	0.015	1.79	0.63		26.1	**SUSF1-18**
1.91	0.14	0.19	0.015				28.9	**SUSF1-20**
2.48	0.21	0.25	0.021				35.3	**SUSF1-24**
2.62	0.23	0.27	0.023				37.1	**SUSF1-25**
3.06	0.29	0.31	0.030				43.0	**SUSF1-28**
3.36	0.34	0.34	0.034				48.9	**SUSF1-30**
3.66	0.39	0.37	0.039				53.5	**SUSF1-32**
4.12	0.47	0.42	0.047	2.22	0.63	0~0.10	60.9	**SUSF1-35**
4.27	0.49	0.44	0.050				63.5	**SUSF1-36**
4.89	0.62	0.50	0.063				74.7	**SUSF1-40**
5.66	0.79	0.58	0.081				90.3	**SUSF1-45**
6.14	0.91	0.63	0.093				101	**SUSF1-48**
6.45	0.99	0.66	0.10	4.50	1.50		129	**SUSF1-50**
8.03	1.45	0.82	0.15				169	**SUSF1-60**
8.67	1.66	0.88	0.17				188	**SUSF1-64**
9.63	2.00	0.98	0.20				217	**SUSF1-70**
11.2	2.65	1.15	0.27				272	**SUSF1-80**
12.9	3.40	1.31	0.35				335	**SUSF1-90**
14.5	4.25	1.48	0.43				405	**SUSF1-100**

[Caution on Secondary Operations] ① Avoid performing secondary operations, as this is a complete product.

Specifications	
Precision grade	JIS grade N10 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	Polyacetal (Hub: SUS303)
Heat Treatment	–
Tooth hardness	(110 to 120HRR)

* The gear grade listed is the value before clamping. The precision grade of products with a module of 0.5 or less is equivalent to the value shown in the table.



S1

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Hex socket screw		
				A_{H7}	B	C	D	E	F	G	M	J	K
DSF0.5-36	*m*0.5	36	S1	5	14	18	19	5	8.5	13.5	M2.5	3.3	4.4
DSF0.5-40		40				20	21						
DSF0.5-45		45				22.5	23.5						
DSF0.5-48		48				24	25						
DSF0.5-50		50				25	26						
DSF0.5-60		60				30	31						
DSF0.5-64		64				32	33						
DSF0.5-70		70				35	36						
DSF0.5-80		80				40	41						
DSF0.5-90		90		8	19	45	46		10	15	M3	4.5	6
DSF0.5-100		100				50	51						
DSF0.5-120		120				60	61						
DSF1-20	*m*1	20	S1	5	14	20	22	6	8.5	14.5	M2.5	3.3	4.4
DSF1-24		24				24	26						
DSF1-25		25				25	27						
DSF1-28		28				28	30						
DSF1-30		30				30	32						
DSF1-32		32		8	19	32	34		10	16	M3	4.5	6
DSF1-35		35				35	37						
DSF1-36		36				36	38						
DSF1-40		40				40	42						
DSF1-45		45				45	47						
DSF1-48		48				48	50						
DSF1-50		50				50	52						
DSF1-60		60				60	62						
DSF1-64		64				64	66						
DSF1-70		70				70	72						
DSF1-80		80				80	82						
DSF1-90		90				90	92						
DSF1-100		100				100	102						

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
③ The tooth (acetal) and hub (SUS303) mating section has a rotation-stop pin inserted.
④ F-Loc gears are attached to the shaft by a friction coupling. Recommended shaft tolerances are g6, h6, or h7. Torque slippage should be considered when making a selection.
⑤ Do not tighten the clamping screw without inserting a shaft, or the bore will be permanently deformed and will not accept a shaft.

Allowable torque (N·m) Bending strength	Allowable torque (kgf·m) Bending strength	Ref. slipping torque	Standard screw tightening torque (N·m)	Backlash (mm)	Weight (g)	Catalog Number
0.49	0.050	0.62	0.36	0~0.10	11.5	**DSF0.5-36**
0.55	0.057				12.0	**DSF0.5-40**
0.64	0.065				12.5	**DSF0.5-45**
0.69	0.071				12.9	**DSF0.5-48**
0.73	0.075				13.2	**DSF0.5-50**
0.90	0.092				14.7	**DSF0.5-60**
0.97	0.099				15.4	**DSF0.5-64**
1.07	0.11				16.5	**DSF0.5-70**
1.25	0.13				18.6	**DSF0.5-80**
1.42	0.14				31.1	**DSF0.5-90**
1.59	0.16	2.22	0.63		33.7	**DSF0.5-100**
1.93	0.20				39.8	**DSF0.5-120**
0.96	0.098	0.62	0.36	0~0.10	12.6	**DSF1-20**
1.22	0.12				13.7	**DSF1-24**
1.28	0.13				14.1	**DSF1-25**
1.48	0.15				15.1	**DSF1-28**
1.61	0.16				26.2	**DSF1-30**
1.75	0.18	2.22	0.63		27.0	**DSF1-32**
1.96	0.20				28.3	**DSF1-35**
2.04	0.21				28.8	**DSF1-36**
2.33	0.24				30.8	**DSF1-40**
2.69	0.27				33.6	**DSF1-45**
2.92	0.30				35.5	**DSF1-48**
3.07	0.31				36.8	**DSF1-50**
3.78	0.39				44.1	**DSF1-60**
4.07	0.41				47.4	**DSF1-64**
4.50	0.46				52.7	**DSF1-70**
5.23	0.53				62.7	**DSF1-80**
5.95	0.61				74.0	**DSF1-90**
6.68	0.68				86.6	**DSF1-100**

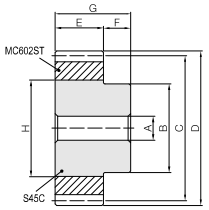
[Caution on Secondary Operations] ① Avoid performing secondary operations, as this is a complete product.

NSU Module 1, 1.5, 2

Plastic Spur Gears with Steel Core

Specifications	
Precision grade	JIS grade N9 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	MC602ST with S45C core
Heat Treatment	–
Tooth hardness	(115 to 120HRR)

* The precision grade of J Series products is equivalent to the value shown in the table.

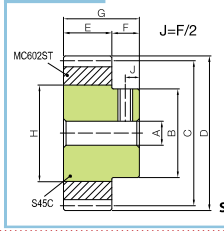


S1

Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Core O.D. H	Allowable torque (N·m) Bending strength	Allowable torque (kgf·m) Bending strength	Backlash (mm)	Weight (kg)
NSU1-30	30	S1	8	20	30	32	10	10	20	20	1.23	0.13	0~0.34	0.046
NSU1-32	32			22	32	34				22	1.34	0.14		0.057
NSU1-34	34			25	34	36				25	1.44	0.15		0.074
NSU1-35	35			25	35	37				25	1.50	0.15		0.075
NSU1-36	36			25	36	38				25	1.56	0.16		0.076
NSU1-40	40		10	25	40	42				28	1.78	0.18		0.082
NSU1-45	45			30	45	47				34	2.06	0.21		0.12
NSU1-48	48			30	48	50				34	2.23	0.23		0.13
NSU1-50	50			30	50	52				34	2.35	0.24		0.13
NSU1-60	60			40	60	62				45	2.93	0.30		0.23
NSU1-70	70		12		70	72				45	3.46	0.35		0.24
NSU1-80	80				80	82				45	4.00	0.41	0~0.36	0.25
NSU1-90	90				90	92				55	4.56	0.46		0.32
NSU1-100	100				100	102				65	5.12	0.52		0.40
NSU1.5-28	28	S1	10	30	42	45	15	12	27	30	3.82	0.39	0~0.38	0.15
NSU1.5-30	30				45	48				30	4.15	0.42		0.15
NSU1.5-32	32			33	48	51				33	4.51	0.46		0.18
NSU1.5-34	34				51	54				33	4.88	0.50	0~0.40	0.19
NSU1.5-35	35				52.5	55.5				36	5.07	0.52		0.20
NSU1.5-36	36				54	57				36	5.26	0.54		0.21
NSU1.5-40	40			40	60	63				45	6.00	0.61		0.31
NSU1.5-45	45				67.5	70.5				45	6.94	0.71		0.33
NSU1.5-48	48				72	75				45	7.53	0.77		0.33
NSU1.5-50	50		12		75	78				45	7.92	0.81		0.33
NSU1.5-56	56			50	84	87				55	9.09	0.93		0.50
NSU1.5-60	60				90	93				55	9.89	1.01		0.51
NSU1.5-68	68				102	105				67	11.3	1.15		0.66
NSU1.5-70	70				105	108				70	11.7	1.19		0.70
NSU1.5-80	80			60	120	123				85	13.5	1.38	0~0.42	1.01
NSU1.5-90	90				135	138				100	15.4	1.57		1.29
NSU2-20	20	S1	10	22	40	44	20	14	34	22	5.89	0.60	0~0.42	0.10
NSU2-22	22			30	44	48				30	6.66	0.68		0.19
NSU2-24	24				48	52				30	7.43	0.76		0.19
NSU2-25	25				50	54				30	7.85	0.80		0.20
NSU2-28	28			35	56	60				35	9.05	0.92		0.27
NSU2-30	30		12	40	60	64				35	9.84	1.00	0~0.44	0.28
NSU2-32	32				64	68				40	10.7	1.09		0.35
NSU2-34	34				68	72				45	11.6	1.18		0.41
NSU2-35	35				70	74				45	12.0	1.22		0.41
NSU2-36	36				72	76				45	12.5	1.27		0.42
NSU2-40	40		15	55	80	84				60	14.2	1.45		0.71
NSU2-44	44				88	92				60	16.0	1.63		0.74
NSU2-45	45				90	94				60	16.5	1.68		0.74
NSU2-48	48			60	96	100				65	17.8	1.82		0.88
NSU2-50	50				100	104				65	18.8	1.92		0.90
NSU2-56	56				112	116				65	21.5	2.20		0.95
NSU2-60	60				120	124				85	23.5	2.39		1.29
NSU2-68	68				136	140				100	26.8	2.74	0~0.46	1.66
NSU2-70	70				140	144				105	27.7	2.82		1.79
NSU2-80	80				160	164				125	32.0	3.27		2.38

* Please see Page 166 for Cautions on Product Characteristics, Cautions on Performing Secondary Operations and Caution on J Series.

