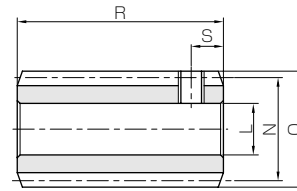




Specifications	
Precision grade	KHK W 001 grade 4
Reference section of gear	Normal plane
Gear teeth	Standard full depth
Normal pressure angle	20°
Material	S45C
Heat treatment	—
Tooth hardness	less than 194HB



W2

Catalog No.	Normal module	Number of start	Lead angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width (R)	Hub width (L)
						L _{H8}	M	N	O	P	Q	Q'
SW0.5-R1	m0.5	1	2°36'	R	W2	5	—	11	12	—	—	—
SW0.5-R2		2	5°13'	R	W2	5	—	11	12	—	—	—
SW0.8-R1	m0.8	1	3°17'	R	W2	6	—	14	15.6	—	—	—
SW0.8-R2		2	6°34'	R	W2	6	—	14	15.6	—	—	—

[Caution on Product Characteristics]

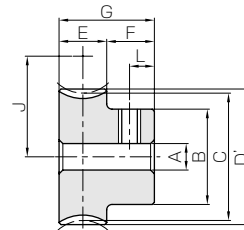
- For W2-shaped products, a set screw is included. When setting up the mating wheel, make sure no friction occurs within the set screw.
- These worms produce axial thrust forces. See page 512 for more details.



BG Bronze Worm Wheels



Specifications	
Precision grade	KHK W 002 grade 4
Reference section of gear	Normal plane
Gear teeth	Standard full depth
Normal pressure angle	20°
Material	CAC502 (formerly JIS PBC2)
Heat treatment	—
Tooth hardness	—



HAT

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B	C	D	D'	E
BG0.5-20R1	20	m0.5	20	1	2°36'	R	HAT	4	9	10.01	—	11	5
BG0.5-20R2	10		20	2	5°13'	R	HAT	4	9	10.04	—	11	5
BG0.5-30R1	30		30	1	2°36'	R	HAT	4	12	15.02	—	16	5
BG0.5-30R2	15		30	2	5°13'	R	HAT	4	12	15.06	—	16	5
BG0.5-40R1	40		40	1	2°36'	R	HAT	5	15	20.02	—	21	5
BG0.5-50R1	50		50	1	2°36'	R	HAT	5	20	25.03	—	26	5
BG0.5-60R1	60	60	1	2°36'	R	HAT	5	25	30.03	—	31	5	

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B	C	D	D'	E
BG0.8-20R1	20	m0.8	20	1	3°17'	R	HA	5	12	16.03	—	17.6	9
BG0.8-20R2	10		20	2	6°34'	R	HA	5	12	16.11	—	17.6	9
BG0.8-30R1	30		30	1	3°17'	R	HA	5	18	24.04	—	25.6	9
BG0.8-30R2	15		30	2	6°34'	R	HA	5	18	24.16	—	25.6	9
BG0.8-40R1	40		40	1	3°17'	R	HA	6	20	32.05	—	33.6	9
BG0.8-50R1	50		50	1	3°17'	R	HA	8	25	40.06	—	41.6	9
BG0.8-60R1	60	60	1	3°17'	R	HA	8	25	48.08	—	49.6	9	

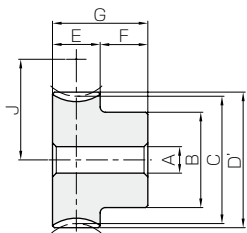
[Caution on Product Characteristics]

- Worm Wheels are profile shifted to create the proper center distance.
- For products with a tapped hole, a set screw is included.
- The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 510 for more details.
- If bore size is less than $\phi 4$, the diameter tolerance is H8. If bore size is $\phi 5$ or $\phi 6$, and the hole length exceeds 3 times the diameter, the tolerance is also H8.

Bronze Worm Wheels

Total length R	Set screw		Weight (kg)	Catalog No.
	Size	S		
18	M3	3	0.010	SW0.5-R1
18	M3	3	0.010	SW0.5-R2
30	M4	5	0.029	SW0.8-R1
30	M4	5	0.029	SW0.8-R2

- [Caution on Secondary Operations] ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.
 ② Gear tooth hardening of the worm reduces the precision (introduces errors in the lead and pressure angles). Avoid heat hardening as it will create bad tooth contact causing abrasion of the wheel.



HA



NOTE 1. Allowable torques for worm rotation (rpm)

Hub width F	Total length G	Web thickness (H)	Web O.D. (I)	Mounting distance J	Allowable torque (N-m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
					30 _{rpm}	100 _{rpm}	300 _{rpm}	600 _{rpm}	900 _{rpm}	1200 _{rpm}			
7	12	10.5	M3	3.5	0.27	0.23	0.19	0.15	0.14	0.13	0~0.16	0.0061	BG0.5-20R1
7	12	10.5	M3	3.5	0.28	0.23	0.18	0.15	0.13	0.12	0~0.16	0.0061	BG0.5-20R2
7	12	13	M3	3.5	0.58	0.50	0.41	0.34	0.30	0.28	0~0.16	0.014	BG0.5-30R1
7	12	13	M3	3.5	0.59	0.49	0.39	0.32	0.29	0.26	0~0.16	0.014	BG0.5-30R2
7	12	15.5	M4	3.5	0.99	0.85	0.71	0.60	0.54	0.50	0~0.16	0.023	BG0.5-40R1
7	12	18	M4	3.5	1.50	1.28	1.08	0.92	0.83	0.77	0~0.16	0.039	BG0.5-50R1
7	12	20.5	M4	3.5	2.10	1.80	1.52	1.31	1.19	1.09	0~0.16	0.059	BG0.5-60R1

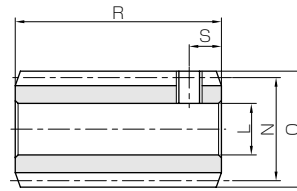
NOTE 1. Allowable torques for worm rotation (rpm)

Hub width F	Total length G	Mounting distance J	Allowable torque (N-m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
			30 _{rpm}	100 _{rpm}	300 _{rpm}	600 _{rpm}	900 _{rpm}	1200 _{rpm}			
9	18	15	1.05	0.88	0.71	0.58	0.52	0.48	0.04~0.22	0.023	BG0.8-20R1
9	18	15	1.06	0.86	0.66	0.54	0.48	0.44	0.04~0.22	0.023	BG0.8-20R2
9	18	19	2.23	1.89	1.53	1.29	1.15	1.06	0.04~0.22	0.055	BG0.8-30R1
9	18	19	2.24	1.87	1.46	1.20	1.07	0.98	0.04~0.22	0.055	BG0.8-30R2
9	18	23	3.81	3.24	2.67	2.26	2.02	1.87	0.04~0.22	0.087	BG0.8-40R1
9	18	27	5.76	4.90	4.07	3.47	3.13	2.90	0.04~0.22	0.13	BG0.8-50R1
9	18	31	8.06	6.88	5.73	4.90	4.46	4.12	0.04~0.22	0.18	BG0.8-60R1

- [Caution on Secondary Operations] ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.



