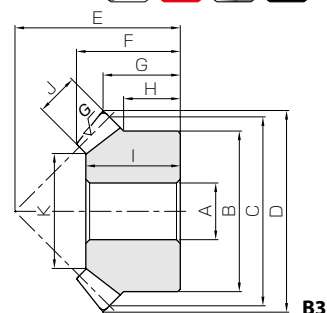




Specifications	
Precision grade	JIS B 1704 grade 2
Gear teeth	Gleason
Pressure angle	20°
Material	S45C
Heat treatment	Teeth induction hardened
Tooth hardness	45 ~ 55HRC



Catalog No. New items indicated in blue letters	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					
SMZG2-20R SMZG2-20L	1	m2	20	5°	R L	B3	12	34	40	43.32	37	24.69	18.66
SMZG2.5-20R SMZG2.5-20L		m2.5	20	5°	R L	B3	14	42	50	54.16	48	32.34	25.08
SMZG3-20R SMZG3-20L		m3	20	5°	R L	B3	16	50	60	64.89	58	39.52	30.45

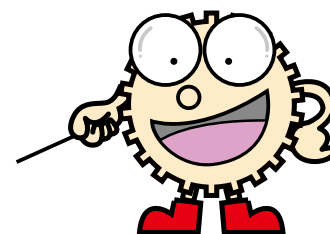
[Caution on Product Characteristics]

- ① A set of miter gears must be identical in module and number of teeth, but opposite in spiral hands.
- ② Allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 421 for more details.
- ③ 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.
- ④ It produces an axial thrust force, which has the same direction as straight bevel gears. For details, see page 700.


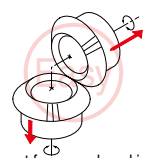







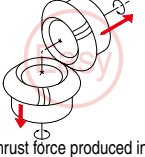







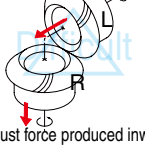


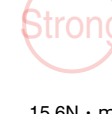



Features of Zerol Miter Gears

Zerol Miter Gears are spiral miter gears with a helix angle of less than 10 degree. Balanced, and good in performance as they combine the features of straight / spiral bevel gears.

- Allows compact design as no inward thrust force (* Reference to the figure) is produced, which causes problems on spiral miter gears.
- Unlike straight miter gears, grinding can be applied to Zerol Miter Gears, allowing higher precision, wear-resistance and are quieter, compared with straight miter gears.
- Replacements for SM Miter Gears can easily be made due to the gears have similar dimensions for the mounting distance. When replacing, please use a set of zerol miter 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	Strength Bending Strength	Durability Surface Durability	Noise/Vibration Surface Roughness/Total Contact Ratio	Price for single item
Miter Gears  SM2-20	 No thrust force produced inward	 SUM, PM, SMZG	 grade 3	 7.13N · m	 0.72N · m	 3.2a/1.62	
Ground Zerol Miter Gears  SMZG2-20R/L	 No thrust force produced inward	 SM , SUM, PM	 grade 2	 7.76N · m	 4.40N · m	 0.4a/1.74	
Ground Spiral Miter Gears  MMSG2-20R/L	 Thrust force produced inward	 —	 grade 2	 15.6N · m	 21.7N · m	 0.4a/2.49	

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

Hub width H	Length of bore I	Face width J	Holding surface dia. K	Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog No. New items indicated in blue letters
				Bending strength	Surface durability	Bending strength	Surface durability			
14	22	10	21.72	7.76	4.10	0.79	0.42	0.05~0.11	0.15	SMZG2-20R SMZG2-20L
19	29	12	28.06	14.8	7.92	1.51	0.81	0.06~0.12	0.30	SMZG2.5-20R SMZG2.5-20L
23	35	15	31.57	26.2	14.3	2.67	1.45	0.07~0.13	0.53	SMZG3-20R SMZG3-20L

[Caution on Secondary Operations]

- ① Care must be exercised when performing modification and/or secondary operations of miter gears. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.
- ② Due to gear teeth induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 1 to 2 mm).

Spur
GearsHelical
GearsInternal
Gears

Racks

CP Racks
& PinionsMiter
GearsBevel
GearsScrew
GearsWorm
Gear PairBevel
GearboxesOther
Products