J Series



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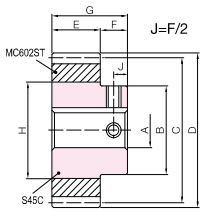

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To order J Series products, please specify: **Catalog No. + J + BORE.**

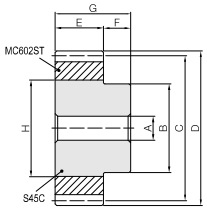
Bore H7	* The product shapes of J Series items are identified by background color.																
Keyway Js9	8	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35
Screw size	–	4×1.8			5×2.3			6×2.8				8×3.3			10 X 3.3	
Catalog Number	M5	M4						M5				M6			M8	
NSU1-30 J BORE	S1T															
NSU1-32 J BORE	S1T	S1K														
NSU1-34 J BORE	S1T	S1K	S1K													
NSU1-35 J BORE	S1T	S1K	S1K													
NSU1-36 J BORE	S1T	S1K	S1K													
NSU1-40 J BORE		S1K	S1K													
NSU1-45 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
NSU1-48 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
NSU1-50 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
NSU1-60 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU1-70 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU1-80 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU1-90 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU1-100 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU1.5-28 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
NSU1.5-30 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
NSU1.5-32 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
NSU1.5-34 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
NSU1.5-35 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
NSU1.5-36 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
NSU1.5-40 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU1.5-45 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU1.5-48 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU1.5-50 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU1.5-56 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
NSU1.5-60 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
NSU1.5-68 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
NSU1.5-70 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
NSU1.5-80 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU1.5-90 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU2-20 J BORE		S1K														
NSU2-22 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
NSU2-24 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
NSU2-25 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
NSU2-28 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
NSU2-30 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
NSU2-32 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU2-34 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU2-35 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU2-36 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU2-40 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU2-44 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU2-45 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU2-48 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU2-50 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU2-56 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU2-60 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU2-68 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU2-70 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU2-80 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K

NSU Module 2.5, 3

Plastic Spur Gears with Steel Core

Specifications	
Precision grade	JIS grade N9 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	MC602ST with S45C core
Heat Treatment	–
Tooth hardness	(115 to 120HRR)

* The precision grade of J Series products is equivalent to the value shown in the table.



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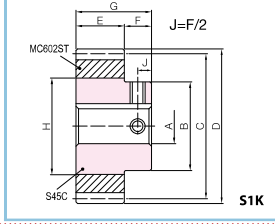
Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Core O.D. H	Allowable torque (N-m) Bending strength	Allowable torque (kgf-m) Bending strength	Backlash (mm)	Weight (kg)
NSU2.5-18	18	S1	12	25	45	50	25	15	40	25	9.93	1.01	0~0.44	0.15
NSU2.5-20	20			28	50	55				28	11.5	1.17		0.20
NSU2.5-22	22			35	55	60				35	13.0	1.33	0~0.46	0.31
NSU2.5-24	24			35	60	65				35	14.5	1.48		0.32
NSU2.5-25	25			35	62.5	67.5				35	15.3	1.56		0.33
NSU2.5-28	28			40	70	75				40	17.7	1.80		0.44
NSU2.5-30	30			45	75	80				50	19.2	1.96		0.61
NSU2.5-32	32			45	80	85				50	20.9	2.13		0.63
NSU2.5-34	34			50	85	90				55	22.6	2.30		0.76
NSU2.5-35	35			55	87.5	92.5				60	23.5	2.39		0.90
NSU2.5-36	36			55	90	95				60	24.3	2.48		0.91
NSU2.5-40	40		15	65	100	105				70	27.8	2.83		1.21
NSU2.5-44	44			65	110	115				75	31.3	3.19		1.36
NSU2.5-45	45			65	112.5	117.5				75	32.1	3.28	0~0.48	1.37
NSU2.5-48	48			65	120	125				85	34.8	3.55		1.62
NSU2.5-50	50			65	125	130				95	36.7	3.74		1.89
NSU2.5-56	56			65	140	145				105	42.1	4.29		2.24
NSU2.5-60	60		20	70	150	155				115	45.8	4.67		2.62
NSU2.5-68	68			70	170	175				135	52.4	5.34		3.42
NSU2.5-70	70			70	175	180				140	54.1	5.51		3.64
NSU3-16	16	S1	12	24	48	54	30	17	47	24	14.7	1.50	0~0.52	0.18
NSU3-18	18			30	54	60				30	17.2	1.75		0.28
NSU3-20	20			33	60	66				33	19.9	2.03		0.35
NSU3-22	22			38	66	72				38	22.5	2.29		0.46
NSU3-24	24			43	72	78				43	25.1	2.56	0~0.54	0.59
NSU3-25	25			45	75	81				45	26.5	2.70		0.65
NSU3-28	28		15	50	84	90				50	30.5	3.11		0.79
NSU3-30	30			55	90	96				60	33.2	3.39		1.05
NSU3-32	32			60	96	102				65	36.1	3.68		1.24
NSU3-34	34			60	102	108				65	39.0	3.98		1.27
NSU3-35	35			60	105	111				75	40.5	4.13		1.51
NSU3-36	36			60	108	114				80	42.1	4.29		1.65
NSU3-40	40		20	70	120	126				85	48.0	4.90		1.94
NSU3-44	44			70	132	138				95	54.0	5.51		2.31
NSU3-45	45			70	135	141				105	55.5	5.66	0~0.56	2.65
NSU3-48	48			70	144	150				105	60.2	6.14		2.72
NSU3-50	50				150	156				105	63.4	6.46		2.77
NSU3-56	56				168	174				130	72.7	7.42		3.85
NSU3-60	60				180	186				145	79.1	8.07		4.62
NSU3-68	68				204	210				165	90.6	9.23		5.85
NSU3-70	70				210	216				175	93.4	9.53		6.45

[Caution on Product Characteristics]
① Significant variations in temperature or humidity can cause dimensional changes in plastic gears, including tooth diameter and backlash. Please see the section "Design of Plastic Gears" in our separate technical reference book.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ For the radial strength and thrust strength of the welded portion, refer to "11.3 Fusion Strength of Fused Products" in our separate technical reference book. When the core O.D is the same as the hub diameter, you may see some serration on the hub. There is no effect on the strength of the gear.
④ Without lubrication, using plastic gears in pairs may generate heat and dilation. It is recommended to mate them with steel gears.
⑤ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Even though the holding strength at the material interface is designed to be stronger than the teeth, a secondary operation may weaken the holding strength.
③ Plastic gears are susceptible to the effects of temperature and moisture. Dimensional changes may occur while performing secondary operations and during post-machining operations.

J Series



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To order J Series products, please specify: **Catalog No. + J + BORE.**

Bore $_{H7}$	* The product shapes of J Series items are identified by background color.													
Keyway $_{Js9}$	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40
Screw size	4×1.8	5×2.3				6×2.8				8×3.3			10×3.3		12×3.3
Catalog Number	M4					M5				M6			M8		
NSU2.5-18 J BORE	S1K														
NSU2.5-20 J BORE	S1K	S1K	S1K												
NSU2.5-22 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
NSU2.5-24 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
NSU2.5-25 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
NSU2.5-28 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
NSU2.5-30 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU2.5-32 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU2.5-34 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
NSU2.5-35 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
NSU2.5-36 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
NSU2.5-40 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU2.5-44 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU2.5-45 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU2.5-48 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU2.5-50 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU2.5-56 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU2.5-60 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU2.5-68 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU2.5-70 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU3-16 J BORE	S1K														
NSU3-18 J BORE	S1K	S1K	S1K	S1K	S1K										
NSU3-20 J BORE	S1K	S1K	S1K	S1K	S1K										
NSU3-22 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
NSU3-24 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
NSU3-25 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
NSU3-28 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
NSU3-30 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
NSU3-32 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU3-34 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU3-35 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU3-36 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
NSU3-40 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU3-44 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU3-45 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU3-48 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU3-50 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU3-56 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU3-60 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU3-68 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
NSU3-70 J BORE								S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K

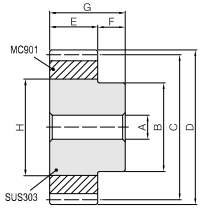
[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ For products having a tapped hole, a set screw is included.

