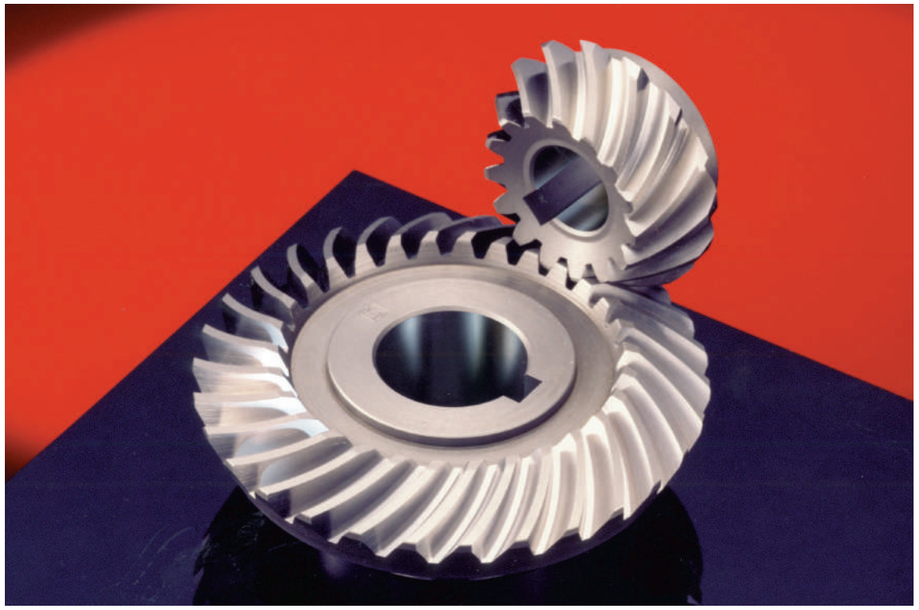


Catalog number

Note that the catalog numbers for KSP ground spiral bevel gears have a different configuration compared to other miters and bevel gears.

KSP 031 001 G U L

- L: Direction of spiral (left)
- U: Product shape (prevents carburizing)
- G: Tooth surface finish (ground)
- 001: Gear Ratio (1)
- 031: Gear outer diameter (31 mm)
- KSP: Type (Spiral Miter)

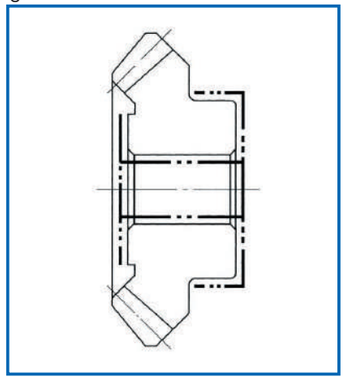
Features of KSP spiral bevel gears

1. High-strength, high-precision product of JIS grade 0.
2. Superior performance with regard to high speed, low noise, and low vibration.
3. Module is 1.5 to 6
4. Gear ratio types are 1, 1.5 and 2

Shape

Shape for secondary operations (with margin)

* The parts ---- in the figure below are protected from carburizing.



Transmission capacity table

1. The values in the transmission capacity table below are where the service factor is 1. Be sure to correct the load torque according to the table on the right. The corrected load torque is calculated by multiplying the load torque applied to the output shaft by service factor (Sf).
2. When using at increased speed (where gear is drive and pinion is driven), the torque of the pinion is the value obtained by multiplying the value shown in the transmission capacity table by the speed ratio.

NOTE 1: When the speed ratio is 1/1.5, the pinion torque is 1/1.5 of the value shown in the transmission capacity table.

Service factor (Sf)

Impact from motor	Impact from load		
	Uniform load	Moderate impact	Severe impact
Uniform load (electric motor, turbine, hydraulic motor, etc.)	1.0	1.25	1.75
Mild impact (multi-cylinder engine)	1.25	1.5	2.0
Moderate impact (single-cylinder engine)	1.5	1.75	2.25

Transmission capacity table (speed ratio 1/1)

Upper transmission capacity (kw) Lower output torque (N·m)

Figure number \ Rotational speed (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 capacity table (speed ratio 1/1.5)

Upper transmission capacity (kw) Lower output torque (N·m)

Figure number \ Rotational Speed of Pinion (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

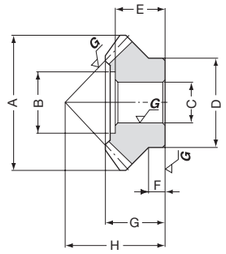
Transmission capacity table (speed ratio 1/2)

Upper transmission capacity (kw) Lower output torque (N·m)

