Ground Spiral Miter Gears

Catalog Number of NISSEI Spiral Bevel Gears

The catalog number systems of KSP Ground Spiral Miter Gears differs from other miter gears.

KSP 031 001 G F L

- L — Hand of Spiral (L)
- F — Products Shape (Finished Shape)
- G — Surface finish (Ground)
- 001 — Gear Ratio (1)
- 031 — OD of the Larger gear (31 mm)
- KSP — Type (Spiral Miter Gears)

The Characteristics of KSP Spiral Bevel Gears

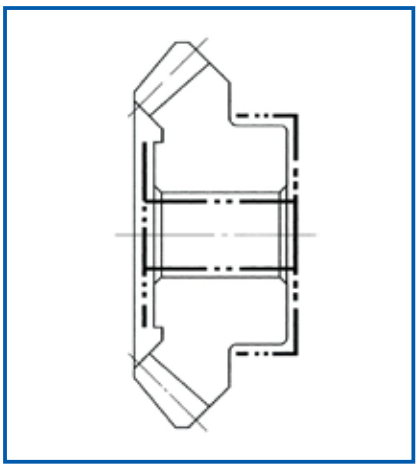
1. JIS Grade 0, high strength, high precision products
2. Superior performance with regard to high speed, low noise, and low vibration.
3. Module range from 1.5 to 6
4. Three gear ratios: 1, 1.5 and 2

Products Style

Type F - Finished Style

Type U - Hub masked to Allow Secondary Operations

※ The heavy lines in the figure below indicate the masked areas during carburizing.



■ Notes about the Transmission Capability Table

1. The values given in the table are for a service factor of 1. Using the table on the right, please modify the value according to the actual conditions. Load torque compensation is calculated from the load torque at the output shaft x service factor (Sf).
2. For speed increaser applications (where the gear is the driver and the pinion is driven), the torque on the pinion is the value in the table multiplied by the speed ratio.

NOTE 1: For speed ratio of 1/1.5, the torque on the pinion is 1/1.5 times the value given in the table.

■ Service Factor *Sf*

Impact from Prime Mover	Impact from Load Side of Machine		
	Uniform Load	Medium Impact Load	Heavy Impact Load
Uniform Load (Motor, Turbine, Hydraulic Motor)	1.0	1.25	1.75
Light Impact Load (Multicylinder Engine)	1.25	1.5	2.0
Medium Impact Load (Single Cylinder Engine)	1.5	1.75	2.25

■ Transmission Capability Table (Speed Ratio: 1)

Upper Transmission Capability (kw) Lower Torqu (N·m)

Model \ Rotation (rpm)	50	100	300	600	900	1200	1800	3000
KSP031001	0.035	0.068	0.195	0.375	0.548	0.716	1.04	1.65
	6.65	6.51	6.20	5.98	5.82	5.69	5.51	5.25
KSP040001	0.092	0.179	0.511	0.980	1.43	1.86	2.69	4.25
	17.6	17.2	16.3	15.6	15.2	14.8	14.3	13.5
KSP053001	0.211	0.412	1.17	2.23	3.25	4.22	6.08	9.55
	40.4	39.3	37.3	35.6	34.5	33.6	32.3	30.4
KSP066001	0.367	0.715	2.02	3.85	5.59	7.26	10.4	16.3
	70.2	68.3	64.4	61.4	59.3	57.8	55.4	52.0
KSP078001	0.577	1.12	3.16	6.00	8.68	11.2	16.1	25.1
	109.8	106.9	101.0	95.5	92.2	89.5	85.5	79.8
KSP092001	0.901	1.75	4.91	9.31	13.5	17.4	24.9	38.6
	172.6	166.7	156.9	148.1	143.2	138.3	132.4	122.6
KSP105001	1.44	2.78	7.80	14.7	21.2	27.4	39.1	60.3
	274.6	265.8	248.1	234.4	225.6	218.7	207.9	192.2
KSP132001	2.33	4.50	12.6	23.6	34.0	43.7	62.0	95.0
	445.2	430.5	400.1	376.6	360.9	348.1	329.5	302.0
KSP157001	3.68	7.10	19.7	37.0	53.0	68.1	96.2	146
	704.1	678.6	628.6	589.4	562.9	542.3	510.9	466.8
KSP184001	5.31	10.2	28.3	52.8	75.5	96.8	136	206
	1010	976.7	901.2	841.4	801.2	770.8	722.8	656.1

■ Transmission Capability Table (Speed Ratio: 1.5)

Upper Transmission Capability (kw) Lower Torqu (N·m)