PU Module 1, 1.5, 2

Plastic Spur Gears with Steel Core

Specifications	
Precision grade	JIS grade N9 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	MC901 with SUS303 core
Heat Treatment	–
Tooth hardness	(115 to 120HRR)

* The precision grade of J Series products is equivalent to the value shown in the table.



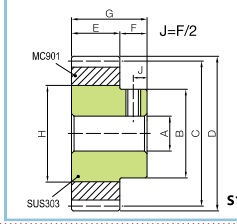
S1

Catalog Number	No. of teeth	Shape	Bore A_{H7}	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Core O.D. H	Allowable torque (N-m) Bending strength	Allowable torque (kgf-m) Bending strength	Backlash (mm)	Weight (kg)
PU1-30	30	S1	8	20	30	32	10	10	20	20	1.03	0.10	0~0.34	0.046
PU1-35	35			25	35	37				25	1.25	0.13		0.074
PU1-40	40		10	25	40	42				28	1.48	0.15		0.081
PU1-50	50			30	50	52				34	1.96	0.20		0.13
PU1-60	60			40	60	62				45	2.41	0.25	0~0.36	0.22
PU1-80	80			40	80	82				45	3.34	0.34		0.25
PU1.5-30	30	S1	10	30	45	48	15	12	27	30	3.46	0.35	0~0.38	0.15
PU1.5-35	35			33	52.5	55.5				36	4.22	0.43	0~0.40	0.20
PU1.5-40	40			40	60	63				45	5.00	0.51		0.31
PU1.5-50	50		12	40	75	78				45	6.60	0.67		0.33
PU1.5-60	60			50	90	93				55	8.14	0.83		0.51
PU1.5-80	80			60	120	123				85	11.3	1.15	0~0.42	1.00
PU2-20	20	S1	10	22	40	44	20	14	34	22	4.91	0.50	0~0.42	0.10
PU2-25	25			30	50	54				30	6.54	0.67		0.20
PU2-30	30			35	60	64				35	8.20	0.84	0~0.44	0.28
PU2-35	35		12	40	70	74				45	10.0	1.02		0.41
PU2-40	40		15	55	80	84				60	11.9	1.21		0.70
PU2-50	50			60	100	104				65	15.7	1.60		0.88
PU2-60	60			60	120	124				85	19.3	1.97	0~0.46	1.28

[Caution on Product Characteristics]
① Significant variations in temperature or humidity can cause dimensional changes in plastic gears, including tooth diameter and backlash.
Please see the section "Design of Plastic Gears" in our separate technical reference book.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ For the radial strength and thrust strength of the welded portion, refer to "11.3 Fusion Strength of Fused Products" in our separate technical reference book. When the core O.D is the same as the hub diameter, you may see some serration on the hub. There is no effect on the strength of the gear.
④ Without lubrication, using plastic gears in pairs may generate heat and dilation.
It is recommended to mate them with steel gears.
⑤ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Even though the holding strength at the material interface is designed to be stronger than the teeth, a secondary operation may weaken the holding strength.
③ Plastic gears are susceptible to the effects of temperature and moisture. Dimensional changes may occur while performing secondary operations and during post-machining operations.

J Series



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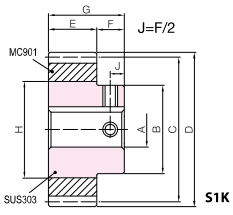


S1K

To order J Series products, please specify: Catalog No. + J + BORE.

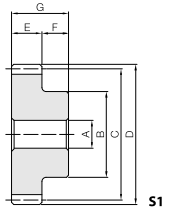
Bore H7	* The product shapes of J Series items are identified by background color.															
Keyway Js9	8	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35
Screw size	–	4×1.8		5×2.3				6×2.8				8×3.3			10×3.3	
Catalog Number	M5	M4						M5				M6			M8	
PU1-30 J BORE	S1T															
PU1-35 J BORE	S1T	S1K	S1K													
PU1-40 J BORE		S1K	S1K													
PU1-50 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
PU1-60 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PU1-80 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PU1.5-30 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
PU1.5-35 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
PU1.5-40 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PU1.5-50 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PU1.5-60 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
PU1.5-80 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
PU2-20 J BORE		S1K														
PU2-25 J BORE		S1K	S1K	S1K	S1K	S1K	S1K									
PU2-30 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
PU2-35 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PU2-40 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
PU2-50 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
PU2-60 J BORE					S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K

[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ For products having a tapped hole, a set screw is included.
⑥ When using S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Plastic Spur Gears

Specifications	
Precision grade	JIS grade N9 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	MC901
Heat treatment	–
Tooth hardness	(115 to 120HRR)

* The precision grade is equivalent to the value shown in the table.



S1

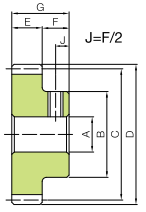
Catalog Number	No. of teeth	Shape	Bore A	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N·m) Bending strength	Allowable torque (kgf·m) Bending strength	Backlash (mm)	Weight (kg)
PS1-15	15	S1	6	12	15	17	10	10	20	0.41	0.042	0~0.32	0.0027
PS1-16	16			12	16	18				0.45	0.046		0.0030
PS1-18	18			14	18	20				0.53	0.054		0.0041
PS1-20	20			16	20	22				0.61	0.063		0.0053
PS1-22	22		8	18	22	24				0.69	0.071	0~0.34	0.0062
PS1-24	24			20	24	26				0.77	0.079		0.0077
PS1-25	25			20	25	27				0.82	0.083		0.0082
PS1-26	26			20	26	28				0.86	0.088		0.0086
PS1-28	28			22	28	30				0.94	0.096		0.010
PS1-30	30			25	30	32				1.03	0.10		0.013
PS1-32	32			26	32	34				1.11	0.11		0.014
PS1-35	35			26	35	37				1.25	0.13		0.016
PS1-36	36			28	36	38				1.30	0.13		0.018
PS1-40	40		10	35	40	42				1.48	0.15		0.024
PS1-45	45			35	45	47				1.71	0.17		0.028
PS1-48	48			35	48	50				1.86	0.19		0.030
PS1-50	50				50	52				1.96	0.20		0.032
PS1-55	55				55	57				2.18	0.22		0.037
PS1-60	60				60	62				2.41	0.25		0.042
PS1-65	65				65	67				2.64	0.27		0.048
PS1-70	70			40	70	72				2.87	0.29		0.057
PS1-75	75				75	77				3.11	0.32	0~0.36	0.064
PS1-80	80				80	82				3.34	0.34		0.071
PS1-85	85				85	87				3.57	0.36		0.079
PS1-90	90				90	92				3.80	0.39		0.087
PS1-95	95			40	95	97				4.03	0.41		0.095
PS1-100	100				100	102				4.27	0.44		0.10

[Caution on Product Characteristics]
① Significant variations in temperature or humidity can cause dimensional changes in plastic gears, including bore size (H8 when produced), tooth diameter, and backlash. Please see the section "Design of Plastic Gears" in our separate technical reference book.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ Without lubrication, using plastic gears in pairs may generate heat and dilation. It is recommended to mate them with steel gears.
④ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Plastic gears are susceptible to the effects of temperature and moisture. Dimensional changes may occur while performing secondary operations and during post-machining operations.

* In regard to MC Nylon gears, other materials are available for plastic gears, including Ultra High Molecular Weight Polyethylene (U-PE), which has excellent abrasion resistance and resin conforming to the Plastic Implementation Measure (PIM). A single piece order is acceptable and will be produced as a custom-made gear. Please see Page 24 for more details on quotations and orders.

J Series



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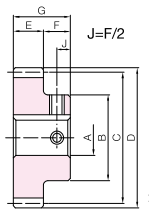


S1K

To order J Series products, please specify: Catalog No. + J + BORE.

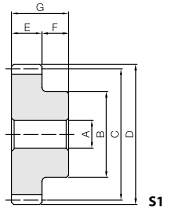
Bore H8	* The product shapes of J Series items are identified by background color.														
Keyway Js9	6	8	10	12	14	15	16	17	18	19	20	22	25	28	30
Screw size	–		4×1.8		5×2.3				6×2.8				8×3.3		
Catalog Number	M4	M5	M4						M5				M6		
PS1-15 J BORE	S1T														
PS1-16 J BORE	S1T														
PS1-18 J BORE	S1T														
PS1-20 J BORE	S1T														
PS1-22 J BORE		S1T													
PS1-24 J BORE		S1T													
PS1-25 J BORE		S1T													
PS1-26 J BORE		S1T													
PS1-28 J BORE		S1T	S1K												
PS1-30 J BORE		S1T	S1K	S1K											
PS1-32 J BORE		S1T	S1K	S1K											
PS1-35 J BORE		S1T	S1K	S1K											
PS1-36 J BORE		S1T	S1K	S1K	S1K	S1K									
PS1-40 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PS1-45 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PS1-48 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PS1-50 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PS1-55 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PS1-60 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PS1-65 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PS1-70 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PS1-75 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PS1-80 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PS1-85 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PS1-90 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PS1-95 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PS1-100 J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			

[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Plastic gears are susceptible to dimensional changes due to the effects of temperature and moisture. The dimensions and tolerances shown in the table are values obtained when machining is performed.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ For products having a tapped hole, a set screw is included.
⑥ Since tapped holes of plastic products are easily broken, avoid too much tightening when fastening screws. For products which have a short tapped hole (Products marked with " ** " are the tap size), fasten with torques less than 0.12N·m for M4, and 0.38N·m for M5. For details, please see the KHK Web Catalog.
⑦ When using S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Plastic Spur Gears

Specifications	
Precision grade	JIS grade N9 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	MC901
Heat treatment	–
Tooth hardness	(115 to 120HRR)

* The precision grade is equivalent to the value shown in the table.



