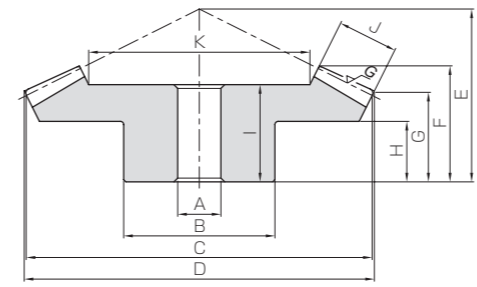
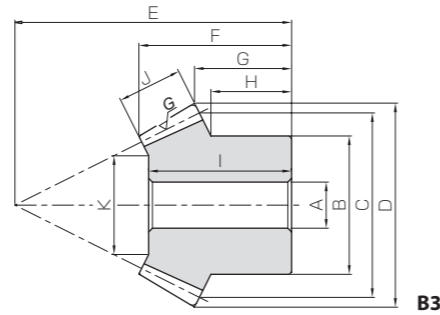




Specifications	
Precision grade	JIS B 1704 : 1978 grade 2
Gear teeth	Gleason
Pressure angle	20°
Material	S45C
Heat treatment	Teeth induction hardened
Tooth hardness	50 ~ 60HRC
Surface treatment	Black oxide coated except for ground part



Catalog No.	Gear ratio	Module	No. of teeth	Helix angle	Direction of spiral	Shape	Bore		Pitch dia.	Outside dia.	Mounting distance	Total length	Crown to back length
							A	B					
KSBZG2-3020R KSBZG2-2030L	1.5	m2	30	7°	R	B4	10	35	60	62.16	40	26.48	21.62
			20			B3	10	30					
		m2.5	30	7°	R	B4	15	45	75	77.77	50	33.69	27.08
			20			B3	12	35					
KSBZG3-3020R KSBZG3-2030L	m3	30	7°	R	B4	15	50	90	93.27	55	35.01	27.45	
		20			B3	15	45						60
KSBZG2-4020R KSBZG2-2040L	2	m2	40	9°	R	B4	12	40	80	81.58	45	31.91	
			20			B3	12	32					40
		m2.5	40	9°	R	B4	15	50	100	102.01	55	39.16	
			20			B3	12	40					50
KSBZG3-4020R KSBZG3-2040L	m3	40	9°	R	B4	20	60	120	122.31	65	45.30	37.31	
		20			B3	16	50						60

Hub width	Length of bore	Face width	Holding surface dia.	Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog No.
				Bending strength	Surface durability	Bending strength	Surface durability			
15	23	11	37.56	14.3	8.88	1.46	0.91	0.05~0.11	0.27	KSBZG2-3020R KSBZG2-2030L
11.67	22	11	21.34	9.89	5.92	1.01	0.60			
18	30	15	45.61	29.4	18.8	3.00	1.92	0.06~0.12	0.55	KSBZG2.5-3020R KSBZG2.5-2030L
12.5	28	15	27.42	20.4	12.5	2.08	1.28			
17	31	17	57.14	51.7	31.6	5.27	3.22	0.07~0.13	0.84	KSBZG3-3020R KSBZG3-2030L
20	37	17	34.71	35.8	21.1	3.65	2.15			
18	27	15	48.46	26.0	18.4	2.66	1.87	0.05~0.11	0.52	KSBZG2-4020R KSBZG2-2040L
18	32	15	20.92	13.1	9.18	1.33	0.94			
20	35	20	60.28	55.6	38.5	5.67	3.92	0.06~0.12	1.10	KSBZG2.5-4020R KSBZG2.5-2040L
22.5	41	20	24.56	27.9	19.2	2.85	1.96			
24	38	22	73.81	96.3	62.8	9.82	6.40	0.07~0.13	1.69	KSBZG3-4020R KSBZG3-2040L
27.5	47	22	29.61	48.4	31.4	4.93	3.20			

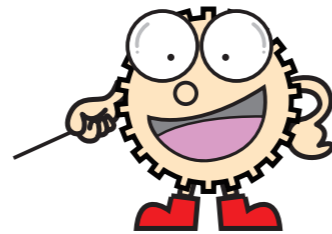
- [Caution on Product Characteristics]
- Allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 303 for more details.
 - Dimensions of the outside diameter, the overall length and crown to back length are all theoretical values, and some differences will occur due to the corner chamfering of the gear tips.
 - It produces an axial thrust force, which has the same direction as straight bevel gears. For details, see separate technical reference book (Page 108).

- [Caution on Secondary Operations]
- Please read "Caution on Performing Secondary Operations" (Page 304) when performing modification and/or secondary operations for safety concerns.
 - 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).

Features of Zerol Bevel Gears

Zerol Bevel Gears are spiral Bevel gears with a helix angle of less than 10 degree. Balanced, and superior performance as they combine the features of straight and spiral bevel gears.

- Allows compact design as no inward thrust force (* Reference to the figure) is produced, which causes problems when using spiral Bevel gears.
- Unlike straight Bevel gears, Zerol Bevel Gears can be ground finished, allowing higher precision, wear-resistance and are quieter, compared with straight Bevel gears.
- Drop in replacement for KSB Bevel Gears can easily be made due to the gears have similar dimensions for the mounting distance. When replacing, please use a set of Zerol Bevel gears with opposite spiral hands, one right-hand and the other left-hand.



Performance Comparison

Gear Type	Bearing Design *	Interchangeability Mounting Distance	Precision JIS B 1704 : 1978	Strength Bending Strength	Durability Surface Durability	Noise/Vibration Surface Roughness/Total Contact Ratio	Price for single item
Bevel Gears KSB2-4020/2040	 No thrust force produced inward	Many KSUB, KPB, KSBZG	Normal grade 3	Normal 24.2N · m / 12.2N · m	Bad 2.92N · m / 1.46N · m	Normal 3.2a/1.63	Low
Ground Zerol Bevel Gears KSBZG2-4020R/2040L	 No thrust force produced inward	Many KSB, KSUB, KPB	Good grade 2	Normal 26.0N · m / 13.1N · m	Good 18.4N · m / 9.18N · m	Low 0.4a/1.84	Normal
Ground Spiral Bevel Gears KMBSG2-4020R/2040L	 Thrust force produced inward	None —	Good grade 2	Strong 56.5N · m / 28.2N · m	Good 94.2N · m / 47.1N · m	Low 0.4a/3.13	Normal

NOTE: The above evaluations were based on a comparison of 3 products.

Zerol Bevel Gear Set Example