Model \ Rotation (rpm)	50	100	300	600	900	1200	1800	3000
KSP0481.5	0.077	0.151	0.432	0.830	1.21	1.58	2.29	3.64
	22.2	21.6	20.6	19.8	19.3	18.9	18.2	17.4
KSP0611.5	0.159	0.309	0.882	1.69	2.46	3.21	4.64	7.33
	45.4	44.3	42.2	40.4	39.2	38.3	37.0	35.0
KSP0741.5	0.277	0.540	1.53	2.93	4.27	5.55	8.00	12.6
	79.4	77.4	73.4	70.1	68.0	66.3	63.7	60.1
KSP0901.5	0.466	0.908	2.57	4.90	7.12	9.24	13.3	20.8
	133.4	130.4	122.6	116.7	113.8	110.8	105.9	99.0
KSP1051.5	0.700	1.36	3.84	7.31	10.6	13.7	19.7	30.7
	201.0	195.2	183.4	174.6	168.7	163.8	156.9	147.1
KSP1241.5	1.03	2.00	5.63	10.7	15.5	20.0	28.6	44.5
	295.2	286.4	268.7	255.0	246.1	239.3	227.5	212.8
KSP1411.5	1.56	3.03	8.51	16.1	23.2	30.1	42.9	66.4
	448.2	434.4	406.0	384.4	370.7	358.9	341.3	317.7
KSP1631.5	2.27	4.39	12.3	23.2	33.4	43.1	61.4	94.6
	650.2	628.6	587.4	554.1	532.5	514.8	489.4	452.1
KSP1811.5	2.92	5.64	15.8	29.7	42.7	55.1	78.3	120
	836.5	809.0	754.1	710.0	680.6	658.0	623.7	574.7

■ Transmission Capability Table (Speed Ratio: 2)

Upper Transmission Capability (kw) Lower Torqu (N·m)

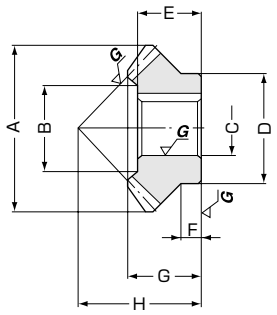
Model \ Rotation (rpm)	50	100	300	600	900	1200	1800	3000
KSP039002	0.025	0.049	0.142	0.275	0.404	0.528	0.770	1.23
	9.63	9.45	9.07	8.76	8.57	8.41	8.17	7.83
KSP056002	0.075	0.147	0.423	0.814	1.19	1.55	2.26	3.59
	28.8	28.1	27.0	26.0	25.3	24.8	23.9	22.8
KSP075002	0.185	0.361	1.03	1.98	2.89	3.76	5.45	8.61
	70.7	69.0	65.7	63.1	61.3	59.9	57.9	54.8
KSP096002	0.364	0.710	2.02	3.86	5.62	7.31	10.5	16.6
	139.3	135.3	128.5	122.6	119.6	116.7	111.8	105.9
KSP119002	0.649	1.26	3.58	6.82	9.90	12.9	18.5	29.0
	248.1	241.2	227.5	217.7	209.9	205.0	196.1	184.4
KSP145002	1.07	2.08	5.87	11.2	16.2	21.0	30.1	46.9
	408.9	397.2	373.6	356.0	343.2	333.4	319.7	298.1
KSP172002	1.78	3.45	9.72	18.4	26.6	34.5	49.3	76.5
	680.6	660.0	618.8	587.4	565.8	549.2	523.7	487.4

KSP
Nissei Ground Spiral Miter Gears

Module 1.5 ～ 6

Specifications	
Precision grade	JIS B 1704 grade 0
Gear teeth	Gleason
Pressure angle	20°
Helix angle	35°
Material	SCM415＊
Heat treatment	Overall carburizing
Tooth hardness	60 ～ 63HRC ＊＊

＊ Module 3.5 and larger are made of SCM420.
＊＊ Tooth Hardness for module 2 and 2.5 is between 80 to 83 HRA.



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Catalog No.	Gear ratio	Module	No. of teeth	Direction of spiral	Pitch dia.	Face width	Shape	Pitch dia.	Holding surface dia.	Bore	Hub dia.	Length of bore
								A	B	C_{H7}	D	E
KSP031001GF L KSP031001GF R	1	*m*1.5	20	L R	30	7	A	30.5	16.2	12	22	13
KSP040001GF L KSP040001GF R		*m*2	20	L R	40	9	B	40	22.5	14	31	14
KSP053001GF L KSP053001GF R		*m*2.5	21	L R	52.5	12	B	53	31	19	38	20
KSP066001GF L KSP066001GF R		*m*3	21	L R	63	15	B	65	33.6	23	47	25
KSP078001GF L KSP078001GF R		*m*3.5	22	L R	77	18	B	78	43.1	27	54	27
KSP092001GF L KSP092001GF R		*m*4	22	L R	88	21	B	91	48.6	30	63	32
KSP105001GF L KSP105001GF R		*m*4.5	23	L R	103.5	25	C	105	50	32	70	35
KSP132001GF L KSP132001GF R		*m*5	26	L R	130	29	C	132	64	36	82	41
KSP157001GF L KSP157001GF R		*m*5.5	28	L R	154	34	C	157	76	40	92	47
KSP184001GF L KSP184001GF R		*m*6	30	L R	180	38	C	184	84	48	101	51

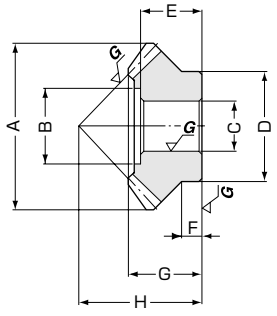
[Caution on Product Characteristics] ① The allowable torque is calculated by converting the output torque (600 rpm) on page 485 to kgf/m, according to assumed usage conditions.
② These gears produce axial thrust forces. See page 452 for more details.