S1

Catalog Number	No. of teeth	Shape	Bore A	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N·m) Bending strength	Allowable torque (kgf·m) Bending strength	Backlash (mm)	Weight (kg)
PS1.5-15	15	S1	8	18	22.5	25.5	15	10	25	1.39	0.14	0~0.38	0.0084
PS1.5-16	16			20	24	27				1.53	0.16		0.010
PS1.5-18	18			22	27	30				1.79	0.18		0.013
PS1.5-20	20			24	30	33				2.07	0.21		0.016
PS1.5-22	22			26	33	36				2.34	0.24		0.020
PS1.5-24	24			28	36	39				2.61	0.27		0.023
PS1.5-25	25			30	37.5	40.5				2.76	0.28		0.026
PS1.5-26	26			32	39	42				2.91	0.3		0.029
PS1.5-28	28			36	42	45				3.18	0.32		0.034
PS1.5-30	30			38	45	48				3.46	0.35		0.039
PS1.5-32	32			40	48	51				3.76	0.38		0.045
PS1.5-35	35			42	52.5	55.5				4.22	0.43		0.052
PS1.5-36	36			45	54	57				4.38	0.45		0.057
PS1.5-40	40			45	60	63				5.00	0.51		0.065
PS1.5-45	45			45	67.5	70.5				5.79	0.59		0.078
PS1.5-48	48		10	45	72	75				6.27	0.64	0~0.40	0.087
PS1.5-50	50			45	75	78				6.60	0.67		0.093
PS1.5-55	55			45	82.5	85.5				7.36	0.75		0.11
PS1.5-60	60			50	90	93				8.14	0.83		0.13
PS1.5-65	65			50	97.5	100.5				8.91	0.91		0.15
PS1.5-70	70		12	50	105	108				9.69	0.99		0.17
PS1.5-75	75			50	112.5	115.5				10.5	1.07		0.19
PS1.5-80	80			55	120	123				11.3	1.15		0.22
PS1.5-85	85			55	127.5	130.5				12.0	1.23	0~0.42	0.25
PS1.5-90	90			55	135	138				12.8	1.31		0.27
PS1.5-95	95			60	142.5	145.5				13.6	1.39		0.31
PS1.5-100	100			60	150	153				14.4	1.47		0.34

[Caution on Product Characteristics]
① Significant variations in temperature or humidity can cause dimensional changes in plastic gears, including bore size (H8 when produced), tooth diameter, and backlash. Please see the section "Design of Plastic Gears" in our separate technical reference book.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ Without lubrication, using plastic gears in pairs may generate heat and dilation.
It is recommended to mate them with steel gears.
④ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
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KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
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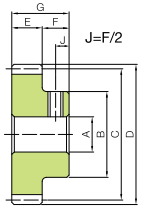
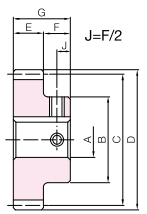
A single piece order is acceptable and will be produced as a custom-made gear.
Please see Page 24 for more details on quotations and orders.

J Series



S1T



S1K

To order J Series products, please specify: Catalog No. + J + BORE.

Bore H8	* The product shapes of J Series items are identified by background color.												
Keyway Js9	8	10	12	14	15	16	17	18	19	20	22	25	28	30
Screw size	–	4×1.8		5×2.3				6×2.8				8×3.3		
Catalog Number	M5	M4						M5				M6		
PS1.5-15J BORE	S1T													
PS1.5-16J BORE	S1T													
PS1.5-18J BORE	S1T	S1K												
PS1.5-20J BORE	S1T	S1K	S1K											
PS1.5-22J BORE	S1T	S1K	S1K											
PS1.5-24J BORE	S1T	S1K	S1K	S1K	S1K									
PS1.5-25J BORE	S1T	S1K	S1K	S1K	S1K	S1K	S1K							
PS1.5-26J BORE	S1T	S1K	S1K	S1K	S1K	S1K	S1K							
PS1.5-28J BORE	S1T	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
PS1.5-30J BORE	S1T	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PS1.5-32J BORE	S1T	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PS1.5-35J BORE	S1T	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PS1.5-36J BORE	S1T	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
PS1.5-40J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
PS1.5-45J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
PS1.5-48J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
PS1.5-50J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
PS1.5-55J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K		
PS1.5-60J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
PS1.5-65J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
PS1.5-70J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
PS1.5-75J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	
PS1.5-80J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
PS1.5-85J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
PS1.5-90J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
PS1.5-95J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K
PS1.5-100J BORE			S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K

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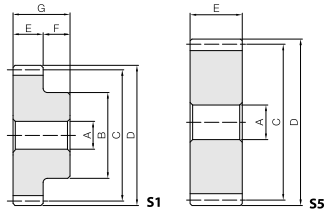
⑥ Since tapped holes of plastic products are easily broken, avoid too much tightening when fastening screws.
For products which have a short tapped hole (Products marked with " ** " are the tap size), fasten with torques less than 0.12N·m for M4, and 0.38N·m for M5.
For details, please see the KHK Web Catalog.
⑦ When using S1T set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Specifications	
Precision grade	JIS grade N9 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	MC901
Heat treatment	—
Tooth hardness	(115 to 120HRR)

* The precision grade is equivalent to the value shown in the table.



Catalog Number	No. of teeth	Shape	Bore A	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N-m) Bending strength	Allowable torque (kgf-m) Bending strength	Backlash (mm)	Weight (kg)
PS2-12	12	S1	10	18	24	28	20	10	30	2.25	0.23	0~0.42	0.011
PS2-13	13			20	26	30				2.59	0.26		0.013
PS2-14	14			20	28	32				2.96	0.30		0.015
PS2-15	15			24	30	34				3.29	0.34		0.019
PS2-16	16			26	32	36				3.63	0.37		0.022
PS2-18	18			30	36	40				4.24	0.43		0.029
PS2-20	20			32	40	44				4.91	0.50		0.036
PS2-22	22			35	44	48				5.55	0.57		0.044
PS2-24	24			38	48	52				6.19	0.63		0.052
PS2-25	25			40	50	54				6.54	0.67		0.057
PS2-26	26			42	52	56				6.90	0.70	0~0.44	0.063
PS2-28	28			45	56	60				7.54	0.77		0.073
PS2-30	30			50	60	64				8.20	0.84		0.086
PSA2-32	32	S5	12	—	64	68	20	—	—	8.91	0.91		0.072
PSA2-35	35				70	74				10.0	1.02		0.087
PSA2-36	36				72	76				10.4	1.06		0.092
PSA2-40	40				80	84				11.9	1.21		0.11
PSA2-45	45				90	94				13.7	1.40		0.14
PSA2-48	48		15		96	100				14.9	1.52	0~0.46	0.17
PSA2-50	50				100	104				15.7	1.60		0.18
PSA2-55	55				110	114				17.5	1.78		0.22
PSA2-60	60				120	124				19.3	1.97		0.26
PSA2-65	65				130	134				21.1	2.15		0.30
PSA2-70	70				140	144				23.0	2.34		0.35
PSA2-75	75				150	154				24.9	2.54		0.41
PSA2-80	80				160	164				26.7	2.72		0.46
PSA2-85	85				170	174				28.5	2.91		0.52
PSA2-90	90				180	184				30.4	3.10		0.59
PSA2-95	95				190	194				32.3	3.29		0.65
PSA2-100	100				200	204				34.2	3.48		0.72

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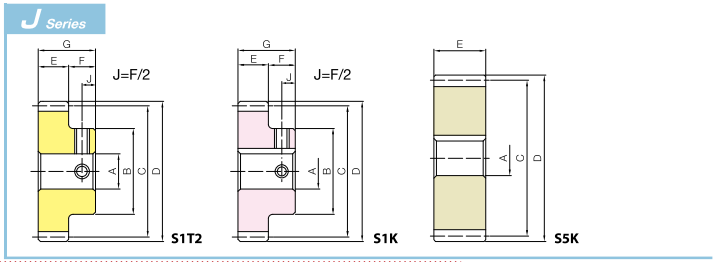

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Bore H8	* The product shapes of J Series items are identified by background color.																	
Keyway Js9	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Screw size	4×1.8		5×2.3				6×2.8				8×3.3			10×3.3		12×3.3	14×3.8	
Catalog Number	M4						M5				M6			M8		—		
PS2-12 J BORE	S1T2																	
PS2-13 J BORE	S1T2																	
PS2-14 J BORE	S1T2																	
PS2-15 J BORE	S1K																	
PS2-16 J BORE	S1K	S1K																
PS2-18 J BORE	S1K	S1K	S1K	S1K	S1K													
PS2-20 J BORE	S1K	S1K	S1K	S1K	S1K	S1K												
PS2-22 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K										
PS2-24 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
PS2-25 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
PS2-26 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
PS2-28 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
PS2-30 J BORE	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
PSA2-32 J BORE		S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K						
PSA2-35 J BORE		S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
PSA2-36 J BORE		S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K				
PSA2-40 J BORE		S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
PSA2-45 J BORE		S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
PSA2-48 J BORE		S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
PSA2-50 J BORE		S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
PSA2-55 J BORE		S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2-60 J BORE		S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2-65 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2-70 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2-75 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2-80 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2-85 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2-90 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2-95 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2-100 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K

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Stainless Steel Hubs for PSA Now Available !

