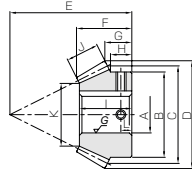
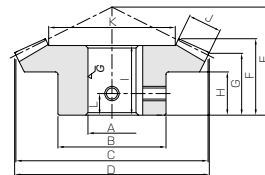




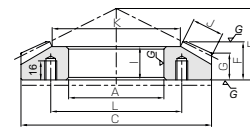
Specifications	
Precision grade	JIS B 1704 : 1978 grade 4
Gear teeth	Gleason
Pressure angle	20°
Helix angle	35°
Material	SCM415
Heat treatment	Overall carburizing
Tooth hardness	55 ~ 60HRC



BK



B4



B7

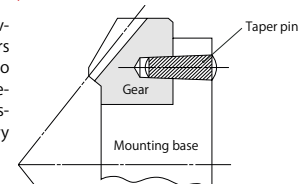
Catalog No.	Gear ratio	Module	No. of teeth	Direction of spiral	Shape	Bore		Pitch dia.	Outside dia.	Mounting distance	Total length	Crown to back length	Hub width	Length of bore
						A _{H7}	B							
MBSA2-3020R MBSB2-3020R	1.5	m2	30	R	B4	20	40	60	61.36	40	26.8	21.02	H	23
22						35								
MBSA2-2030L MBSB2-2030L		m2	20	L	BK	15	35	40	43.49	45	24.96	16.16	13.33	23
18						40								
MBSA2.5-3020R MBSB2.5-3020R		m2.5	30	R	B4	22	48	75	76.74	50	33.6	26.31	18	30
25						43								
MBSA2.5-2030L MBSB2.5-2030L		m2.5	20	L	BK	18	43	50	54.43	55	30.08	18.98	15.17	28
20						50								
MBSA3-3020R MBSB3-3020R		m3	30	R	B4	25	60	90	92.21	60	40.34	31.66	21	36
30						60								
MBSA3-2030L MBSB3-2030L		m3	20	L	BK	22	53	60	65.58	65	35.17	21.86	17.67	32.5
25						53								
MBSA4-3020R MBSB4-3020R		m4	30	R	B4	35	75	120	122.91	70	43.99	32.18	21	39
40						70								
MBSA4-2030L MBSB4-2030L		m4	20	L	BK	30	70	80	87.34	85	45.53	27.45	21.67	42
35						70								
MBSA5-3020R		m5	30	R	B7	80	—	150	—	70	35.53	23.8	—	31
80						—								
MBSA5-2030L MBSB5-2030L		m5	20	L	BK	35	87	100	109.2	105	55.05	33.07	25.67	51
40						87								
MBSA6-3020R		m6	30	R	B7	90	—	180	—	80	38.86	24.37	—	33
90						—								
MBSA6-2030L MBSB6-2030L		m6	20	L	BK	45	105	120	130.48	125	65.57	38.49	30	60
50						105								
MBSA2-4020R MBSB2-4020R	2	m2	40	R	B4	20	45	80	81.06	45	31.83	26.06	18	29
22						45								
MBSA2-2040L MBSB2-2040L		m2	20	L	BK	15	35	40	44.2	55	28.16	16.05	13.75	27
18						35								
MBSA2.5-4020R MBSB2.5-4020R		m2.5	40	R	B4	25	55	100	101.29	50	33.35	26.29	16	30
28						55								
MBSA2.5-2040L MBSB2.5-2040L		m2.5	20	L	BK	20	43	50	55.12	65	31.01	16.28	13.25	29
22						43								
MBSA3-4020R MBSB3-4020R		m3	40	R	B4	30	65	120	121.57	60	39.81	31.57	21	35
35						65								
MBSA3-2040L MBSB3-2040L		m3	20	L	BK	22	53	60	66.03	80	38.9	21.51	18.25	36.5
25						53								
MBSA4-4020R		m4	40	R	B7	80	—	160	—	60	32.08	22.53	—	28
80						—								
MBSA4-2040L MBSB4-2040L		m4	20	L	BK	30	70	80	88.46	100	45.38	22.12	17.5	43
35						70								
MBSA5-4020R		m5	40	R	B7	90	—	200	—	70	35.2	22.98	—	30
90						—								
MBSA5-2040L MBSB5-2040L		m5	20	L	BK	40	87	100	109.91	125	57.11	27.48	21.75	53.5
45						87								
MBSA6-4020R		m6	40	R	B7	110	—	240	—	80	37.89	23.62	—	32
110						—								
MBSA6-2040L MBSB6-2040L		m6	20	L	BK	50	105	120	132.04	150	67.8	33.01	26.25	64
55						105								

- [Caution on Product Characteristics]
- The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 283 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.
 - These gears produce axial thrust forces. See Page 284 for more details.
 - Although the dimensions of the keyway are made to the JIS (Jis) tolerance, there may be some deviations due to the effects of heat treatment.
 - For products having a tapped hole (Except for B7-shaped products), set screw is attached as an accessory.