Specifications	
Precision grade	KHK W 001 grade 4
Reference section of gear	Normal plane
Gear teeth	Standard full depth
Normal pressure angle	20°
Material	S45C
Heat treatment	—
Tooth hardness	less than 194HB



W2

Catalog No.	Normal module	Number of start	Lead angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width (R)	Hub width (L)
						L _{H7}	M	N	O	P	Q	Q'
SW1-R1	m1	1	3°35'	R	W2	6	—	16	18	—	—	—
SW1-R2		2	7°11'	R	W2	6	—	16	18	—	—	—
SW1.25-R1	m1.25	1	3°25'	R	W2	8	—	21	23.5	—	—	—
SW1.25-R2		2	6°50'	R	W2	8	—	21	23.5	—	—	—

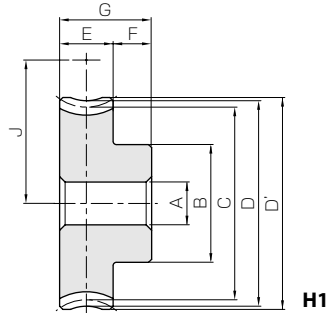
[Caution on Product Characteristics]

- For W2-shaped products, a set screw is included. When setting up the mating wheel, make sure no friction occurs within the set screw.
- These worms produce axial thrust forces. See page 512 for more details.
- If bore size is less than $\phi 4$, the diameter tolerance is H8. If bore size is $\phi 5$ or $\phi 6$, and the hole length exceeds 3 times the diameter, the tolerance is also H8.

BG · CG Bronze Worm Wheels & Gray Iron Worm Wheels



Specifications		
Catalog No.	BG	CG
Precision grade	KHK W 002 grade 4	KHK W 002 grade 4
Reference section of gear	Normal plane	Normal plane
Gear teeth	Standard full depth	Standard full depth
Normal pressure angle	20°	20°
Material	CAC502 (formerly JIS PBC2)	FC200
Heat treatment	—	—
Tooth ardness	—	—



Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B	C	D	D'	E
BG1-20R1	20	m1	20	1	3°35'	R	H1	6	16	20.05	22	23	10
BG1-20R2	10		20	2	7°11'	R	H1	6	16	20.16	22	23	10
BG1-30R1	30		30	1	3°35'	R	H1	6	20	30.07	32	33	10
BG1-30R2	15		30	2	7°11'	R	H1	6	20	30.24	32	33	10
BG1-40R1	40		40	1	3°35'	R	H1	8	26	40.08	42	43	10
BG1-50R1	50		50	1	3°35'	R	H1	8	30	50.1	52	53	10
BG1.25-20R1	20	m1.25	20	1	3°25'	R	H1	6	20	25.04	27.5	28.75	11
BG1.25-20R2	10		20	2	6°50'	R	H1	6	20	25.18	27.5	28.75	11
BG1.25-30R1	30		30	1	3°25'	R	H1	6	25	37.57	40	41.25	11
BG1.25-30R2	15		30	2	6°50'	R	H1	6	25	37.77	40	41.25	11
BG1.25-40R1	40		40	1	3°25'	R	H1	8	30	50.09	52.5	53.75	11
BG1.25-50R1	50		50	1	3°25'	R	H1	8	40	62.61	65	66.25	11

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B	C	D	D'	E
CG1-60R1	60	m1	60	1	3°35'	R	HB	10	30	60.12	62	63	10
CG1-80R1	80		80	1	3°35'	R	HB	10	35	80.16	82	83	10
CG1-100R1	100		100	1	3°35'	R	H2	10	40	100.2	102	103	10
CG1-120R1	120		120	1	3°35'	R	H2	10	40	120.24	122	123	10

[Caution on Product Characteristics]

- Worm Wheels are profile shifted to create the proper center distance.
- H2 Shape Worm Gears have elongated casting holes in the web (H).
- The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 510 for more details.
- If bore size is less than $\phi 4$, the diameter tolerance is H8. If bore size is $\phi 5$ or $\phi 6$, and the hole length exceeds 3 times the diameter, the tolerance is also H8.

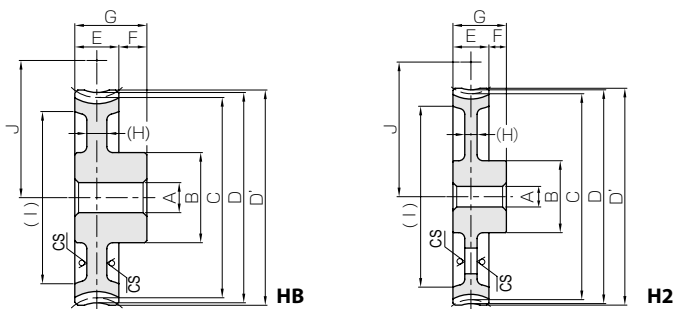
Total length R	Set screw		Weight (kg)	Catalog No.
	Size	S		
32	M4	5	0.043	SW1-R1
32	M4	5	0.043	SW1-R2
37	M5	5	0.085	SW1.25-R1
37	M5	5	0.085	SW1.25-R2

[Caution on Secondary Operations]

- ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.
- ② Gear tooth hardening of the worm reduces the precision (introduces errors in the lead and pressure angles). Avoid heat hardening as it will create bad tooth contact causing abrasion of the wheel.

BG · CG

Bronze Worm Wheels & Gray Iron Worm Wheels



* CS has a sand mold casting finish.

NOTE 1. Allowable torques for worm rotation (rpm)



Hub width F	Total length G	Mounting distance J	Allowable torque (N-m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
			30 _{rpm}	100 _{rpm}	300 _{rpm}	600 _{rpm}	900 _{rpm}	1200 _{rpm}			
10	20	18	1.89	1.58	1.26	1.04	0.92	0.85	0.06~0.24	0.043	BG1-20R1
10	20	18	1.90	1.54	1.18	0.97	0.85	0.78	0.06~0.24	0.043	BG1-20R2
10	20	23	4.00	3.38	2.74	2.29	2.05	1.87	0.06~0.24	0.089	BG1-30R1
10	20	23	4.03	3.35	2.62	2.14	1.91	1.74	0.06~0.24	0.089	BG1-30R2
10	20	28	6.85	5.79	4.76	4.03	3.61	3.31	0.06~0.24	0.15	BG1-40R1
10	20	33	10.3	8.76	7.27	6.18	5.58	5.14	0.06~0.24	0.23	BG1-50R1
9	20	23	3.19	2.65	2.10	1.72	1.53	1.40	0.08~0.26	0.070	BG1.25-20R1
9	20	23	3.19	2.58	1.96	1.60	1.40	1.27	0.08~0.26	0.070	BG1.25-20R2
9	20	29.25	6.75	5.67	4.56	3.81	3.40	3.09	0.08~0.26	0.15	BG1.25-30R1
9	20	29.25	6.77	5.60	4.33	3.54	3.16	2.85	0.08~0.26	0.15	BG1.25-30R2
9	20	35.5	11.5	9.71	7.92	6.70	5.98	5.47	0.08~0.26	0.24	BG1.25-40R1
9	20	41.75	17.4	14.7	12.1	10.3	9.25	8.49	0.08~0.26	0.40	BG1.25-50R1

NOTE 1. Allowable torques for worm rotation (rpm)

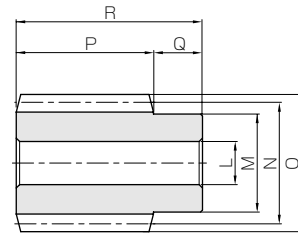
Hub width F	Total length G	Web thickness (H)	Web O.D. (I)	Mounting distance J	Allowable torque (N-m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
					30 _{rpm}	100 _{rpm}	300 _{rpm}	600 _{rpm}	900 _{rpm}	1200 _{rpm}			
10	20	(6)	(51)	38	8.69	7.39	6.14	5.24	4.78	4.39	0.06~0.24	0.21	CG1-60R1
10	20	(6)	(70)	48	14.7	12.6	10.5	9.11	8.30	7.72	0.06~0.24	0.35	CG1-80R1
10	20	(6)	(91)	58	21.9	19.0	16.0	13.9	12.7	11.9	0.06~0.24	0.47	CG1-100R1
10	20	(6)	(111)	68	30.5	26.7	22.5	19.6	18.0	16.7	0.06~0.24	0.63	CG1-120R1

[Caution on Secondary Operations]

- ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.