Standardized sectional stainless steel hubs. They create a secure method for fastening to the shaft.

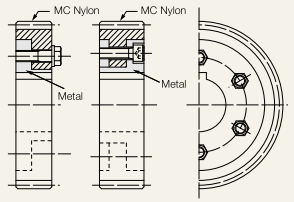
Please see Page 180 for more details.

How to attach gears to shafts

To attach gears to shafts, in case of light loads, methods include using keys, taper pins, spring pins, and press fitting after mounting the setscrews. Since loosening tends to occur in the conditions below, plastic gears are better fastened by using a steel hub.

1. When the circumferential temperature is high
2. For large diameter gears
3. If forward-reverse motion impacts keys

For fastening steel hubs into plastic gears with bolts, see right for various methods.

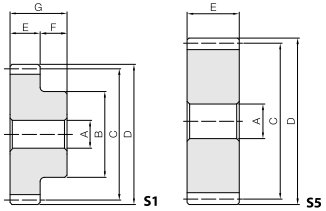


Fastening with a steel hub bolt

Technical information on gears is available on KHK Web Site.

Specifications	
Precision grade	JIS grade N9 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	MC901
Heat treatment	–
Tooth hardness	(115 to 120HRR)

* The precision grade is equivalent to the value shown in the table.



Catalog Number	No. of teeth	Shape	Bore A	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N-m) Bending strength	Allowable torque (kgf-m) Bending strength	Backlash (mm)	Weight (kg)
PS2.5-12	12	S1	10	23	30	35	25	12	37	4.39	0.45	0~0.44	0.023
PS2.5-13	13			25	32.5	37.5				5.06	0.52		0.028
PS2.5-14	14			25	35	40				5.77	0.59		0.031
PS2.5-15	15		12	30	37.5	42.5				6.42	0.65		0.037
PS2.5-16	16			32	40	45				7.09	0.72		0.043
PS2.5-18	18			38	45	50				8.28	0.84		0.057
PS2.5-20	20			40	50	55				9.59	0.98		0.070
PS2.5-22	22			44	55	60				10.8	1.11	0~0.46	0.085
PS2.5-24	24			48	60	65				12.1	1.23		0.10
PS2.5-25	25			50	62.5	67.5				12.8	1.30		0.11
PS2.5-26	26			55	65	70				13.5	1.37		0.12
PS2.5-28	28			60	70	75				14.7	1.50		0.15
PS2.5-30	30			65	75	80				16.0	1.63		0.17
PSA2.5-32	32	S5	15	–	80	85	25	–	–	17.4	1.77	0~0.48	0.14
PSA2.5-35	35				87.5	92.5				19.5	1.99		0.17
PSA2.5-36	36				90	95				20.3	2.07		0.18
PSA2.5-40	40				100	105				23.2	2.36		0.22
PSA2.5-45	45				112.5	117.5				26.8	2.73		0.28
PSA2.5-48	48				120	125				29.0	2.96		0.32
PSA2.5-50	50				125	130				30.6	3.12		0.35
PSA2.5-55	55				137.5	142.5				34.1	3.48		0.43
PSA2.5-60	60				150	155				37.7	3.84		0.51

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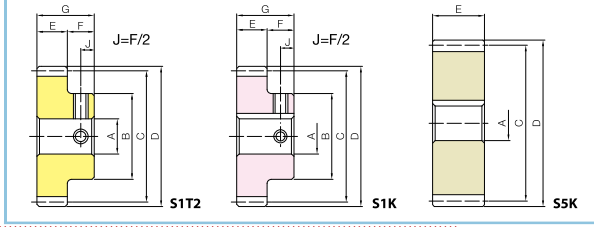

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Bore H8	* The product shapes of J Series items are identified by background color.																	
Keyway Js9	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50
Screw size	4×1.8			5×2.3			6×2.8				8×3.3			10×3.3		12×3.3	14×3.8	
Catalog Number	M4						M5				M6			M8		–		
PS2.5-12 J BORE	S1T2																	
PS2.5-13 J BORE	S1K																	
PS2.5-14 J BORE	S1K	S1K																
PS2.5-15 J BORE		S1K	S1K															
PS2.5-16 J BORE		S1K	S1K	S1K	S1K													
PS2.5-18 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K									
PS2.5-20 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K								
PS2.5-22 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
PS2.5-24 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
PS2.5-25 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
PS2.5-26 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
PS2.5-28 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PS2.5-30 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PSA2.5-32 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
PSA2.5-35 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
PSA2.5-36 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
PSA2.5-40 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	
PSA2.5-45 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2.5-48 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2.5-50 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2.5-55 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA2.5-60 J BORE				S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K

[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Plastic gears are susceptible to dimensional changes due to the effects of temperature and moisture. The dimensions and tolerances shown in the table are values obtained when machining is performed.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ For products having a tapped hole, a set screw is included.
⑥ Since tapped holes of plastic products are easily broken, avoid too much tightening when fastening screws. For products which have a short tapped hole (Products marked with " ** " are the tap size), fasten with torques less than 0.12N·m for M4, and 0.38N·m for M5. For details, please see the KHK Web Catalog.
⑦ When using S1T2 set screws for fastening gears to a shaft, only use this method for applications with light load usage. For secure fastening, please use dowel pins in combination.

Stainless Steel Hubs for PSA Now Available !

Standardized sectional stainless steel hubs. They create a secure method for fastening to the shaft.

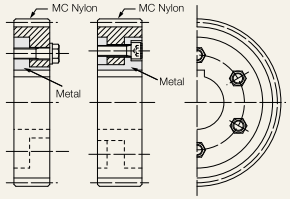
Please see Page 180 for more details.

How to attach gears to shafts

To attach gears to shafts, in case of light loads, methods include using keys, taper pins, spring pins, and press fitting after mounting the setscrews. Since loosening tends to occur in the conditions below, plastic gears are better fastened by using a steel hub.

1. When the circumferential temperature is high
2. For large diameter gears
3. If forward-reverse motion impacts keys

For fastening steel hubs into plastic gears with bolts, see right for various methods.

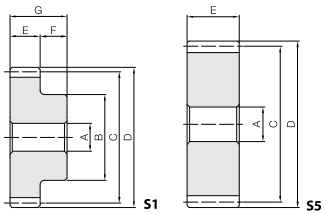


Fastening with a steel hub bolt

Technical information on gears is available on the KHK website.

Specifications	
Precision grade	JIS grade N9 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	MC901
Heat treatment	–
Tooth hardness	(115 to 120HRR)

* The precision grade is equivalent to the value shown in the table.

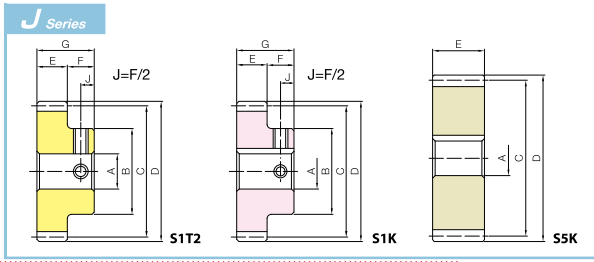


Catalog Number	No. of teeth	Shape	Bore A	Hub dia. B	Pitch dia. C	Outside dia. D	Face width E	Hub width F	Total length G	Allowable torque (N-m) Bending strength	Allowable torque (kgf-m) Bending strength	Backlash (mm)	Weight (kg)
PS3-12	12	S1	12	28	36	42	30	15	45	7.58	0.77	0~0.52	0.040
PS3-13	13			30	39	45				8.74	0.89		0.048
PS3-14	14			32	42	48				9.97	1.02		0.056
PS3-15	15		14	36	45	51				11.1	1.13		0.065
PS3-16	16			38	48	54				12.3	1.25		0.075
PS3-18	18			40	54	60				14.3	1.46	0~0.54	0.094
PS3-20	20			50	60	66				16.6	1.69		0.12
PS3-22	22			54	66	72				18.7	1.91		0.15
PS3-24	24			58	72	78				20.9	2.13		0.18
PS3-25	25			60	75	81				22.1	2.25		0.19
PS3-26	26			65	78	84				23.3	2.37		0.22
PS3-28	28			70	84	90				25.5	2.60		0.25
PS3-30	30			75	90	96				27.7	2.82		0.29
PSA3-32	32	S5	18	–	96	102		–	–	30.1	3.07	0~0.56	0.24
PSA3-35	35				105	111				33.8	3.44		0.29
PSA3-36	36				108	114				35.1	3.57		0.31
PSA3-40	40				120	126				40.0	4.08		0.38
PSA3-45	45				135	141				46.3	4.72		0.49
PSA3-48	48				144	150				50.2	5.12		0.56
PSA3-50	50				150	156				52.8	5.39		0.61
PSA3-55	55				165	171				58.9	6.01		0.74
PSA3-60	60				180	186				65.1	6.64		0.88

[Caution on Product Characteristics]
① Significant variations in temperature or humidity can cause dimensional changes in plastic gears, including bore size (H8 when produced), tooth diameter, and backlash. Please see the section "Design of Plastic Gears" in our separate technical reference book.
② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ Without lubrication, using plastic gears in pairs may generate heat and dilation. It is recommended to mate them with steel gears.
④ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Plastic gears are susceptible to the effects of temperature and moisture. Dimensional changes may occur while performing secondary operations and during post-machining operations.

