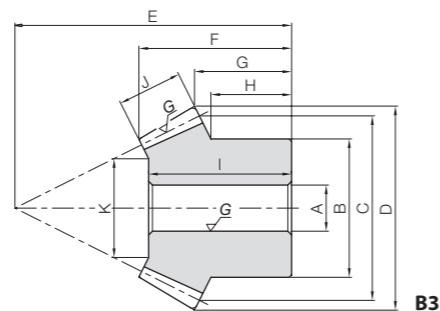


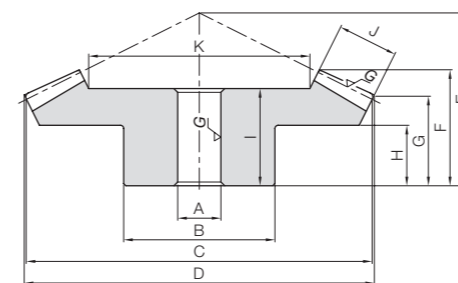


Specifications	
Precision grade	JIS B 1704: 1978 grade 2
Gear teeth	Gleason
Pressure angle	20°
Helix angle	35°
Material	S45C
Heat treatment	Gear teeth induction hardened *
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coated except for ground part

* 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).



B3



B4

Catalog Number	Gear Ratio	Module	No. of teeth	Direction of spiral	Shape	Bore		Hub dia.		Pitch dia.		Outside dia.		Mounting distance		Total length		Crown to back		
						A _{H7}	B	C	D	E	F	G	H	I	J	K	L	M	N	O
SBSG2-3020R SBSG2-2030L	1.5	m2	30	R	B4	12	35	60	61.6	40	26.6	21.2								
			20	L	B3	10	30	40	43.55	45	24.91	16.18								
SBSG2.5-3020R SBSG2.5-2030L	1.5	m2.5	30	R	B4	15	45	75	77.09	50	33.86	26.56								
			20	L	B3	12	40	50	54.43	55	30.88	18.98								
SBSG3-3020R SBSG3-2030L	1.5	m3	30	R	B4	16	50	90	92.21	55	35.34	26.66								
			20	L	B3	16	45	60	65.58	70	40.17	26.86								
SBSG4-3020R SBSG4-2030L	1.5	m4	30	R	B4	20	70	120	122.85	75	47.49	37.14								
			20	L	B3	20	60	80	87.34	90	48.17	32.45								
SBSG2-4020R SBSG2-2040L	2	m2	40	R	B4	12	40	80	80.99	45	32.26	25.99								
			20	L	B3	12	32	40	44.1	60	34.04	21.02								
SBSG2.5-4020R SBSG2.5-2040L	2	m2.5	40	R	B4	15	50	100	101.27	55	39.65	31.27								
			20	L	B3	12	40	50	55.21	75	43.61	26.3								
SBSG3-4020R SBSG3-2040L	2	m3	40	R	B4	20	60	120	121.48	65	45.76	36.48								
			20	L	B3	16	50	60	66.06	90	50.63	31.52								
SBSG4-4020R SBSG4-2040L	2	m4	40	R	B4	20	70	160	162.07	80	53.69	42.07								
			20	L	B3	20	60	80	88.5	120	66.24	42.12								
SBSG2-4515R SBSG2-1545L	3	m2	45	R	B4	12	40	90	90.67	40	30.29	26.01								
			15	L	B3	10	24	30	34.78	60	29.66	15.8								
SBSG2.5-4515R SBSG2.5-1545L	3	m2.5	45	R	B4	15	50	112.5	113.32	50	38.25	32.47								
			15	L	B3	12	30	37.5	43.36	75	38.27	19.73								
SBSG3-4515R SBSG3-1545L	3	m3	45	R	B4	20	60	135	135.99	55	40.59	33.98								
			15	L	B3	15	38	45	52.08	90	44.98	23.68								