Specifications	
Precision grade	KHK W 001 grade 4 *
Reference section of gear	Normal plane
Gear teeth	Standard full depth
Normal pressure angle	20°
Material	S45C
Heat treatment	—
Tooth hardness	less than 194HB



W1

* The precision grade of J Series products is equivalent to the value shown in the table.

Catalog No. ● : J Series (Available-on-request)	Normal module	Number of start	Lead angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width (R)	Hub width (L)
						L _{H7}	M	N	O	P	Q	Q'
SW1.5-R1 ● SW1.5-R1J8 ● SW1.5-R1J10	m1.5	1	3°26'	R	W1 W1T W1K	8	20	25	28	30	10	—
8						10						—
SW1.5-R2 ● SW1.5-R2J8 ● SW1.5-R2J10	m1.5	2	6°54'	R	W1 W1T W1K	8	20	25	28	30	10	—
8						10						—

[Caution on Product Characteristics]

① These worms produce axial thrust forces. See page 512 for more details.

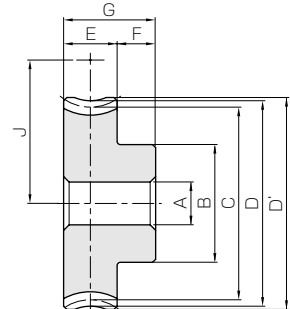
[Caution on Secondary Operations]

- ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.
- ② Gear tooth hardening of the worm reduces the precision (introduces errors in the lead and pressure angles). Avoid heat hardening as it will create bad tooth contact causing abrasion of the wheel.

BG · CG Bronze Worm Wheels & Gray Iron Worm Wheels



Specifications		
Catalog No.	BG	CG
Precision grade	KHK W 002 grade 4	KHK W 002 grade 4
Reference section of gear	Normal plane	Normal plane
Gear teeth	Standard full depth	Standard full depth
Normal pressure angle	20°	20°
Material	CAC502 (formerly JIS PBC2)	FC200
Heat treatment	—	—
Tooth hardness	—	—



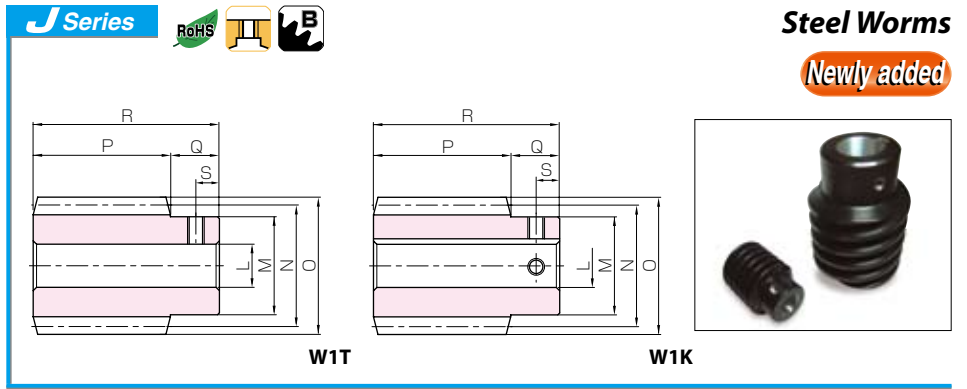
H1

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B	C	D	D'	E
BG1.5-20R1	20	m1.5	20	1	3°26'	R	H1	8	22	30.05	33	34.5	12
BG1.5-20R2	10		20	2	6°54'	R	H1	8	22	30.22	33	34.5	12
BG1.5-30R1	30		30	1	3°26'	R	H1	10	30	45.08	48	49.5	12
BG1.5-30R2	15		30	2	6°54'	R	H1	10	30	45.33	48	49.5	12
BG1.5-40R1	40		40	1	3°26'	R	H1	12	30	60.11	63	64.5	12
BG1.5-50R1	50		50	1	3°26'	R	H1	12	40	75.13	78	79.5	14

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B	C	D	D'	E
CG1.5-30R1	30	m1.5	30	1	3°26'	R	H1	10	30	45.08	48	49.5	12
CG1.5-40R1	40		40	1	3°26'	R	H1	12	30	60.11	63	64.5	12
CG1.5-50R1	50		50	1	3°26'	R	H1	12	40	75.13	78	79.5	14
CG1.5-60R1	60		60	1	3°26'	R	H1	12	40	90.16	93	94.5	14
CG1.5-80R1	80		80	1	3°26'	R	H2	15	50	120.22	123	124.5	14
CG1.5-100R1	100		100	1	3°26'	R	H2	15	50	150.27	153	154.5	14

[Caution on Product Characteristics]

- ① Worm Wheels are profile shifted to create the proper center distance.
- ② H2 Shape Worm Gears have elongated casting holes in the web (H).
- ③ The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 510 for more details.

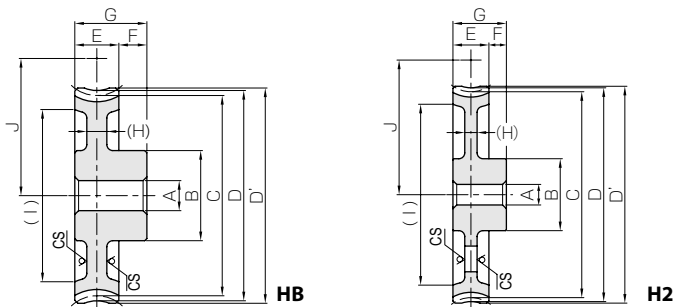


Total length R	Keyway Width×Depth	Set screw		Weight (kg)	Catalog No. ● : J Series (Available-on-request)
		Size	S		
40	—	—	—	0.12	SW1.5-R1
	—	M5	5	0.12	● SW1.5-R1J8
	4 x 1.8	M4	5	0.11	● SW1.5-R1J10
40	—	—	—	0.12	SW1.5-R2
	—	M5	5	0.12	● SW1.5-R2J8
	4 x 1.8	M4	5	0.11	● SW1.5-R2J10

- [Caution on J series]
- As available-on-request products, requires a lead-time for shipping within 3 working-days (excludes the day ordered), after placing an order. Please allow additional shipping time to get to your local distributor.
 - Number of products we can process for one order is 1 to 20 units. For quantities of 21 or more pieces, we need to quote price and lead time.
 - Keyways are made according to JIS B1301 standards, Js 9 tolerance.
 - Areas of products which have been re-worked will not be black oxide coated.
 - For products having a tapped hole, a set screw is included.

BG · CG

Bronze Worm Wheels & Gray Iron Worm Wheels



* CS has a sand mold casting finish.