* In regard to MC Nylon gears, other materials are available for plastic gears, including Ultra High Molecular Weight Polyethylene (U-PE), which has excellent abrasion resistance Poly Ether Ether Ketone (PEEK) also has quality properties. A single piece order is acceptable and will be produced as a custom-made gear. Please see Page 24 for more details on quotations and orders.



To order J Series products, please specify: Catalog No. + J + BORE.

Bore H8	* The product shapes of J Series items are identified by background color.																	
Keyway Js9	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50	
Screw size	4×1.8	5×2.3				6×2.8				8×3.3			10×3.3		12×3.3	14×3.8		
Catalog Number	M4					M5				M6			M8		–			
PS3-12 J BORE	S1T2																	
PS3-13 J BORE	S1K																	
PS3-14 J BORE	S1K	S1K																
PS3-15 J BORE		S1K	S1K	S1K	S1K													
PS3-16 J BORE		S1K	S1K	S1K	S1K	S1K	S1K											
PS3-18 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K									
PS3-20 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K							
PS3-22 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K						
PS3-24 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K					
PS3-25 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
PS3-26 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K				
PS3-28 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PS3-30 J BORE		S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K	S1K			
PSA3-32 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K			
PSA3-35 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K		
PSA3-36 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA3-40 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA3-45 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA3-48 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA3-50 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA3-55 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K
PSA3-60 J BORE						S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K	S5K

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Please see Page 180 for more details.

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3. If forward-reverse motion impacts keys

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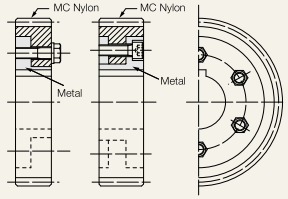
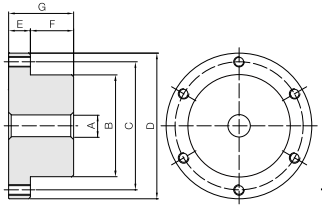


Fastening with a steel hub bolt

Technical information on gears is available on KHK Web Site.

SUKB
Stainless Steel Hubs for PSA



T8

■ Material: SUS303

Catalog Number	Shape	Bore	Hub dia.	Socket head screw			Flange diameter	Flange length	Hub width	Total length	Recommended fastening torque		Coupling torque		Weight
		A_{H7}	B	No.	Size	C	D	E	F	G	(N·m)	(kgf·m)	(N·m)	(kgf·m)	(kg)
SUKB20030	T8	10	30	6	M5	42	51	10	20	30	3.00	0.31	83	8.5	0.24
SUKB20046			46			58	67						115	11.7	0.51
SUKB20066			66			78	87						154	15.7	0.97
SUKB25038	T8	12	38	6	M6	53	63	12.5	24.5	37	5.20	0.53	151	15.4	0.47
SUKB25058			58			73	83						208	21.2	0.98
SUKB25083			83			98	108						280	28.5	1.88
SUKB30046	T8	15	46	6	M8	64	76	15	30	45	12.5	1.27	329	33.6	0.82
SUKB30070			70			88	100						453	46.2	1.72
SUKB30100			100			118	130						607	61.9	3.29

[Caution on Product Characteristics]
① The area where PSA Plastic Spur Gears are attached, with hub tolerance h7.
② The coupling torques shown in the table are reference values calculated according to these set values: friction coefficients and fastening torques of the tapping screw.
③ Please refer to the assembly example below, and then attach the hub to the gear with the accessories, plain washers, spring washers and hexagon socket head cap screws.
④ In accordance with the fastening torque values shown in the dimension table, use a torque wrench and fasten hexagon socket head cap screws firmly, to attach the hub.
⑤ If a fastened hexagon socket head cap screw comes loose, the tightening torque values shown in the table cannot be maintained. It is recommended to check the fasteners regularly and retighten when required.
⑥ For secure positioning, it is recommended to use dowel pins.

■ Features of Stainless Steel Hubs

- This is an attached stainless steel hub with excellent rust resistance.
- Perfectly matches with PSA Plastic Spur Gears, and suitable for food processing machinery.
- Efficient use of materials and superior cost performance for this product.

■ Coupling Torque for Stainless Steel Hubs

Coupling torque for Stainless Steel Hubs is calculated from the frictional force generated by the fastening torque at the contact face of the gear and the stainless steel hub.

Fastening Torque F(N) is calculated from the equation below.

$$F = \frac{n \cdot 1000 \cdot T}{K \cdot d}$$

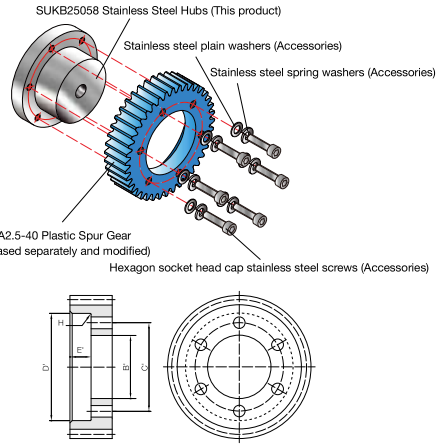
n : Number → No. of threaded holes shown in the dimension table.
T : Tightening torque (N·m) → Fastening torque shown in the dimension table.
K : Torque coefficient → Set the value at 0.164
d : Nominal diameter (mm) → Socket head screw size shown in the dimension table (M5 = 5mm)

Coupling torque T_f(N·m) is calculated from the equation below.

$$T_f = \frac{F \cdot \mu \cdot d_w}{2000}$$

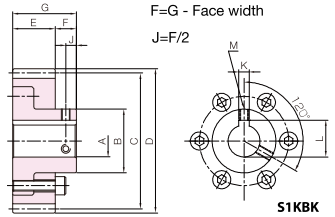
F : Fastening torque (N) → The value obtained from the calculation above.
μ : Friction factor at the contact face of the gear and the stainless steel hub → Set the value at 0.18
d_w : Pitch diameter of the threaded hole (mm) → Socket head screw size C shown in the dimension table

■ Assembly Example of Stainless Steel Hubs



Stainless Steel Hubs	Partner						
Catalog Number	Catalog Number	Bore	Drilled hole			Bore 2	Hole length	Accessories
		B'_{H8}	No.	Size	C'	D'	$E'_{\pm 0.1}$	Bolt (size)
SUKB20030	**PSA2-32 ～ PSA2-36**	30	6	ϕ 5.5	42	51	10	M5×20
SUKB20046	**PSA2-40 ～ PSA2-48**	46			58	67		
SUKB20066	**PSA2-50 ～**	66			78	87		
SUKB25038	**PSA2.5-32 ～ PSA2.5-36**	38		ϕ 6.6	53	63	12.5	M6×25
SUKB25058	**PSA2.5-40 ～ PSA2.5-48**	58			73	83		
SUKB25083	**PSA2.5-50 ～**	83			98	108		
SUKB30046	**PSA3-32 ～ PSA3-36**	46		ϕ 9	64	76	15	M8×30
SUKB30070	**PSA3-40 ～ PSA3-48**	70			88	100		
SUKB30100	**PSA3-50 ～**	100			118	130		

PSUKB J Series
SUKB Assembled PSA Spur Gear NEW



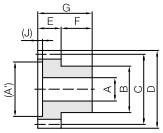
To order J Series products, please specify: **Catalog No. + J + BORE**.