Face width	Holding surface dia.	Keyway		Set Screw		Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog No.
		Width×Depth	Size	L	Size	Bending strength	Surface durability	Bending strength	Surface durability			
11	37.56	6 x 2.8 6 x 2.8	2-M5	7	34.4	38.4	3.51	3.91	0.06~0.16	0.26 0.24	MBSA2-3020R MBSB2-3020R	
11	24.34	5 x 2.3 6 x 2.8	2-M4 2-M5	6.5	23.5	25.6	2.39	2.61				0.14 0.13
14	48.01	6 x 2.8 8 x 3.3	2-M5 2-M6	9	68.0	76.8	6.93	7.84	0.07~0.17	0.52 0.49	MBSA2.5-3020R MBSB2.5-3020R	
14	31.02	6 x 2.8 6 x 2.8	2-M5 2-M5	7.5	46.4	51.2	4.73	5.22				0.26 0.25
17	57.14	8 x 3.3 8 x 3.3	2-M6 2-M6	11	118	135	12.1	13.8	0.08~0.18	0.96 0.90	MBSA3-3020R MBSB3-3020R	
17	36.2	6 x 2.8 8 x 3.3	2-M5 2-M6	9	80.7	90.1	8.23	9.19				0.46 0.43
23	76.72	10 x 3.3 12 x 3.3	2-M8 2-M8	10	283	328	28.9	33.5	0.12~0.27	1.77 1.68	MBSA4-3020R MBSB4-3020R	
23	48.07	8 x 3.3 10 x 3.3	2-M6 2-M8	11	193	219	19.7	22.3				1.03 0.95
28	97.36	—	6-M10	110	544	637	55.4	64.9	0.14~0.34	2.80 2.01	MBSA5-3020R MBSB5-2030L	
28	62.04	10 x 3.3 12 x 3.3	2-M8 2-M8	13	371	425	37.8	43.3				1.89
34	115.61	—	6-M10	120	927	1120	94.6	114	0.16~0.36	4.55 3.56	MBSA6-3020R MBSB6-2030L	
34	72.41	14 x 3.8 14 x 3.8	2-M10 2-M10	15	633	745	64.5	76.0				3.38
14	52.7	6 x 2.8 6 x 2.8	2-M5 2-M5	9	59.6	69.6	6.08	7.09	0.06~0.16	0.53 0.51	MBSA2-4020R MBSB2-4020R	
14	25.39	5 x 2.3 6 x 2.8	2-M4 2-M5	7	29.9	34.8	3.05	3.55				0.16 0.14
17	66.99	8 x 3.3 8 x 3.3	2-M6 2-M6	8	114	135	11.7	13.8	0.07~0.17	0.93 0.90	MBSA2.5-4020R MBSB2.5-4020R	
17	29.97	6 x 2.8 6 x 2.8	2-M5 2-M5	7	57.3	67.6	5.84	6.89				0.26 0.25
20	80.28	8 x 3.3 10 x 3.3	2-M6 2-M8	11	195	233	19.9	23.7	0.08~0.18	1.47 1.40	MBSA3-4020R MBSB3-4020R	
20	36.56	6 x 2.8 8 x 3.3	2-M5 2-M6	9.5	97.7	116	9.97	11.9				0.51 0.48
27	107.63	—	6-M10	110	466	564	47.5	57.5	0.12~0.27	3.11 3.11	MBSA4-4020R MBSB4-2040L	
27	51.25	8 x 3.3 10 x 3.3	2-M6 2-M8	9	234	282	23.8	28.8				1.05 0.96
34	133.97	—	6-M10	120	915	1120	93.3	114	0.14~0.34	5.59 1.96	MBSA5-4020R MBSB5-2040L	
34	61.95	12 x 3.3 14 x 3.8	2-M8 2-M10	11	458	559	46.7	57.0				1.82
40	162.56	—	6-M10	140	1530	1920	156	196	0.16~0.36	8.48 3.33	MBSA6-4020R MBSB6-2040L	
40	77.11	14 x 3.8 16 x 4.3	2-M10 2-M10	14	766	961	78.1	97.9				3.11

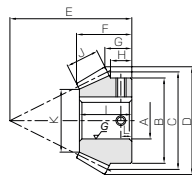
- [Caution on Secondary Operations]
- These products which are hardened by carburizing allow no secondary machining. However, for B7 type gear, the area surrounded with --- line (in the illustration) is masked during the carburization process and can be modified. Care should be exercised since the hardness is high (approx. HRC40, maximum).

When installing B7 type (ring type) Spiral Bevel Gears to the base, always secure the gears onto the mounting base with taper pins to absorb the rotational loads. Fastening and securing with only mounting screws could possibly cause the screws to snap due to heavy loads.