NOTE 1. Allowable torques for worm rotation (rpm)

Hub width F	Total length G	Mounting distance J	Allowable torque (N·m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
			30 rpm	100 rpm	300 rpm	600 rpm	900 rpm	1200 rpm			
10	22	27.5	4.76	3.96	3.10	2.56	2.27	2.06	0.08~0.26	0.10	BG1.5-20R1
10	22	27.5	4.75	3.85	2.89	2.38	2.08	1.87	0.08~0.26	0.10	BG1.5-20R2
10	22	35	10.1	8.47	6.72	5.67	5.03	4.55	0.08~0.26	0.22	BG1.5-30R1
10	22	35	10.1	8.37	6.40	5.26	4.67	4.20	0.08~0.26	0.22	BG1.5-30R2
10	22	42.5	17.2	14.5	11.7	9.96	8.86	8.04	0.08~0.26	0.35	BG1.5-40R1
10	24	50	30.4	25.6	20.8	17.8	16.0	14.6	0.08~0.26	0.65	BG1.5-50R1

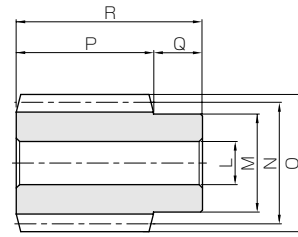
NOTE 1. Allowable torques for worm rotation (rpm)

Hub width F	Total length G	Web thickness (H)	Web O.D. (I)	Mounting distance J	Allowable torque (N·m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
					30 rpm	100 rpm	300 rpm	600 rpm	900 rpm	1200 rpm			
10	22	—	—	35	6.04	5.08	4.03	3.40	3.02	2.73	0.08~0.26	0.18	CG1.5-30R1
10	22	—	—	42.5	10.3	8.71	7.01	5.98	5.31	4.83	0.08~0.26	0.28	CG1.5-40R1
10	24	(6)	(62)	50	18.2	15.4	12.5	10.7	9.59	8.74	0.08~0.26	0.43	CG1.5-50R1
10	24	(4)	(79)	57.5	25.5	21.6	17.6	15.1	13.7	12.4	0.08~0.26	0.47	CG1.5-60R1
10	24	(9)	(112)	72.5	43.1	36.8	30.1	26.3	23.8	21.9	0.08~0.26	0.94	CG1.5-80R1
10	24	(7)	(138)	87.5	64.4	55.6	45.8	40.1	36.4	33.6	0.08~0.26	1.21	CG1.5-100R1

- [Caution on Secondary Operations]
- Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.



Specifications	
Precision grade	KHK W 001 grade 4 *
Reference section of gear	Normal plane
Gear teeth	Standard full depth
Normal pressure angle	14° 30'
Material	S45C
Heat treatment	—
Tooth hardness	less than 194HB



W1

* The precision grade of J Series products is equivalent to the value shown in the table.

Catalog No. ● J Series (Available-on-request)	Normal module	Number of start	Lead angle	Hand of thread	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width (R)	Hub width (L)
						L _{H7}	M	N	O	P	Q	Q'
SW2-R1 ● SW2-R1J12 ● SW2-R1J14	m2	1	3°42'	R	W1	12	25	31	35	32	14	—
					W1K	12						
		W1K	14									
SW2-R2 ● SW2-R2J12 ● SW2-R2J14		2	7°25'	R	W1	12	25	31	35	32	14	—
					W1K	12						
W1K		14										
SW2-L1 ● SW2-L1J12 ● SW2-L1J14	m2	1	3°42'	L	W1	12	25	31	35	32	14	—
					W1K	12						
W1K		14										
SW2-L2 ● SW2-L2J12 ● SW2-L2J14		2	7°25'	L	W1	12	25	31	35	32	14	—
	W1K				12							
W1K	14											

[Caution on Product Characteristics]

① These worms produce axial thrust forces. See page 512 for more details.

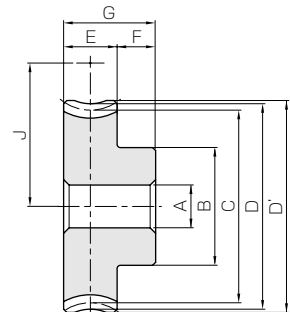
[Caution on Secondary Operations]

- ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.
- ② Gear tooth hardening of the worm reduces the precision (introduces errors in the lead and pressure angles). Avoid heat hardening as it will create bad tooth contact causing abrasion of the wheel.

BG · CG Bronze Worm Wheels & Gray Iron Worm Wheels



Specifications		
Catalog No.	BG	CG
Precision grade	KHK W 002 grade 4	KHK W 002 grade 4
Reference section of gear	Normal plane	Normal plane
Gear teeth	Standard full depth	Standard full depth
Normal pressure angle	14° 30'	14° 30'
Material	CAC502 (formerly JIS PBC2)	FC200
Heat treatment	—	—
Tooth hardness	—	—



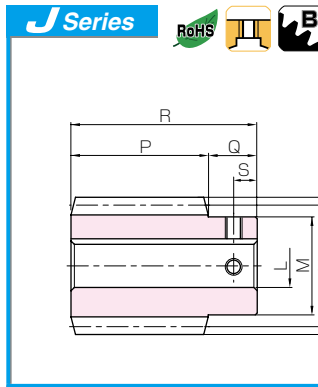
H1

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of thread	Shape	Bore	Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B	C	D	D'	E
BG2-20R1	20	m2	20	1	3°42'	R	H1	12	33	40.08	44	46	22
BG2-20R2	10		20	2	7°25'	R	H1	12	33	40.34	44	46	22
BG2-20L1	20		20	1	3°42'	L	H1	12	33	40.08	44	46	22
BG2-20L2	10		20	2	7°25'	L	H1	12	33	40.34	44	46	22

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of thread	Shape	Bore	Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B	C	D	D'	E
CG2-20R1	20	m2	20	1	3°42'	R	H1	12	33	40.08	44	46	22
CG2-20R2	10		20	2	7°25'	R	H1	12	33	40.34	44	46	22
CG2-30R1	30		30	1	3°42'	R	H1	12	40	60.13	64	66	22
CG2-30R2	15		30	2	7°25'	R	H1	12	40	60.51	64	66	22
CG2-40R1	40		40	1	3°42'	R	H1	12	45	80.17	84	86	22
CG2-50R1	50		50	1	3°42'	R	HB	12	48	100.21	104	106	22
CG2-50R2	25		50	2	7°25'	R	HB	12	48	100.84	104	106	22
CG2-60R1	60		60	1	3°42'	R	HB	12	60	120.25	124	126	22
CG2-20L1	20		20	1	3°42'	L	H1	12	33	40.08	44	46	22
CG2-20L2	10		20	2	7°25'	L	H1	12	33	40.34	44	46	22
CG2-30L1	30		30	1	3°42'	L	H1	12	40	60.13	64	66	22
CG2-30L2	15		30	2	7°25'	L	H1	12	40	60.51	64	66	22
CG2-40L1	40	40	1	3°42'	L	H1	12	45	80.17	84	86	22	
CG2-50L1	50	50	1	3°42'	L	HB	12	48	100.21	104	106	22	
CG2-50L2	25	50	2	7°25'	L	HB	12	48	100.84	104	106	22	
CG2-60L1	60	60	1	3°42'	L	HB	12	60	120.25	124	126	22	

[Caution on Product Characteristics]

- ① Worm Wheels are profile shifted to create the proper center distance.
- ② The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 510 for more details.



Steel Worms

Newly added



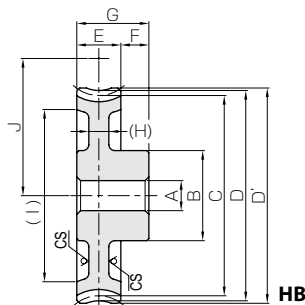
W1K

Total length R	Keyway Width×Depth	Set screw		Weight (kg)	Catalog No. ● : J Series (Available-on-request)
		Size	S		
46	—	—	—	0.20	SW2-R1
	4 x 1.8	M4	7	0.20	● SW2-R1J12
	5 x 2.3	M4	7	0.18	● SW2-R1J14
46	—	—	—	0.20	SW2-R2
	4 x 1.8	M4	7	0.20	● SW2-R2J12
	5 x 2.3	M4	7	0.18	● SW2-R2J14
46	—	—	—	0.20	SW2-L1
	4 x 1.8	M4	7	0.20	● SW2-L1J12
	5 x 2.3	M4	7	0.18	● SW2-L1J14
46	—	—	—	0.20	SW2-L2
	4 x 1.8	M4	7	0.20	● SW2-L2J12
	5 x 2.3	M4	7	0.18	● SW2-L2J14

- [Caution on J series]
- As available-on-request products, requires a lead-time for shipping within 3 working-days (excludes the day ordered), after placing an order. Please allow additional shipping time to get to your local distributor.
 - Number of products we can process for one order is 1 to 20 units. For quantities of 21 or more pieces, we need to quote price and lead time.
 - Keyways are made according to JIS B1301 standards, Js 9 tolerance.
 - Areas of products which have been re-worked will not be black oxide coated.
 - For products having a tapped hole, a set screw is included.

