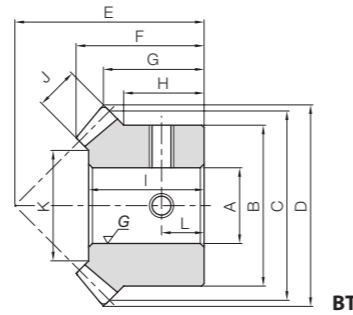


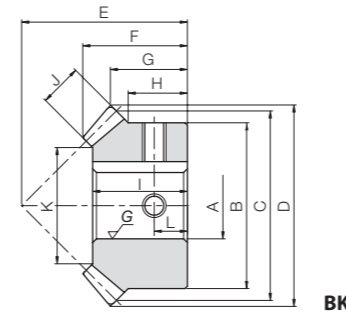


Specifications	
Precision grade	JIS B 1704: 1978 grade 4
Gear teeth	Gleason
Pressure angle	20°
Helix angle	35°
Material	SCM415
Heat treatment	Carburized *
Tooth hardness	55 to 60HRC

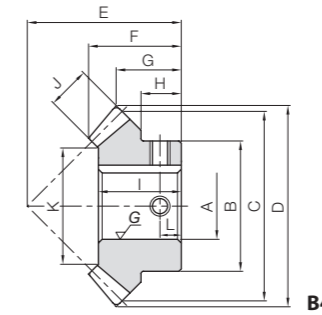
* No secondary operations can be performed on these finished gears due to the applied carburizing process.



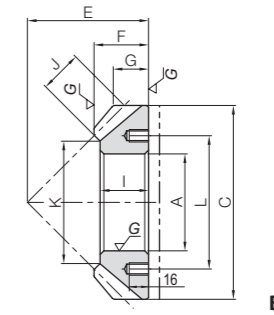
BT



BK



B4



B7

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	Hub width	Hole length
						A _{H7}	B	C	D	E	F	G	H	I
MMSA1-20R MMSB1-20R MMSA1-20L MMSB1-20L	1	m1	20	R	BT	8	17	20	21.29	20	13.53	10.64	8.5	12.2
L				10										
MMSA1.5-20R MMSB1.5-20R MMSA1.5-20L MMSB1.5-20L		m1.5	R	BT BK	10	25	30	31.9	28	18.48	13.95	10.5	16.5	
L			12											
MMSA2-20R MMSB2-20R MMSA2-20L MMSB2-20L		m2	R	BT BK	14	35	40	42.52	35	22.09	16.26	12.5	20	
L			16											
MMSA2.5-20R MMSB2.5-20R MMSA2.5-20L MMSB2.5-20L		m2.5	R	BK	18	42	50	53.2	45	28.63	21.6	16	26	
L			20											
MMSA3-20R MMSB3-20R MMSA3-20L MMSB3-20L		m3	R	BK	20	52	60	63.99	50	30.78	21.99	16	27	
L			22											
MMSA3.5-20R MMSB3.5-20R MMSA3.5-20L MMSB3.5-20L		m3.5	R	BK	25	50	70	74.53	55	32.45	22.26	14	29	
L			28											
MMSA4-20R MMSB4-20R MMSA4-20L MMSB4-20L		m4	R	B4	28	55	80	84.99	65	39.13	27.5	17	35	
L			30											
MMSA5-20R MMSB5-20R MMSA5-20L MMSB5-20L		m5	R	B4	30	70	100	106.25	75	42.99	28.13	17	38	
L			35											
MMSA6-20R MMSB6-20R MMSA6-20L MMSB6-20L		m6	R	B4	40	80	120	127.59	90	51.13	33.8	20	45	
L			45											
MMSA8-20R MMSA8-20L		m8	R	B7	80	—	160	—	100	45	29.16	—	40	
L			80											
MMSA10-20R MMSA10-20L	m10	R	B7	100	—	200	—	125	58	36.48	—	50		
L		100												

[Caution on Product Characteristics] ① The keyway tolerance is the value before hardening.

Face width	Holding surface dia.	Keyway Width × Depth	Socket head screw Size	Allowable torque (N·m)		Allowable torque (kgf·m)		Backlash (mm)	Weight (kg)	Catalog Number
				Bending strength	Surface durability	Bending strength	Surface durability			
J	K		L							
4.5	11.67	—	4.5	2.24	2.09	0.23	0.21	0.03~0.13	0.018 0.015	MMSA1-20R MMSB1-20R MMSA1-20L MMSB1-20L
7	17.2	4 x 1.8 — 4 x 1.8	2-M4	6	7.74	7.34	0.79	0.75	0.057 0.052	MMSA1.5-20R MMSB1.5-20R MMSA1.5-20L MMSB1.5-20L
9	24.54	5 x 2.3	2-M4	7	18.0	17.3	1.83	1.76	0.057 0.052	MMSA2-20R MMSB2-20R MMSA2-20L MMSB2-20L
11	30.89	6 x 2.8	2-M5	7	18.0	17.3	1.83	1.76	0.13 0.12	MMSA2-20R MMSB2-20R MMSA2-20L MMSB2-20L
14	34.4	6 x 2.8	2-M5	8	61.9	61.1	6.32	6.23	0.13 0.12	MMSA2.5-20R MMSB2.5-20R MMSA2.5-20L MMSB2.5-20L
16	42.75	8 x 3.3	2-M6	8	61.9	61.1	6.32	6.23	0.24 0.23	MMSA3-20R MMSB3-20R MMSA3-20L MMSB3-20L
18	49.08	8 x 3.3	2-M6	9	144	144	14.6	14.7	0.40 0.39	MMSA3-20R MMSB3-20R MMSA3-20L MMSB3-20L
23	60.95	8 x 3.3 10 x 3.3	2-M6 2-M8	9	144	144	14.6	14.7	0.40 0.39	MMSA3.5-20R MMSB3.5-20R MMSA3.5-20L MMSB3.5-20L
27	73.63	12 x 3.3 14 x 3.8	2-M8 2-M10	10	284	288	29.0	29.4	0.46 0.43	MMSA4-20R MMSB4-20R MMSA4-20L MMSB4-20L
35	101	12 x 3.3 14 x 3.8	2-M8 2-M10	10	475	496	48.4	50.6	0.70 0.68	MMSA5-20R MMSB5-20R MMSA5-20L MMSB5-20L
45	122.72	—	6-M10	110	1080	1170	111	119	1.32 1.25	MMSA6-20R MMSB6-20R MMSA6-20L MMSB6-20L
				130	1660	1840	169	188	2.11 1.99	MMSA8-20R MMSA8-20L
									2.11 1.99	MMSA10-20R MMSA10-20L

When installing products produced in B7 style (ring type), always secure the gears onto the mounting base with taper pins to absorb the rotational loads. It is dangerous to secure with bolts only.