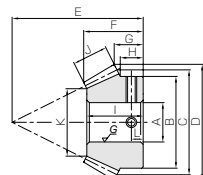
Specifications	
Precision grade	JIS B 1704 : 1978 grade 4
Gear teeth	Gleason
Pressure angle	20°
Helix angle	35°
Material	SCM415
Heat treatment	Overall carburizing
Tooth hardness	55 ~ 60HRC



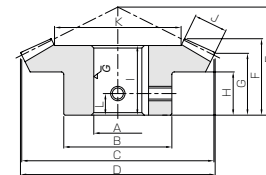
BK

Catalog No.	Gear ratio	Module	No. of teeth	Direction of spiral	Shape	Bore		Pitch dia.			Outside dia.		Mounting distance		Total length		Crown to back length		Hub width		Length of bore			
						A _{H7}	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
MBSA2-4518R MBSB2-4518R	2.5	m2	45	R	B4	20 25	48	90	90.79	40	27.67	22.98	15	25										
MBSA2-1845L MBSB2-1845L		m2	18	L	BK	12 16	32	36	40.42	60	28.54	15.88	14.2	27.5										
MBSA2.5-4518R MBSB2.5-4518R		m2.5	45	R	B4	25 30	55	112.5	113.49	50	34.94	28.74	19	31										
MBSA2.5-1845L MBSB2.5-1845L		m2.5	18	L	BK	15 20	40	45	50.35	72	33.19	16.82	14.75	31.5										
MBSA3-4518R MBSB3-4518R		m3	45	R	B4	30 35	65	135	136.24	60	41.65	34.55	22	37										
MBSA3-1845L MBSB3-1845L		m3	18	L	BK	20 25	48	54	60.69	85	37.82	18.84	16.3	36										
MBSA4-4518R MBSA4-1845L MBSB4-1845L		m4	45	R	B7	80 —	180	—	—	55	29.77	21.25	—	25										
MBSA5-4518R MBSA5-1845L MBSB5-1845L		m5	45	R	B7	100 —	225	—	—	65	33.37	22.82	—	28										
MBSA6-4518R MBSA6-1845L MBSB6-1845L		m6	45	R	B7	110 —	270	—	—	75	36.97	24.19	—	30										
MBSA2-4515R MBSB2-4515R		3	m2	45	R	B4	20 22	48	90	90.66	40	30.01	25.99	18	27									
MBSA2-1545L MBSB2-1545L			m2	15	L	BT BK	10 12	26	30	34.59	55	23.78	10.77	9.33	22.5									
MBSA2.5-4515R MBSB2.5-4515R			m2.5	45	R	B4	22 25	55	112.5	113.28	45	32.43	27.42	18	28									
MBSA2.5-1545L MBSB2.5-1545L			m2.5	15	L	BK	12 15	32	37.5	43.06	70	30.51	14.68	12.84	29									
MBSA3-4515R MBSB3-4515R			m3	45	R	B4	30 32	65	135	136.03	55	39.94	34.05	22	35									
MBSA3-1545L MBSB3-1545L			m3	15	L	BK	18 20	38	45	52	85	38.12	18.67	16.33	36.5									
MBSA4-4515R MBSA4-1545L MBSB4-1545L			m4	45	R	B7	80 —	180	—	—	50	28.85	22.14	—	25									
MBSA5-4515R MBSA5-1545L MBSB5-1545L			m5	45	R	B7	90 —	225	—	—	60	33.57	25.16	—	28									
MBSA6-4515R MBSA6-1545L MBSB6-1545L			m6	45	R	B7	110 —	270	—	—	70	38.28	28.05	—	32									
MBSA2-4515R MBSB2-4515R			2.5	m2	45	R	B4	20 22	48	90	90.66	40	30.01	25.99	18	27								
MBSA2-1545L MBSB2-1545L				m2	15	L	BT BK	10 12	26	30	34.59	55	23.78	10.77	9.33	22.5								
MBSA2.5-4515R MBSB2.5-4515R				m2.5	45	R	B4	22 25	55	112.5	113.28	45	32.43	27.42	18	28								
MBSA2.5-1545L MBSB2.5-1545L				m2.5	15	L	BK	12 15	32	37.5	43.06	70	30.51	14.68	12.84	29								
MBSA3-4515R MBSB3-4515R				m3	45	R	B4	30 32	65	135	136.03	55	39.94	34.05	22	35								
MBSA3-1545L MBSB3-1545L				m3	15	L	BK	18 20	38	45	52	85	38.12	18.67	16.33	36.5								
MBSA4-4515R MBSA4-1545L MBSB4-1545L	m4			45	R	B7	80 —	180	—	—	50	28.85	22.14	—	25									
MBSA5-4515R MBSA5-1545L MBSB5-1545L	m5			45	R	B7	90 —	225	—	—	60	33.57	25.16	—	28									
MBSA6-4515R MBSA6-1545L MBSB6-1545L	m6			45	R	B7	110 —	270	—	—	70	38.28	28.05	—	32									