BG · CG

Bronze Worm Wheels & Gray Iron Worm Wheels



* CS has a sand mold casting finish.

NOTE 1. Allowable torques for worm rotation (rpm)



Hub width F	Total length G	Mounting distance J	Allowable torque (N·m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
			30 rpm	100 rpm	300 rpm	600 rpm	900 rpm	1200 rpm			
13	35	35.5	12.3	10.2	8.00	6.59	5.78	5.25	0.10~0.28	0.33	BG2-20R1
13	35	35.5	12.3	10.0	7.51	6.15	5.32	4.80	0.10~0.28	0.33	BG2-20R2
13	35	35.5	12.3	10.2	8.00	6.59	5.78	5.25	0.10~0.28	0.33	BG2-20L1
13	35	35.5	12.3	10.0	7.51	6.15	5.32	4.80	0.10~0.28	0.33	BG2-20L2

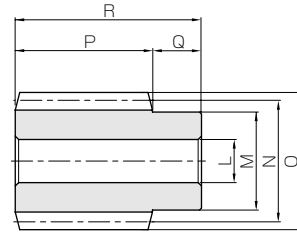
NOTE 1. Allowable torques for worm rotation (rpm)

Hub width F	Total length G	Web thickness (H)	Web O.D. (I)	Mounting distance J	Allowable torque (N·m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
					30 rpm	100 rpm	300 rpm	600 rpm	900 rpm	1200 rpm			
13	35	—	—	35.5	7.38	6.15	4.80	3.95	3.47	3.15	0.10~0.28	0.27	CG2-20R1
13	35	—	—	35.5	7.40	6.00	4.51	3.69	3.19	2.88	0.10~0.28	0.27	CG2-20R2
13	35	—	—	45.5	15.6	13.1	10.4	8.74	7.70	6.96	0.10~0.28	0.57	CG2-30R1
13	35	—	—	45.5	15.7	13.1	9.96	8.15	7.18	6.45	0.10~0.28	0.57	CG2-30R2
13	35	—	—	55.5	26.7	22.5	18.1	15.4	13.55	12.3	0.10~0.28	0.96	CG2-40R1
13	35	(7)	(88)	65.5	40.3	34.1	27.6	23.6	21.0	19.1	0.10~0.28	1.01	CG2-50R1
13	35	(7)	(88)	65.5	40.7	34.0	26.9	22.4	19.6	17.8	0.10~0.28	1.01	CG2-50R2
13	35	(7)	(108)	75.5	56.4	47.9	38.9	33.3	29.9	27.2	0.10~0.28	1.44	CG2-60R1
13	35	—	—	35.5	7.38	6.15	4.80	3.95	3.47	3.15	0.10~0.28	0.27	CG2-20L1
13	35	—	—	35.5	7.40	6.00	4.51	3.69	3.19	2.88	0.10~0.28	0.27	CG2-20L2
13	35	—	—	45.5	15.6	13.1	10.4	8.74	7.70	6.96	0.10~0.28	0.57	CG2-30L1
13	35	—	—	45.5	15.7	13.1	9.96	8.15	7.18	6.45	0.10~0.28	0.57	CG2-30L2
13	35	—	—	55.5	26.7	22.5	18.1	15.4	13.55	12.3	0.10~0.28	0.96	CG2-40L1
13	35	(7)	(88)	65.5	40.3	34.1	27.6	23.6	21.0	19.1	0.10~0.28	1.01	CG2-50L1
13	35	(7)	(88)	65.5	40.7	34.0	26.9	22.4	19.6	17.8	0.10~0.28	1.01	CG2-50L2
13	35	(7)	(108)	75.5	56.4	47.9	38.9	33.3	29.9	27.2	0.10~0.28	1.44	CG2-60L1

- [Caution on Secondary Operations]
- Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.



Specifications	
Precision grade	KHK W 001 grade 4 *
Reference section of gear	Normal plane
Gear teeth	Standard full depth
Normal pressure angle	20°
Material	S45C
Heat treatment	—
Tooth hardness	less than 194HB



W1

* The precision grade of J Series products is equivalent to the value shown in the table.

Catalog No. ● : J Series (Available-on-request)	Normal module	Number of start	Lead angle	Hand of tread	Shape	Bore		Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width (R)	Hub width (L)
						L _{H7}	M						
SW2.5-R1 ● SW2.5-R1J15 ● SW2.5-R1J16	m2.5	1	3°52'	R	W1 W1K W1K	15	30	37	42	45	18	—	—
15													
SW2.5-R2 ● SW2.5-R2J15 ● SW2.5-R2J16		2	7°46'	R	W1 W1K W1K	15	30	37	42	45	18	—	—
15													
SW2.5-L1 ● SW2.5-L1J15 ● SW2.5-L1J16	m2.5	1	3°52'	L	W1 W1K W1K	15	30	37	42	45	18	—	—
15													
SW2.5-L2 ● SW2.5-L2J15 ● SW2.5-L2J16		2	7°46'	L	W1 W1K W1K	15	30	37	42	45	18	—	—
15													

[Caution on Product Characteristics]

① These worms produce axial thrust forces. See page 512 for more details.

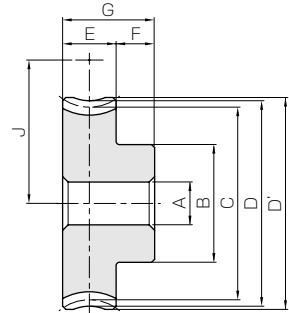
[Caution on Secondary Operations]

- ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.
- ② Gear tooth hardening of the worm reduces the precision (introduces errors in the lead and pressure angles). Avoid heat hardening as it will create bad tooth contact causing abrasion of the wheel.

BG · CG
Bronze Worm Wheels & Gray Iron Worm Wheels



Specifications		
Catalog No.	BG	CG
Precision grade	KHK W 002 grade 4	KHK W 002 grade 4
Reference section of gear	Normal plane	Normal plane
Gear teeth	Standard full depth	Standard full depth
Normal pressure angle	20°	20°
Material	CAC502 (formerly JIS PBC2)	FC200
Heat treatment	—	—
Tooth hardness	—	—



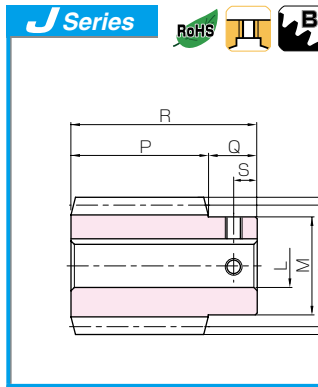
H1

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore		Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B					
BG2.5-20R1	20	m2.5	20	1	3°52'	R	H1	12	35	35	50.11	55	57.5	22
BG2.5-20R2	10		20	2	7°46'	R	H1	12	35					
BG2.5-20L1	20		20	1	3°52'	L	H1	12	35	35	50.11	55	57.5	22
BG2.5-20L2	10		20	2	7°46'	L	H1	12	35					