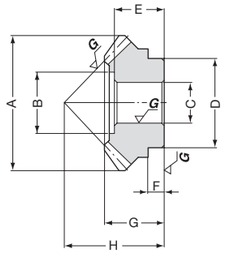
Figure number \ Rotational Speed of Pinion (rpm)	50	100	300	600	900	1200	1800	3000
KSP039002	0.025	0.049	0.142	0.275	0.404	0.528	0.770	1.23
	9.63	9.45	9.07	8.76	8.57	8.41	8.17	7.83
KSP056002	0.075	0.147	0.423	0.814	1.19	1.55	2.26	3.59
	28.8	28.1	27.0	26.0	25.3	24.8	23.9	22.8
KSP075002	0.185	0.361	1.03	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

Specifications	
Precision grade	JIS B 1704: 1978 grade 0
Gear teeth	Gleason
Pressure angle	20°
Helix angle	35°
Material	SCM415*
Heat treatment	Carburized (Bore and hub are carburized)
Tooth hardness	60 to 63HRC**

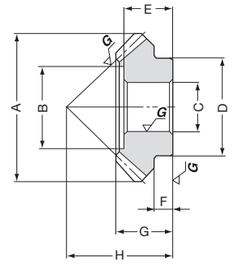
* The material of module 3.5 and above is SCM420.
** Modules 1.5 and 2 have the tooth hardness of 80 to 83 HRA.



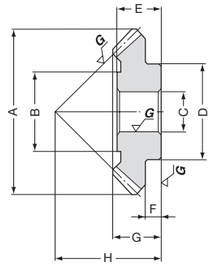
A



A'



B



C

Catalog Number	Gear Ratio	Module	No. of teeth	Direction of spiral	Pitch dia.	Face width	Shape	Outside dia. A	Holding surface dia. B	Bore C^{H7}	Hub dia. D	Hole length E	Hub width F	Total length G	Mounting distance H	Machinable MAX bore	Allowable torque (kgf·m)	Backlash (mm)	Weight (kg)	Catalog Number
KSP031001GU L **KSP031001GU R**	1	***m*1.5**	20	L R	30	7	A	30.5	16.5	10	22	13	6	15	25	12	0.61	0 ~0.05	0.04	**KSP031001GU L** **KSP031001GU R**
KSP040001GU L **KSP040001GU R**		***m*2**	20	L R	40	9	B	40	22.5	12	31	14	7	16.5	30	16	1.59	0 ~0.05	0.09	**KSP040001GU L** **KSP040001GU R**
KSP078001GU L **KSP078001GU R**		***m*3.5**	22	L R	77	18	B	78	43	20	54	27	12	32	57	32	9.74	0.05~0.10	0.59	**KSP078001GU L** **KSP078001GU R**
KSP105001GU L **KSP105001GU R**		***m*4.5**	23	L R	103.5	25	C	105	50	26	70	35	14	39	72	40	23.9	0.05~0.10	1.33	**KSP105001GU L** **KSP105001GU R**
KSP132001GU L **KSP132001GU R**		***m*5**	26	L R	130	29	C	132	64	30	82	41	14	45	88	48	38.4	0.05~0.10	2.49	**KSP132001GU L** **KSP132001GU R**
KSP157001GU L **KSP157001GU R**		***m*5.5**	28	L R	154	34	C	157	76	32	92	47	20	53.5	105	55	60.1	0.05~0.10	3.90	**KSP157001GU L** **KSP157001GU R**
KSP184001GU L **KSP184001GU R**		***m*6**	30	L R	180	38	C	184	84	40	101	51	17	56.5	118	62	85.8	0.05~0.10	5.79	**KSP184001GU L** **KSP184001GU R**
KSP0481.5GU P **KSP0481.5GU G**	1.5	***m*2**	16 24	L R	32 48	9	A' B	34 48	17.5 30	10 12	24 30	13 17	4.5 7	14.5 19	31 30	— 20	2.02	0 ~0.05	0.05 0.14	**KSP0481.5GU P** **KSP0481.5GU G**
KSP0741.5GU P **KSP0741.5GU G**		***m*2.75**	18 27	L R	49.5 74.25	15	A' B	52 74	27 44.5	14 20	40 50	20 25	6 12	22 29	46 45	20 35	7.15	0.05~0.10	0.20 0.49	**KSP0741.5GU P** **KSP0741.5GU G**
KSP075002GU P **KSP075002GU G**	2	***m*2.5**	15 30	L R	37.5 75	14	A' C	40 75	20 36	12 16	30 44	17 24	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**
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	2.5 12	21.5 31	53 47	19 32	12.5	0.05~0.10	0.20 0.91	**KSP096002GU P** **KSP096002GU G**
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	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**

[Caution on Product Characteristics] ① The allowable torque is the value at RPM 600. For other data, see the Transmission Capacity Table.