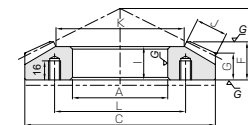
- [Caution on Product Characteristics]
- ① The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 283 for more details.
 - ② Dimensions of the outside diameter, the overall length and crown to back length are all theoretical values, and some differences will occur due to the corner chamfering of the gear tips.
 - ③ These gears produce axial thrust forces. See Page 284 for more details.
 - ④ Although the dimensions of the keyway are made to the JIS (Js9) tolerance, there may be some deviations due to the effects of heat treatment.
 - ⑤ For products having a tapped hole (Except for B7-shaped products), set screw is attached as an accessory.



BT



B4



B7

Face width	Holding surface dia.	Keyway	Set Screw	Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog No.
				Bending strength	Surface durability	Bending strength	Surface durability			
14	62.24	6 x 2.8 8 x 3.3	2-M5 2-M6	8	69.3	74.3	7.06	7.58	0.06~0.16	0.60 0.56
14	23.11	4 x 1.8 5 x 2.3	2-M4 2-M4	7	27.2	29.7	2.77	3.03		0.14 0.12
18	76.53	8 x 3.3 8 x 3.3	2-M6 2-M6	10	138	150	14.1	15.3	0.07~0.17	1.09 1.04
18	26.82	5 x 2.3 6 x 2.8	2-M4 2-M5	8	54.1	59.9	5.52	6.11		0.26 0.22
21	92.96	8 x 3.3 10 x 3.3	2-M6 2-M8	11	234	256	23.8	26.1	0.08~0.18	1.92 1.84
21	33.41	6 x 2.8 8 x 3.3	2-M5 2-M6	9	91.8	103	9.36	10.5		0.41 0.36
29	122.33	—	6-M10	110	567	630	57.8	64.3	0.12~0.27	3.92
29	45.83	8 x 3.3 10 x 3.3	2-M6 2-M8	10	223	252	22.7	25.7		0.89 0.82
36	153.85	—	6-M10	130	1100	1240	112	126	0.14~0.34	6.82
36	56.13	10 x 3.3 12 x 3.3	2-M8 2-M8	11	433	495	44.2	50.5		1.68 1.50
43	184.57	—	6-M10	140	1860	2150	190	219	0.16~0.36	11.1
43	66.44	14 x 3.8 14 x 3.8	2-M10 2-M10	12	731	859	74.6	87.6		2.66 2.48
14	61.82	6 x 2.8 6 x 2.8	2-M5 2-M5	9	67.8	61.3	6.91	6.25	0.06~0.16	0.61 0.60
14	16.46	—	2-M4 2-M4	5	21.7	20.4	2.22	2.08		0.081 0.073
17	77.83	6 x 2.8 8 x 3.3	2-M5 2-M6	9	130	119	13.3	12.1	0.07~0.17	1.01 0.98
17	21.48	4 x 1.8 5 x 2.3	2-M4 2-M4	7	41.6	39.6	4.24	4.04		0.16 0.15
21	92.39	8 x 3.3 10 x 3.3	2-M6 2-M8	11	229	211	23.3	21.6	0.08~0.18	1.78 1.75
21	26.18	6 x 2.8 6 x 2.8	2-M5 2-M5	9	73.3	70.5	7.48	7.18		0.26 0.24
28	124.3	—	6-M10	110	542	508	55.3	51.8	0.12~0.27	3.93
28	35.91	6 x 2.8 8 x 3.3	2-M5 2-M6	10	174	169	17.7	17.3		0.63 0.58
35	154.88	—	6-M10	120	1060	1000	108	102	0.14~0.34	7.38
35	42.64	8 x 3.3 10 x 3.3	2-M6 2-M8	11	339	334	34.6	34.1		1.16 1.07
42	186.12	—	6-M10	140	1790	1740	183	178	0.16~0.36	12.0
42	52.37	10 x 3.3 12 x 3.3	2-M8 2-M8	12	575	581	58.6	59.3		1.90 1.75

- [Caution on Secondary Operations]
- ① These products which are hardened by carburizing allow no secondary machining. However, for B7 type gear, the area surrounded with ---- line (in the illustration) is masked during the carburizing process and can be modified. Care should be exercised since the hardness is high (approx. HRC40, maximum).

When installing B7 type (ring type) Spiral Bevel Gears to the base, always secure the gears onto the mounting base with taper pins to absorb the rotational loads. Fastening and securing with only mounting screws could possibly cause the screws to snap due to heavy loads.