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore		Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width	
								A _{H7}	B						
CG2.5-20R1	20	m2.5	20	1	3°52'	R	H1	12	35	35	50.11	55	57.5	22	
CG2.5-20R2	10		20	2	7°46'	R	H1	12	35						50.46
CG2.5-30R1	30		30	1	3°52'	R	HB	12	40	40	75.17	80	82.5	22	
CG2.5-30R2	15		30	2	7°46'	R	HB	12	40						75.68
CG2.5-40R1	40		40	1	3°52'	R	HB	15	45	45	100.23	105	107.5	22	
CG2.5-50R1	50		50	1	3°52'	R	HB	15	50						125.29
CG2.5-50R2	25		50	2	7°46'	R	HB	15	50	50	126.16	130	132.5	22	
CG2.5-60R1	60		60	1	3°52'	R	HB	15	55						150.34
CG2.5-20L1	20		m2.5	20	1	3°52'	L	H1	12	35	35	50.11	55	57.5	22
CG2.5-20L2	10			20	2	7°46'	L	H1	12	35					
CG2.5-30L1	30			30	1	3°52'	L	HB	12	40	40	75.17	80	82.5	22
CG2.5-30L2	15			30	2	7°46'	L	HB	12	40					
CG2.5-40L1	40			40	1	3°52'	L	HB	15	45	45	100.23	105	107.5	22
CG2.5-50L1	50			50	1	3°52'	L	HB	15	50					
CG2.5-50L2	25			50	2	7°46'	L	HB	15	50	50	126.16	130	132.5	22
CG2.5-60L1	60			60	1	3°52'	L	HB	15	55					

[Caution on Product Characteristics]

- ① Worm Wheels are profile shifted to create the proper center distance.
- ② The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 510 for more details.



Steel Worms

Newly added



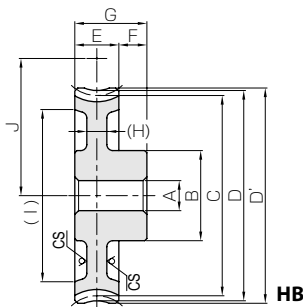
W1K

Total length R	Keyway Width×Depth	Set screw		Weight (kg)	Catalog No. ● : J Series (Available-on-request)
		Size	S		
63	5 x 2.3 5 x 2.3	—	—	0.39	SW2.5-R1
		M4	9	0.39	● SW2.5-R1J15
		M4	9	0.37	● SW2.5-R1J16
63	5 x 2.3 5 x 2.3	—	—	0.39	SW2.5-R2
		M4	9	0.39	● SW2.5-R2J15
		M4	9	0.37	● SW2.5-R2J16
63	5 x 2.3 5 x 2.3	—	—	0.39	SW2.5-L1
		M4	9	0.39	● SW2.5-L1J15
		M4	9	0.37	● SW2.5-L1J16
63	5 x 2.3 5 x 2.3	—	—	0.39	SW2.5-L2
		M4	9	0.39	● SW2.5-L2J15
		M4	9	0.37	● SW2.5-L2J16

- [Caution on J series]
- As available-on-request products, requires a lead-time for shipping within 3 working-days (excludes the day ordered), after placing an order. Please allow additional shipping time to get to your local distributor.
 - Number of products we can process for one order is 1 to 20 units. For quantities of 21 or more pieces, we need to quote price and lead time.
 - Keyways are made according to JIS B1301 standards, Js 9 tolerance.
 - Areas of products which have been re-worked will not be black oxide coated.
 - For products having a tapped hole, a set screw is included.

BG · CG

Bronze Worm Wheels & Gray Iron Worm Wheels



* CS has a sand mold casting finish.

NOTE 1. Allowable torques for worm rotation (rpm)

Hub width F	Total length G	Mounting distance J	Allowable torque (N·m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
			30 _{rpm}	100 _{rpm}	300 _{rpm}	600 _{rpm}	900 _{rpm}	1200 _{rpm}			
14	36	43.5	21.5	17.7	13.8	11.4	9.94	9.07	0.13~0.31	0.49	BG2.5-20R1
14	36	43.5	21.5	17.3	13.0	10.6	9.14	8.27	0.13~0.31	0.49	BG2.5-20R2
14	36	43.5	21.5	17.7	13.8	11.4	9.94	9.07	0.13~0.31	0.49	BG2.5-20L1
14	36	43.5	21.5	17.3	13.0	10.6	9.14	8.27	0.13~0.31	0.49	BG2.5-20L2

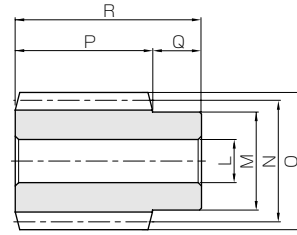
NOTE 1. Allowable torques for worm rotation (rpm)

Hub width F	Total length G	Web thickness (H)	Web O.D. (I)	Mounting distance J	Allowable torque (N·m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
					30 _{rpm}	100 _{rpm}	300 _{rpm}	600 _{rpm}	900 _{rpm}	1200 _{rpm}			
14	36	—	—	43.5	12.9	10.6	8.30	6.83	5.97	5.44	0.13~0.31	0.40	CG2.5-20R1
14	36	—	—	43.5	12.9	10.4	7.78	6.36	5.49	4.96	0.13~0.31	0.40	CG2.5-20R2
14	36	(10)	(60)	56	27.3	22.8	18.0	15.1	13.2	12.0	0.13~0.31	0.70	CG2.5-30R1
14	36	(10)	(60)	56	27.5	22.5	17.2	14.1	12.3	11.1	0.13~0.31	0.70	CG2.5-30R2
14	36	(9)	(86)	68.5	46.7	39.0	31.3	26.5	23.3	21.2	0.13~0.31	1.02	CG2.5-40R1
14	36	(9)	(110)	81	70.6	59.0	47.8	40.7	36.1	33.0	0.13~0.31	1.46	CG2.5-50R1
14	36	(9)	(110)	81	71.1	58.6	46.4	38.6	33.6	30.7	0.13~0.31	1.46	CG2.5-50R2
14	36	(9)	(136)	93.5	98.8	82.9	67.3	57.6	51.5	47.0	0.13~0.31	1.93	CG2.5-60R1
14	36	—	—	43.5	12.9	10.6	8.30	6.83	5.97	5.44	0.13~0.31	0.40	CG2.5-20L1
14	36	—	—	43.5	12.9	10.4	7.78	6.36	5.49	4.96	0.13~0.31	0.40	CG2.5-20L2
14	36	(10)	(60)	56	27.3	22.8	18.0	15.1	13.2	12.0	0.13~0.31	0.70	CG2.5-30L1
14	36	(10)	(60)	56	27.5	22.5	17.2	14.1	12.3	11.1	0.13~0.31	0.70	CG2.5-30L2
14	36	(9)	(86)	68.5	46.7	39.0	31.3	26.5	23.3	21.2	0.13~0.31	1.02	CG2.5-40L1
14	36	(9)	(110)	81	70.6	59.0	47.8	40.7	36.1	33.0	0.13~0.31	1.46	CG2.5-50L1
14	36	(9)	(110)	81	71.1	58.6	46.4	38.6	33.6	30.7	0.13~0.31	1.46	CG2.5-50L2
14	36	(9)	(136)	93.5	98.8	82.9	67.3	57.6	51.5	47.0	0.13~0.31	1.93	CG2.5-60L1

- [Caution on Secondary Operations]
- Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.