KSP
Nissei Ground Spiral Miter Gears

Module 1.5 ～ 6

Specifications	
Precision grade	JIS B 1704 grade 0
Gear teeth	Gleason
Pressure angle	20°
Helix angle	35°
Material	SCM415＊
Heat treatment	Carburizing (bore & hubs are masked)
Tooth hardness	60 ～ 63HRC ＊＊

＊ Module 3.5 and larger are made of SCM420.
＊＊ Tooth Hardness for module 2 and 2.5 is between 80 to 83 HRA.



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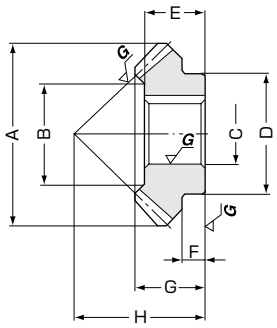
Catalog No.	Gear ratio	Module	No. of teeth	Direction of spiral	Pitch dia.	Face width	Shape	Pitch dia.	Holding surface dia.	Bore	Hub dia.	Length of bore
								A	B	C_{H7}	D	E
KSP031001GU L KSP031001GU R	1	*m*1.5	20	L R	30	7	A	30.5	16.5	10	22	13
KSP040001GU L KSP040001GU R		*m*2	20	L R	40	9	B	40	22.5	12	31	14
KSP053001GU L KSP053001GU R		*m*2.5	21	L R	52.5	12	B	53	31	14	38	20
KSP066001GU L KSP066001GU R		*m*3	21	L R	63	15	B	65	33.5	16	47	25
KSP078001GU L KSP078001GU R		*m*3.5	22	L R	77	18	B	78	43	20	54	27
KSP092001GU L KSP092001GU R		*m*4	22	L R	88	21	B	91	49	22	63	32
KSP105001GU L KSP105001GU R		*m*4.5	23	L R	103.5	25	C	105	50	26	70	35
KSP132001GU L KSP132001GU R		*m*5	26	L R	130	29	C	132	64	30	82	41
KSP157001GU L KSP157001GU R		*m*5.5	28	L R	154	34	C	157	76	32	92	47
KSP184001GU L KSP184001GU R		*m*6	30	L R	180	38	C	184	84	40	101	51

[Caution on Product Characteristics] ① The allowable torque is calculated by converting the output torque (600 rpm) on page 485 to kgf/m, according to assumed usage conditions.
② These gears produce axial thrust forces. See page 452 for more details.

Ground Spiral Miter Gears



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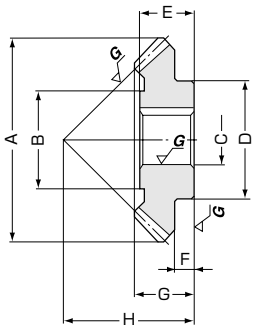
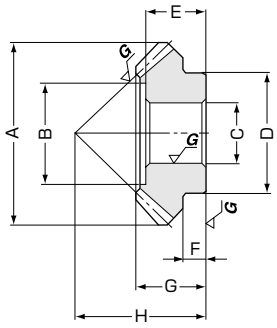


C

Hub width F	Total length G	Mounting distance H	Keyway	Allowable torque (kgf·m)	Backlash (mm)	Weight (kg)	Catalog No.
6	15	25	4 x 1.8	0.61	0 ~0.05	0.04	**KSP031001GF L KSP031001GF R**
7	16.5	30	5 x 2.3	1.59	0 ~0.05	0.08	**KSP040001GF L KSP040001GF R**
8	22.8	40	6 x 2.8	3.63	0.05~0.10	0.18	**KSP053001GF L KSP053001GF R**
13	29.5	50	7 x 3	6.26	0.05~0.10	0.34	**KSP066001GF L KSP066001GF R**
12	32	57	8 x 3.3	9.74	0.05~0.10	0.54	**KSP078001GF L KSP078001GF R**
14	38	66	8 x 3.3	15.1	0.05~0.10	0.88	**KSP092001GF L KSP092001GF R**
14	39	72	10 x 3.3	23.9	0.05~0.10	1.25	**KSP105001GF L KSP105001GF R**
14	45	88	10 x 3.3	38.4	0.05~0.10	2.39	**KSP132001GF L KSP132001GF R**
20	53.5	105	12 x 3.3	60.1	0.05~0.10	3.71	**KSP157001GF L KSP157001GF R**
17	56.5	118	14 x 3.8	85.8	0.05~0.10	5.55	**KSP184001GF L KSP184001GF R**

[Caution on Secondary Operations] ① No secondary operations can be performed on these precision finished gears due to the applied carburizing process.