Bore $_{H7}$	* The product shapes of J Series items are identified by background color.																		
Keyway $_{Js9}$	10	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50	
Screw size	4×1.8		5×2.3				6×2.8				8×3.3			10×3.3		12×3.3	14×3.8		
Catalog Number	M4						M5				M6			M8			M10		
PSUKB2-32 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK													
PSUKB2-35 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK													
PSUKB2-36 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK													
PSUKB2-40 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK								
PSUKB2-45 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK								
PSUKB2-48 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK								
PSUKB2-50 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK								
PSUKB2-55 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB2-60 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB2-65 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB2-70 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB2-75 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB2-80 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB2-85 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB2-90 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB2-95 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB2-100 J BORE	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB2.5-32 J BORE		S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK									
PSUKB2.5-35 J BORE		S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK									
PSUKB2.5-36 J BORE		S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK									
PSUKB2.5-40 J BORE		S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK				
PSUKB2.5-45 J BORE		S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK				
PSUKB2.5-48 J BORE		S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK				
PSUKB2.5-50 J BORE		S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	
PSUKB2.5-55 J BORE		S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	
PSUKB2.5-60 J BORE		S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	
PSUKB3-32 J BORE				S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK								
PSUKB3-35 J BORE				S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK								
PSUKB3-36 J BORE				S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK								
PSUKB3-40 J BORE				S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB3-45 J BORE				S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB3-48 J BORE				S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK			
PSUKB3-50 J BORE				S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	
PSUKB3-55 J BORE				S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	
PSUKB3-60 J BORE				S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	S1KBK	

[Caution on Product Characteristics] ① Securely tighten the hubs and gears by referring to SUKB "Cautions on Product Characteristics".

[Caution on J series]
① As available-on-request products, these require a lead-time for shipping of 2 working days (excludes the day ordered), after placing an order. Because the machining starts immediately, we cannot accept cancellations. Please see Page 34 for more details.
② Number of pieces we can process for one order is 1 to 20 units. For larger quantities, please request price and delivery quotes.
③ Keyways are made according to JIS B1301 standards, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are counterbored to reduce the length of the tap. For details, please see the KHK Web Catalog.
⑤ For products having a tapped hole, a set screw is included.

Specifications	
Precision grade	JIS grade N12 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	Duracon (R) (M90-44) **
Heat treatment	–
Tooth hardness	(110 to 120HRR)

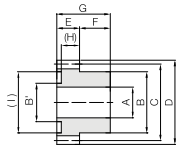


S8

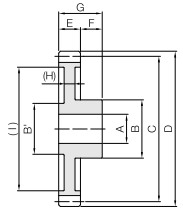
* The precision grade of these products is equivalent to the value shown in the table.
** *Duracon (R)* is a registered trademark of Polyplastics Co., Ltd. in Japan as well as other countries.

Catalog Number	Module	No. of teeth	Shape	Bore 1	Bore 2	Hub dia. 1	Hub dia. 2	Pitch dia.	Outside dia.	Face width	Hub width
				A	(A')	B	B'	C	D	E	F
DS0.5-12	***m*0.5**	12	S8	2	(4)	4.5	—	6	7	3	4
DS0.5-15		15	S8		(5.5)	4.5	—	7.5	8.5		
DS0.5-16		16	S8	3	(6)	6	—	8	9		
DS0.5-20		20	S8B	4	—	8	5	10	11		
DS0.5-24		24	S9		—	8	5	12	13		
DS0.5-30		30	S9	5	—	10	7	15	16		
DS0.5-40		40				12	8	20	21		
DS0.5-45		45				12	8	22.5	23.5		
DS0.5-48		48				12	8	24	25		
DS0.5-50		50				12	8	25	26		
DS0.5-56		56		6		14	10	28	29		5
DS0.5-60		60				14	10	30	31		
DS0.5-70		70				14	10	35	36		
DS0.5-80		80				14	10	40	41		
DS0.8-12	***m*0.8**	12	S9	3	—	6	4	9.6	11.2	4	5
DS0.8-15		15				6	4.5	12	13.6		
DS0.8-16		16		4		8	6	12.8	14.4		
DS0.8-20		20		5		10	8	16	17.6		
DS0.8-24		24				10	8	19.2	20.8		
DS0.8-30		30		6		12	10	24	25.6		6
DS0.8-40		40				12	10	32	33.6		
DS0.8-45		45				12	10	36	37.6		
DS0.8-48		48				14.5	11.7	38.4	40		
DS0.8-50		50				14.5	11.7	40	41.6		
DS0.8-56		56				14.5	11.7	44.8	46.4		
DS0.8-60		60				14.5	11.7	48	49.6		
DS0.8-70		70				15.5	11.7	56	57.6		
DS0.8-80		80				15.5	11.7	64	65.6		

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
③ The bore tolerance is -0.05 to -0.30, but it may be slightly higher at the center of the hole.
④ For the dimensional accuracy of each part, see the dimensional tolerance of molded items in the separate table.



S8B



S9

Total length	Web thickness	Web O.D.	Hole depth	Allowable torque (N·m)	Allowable torque (kgf·m)	Backlash (mm)	Weight (g)	Catalog Number
G	(H)	(I)	(J)	Bending strength	Bending strength			
7	—	—	(0.6)	0.063	0.0064	0~0.30	0.17	**DS0.5-12**
	—	—	(0.6)	0.092	0.0094		0.23	**DS0.5-15**
	—	—	(0.6)	0.10	0.010		0.28	**DS0.5-16**
	(2.4)	(8)	—	0.14	0.014		0.47	**DS0.5-20**
	(1.8)	(9.5)	—	0.17	0.018		0.58	**DS0.5-24**
	(1.8)	(12)	—	0.23	0.023		0.90	**DS0.5-30**
		(16.5)		0.33	0.034		1.53	**DS0.5-40**
		(19)		0.38	0.039		1.78	**DS0.5-45**
		(21)		0.42	0.043		1.91	**DS0.5-48**
		(21.5)		0.44	0.045		2.02	**DS0.5-50**
8		(24.5)		0.50	0.051		2.77	**DS0.5-56**
		(26.5)		0.54	0.055		3.02	**DS0.5-60**
		(31.5)		0.64	0.066		3.71	**DS0.5-70**
		(36.5)		0.75	0.076		4.51	**DS0.5-80**
9	(2)	(6.7)	—	0.22	0.022	0~0.48	0.48	**DS0.8-12**
		(8.8)		0.31	0.032		0.64	**DS0.8-15**
		(9.2)		0.35	0.035		0.84	**DS0.8-16**
		(12.7)		0.47	0.048		1.26	**DS0.8-20**
		(15)		0.59	0.060		1.59	**DS0.8-24**
		(19.5)		0.79	0.080		2.37	**DS0.8-30**
		(27.5)		1.13	0.12		3.47	**DS0.8-40**
		(31)		1.31	0.13		4.18	**DS0.8-45**
		(33.5)		1.42	0.15		5.31	**DS0.8-48**
		(35)		1.50	0.15		5.60	**DS0.8-50**
		(39.5)		1.70	0.17		6.55	**DS0.8-56**
		(42.5)		1.85	0.19		7.30	**DS0.8-60**
10		(50.5)		2.20	0.22		9.52	**DS0.8-70**
		(55.5)		2.55	0.26		11.8	**DS0.8-80**

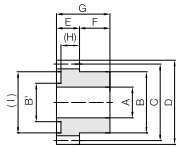
[Caution on Secondary Operations]
① As it is a molded item, bubbles may form inside the material. Avoid performing secondary operations.

DS Module 1

Injection Molded Spur Gears

Specifications	
Precision grade	JIS grade N12 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	Duracon (R) (M90-44) **
Heat treatment	–
Tooth hardness	(110 to 120HRR)

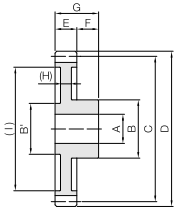
* The precision grade of these products is equivalent to the value shown in the table.
** "Duracon (R)" is a registered trademark of Polyplastics Co., Ltd. in Japan as well as other countries.



S8B

Catalog Number	Module	No. of teeth	Shape	Bore 1	Bore 2	Hub dia. 1	Hub dia. 2	Pitch dia.	Outside dia.	Face width	Hub width
				A	(A')	B	B'	C	D	E	F
DS1-12	*m*1	12	S8B	4	—	8	6	12	14	6	6
DS1-15		15	S9			8	7	15	17		
DS1-16		16		5		10	8	16	18		
DS1-18		18				10	8	18	20		
DS1-20		20				11.7	9	20	22		
DS1-24		24				11.7	9	24	26		
DS1-25		25				11.7	9	25	27		
DS1-28		28				11.7	9	28	30		
DS1-30		30		6		14	12	30	32		
DS1-32		32				14	12	32	34		
DS1-35		35				14	12	35	37		
DS1-36		36				14	12	36	38		
DS1-40		40		8		16	14	40	42		
DS1-45		45				16	14	45	47		
DS1-48		48				16	14	48	50		8
DS1-50		50				16	14	50	52		
DS1-56		56				18	15.6	56	58		
DS1-60		60				18	15.6	60	62		
DS1-64		64				18	15.6	64	66		
DS1-70		70				18	15.6	70	72		
DS1-72		72				18	15.6	72	74		
DS1-80		80						80	82		

[Caution on Product Characteristics] ① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
③ The bore tolerance is -0.05 to -0.30, but it may be slightly higher at the center of the hole.
④ For the dimensional accuracy of each part, see the dimensional tolerance of molded items in the separate table.