Specifications	
Precision grade	KHK W 001 grade 4 *
Reference section of gear	Normal plane
Gear teeth	Standard full depth
Normal pressure angle	14° 30'
Material	S45C
Heat treatment	—
Tooth hardness	less than 194HB



W1

* The precision grade of J Series products is equivalent to the value shown in the table.

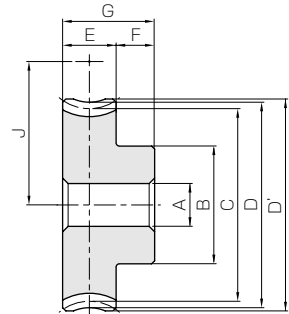
Catalog No. ● : J Series (Available-on-request)	Normal module	Number of start	Lead angle	Hand of tread	Shape	Bore		Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width (R)	Hub width (L)
						L _{H7}	M						
SW3-R1 ● SW3-R1J18 ● SW3-R1J19 ● SW3-R1J20	m3	1	3°55'	R	W1	16	35	44	50	50	20	—	
W1K					18								
SW3-R2 ● SW3-R2J18 ● SW3-R2J19 ● SW3-R2J20		2	7°50'	R	W1	16	35	44	50	50	20	—	
W1K					18								
SW3-L1 ● SW3-L1J18 ● SW3-L1J19 ● SW3-L1J20	m3	1	3°55'	L	W1	16	35	44	50	50	20	—	
W1K					18								
SW3-L2 ● SW3-L2J18 ● SW3-L2J19 ● SW3-L2J20		2	7°50'	L	W1	16	35	44	50	50	20	—	
W1K					18								

[Caution on Product Characteristics] ① These worms produce axial thrust forces. See page 512 for more details.

BG · CG Bronze Worm Wheels & Gray Iron Worm Wheels



Specifications		
Catalog No.	BG	CG
Precision grade	KHK W 002 grade 4	KHK W 002 grade 4
Reference section of gear	Normal plane	Normal plane
Gear teeth	Standard full depth	Standard full depth
Normal pressure angle	14° 30'	14° 30'
Material	CAC502 (formerly JIS PBC2)	FC200
Heat treatment	—	—
Tooth hardness	—	—



H1

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore		Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B					
BG3-20R1	20	m3	20	1	3°55'	R	H1	20	50	60.14	66	69	28	
BG3-20R2	10		20	2	7°50'	R	H1	20	50					60.57
BG3-20L1	20		20	1	3°55'	L	H1	20	50	60.14	66	69	28	
BG3-20L2	10		20	2	7°50'	L	H1	20	50					60.57

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore		Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B					
CG3-20R1	20	m3	20	1	3°55'	R	H1	20	50	60.14	66	69	28	
CG3-20R2	10		20	2	7°50'	R	H1	20	50					60.57
CG3-30R1	30		30	1	3°55'	R	H1	20	55	90.21	96	99	28	
CG3-30R2	15		30	2	7°50'	R	H1	20	55					90.85
CG3-40R1	40		40	1	3°55'	R	HB	20	55	120.28	126	129	30	
CG3-50R1	50		50	1	3°55'	R	HB	20	63					150.35
CG3-50R2	25		50	2	7°50'	R	HB	20	63	151.41	156	159	30	
CG3-60R1	60		60	1	3°55'	R	HB	20	70					180.42
CG3-20L1	20		20	1	3°55'	L	H1	20	50	60.14	66	69	28	
CG3-20L2	10		20	2	7°50'	L	H1	20	50					60.57
CG3-30L1	30		30	1	3°55'	L	H1	20	55	90.21	96	99	28	
CG3-30L2	15		30	2	7°50'	L	H1	20	55					90.85
CG3-40L1	40	40	1	3°55'	L	HB	20	55	120.28	126	129	30		
CG3-50L1	50	50	1	3°55'	L	HB	20	63					150.35	156
CG3-50L2	25	50	2	7°50'	L	HB	20	63	151.41	156	159	30		
CG3-60L1	60	60	1	3°55'	L	HB	20	70					180.42	186

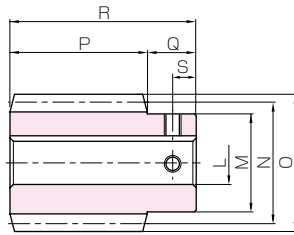
[Caution on Product Characteristics] ① Worm Wheels are profile shifted to create the proper center distance.

② The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 510 for more details.

J Series

Steel Worms

Newly added



W1K



Total length	Keyway	Set screw		Weight (kg)	Catalog No. ● : J Series (Available-on-request)
R	Width×Depth	Size	S		
70	—	—	—	0.64	SW3-R1
	6 x 2.8	M5	10	0.60	● SW3-R1J18
	6 x 2.8	M5	10	0.58	● SW3-R1J19
70	6 x 2.8	M5	10	0.56	● SW3-R1J20
	—	—	—	0.64	SW3-R2
	6 x 2.8	M5	10	0.60	● SW3-R2J18
70	6 x 2.8	M5	10	0.58	● SW3-R2J19
	6 x 2.8	M5	10	0.56	● SW3-R2J20
	—	—	—	0.64	SW3-L1
70	6 x 2.8	M5	10	0.60	● SW3-L1J18
	6 x 2.8	M5	10	0.58	● SW3-L1J19
	6 x 2.8	M5	10	0.56	● SW3-L1J20
70	—	—	—	0.64	SW3-L2
	6 x 2.8	M5	10	0.60	● SW3-L2J18
	6 x 2.8	M5	10	0.58	● SW3-L2J19
70	6 x 2.8	M5	10	0.56	● SW3-L2J20

[Caution on J series]

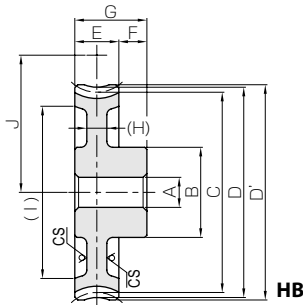
- ① As available-on-request products, requires a lead-time for shipping within **3 working-days (excludes the day ordered), after placing an order.** Please allow additional shipping time to get to your local distributor.
- ② Number of products we can process for one order is **1 to 20 units.** For quantities of 21 or more pieces, we need to quote price and lead time.
- ③ Keyways are made according to JIS B1301 standards, Js 9 tolerance.
- ④ Areas of products which have been re-worked will not be black oxide coated.
- ⑤ For products having a tapped hole, a set screw is included.

[Caution on Secondary Operations]

- ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.
- ② Gear tooth hardening of the worm reduces the precision (introduces errors in the lead and pressure angles). Avoid heat hardening as it will create bad tooth contact causing abrasion of the wheel.

BG · CG

Bronze Worm Wheels & Gray Iron Worm Wheels



* CS has a sand mold casting finish.