Ground Spiral Miter Gears



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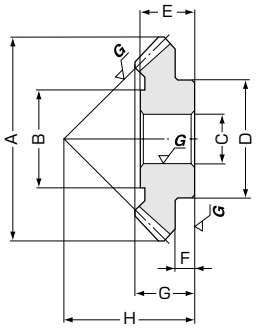


C

Hub width F	Total length G	Mounting distance H	Machinable max. bore	Allowable torque (kgf·m)	Backlash (mm)	Weight (kg)	Catalog No.
6	15	25	12	0.61	0 ~0.05	0.04	**KSP031001GU L KSP031001GU R**
7	16.5	30	16	1.59	0 ~0.05	0.09	**KSP040001GU L KSP040001GU R**
8	22.8	40	22	3.63	0.05~0.10	0.21	**KSP053001GU L KSP053001GU R**
13	29.5	50	25	6.26	0.05~0.10	0.39	**KSP066001GU L KSP066001GU R**
12	32	57	32	9.74	0.05~0.10	0.59	**KSP078001GU L KSP078001GU R**
14	38	66	38	15.1	0.05~0.10	0.96	**KSP092001GU L KSP092001GU R**
14	39	72	40	23.9	0.05~0.10	1.33	**KSP105001GU L KSP105001GU R**
14	45	88	48	38.4	0.05~0.10	2.49	**KSP132001GU L KSP132001GU R**
20	53.5	105	55	60.1	0.05~0.10	3.90	**KSP157001GU L KSP157001GU R**
17	56.5	118	62	85.8	0.05~0.10	5.79	**KSP184001GU L KSP184001GU R**

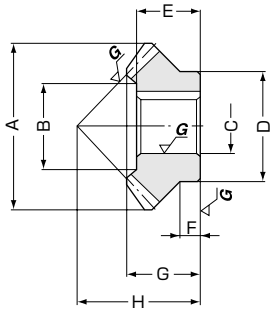
[Caution on Secondary Operations] ① Please read "Caution on Performing Secondary Operations" (Page 452) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.

KSP
Nissei Ground Spiral Bevel Gears

Module 2 ~ 5

Specifications	
Precision grade	JIS B 1704 grade 0
Gear teeth	Gleason
Pressure angle	20°
Helix angle	35°
Material	SCM415 *
Heat treatment	Overall carburizing
Tooth hardness	60 ~ 63HRC * *

* Module 3.5 and larger are made of SCM420.
* * Tooth Hardness for module 2 and 2.5 is between 80 to 83 HRA.



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Catalog No.	Gear ratio	Module	No. of teeth	Direction of spiral	Pitch dia.	Face width	Shape	Pitch dia.	Holding surface dia.	Bore	Hub dia.	Length of bore
								A	B	C_{H7}	D	E
KSP0481.5GF P	1.5	***m2***	16	L	32	9	A	34	17.5	12	24	13
KSP0481.5GF G			24	R	48		B	48	30.4	15	30	17
KSP0611.5GF P		***m2.25***	18	L	40.5	12	A	42	22.4	15	30	17
KSP0611.5GF G			27	R	60.75		B	61	36.3	20	40	20
KSP0741.5GF P		***m2.75***	18	L	49.5	15	A	52	28.8	20	40	20
KSP0741.5GF G			27	R	74.25		B	74	44.5	25	50	25
KSP0901.5GF P		***m3***	20	L	60	18	B	63	34.1	22	44	24
KSP0901.5GF G			30	R	90		B	90	54.7	27	56	29
KSP1051.5GF P		***m3.5***	20	L	70	21	B	74	37.8	25	50	25
KSP1051.5GF G			30	R	105		C	105	53	30	63	32
KSP1241.5GF P		***m3.75***	22	L	82.5	24	B	87	46.6	27	56	29
KSP1241.5GF G			33	R	123.75		C	124	64	33	69	35
KSP1411.5GF P		***m4.25***	22	L	93.5	28	B	99	52.9	30	63	32
KSP1411.5GF G			33	R	140.25		C	141	68	36	73	41
KSP1631.5GF P		***m4.5***	24	L	108	32	B	113	64.6	33	69	35
KSP1631.5GF G			36	R	162		C	163	76	40	82	47
KSP1811.5GF P		***m5***	24	L	120	35	B	126	71.8	36	73	41
KSP1811.5GF G			36	R	180		C	181	86	45	90	48

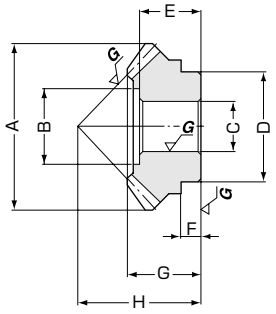
[Caution on Product Characteristics] ① The allowable torque is calculated by converting the output torque (600 rpm) on page 485 to kgf/m, according to assumed usage conditions.
② These gears produce axial thrust forces. See page 452 for more details.

KSP
Nissei Ground Spiral Bevel Gears

Module 2 ~ 5

Specifications	
Precision grade	JIS B 1704 grade 0
Gear teeth	Gleason
Pressure angle	20°
Helix angle	35°
Material	SCM415 *
Heat treatment	Carburizing (bore & hubs are masked)
Tooth hardness	60 ~ 63HRC * *

* Module 3.5 and larger are made of SCM420.
* * Tooth Hardness for module 2 and 2.5 is between 80 to 83 HRA.