Spur Gears
Helical Gears
Internal Gears
Racks
CP Racks & Pinions
Miter Gears
Bevel Gears
Screw Gears
Worm Gears
Gearboxes
Other Products

■ Adjustment of tooth contact

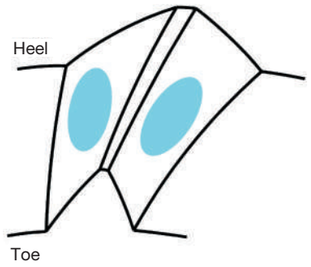
<Center of tooth contact>

(1) Near the center of the tooth length for the length direction

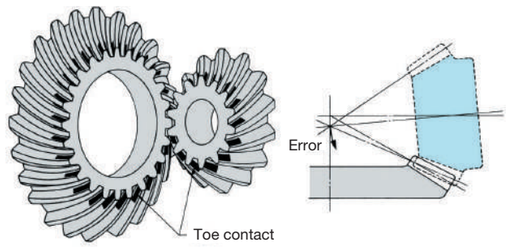
(2) Ideally, the tooth width direction should be at the center of the width or slightly closer to the toe.

When adjusting the backlash and mounting the gear in the case, adjust the case in order to achieve the tooth contact as shown in the figure below.

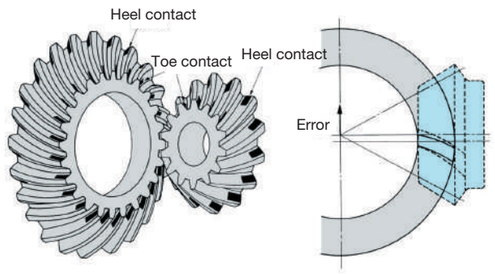
Deviation of the tooth contact from the normal position may adversely affect the strength and quietness.



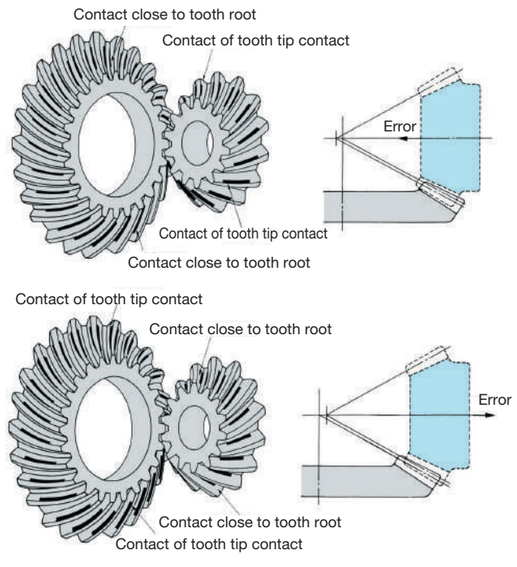
(1) Tooth contact in case of a shaft-angle error



(2) Tooth contact in case of a shaft-offset error



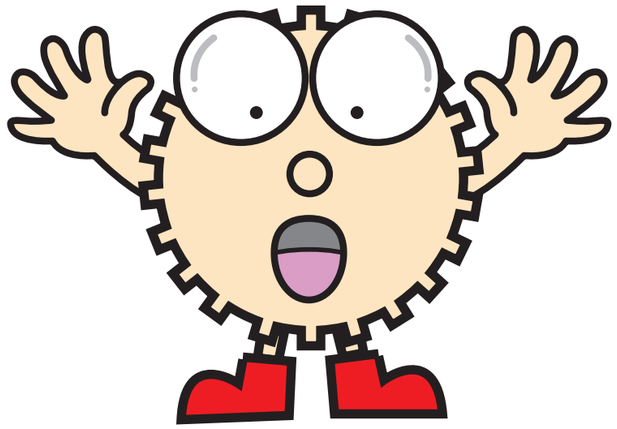
(3) Tooth contact in case of a pinion set position error



Screw Gears

SN-H Hardened Screw Gears	SN Screw Gears	SUN Stainless Steel Screw Gears	AN Screw Gears	PN Plastic Screw Gears
				
Material: S45C	Material: S45C	Material: SUS303	Material: CAC702 (AtBC2)	Material: MC901
*m*1~4 Page 384	*m*1~4 Page 384	*m*1~2.5 Page 388	*m*1~3 Page 390	*m*1~3 Page 392

M Includes Made to Order



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) Screw Gears

S N 1 - 13 R

- R — Direction of Helix (Right)
- 13 — No. of Teeth (13)
- 1 — Module (1)
- N — Type (Screw Gears)
- S — Material (S45C)

Material		Type	
S	S45C	N	Screw Gears
SU	Stainless Steel		
A	CAC702		
P	MC901		