Hub width	Hole length	Face width	Holding surface dia.	Allowable torque (N-m)		Allowable torque (kgf-m)		Backlash (mm)	Weight (kg)	Catalog Number
				Bending strength	Surface durability	Bending strength	Surface durability			
H	I	J	K							
15	23	11	37.56	14.1	14.2	1.44	1.44	0.05~0.11	0.26	SBSG2-3020R
11.67	22		21.34	9.61	9.44	0.98	0.96		0.13	SBSG2-2030L
18	30	15	45.61	29.0	29.7	2.96	3.03	0.06~0.12	0.55	SBSG2.5-3020R
14.17	28		27.42	19.8	19.8	2.02	2.02		0.28	SBSG2.5-2030L
17	31	17	57.14	48.4	50.4	4.94	5.14	0.07~0.13	0.82	SBSG3-3020R
20	37		34.71	33.1	33.6	3.37	3.42		0.49	SBSG3-2030L
25	40	20	78.59	106	113	10.8	11.5	0.10~0.16	1.90	SBSG4-3020R
23.33	43		46.89	72.2	75.3	7.36	7.68		1.05	SBSG4-2030L
18	27	15	48.46	25.5	26.7	2.60	2.73	0.05~0.11	0.51	SBSG2-4020R
18	32		20.92	12.8	13.4	1.30	1.36		0.19	SBSG2-2040L
20	34	20	59.28	51.7	55.1	5.27	5.62	0.06~0.12	1.06	SBSG2.5-4020R
22.5	40		20.56	25.9	27.6	2.64	2.81		0.42	SBSG2.5-2040L
24	38	22	73.81	84.8	91.9	8.65	9.38	0.07~0.13	1.67	SBSG3-4020R
27.5	47		29.61	42.5	46.0	4.33	4.69		0.69	SBSG3-2040L
28	45	28	102.39	195	217	19.9	22.2	0.10~0.16	3.33	SBSG4-4020R
35	62		42.78	97.9	109	9.98	11.1		1.53	SBSG4-2040L
17	26	15	59.04	34.8	28.1	3.55	2.87	0.05~0.11	0.60	SBSG2-4515R
14	29		19.13	11.2	9.38	1.14	0.96		0.095	SBSG2-1545L
22	35	20	72.84	59.0	48.3	6.01	4.93	0.06~0.12	1.21	SBSG2.5-4515R
17.5	37		20.51	18.9	16.1	1.93	1.64		0.19	SBSG2.5-1545L
20	35	23	88.18	99.3	82.5	10.1	8.41	0.07~0.13	1.99	SBSG3-4515R
21.33	44		28.54	31.8	27.5	3.24	2.80		0.34	SBSG3-1545L

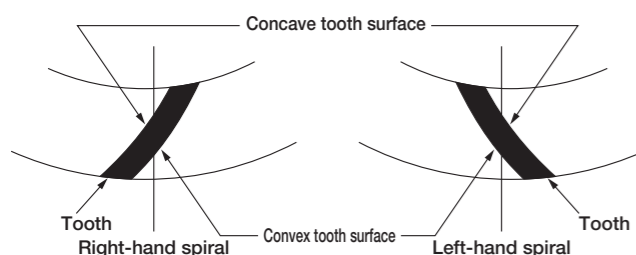
Product Precautions



Page 342

Mating surface of spiral bevel gears

Spiral bevel gears have convex and concave tooth surfaces. If the direction of rotation of the drive gear differs, the meshing tooth surface will also change. The table on the right shows how to view the convex and concave tooth surfaces and the meshing tooth surface with respect to the direction of rotation of the drive gear.



For right-hand drive gear

Direction of rotation of drive gear NOTE 1	Meshing tooth surface	
	Right-hand drive gear	Left-hand driven gear
Clockwise	Convex tooth surface	Concave tooth surface
Counterclockwise	Concave tooth surface	Convex tooth surface

For left-hand drive gear

Direction of rotation of drive gear NOTE 1	Meshing tooth surface	
	Left-hand drive gear	Right-hand driven gear
Clockwise	Concave tooth surface	Convex tooth surface
Counterclockwise	Convex tooth surface	Concave tooth surface

[NOTE 1] The direction of rotation in the table is as seen from the hub of the gear.

The force applied to the teeth of the spiral bevel gear

The table below shows, for spiral bevel gears with an axis angle of $\Sigma = 90^\circ$, pressure angle of $\alpha_n = 20^\circ$ and spiral angle of $\beta_m = 35^\circ$, the magnitudes of the axial force F_x and radial force F_r where the tangential force F_t at the center of the tooth width is 100.

Thrust force F_x
Radial force F_r value

(1) Force applied to pinion

Meshing tooth surface	Gear Ratio z_2/z_1						
	1.0	1.5	2.0	2.5	3.0	4.0	5.0
Concave tooth surface	80.9	82.9	82.5	81.5	80.5	78.7	77.4
	-18.1	-1.9	8.4	15.2	20.0	26.1	29.8
Convex tooth surface	-18.1	-33.6	-42.8	-48.5	-52.4	-57.2	-59.9
	80.9	75.8	71.1	67.3	64.3	60.1	57.3

(2) Force applied to gear

Meshing tooth surface	Gear Ratio z_2/z_1						
	1.0	1.5	2.0	2.5	3.0	4.0	5