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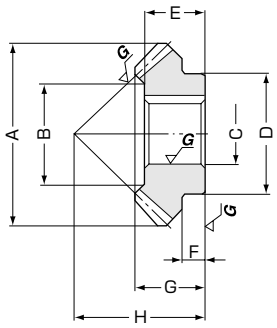
Catalog No.	Gear ratio	Module	No. of teeth	Direction of spiral	Pitch dia.	Face width	Shape	Pitch dia.	Holding surface dia.	Bore	Hub dia.	Length of bore
								A	B	C_{H7}	D	E
KSP0481.5GU P	1.5	***m2***	16	L	32	9	A'	34	17.5	10	24	13
KSP0481.5GU G			24	R	48		B	48	30	12	30	17
KSP0611.5GU P		***m2.25***	18	L	40.5	12	A'	42	22	12	30	17
KSP0611.5GU G			27	R	60.75		B	61	36	14	40	20
KSP0741.5GU P		***m2.75***	18	L	49.5	15	A'	52	27	14	40	20
KSP0741.5GU G			27	R	74.25		B	74	44.5	20	50	25
KSP0901.5GU P		***m3***	20	L	60	18	B	63	34	16	44	24
KSP0901.5GU G			30	R	90		B	90	54.5	20	56	29
KSP1051.5GU P		***m3.5***	20	L	70	21	B	74	38	20	50	25
KSP1051.5GU G			30	R	105		C	105	53	22	63	32
KSP1241.5GU P		***m3.75***	22	L	82.5	24	B	87	46.5	20	56	29
KSP1241.5GU G			33	R	123.75		C	124	64	26	69	35
KSP1411.5GU P		***m4.25***	22	L	93.5	28	B	99	53	22	63	32
KSP1411.5GU G			33	R	140.25		C	141	68	30	73	41
KSP1631.5GU P		***m4.5***	24	L	108	32	B	113	64.5	26	69	35
KSP1631.5GU G			36	R	162		C	163	76	32	82	47
KSP1811.5GU P		***m5***	24	L	120	35	B	126	71.5	30	73	41
KSP1811.5GU G			36	R	180		C	181	86	38	90	48

[Caution on Product Characteristics] ① The allowable torque is calculated by converting the output torque (600 rpm) on page 485 to kgf/m, according to assumed usage conditions.
② These gears produce axial thrust forces. See page 452 for more details.

Ground Spiral Bevel Gears



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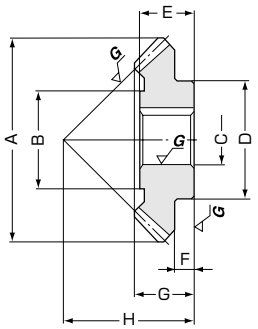
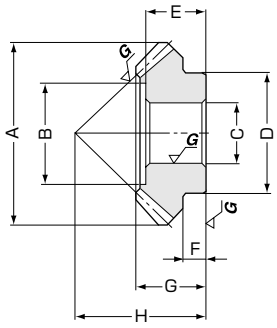


C

Hub width F	Total length G	Mounting distance H	Keyway	Allowable torque (kgf·m)	Backlash (mm)	Weight (kg)	Catalog No.
4.3 7	14.5 19	31 30	4 x 1.8 5 x 2.3	2.02	0 ~0.05	0.05 0.13	**KSP0481.5GF P** **KSP0481.5GF G**
5.1 10	19 23.5	39 37	5 x 2.3 6 x 2.8	4.12	0.05~0.10	0.09 0.25	**KSP0611.5GF P** **KSP0611.5GF G**
5.7 12	22 29	46 45	6 x 2.8 7 x 3	7.15	0.05~0.10	0.17 0.45	**KSP0741.5GF P** **KSP0741.5GF G**
8 13	26.5 33	56 53	6 x 2.8 8 x 3.3	11.9	0.05~0.10	0.29 0.79	**KSP0901.5GF P** **KSP0901.5GF G**
7 13	28.5 34	63 57	7 x 3 8 x 3.3	17.8	0.05~0.10	0.43 1.09	**KSP1051.5GF P** **KSP1051.5GF G**
7 14	33 36.5	74 64	8 x 3.3 10 x 3.3	26.0	0.05~0.10	0.76 1.59	**KSP1241.5GF P** **KSP1241.5GF G**
7 17	36 43.5	82 74	8 x 3.3 10 x 3.3	39.2	0.05~0.10	1.07 2.35	**KSP1411.5GF P** **KSP1411.5GF G**
7 19	38.5 49.5	92 85	10 x 3.3 12 x 3.3	56.5	0.05~0.10	1.50 3.70	**KSP1631.5GF P** **KSP1631.5GF G**
10 19	45.5 50.5	105 90	10 x 3.3 14 x 3.8	72.4	0.05~0.10	2.12 4.65	**KSP1811.5GF P** **KSP1811.5GF G**

[Caution on Secondary Operations] ① No secondary operations can be performed on these precision finished gears due to the applied carburizing process.