S9

Total Length	Web thickness	Web O.D.	Hole depth	Allowable torque (N·m)	Allowable torque (kgf·m)	Backlash (mm)	Weight (g)	Catalog Number
G	(H)	(I)	(J)	Bending strength	Bending strength			
12	(5.5)	(8.5)	—	0.44	0.045	0~0.60	1.10	**DS1-12**
	(5)	(11)		0.65	0.066		1.49	**DS1-15**
	(3)	(11.5)		0.71	0.073		1.87	**DS1-16**
		(13.5)		0.83	0.085		2.15	**DS1-18**
		(15)		0.96	0.098		2.85	**DS1-20**
		(17)		1.22	0.12		3.81	**DS1-24**
		(20)		1.28	0.13		3.76	**DS1-25**
		(23)		1.48	0.15		4.39	**DS1-28**
		(24)		1.61	0.16		5.46	**DS1-30**
		(26.5)		1.75	0.18		5.86	**DS1-32**
		(29)		1.96	0.20		6.73	**DS1-35**
		(30)		2.04	0.21		7.01	**DS1-36**
		(34)		2.33	0.24		8.39	**DS1-40**
		(39.5)		2.69	0.27		9.87	**DS1-45**
		(40)		2.92	0.30		12.0	**DS1-48**
14		(42.5)		3.07	0.31		12.6	**DS1-50**
		(48.5)		3.49	0.36		15.8	**DS1-56**
		(52.5)		3.78	0.39		17.6	**DS1-60**
		(56.5)		4.07	0.41		19.4	**DS1-64**
		(62.5)		4.50	0.46		22.4	**DS1-70**
		(64)		4.65	0.47		23.7	**DS1-72**
		(72.5)		5.23	0.53		27.9	**DS1-80**

[Caution on Secondary Operations] ① As it is a molded item, bubbles may form inside the material. Avoid performing secondary operations.

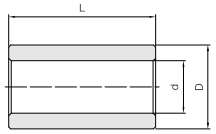
■ Dimensional tolerance of molded item (unit: mm)

Dimensional classification \ Grade	Rough grade
3 or less	±0.20
4 to 6	±0.25
7 to 10	±0.30
11 to 18	±0.35
19 to 30	±0.40
Over 30	±0.50

BB

Sintered Metal Bushings

When using the injection molded spur gear with an idler gear (bearing metal press fitting) and diameter smaller than the inside diameter of the molded gear, please press fit the following standard bushing.



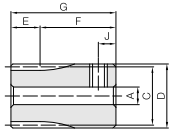
T8

Catalog Number	Inner dia.	Outside dia.	Length	Gear example
	d $^{+0.02}_{0}$	D $^{-0.02}_{-0.01}$	L $^{0}_{-0.3}$	
BB30507	3	5	7	DS0.5
BB30608	3	6	8	DS0.5,DS0.8
BB40609	4	6	9	DS0.8
BB40612	4	6	12	DS1
BB50812	5	8	12	DS1
BB50814	5	8	14	DS1

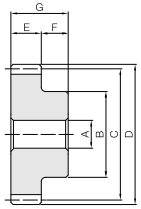
Material: Oil-free copper alloy

Specifications	
Precision grade	JIS grade N8 (JIS B1702-1: 1998)*
Gear teeth	Standard full depth
Pressure angle	20°
Material	Free cutting brass (C3604)
Heat Treatment	–
Tooth hardness	(80HV or more)

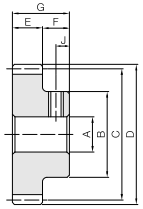
* The precision grade of products with a module of less than 0.8 is equivalent to the value shown in the table.



S3T



S1



S1T

Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Keyway
				A_{H7}	B	C	D	E	F	G	Width × Depth
BSS0.5-15A	***m*0.5**	15	S3T	3	8.5	7.5	8.5	3	11	14	—
BSS0.5-16A		16			9	8	9				
BSS0.5-20		20	S1	4	8.5	10	11		7	10	
BSS0.5-20A			S3T	3	11				11	14	
BSS0.5-22A		22	S1T	3	9	11	12		7	10	
BSS0.5-24B		24		4	10	12	13				
BSS0.5-25		25	S1	4	11	12.5	13.5				
BSS0.5-30		30	S1	4	13	15	16				
BSS0.5-30A			S1T	3	12						
BSS0.5-30B			S1T	4	12						
BSS0.5-30C			S1T	5	12						
BSS0.5-38A		38	S1T	4	16	19	20				
BSS0.5-40		40	S1	4	17	20	21				
BSS0.5-50A		50	S1T	4	22	25	26				
BSS0.8-20	***m*0.8**	20	S1	5	13.5	16	17.6	4	8	12	—
BSS0.8-24B		24			16	19.2	20.8				
BSS0.8-25		25			17	20	21.6				
BSS0.8-30		30	S1	5	20	24	25.6				
BSS0.8-30A			S1T	4							
BSS0.8-40		40	S1	5	20	32	33.6				
BSS1-16B	***m*1**	16	S1T	5	12	16	18	6	8	14	—
BSS1-18B		18		6	15	18	20				
BSS1-20C		20		6	16	20	22				
BSS1-30B		30	S1T	6	25	30	32				
BSS1-40A		40	S1T	6	28	40	42				

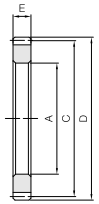
[Caution on Product Characteristics]
① For products having a tapped hole, a set screw is included.
② The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see Page 38 for more details.
③ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
④ If the bore diameter is less than ϕ4, the bore tolerance class is H8. If the bore diameter is ϕ5 or ϕ6, and the hole length (total length) exceeds 3 times the diameter, then the class is also H8.

Socket head screw		Allowable torque (N·m)	Allowable torque (kgf·m)	Backlash	Weight	Catalog Number
Size	J	Bending strength	Bending strength	(mm)	(kg)	
M3	2.5	0.058	0.0059	0~0.10	0.0054	**BSS0.5-15A**
		0.065	0.0066		0.0062	**BSS0.5-16A**
—	—	0.091	0.0093		0.0043	**BSS0.5-20**
M3	2.5				0.0098	**BSS0.5-20A**
M3	3.5	0.10	0.011		0.0054	**BSS0.5-22A**
		0.12	0.012		0.0063	**BSS0.5-24B**
—	—	0.12	0.013		0.0077	**BSS0.5-25**
—	—	0.16	0.016		0.011	**BSS0.5-30**
M3	3.5				0.010	**BSS0.5-30A**
M3	3.5				0.0099	**BSS0.5-30B**
M4	3.5				0.0092	**BSS0.5-30C**
M3	3.5	0.22	0.022		0.018	**BSS0.5-38A**
—	—	0.23	0.024		0.020	**BSS0.5-40**
M3	3.5	0.31	0.031		0.033	**BSS0.5-50A**
—	—	0.31	0.032	0~0.10	0.014	**BSS0.8-20**
M4	4	0.40	0.041		0.021	**BSS0.8-24B**
—	—	0.43	0.043		0.024	**BSS0.8-25**
—	—	0.55	0.056		0.034	**BSS0.8-30**
M3	4				0.035	**BSS0.8-30A**
—	—	0.79	0.081		0.046	**BSS0.8-40**
M4	4	0.52	0.053	0.08~0.18	0.015	**BSS1-16B**
M4		0.62	0.063		0.021	**BSS1-18B**
M4		0.73	0.074		0.026	**BSS1-20C**
M4		1.28	0.13		0.065	**BSS1-30B**
M4		1.86	0.19		0.10	**BSS1-40A**

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.
③ When using a product with secondary operations applied, please be careful of runout and deformation as the tooth width is thin.

SSR Module 2, 2.5, 3
Steel Ring Gears (Spur Gears)

Specifications	
Precision grade	JIS grade N9 (JIS B1702-1: 1998)
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	–
Tooth hardness	(less than 194HB)



S5

Catalog Number	Module	No. of teeth	Shape	Bore	Pitch dia.	Outside dia.	Face width	Allowable torque (N·m)		Allowable torque (kgf·m)	
				A_{H8}	C	D	E	Bending strength	Surface durability	Bending strength	Surface durability
SSR2-120	***m*2**	120	S5	194	240	244	20	366	44.0	37.4	4.49
SSR2-200		200		354	400	404		630	84.2	64.3	8.59
SSR2.5-120	***m*2.5**	120	S5	245	300	305	25	715	88.5	72.9	9.02
SSR2.5-200		200		445	500	505		1230	169	126	17.2
SSR3-120	***m*3**	120	S5	296	360	366	30	1240	157	126	16.0
SSR3-160		160		416	480	486		1680	226	171	23.0

[Caution on Product Characteristics]
① The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 38 for more details.
② The backlash values shown in the table are the theoretical values for the normal direction for the internal ring in mesh with a 30 tooth SS spur gear.
③ The bore tolerance is finished to H8, but there may be some errors as the ring shape deforms easily.

[Caution on Secondary Operations]
① Please read "Cautions on Performing Secondary Operations" (Page 40) when performing modifications and/or secondary operations for safety concerns.
KHK Quick-Mod Gears, the KHK system for quick modification of KHK stock gears, is also available.
② Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.

Backlash (mm)	Weight (kg)	Catalog Number
0.12~0.26	2.46	**SSR2-120**
	4.28	**SSR2-200**
0.14~0.28	4.62	**SSR2.5-120**
	8.01	**SSR2.5-200**
0.14~0.32	7.77	**SSR3-120**
	10.6	**SSR3-160**