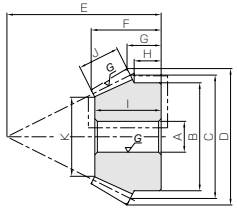
Specifications	
Precision grade	JIS B 1704: 1978 grade 1
Gear teeth	Gleason
Pressure angle	20°
Helix angle	35°
Material	SCM415
Heat treatment	Carburizing
Tooth hardness	55 ～ 60HRC



B3

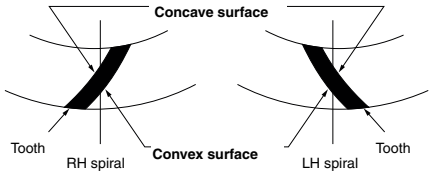
Catalog No.	Gear ratio	Module	No. of teeth	Direction of spiral	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Mounting distance	Total length	Crown to back length
						A_{H7}	B	C	D	E	F	G
MBSG2-4020R	2	*m*2	40	R	B4	15	45	80	81.1	45	31.78	26.1
MBSG2-2040L			20	L	B3	12	35	40	44.1	55	28.16	16.02
MBSG2.5-4020R		*m*2.5	40	R	B4	16	55	100	101.29	50	33.35	26.29
MBSG2.5-2040L			20	L	B3	12	43	50	55.12	65	31.01	16.28
MBSG3-4020R		*m*3	40	R	B4	20	65	120	121.57	60	39.81	31.57
MBSG3-2040L			20	L	B3	16	52	60	66.03	80	38.9	21.51
MBSG4-4020R		*m*4	40	R	B4	25	80	160	162.06	75	48.27	37.06
MBSG4-2040L			20	L	B3	20	70	80	88.46	100	45.38	22.12

[Caution on Product Characteristics]
① Allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 283 for more details.
② 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.
③ These gears produce axial thrust forces. Please see Page 284 for more details.

＊ For products not categorized in our KHK Stock Gear series, custom gear production services with short lead times is available. For details see Page 8.

■ Contact Surface of Spiral Bevel Gears

Tooth surfaces of spiral gears have concave and convex sides. Changes in the rotational direction of the driving gear alter the contact surface accordingly. The illustrations show the top view of RH and LH Spiral Gears, and the tables on the right explain the different contact surface depending on the situation.



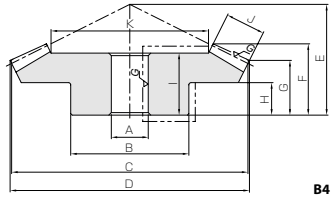
RH Spiral as a driving gear

Rotating Direction of Driving Gear Note 1	Contact Surface	
	Driving Gear (RH Spiral)	Driving Gear (LH Spiral)
RH Rotation (Clockwise)	Convex Surface	Concave Surface
LH rotation (counterclockwise)	Concave Surface	Convex Surface

LH Spiral as a driving gear

Rotating Direction of Driving Gear Note 1	Contact Surface	
	Driving Gear (LH Spiral)	Driving Gear (RH Spiral)
RH Rotation (Clockwise)	Concave Surface	Convex Surface
LH Rotation (Counterclockwise)	Convex Surface	Concave Surface

〔Note 1〕 Rotation directions given in the tables are for viewing the gears from the hub side.



B4

Hub width	Length of bore	Face width	Holding surface dia.	Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash	Weight	Catalog No.
H	I	J	K	Bending strength	Surface durability	Bending strength	Surface durability	(mm)	(kg)	
18	29	14	52.7	56.5	94.2	5.76	9.61	0.04~0.10	0.57	**MBSG2-4020R**
13.75	27		25.39	28.2	47.1	2.88	4.80		0.18	**MBSG2-2040L**
16	30	17	66.99	108	184	11.0	18.7	0.05~0.11	1.01	**MBSG2.5-4020R**
13.25	29		29.97	54.1	91.8	5.52	9.37		0.31	**MBSG2.5-2040L**
20	35	20	80.28	185	318	18.8	32.4	0.06~0.12	1.64	**MBSG3-4020R**
18	36.5		36.56	92.4	159	9.42	16.2		0.56	**MBSG3-2040L**
22	42	27	106.63	441	778	45.0	79.3	0.09~0.15	3.55	**MBSG4-4020R**
17.5	43		51.25	221	389	22.5	39.7		1.20	**MBSG4-2040L**

[Caution on Secondary Operations]
①Please read "Caution on Performing Secondary Operations" (Page 284) when performing modifications and/or secondary operations for safety concerns. KHK Quick-Mod Gears, the KHK's system for quick modification of KHK stock gears is also available.
②In the illustration, the area surrounded with ---- line is masked during the carburization process and can be modified. However, care should be exercised since the hardness is high (approx. HRC40, maximum).

■ Forces Acting on Spiral Bevel Gear Teeth

For a spiral bevel gear with shaft angle Σ=90° , pressure angle α_n=20° , and spiral angle βm=35° , the tables below show the axial thrust force F_x and the radial force F_r when a tangential force F_t of 100 units is applied at the center of face width. For details, please refer to the section "Features of Tooth Surface Contact" in separate technical reference book.

The tables show the values of $\frac{\text{Axial Thrust Force } F_x}{\text{Radial Force } F_r}$

(1) Forces acting upon pinion

Contact Surface	Gear Ratio z_2/z_1						
	1.0	1.5	2.0	2.5	3.0	4.0	5.0
Concave 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 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) Forces acting upon gear

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