Ground Spiral Bevel Gears



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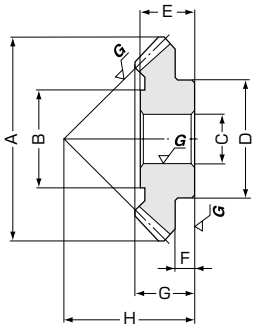


C

Hub width F	Total length G	Mounting distance H	Machinable max. bore	Allowable torque (kgf·m)	Backlash (mm)	Weight (kg)	Catalog No.
4.5 7	14.5 19	31 30	— 20	2.02	0 ~0.05	0.05 0.14	**KSP0481.5GU P** **KSP0481.5GU G**
5.5 10	19 23.5	39 37	16 27	4.12	0.05~0.10	0.10 0.28	**KSP0611.5GU P** **KSP0611.5GU G**
5.6 12	22 29	46 45	20 35	7.15	0.05~0.10	0.20 0.49	**KSP0741.5GU P** **KSP0741.5GU G**
8 13	26.5 33	56 53	25 42	11.9	0.05~0.10	0.34 0.84	**KSP0901.5GU P** **KSP0901.5GU G**
7 13	28.5 34	63 57	28 42	17.8	0.05~0.10	0.47 1.18	**KSP1051.5GU P** **KSP1051.5GU G**
7 14	33 36.5	74 64	36 48	26.0	0.05~0.10	0.80 1.71	**KSP1241.5GU P** **KSP1241.5GU G**
7 17	36 43.5	82 74	42 50	39.2	0.05~0.10	1.15 2.46	**KSP1411.5GU P** **KSP1411.5GU G**
7 19	38.5 49.5	92 85	48 55	56.5	0.05~0.10	1.64 3.84	**KSP1631.5GU P** **KSP1631.5GU G**
10 19	45.5 50.5	105 90	55 60	72.4	0.05~0.10	2.21 4.85	**KSP1811.5GU P** **KSP1811.5GU G**

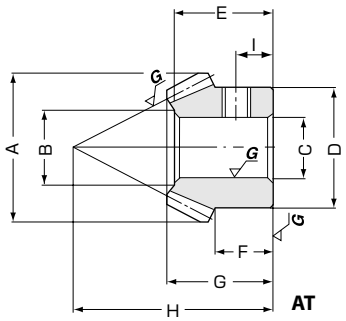
[Caution on Secondary Operations] ① Please read "Caution on Performing Secondary Operations" (Page 452) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.

KSP
Nissei Ground Spiral Bevel Gears

Module 1.5 ～ 4.5

Specifications	
Precision grade	JIS B 1704 grade 0
Gear teeth	Gleason
Pressure angle	20°
Helix angle	35°
Material	SCM415＊
Heat treatment	Overall carburizing
Tooth hardness	60 ～ 63HRC ＊＊

＊ Module 3.5 and larger are made of SCM420.
＊＊ Tooth Hardness for module 2 and 2.5 is between 80 to 83 HRA.



Catalog No.	Gear ratio	Module	No. of teeth	Direction of spiral	Pitch dia.	Face width	Shape	Pitch dia. A	Holding surface dia. B	Bore C_{H7}	Hub dia. D	Length of bore E
KSP039002GC P **KSP039002GF G**	2	***m*1.5**	13 26	L R	19.5 39	7	AT B	21 38.5	10.2 24.1	8 12	16 24	14 13
KSP056002GF P **KSP056002GF G**		***m*2**	14 28	L R	28 56	10	B B	30 56	15.3 35.6	10 16	20 30	12 18
KSP075002GF P **KSP075002GF G**		***m*2.5**	15 30	L R	37.5 75	14	B C	40 75	16.9 36	14 22	30 44	17 24
KSP096002GF P **KSP096002GF G**		***m*3**	16 32	L R	48 96	18	B C	53 96	23.5 46	17 27	36 56	19 29
KSP119002GF P **KSP119002GF G**		***m*3.5**	17 34	L R	59.5 119	22	A C	65 119	31.1 54	22 33	44 63	25 34
KSP145002GF P **KSP145002GF G**		***m*4**	18 36	L R	72 144	27	A C	78 145	31.3 60	26 36	54 73	28 39
KSP172002GF P **KSP172002GF G**		***m*4.5**	19 38	L R	85.5 171	32	A C	93 172	44.4 70	33 42	69 79	34 46

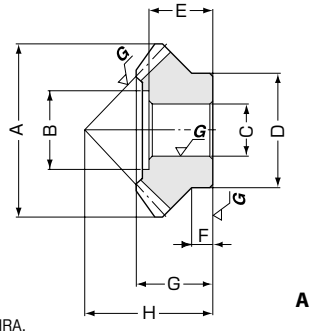
[Caution on Product Characteristics] ① The allowable torque is calculated by converting the output torque (600 rpm) on page 485 to kgf/ m, according to assumed usage conditions.
② These gears produce axial thrust forces. See page 452 for more details.

KSP
Nissei Ground Spiral Bevel Gears

Module 1.5 ～ 4.5

Specifications	
Precision grade	JIS B 1704 grade 0
Gear teeth	Gleason
Pressure angle	20°
Helix angle	35°
Material	SCM415＊
Heat treatment	Carburizing (bore & hubs are masked)
Tooth hardness	60 ～ 63HRC ＊＊

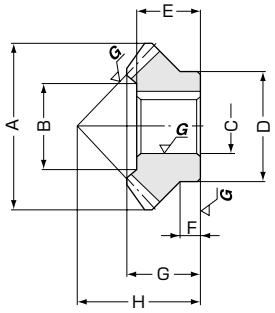
＊ Module 3.5 and larger are made of SCM420.
＊＊ Tooth Hardness for module 2 and 2.5 is between 80 to 83 HRA.



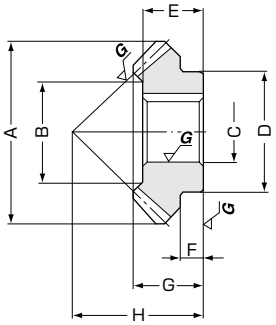
Catalog No.	Gear ratio	Module	No. of teeth	Direction of spiral	Pitch dia.	Face width	Shape	Pitch dia. A	Holding surface dia. B	Bore C_{H7}	Hub dia. D	Length of bore E
KSP039002GU P **KSP039002GU G**	2	***m*1.5**	13 26	L R	19.5 39	7	A B	21 38.5	10.2 24	8 10	16 24	14 13
KSP056002GU P **KSP056002GU G**		***m*2**	14 28	L R	28 56	10	B B	30 56	15.3 35.5	8 12	20 30	12 18
KSP075002GU P **KSP075002GU G**		***m*2.5**	15 30	L R	37.5 75	14	A' C	40 75	20 36	12 16	30 44	17 24
KSP096002GU P **KSP096002GU G**		***m*3**	16 32	L R	48 96	18	B C	53 96	23.5 46	12 20	36 56	19 29
KSP119002GU P **KSP119002GU G**		***m*3.5**	17 34	L R	59.5 119	22	A C	65 119	34 54	16 26	44 63	25 34
KSP145002GU P **KSP145002GU G**		***m*4**	18 36	L R	72 144	27	A C	78 145	38 60	20 30	54 73	28 39
KSP172002GU P **KSP172002GU G**		***m*4.5**	19 38	L R	85.5 171	32	A C	93 172	48 70	26 36	69 79	34 46

[Caution on Product Characteristics] ① The allowable torque is calculated by converting the output torque (600 rpm) on page 485 to kgf/m, according to assumed usage conditions.
② These gears produce axial thrust forces. See page 452 for more details.

Ground Spiral Bevel Gears



A



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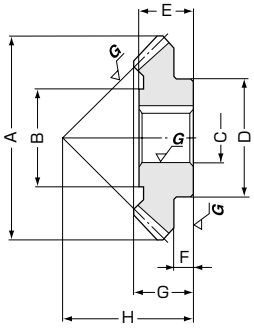
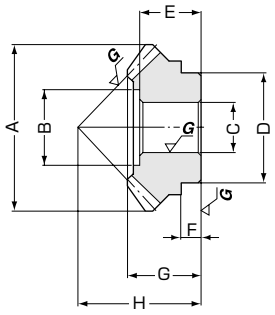


C

Hub width F	Total length G	Mounting distance H	Keyway (Screw)	Allowable torque (kgf·m)	Backlash (mm)	Weight (kg)	Catalog No.
7.6 7	14.5 15	28 22	(2-M4 , l=5) 4 x 1.8	0.89	0 ~0.05	0.02 0.06	**KSP039002GC P** **KSP039002GF G**
2.5 8	13 20.5	32 30	3 x 1.4 5 x 2.3	2.65	0 ~0.05	0.03 0.18	**KSP056002GF P** **KSP056002GF G**
4.6 11	19.5 25.5	44 38	5 x 2.3 6 x 2.8	6.43	0.05~0.10	0.09 0.41	**KSP075002GF P** **KSP075002GF G**
2.5 12	21.5 31	53 47	5 x 2.3 8 x 3.3	12.5	0.05~0.10	0.18 0.85	**KSP096002GF P** **KSP096002GF G**
3.6 15	27.5 35.5	67 55	6 x 2.8 10 x 3.3	22.2	0.05~0.10	0.33 1.37	**KSP119002GF P** **KSP119002GF G**
3.5 16	33 40.5	80 64	8 x 3.3 10 x 3.3	36.3	0.05~0.10	0.57 2.34	**KSP145002GF P** **KSP145002GF G**
4.4 20	38 47	94 75	10 x 3.3 12 x 3.3	59.9	0.05~0.10	0.91 3.60	**KSP172002GF P** **KSP172002GF G**

[Caution on Secondary Operations] ① No secondary operations can be performed on these precision finished gears due to the applied carburizing process.

Ground Spiral Bevel Gears



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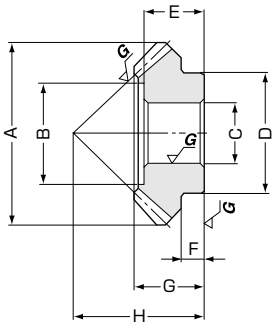

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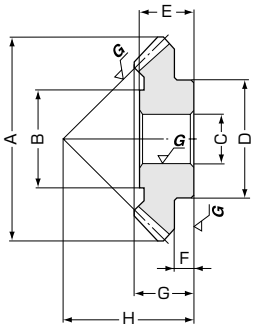


C

Hub width F	Total length G	Mounting distance H	Machinable max. bore	Allowable torque (kgf·m)	Backlash (mm)	Weight (kg)	Catalog No.
7.6 7	14.5 15	28 22	— 20	0.89	0 ~0.05	0.02 0.07	**KSP039002GU P** **KSP039002GU G**
2.5 8	13 20.5	32 30	10 20	2.65	0 ~0.05	0.04 0.19	**KSP056002GU P** **KSP056002GU G**
4.5 11	19.5 25.5	44 38	14 25	6.43	0.05~0.10	0.10 0.44	**KSP075002GU P** **KSP075002GU G**
2.5 12	21.5 31	53 47	19 32	12.5	0.05~0.10	0.20 0.91	**KSP096002GU P** **KSP096002GU G**
3.6 15	27.5 35.5	67 55	25 40	22.2	0.05~0.10	0.36 1.45	**KSP119002GU P** **KSP119002GU G**
3.5 16	33 40.5	80 64	30 42	36.3	0.05~0.10	0.65 2.44	**KSP145002GU P** **KSP145002GU G**
4.4 20	38 47	94 75	38 50	59.9	0.05~0.10	0.97 3.80	**KSP172002GU P** **KSP172002GU G**

[Caution on Secondary Operations] ① Please read "Caution on Performing Secondary Operations" (Page 452) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.

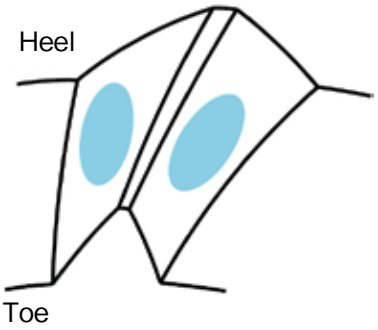
■ Adjusting Tooth Contact

< Centering tooth contact >

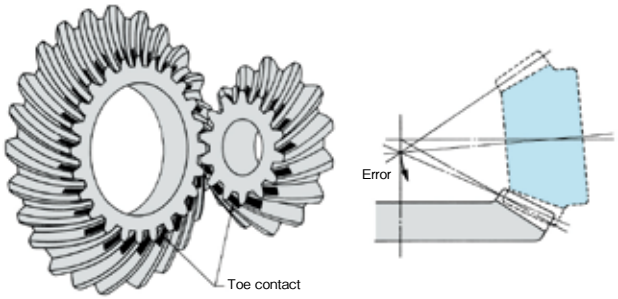
(1) When assembled correctly, the contact will occur in the middle of the tooth flank.

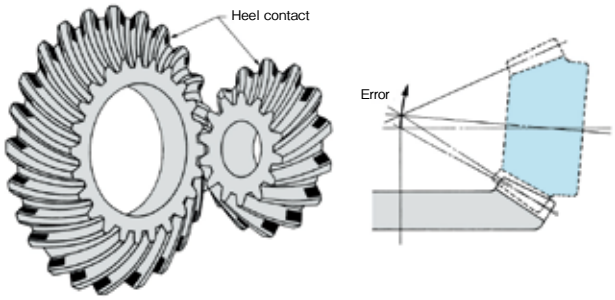
(2) The contact area along the tooth face should be in the center of the tooth, but somewhat closer to the toe is ideal.

When the gears are assembled in to the gearbox and the backlash is adjusted, adjust the gearbox to obtain the tooth contact as shown below. Inaccurate assembly will lead to irregular noise and uneven wear,

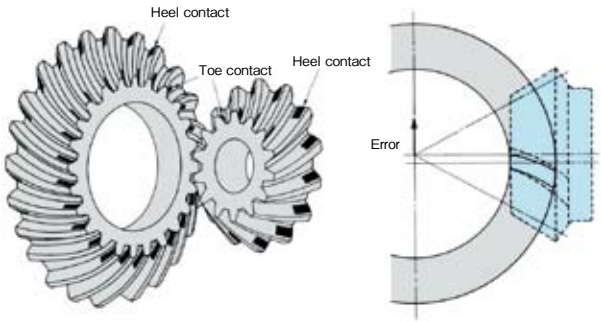


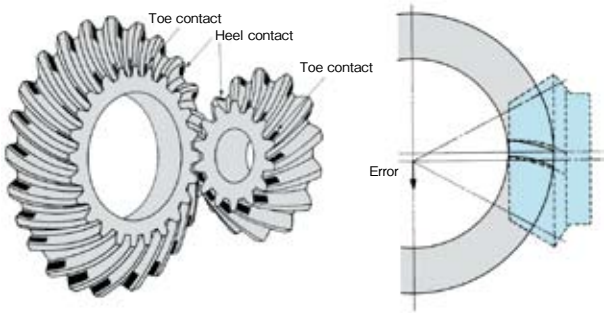
(1) When there is an angular error of the shafts





(2) When the pinion shaft is offset





(3) When the mounting distance of the pinion is incorrect