NOTE 1. Allowable torques for worm rotation (rpm)

Hub width	Total length	Mounting distance	Allowable torque (N·m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
			30 rpm	100 rpm	300 rpm	600 rpm	900 rpm	1200 rpm			
15	43	52	36.8	30.1	23.5	19.1	16.7	15.2	0.15~0.33	0.89	BG3-20R1
15	43	52	37.0	29.5	22.1	17.9	15.4	14.0	0.15~0.33	0.89	BG3-20R2
15	43	52	36.8	30.1	23.5	19.1	16.7	15.2	0.15~0.33	0.89	BG3-20L1
15	43	52	37.0	29.5	22.1	17.9	15.4	14.0	0.15~0.33	0.89	BG3-20L2



NOTE 1. Allowable torques for worm rotation (rpm)

Hub width	Total length	Web thickness	Web O.D.	Mounting distance	Allowable torque (N·m) NOTE 1					Backlash (mm)	Weight (kg)	Catalog No.
					30 rpm	100 rpm	300 rpm	600 rpm	900 rpm			
15	43	—	—	52	22.1	18.1	14.1	11.5	10.0	0.15~0.33	0.73	CG3-20R1
15	43	—	—	52	22.2	17.7	13.3	10.7	9.24	0.15~0.33	0.73	CG3-20R2
15	43	—	—	67	46.6	38.7	30.6	25.4	22.2	0.15~0.33	1.50	CG3-30R1
15	43	—	—	67	47.2	38.5	29.3	23.7	20.8	0.15~0.33	1.50	CG3-30R2
15	45	(9)	(107)	82	79.8	66.3	53.2	44.6	39.1	0.15~0.33	1.79	CG3-40R1
15	45	(9)	(138)	97	121	100	81.1	68.4	60.5	0.15~0.33	2.50	CG3-50R1
15	45	(9)	(138)	97	122	100	79.1	65.1	56.7	0.15~0.33	2.50	CG3-50R2
15	45	(9)	(166)	112	169	141	114	96.7	86.3	0.15~0.33	3.40	CG3-60R1
15	43	—	—	52	22.1	18.1	14.1	11.5	10.0	0.15~0.33	0.73	CG3-20L1
15	43	—	—	52	22.2	17.7	13.3	10.7	9.24	0.15~0.33	0.73	CG3-20L2
15	43	—	—	67	46.6	38.7	30.6	25.4	22.2	0.15~0.33	1.50	CG3-30L1
15	43	—	—	67	47.2	38.5	29.3	23.7	20.8	0.15~0.33	1.50	CG3-30L2
15	45	(9)	(107)	82	79.8	66.3	53.2	44.6	39.1	0.15~0.33	1.79	CG3-40L1
15	45	(9)	(138)	97	121	100	81.1	68.4	60.5	0.15~0.33	2.50	CG3-50L1
15	45	(9)	(138)	97	122	100	79.1	65.1	56.7	0.15~0.33	2.50	CG3-50L2
15	45	(9)	(166)	112	169	141	114	96.7	86.3	0.15~0.33	3.40	CG3-60L1

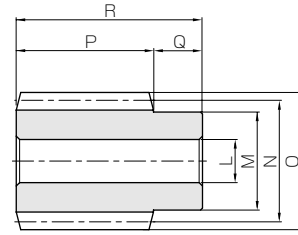
[Caution on Secondary Operations]

- ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.

Spur Gears
Helical Gears
Internal Gears
Racks
CP Racks & Pinions
Miter Gears
Bevel Gears
Screw Gears
Worm Gear Pair
Bevel Gearboxes
Other Products



Specifications	
Precision grade	KHK W 001 grade 4
Reference section of gear	Normal plane
Gear teeth	Standard full depth
Normal pressure angle	14° 30'
Material	S45C
Heat treatment	—
Tooth hardness	less than 194HB



W1

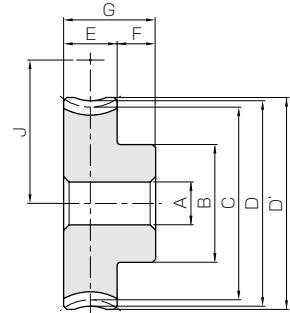
Catalog No.	Normal module	Number of start	Lead angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width (R)	Hub width (L)
						L _{H7}	M	N	O	P	Q	Q'
SW4-R1	m4	1	3°42'	R	W1	22	50	62	70	70	25	—
SW4-R2		2	7°25'	R	W1	22	50	62	70	70	25	—
SW4-L1	m4	1	3°42'	L	W1	22	50	62	70	70	25	—
SW4-L2		2	7°25'	L	W1	22	50	62	70	70	25	—

[Caution on Product Characteristics] ① These worms produce axial thrust forces. See page 512 for more details.

BG · CG Bronze Worm Wheels & Gray Iron Worm Wheels



Specifications	
Catalog No.	BG CG
Precision grade	KHK W 002 grade 4 KHK W 002 grade 4
Reference section of gear	Normal plane Normal plane
Gear teeth	Standard full depth Standard full depth
Normal pressure angle	14° 30' 14° 30'
Material	CAC502 (formerly JIS PBC2) FC200
Heat treatment	— —
Tooth ardness	— —



H1

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B	C	D	D'	E
BG4-20R1	20	m4	20	1	3°42'	R	H1	20	60	80.17	88	90	35
BG4-20R2				2	7°25'	R	H1	20	60	80.67	88	90	35
BG4-20L1	20		1	3°42'	L	H1	20	60	80.17	88	90	35	
BG4-20L2			2	7°25'	L	H1	20	60	80.67	88	90	35	

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width	
								A _{H7}	B	C	D	D'	E	
CG4-20R1	20	m4	20	1	3°42'	R	H1	20	60	80.17	88	90	35	
CG4-20R2				2	7°25'	R	H1	20	60	80.67	88	90	35	
CG4-30R1	30		30	1	3°42'	R	HB	20	60	120.25	128	130	35	
CG4-30R2				2	7°25'	R	HB	20	60	121.01	128	130	35	
CG4-40R1	40		40	1	3°42'	R	HB	20	70	160.33	168	171	35	
CG4-50R1				50	50	1	3°42'	R	H2	20	70	200.42	208	211
CG4-50R2	2		7°25'			R	H2	20	70	201.69	208	211	35	
CG4-60R1	1		3°42'			R	H2	20	80	240.5	248	251	35	
CG4-20L1	20		m4	20	1	3°42'	L	H1	20	60	80.17	88	90	35
CG4-20L2					2	7°25'	L	H1	20	60	80.67	88	90	35
CG4-30L1	30			30	1	3°42'	L	HB	20	60	120.25	128	130	35
CG4-30L2					2	7°25'	L	HB	20	60	120.01	128	130	35
CG4-40L1	40	40		1	3°42'	L	HB	20	70	160.33	168	171	35	
CG4-50L1				50	50	1	3°42'	L	H2	20	70	200.42	208	211
CG4-50L2	2	7°25'				L	H2	20	70	201.69	208	211	35	
CG4-60L1	1	3°42'				L	H2	20	80	240.5	248	251	35	

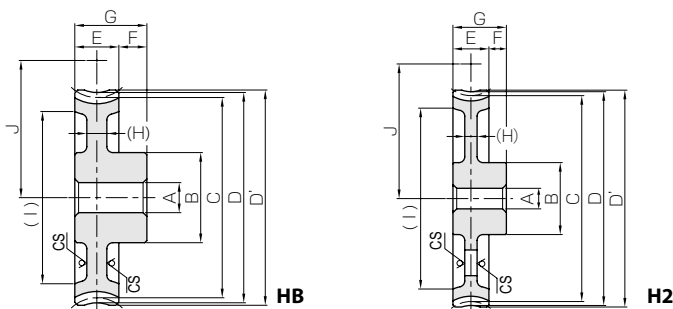
[Caution on Product Characteristics] ① Worm Wheels are profile shifted to create the proper center distance.
 ② H2 Shape Worm Gears have elongated casting holes in the web (H).
 ③ The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 510 for more details.

Total length R	Set screw		Weight (kg)	Catalog No.
	Size	S		
95	—	—	1.76	SW4-R1
95	—	—	1.76	SW4-R2
95	—	—	1.76	SW4-L1
95	—	—	1.76	SW4-L2

- [Caution on Secondary Operations] ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.
- ② Gear tooth hardening of the worm reduces the precision (introduces errors in the lead and pressure angles). Avoid heat hardening as it will create bad tooth contact causing abrasion of the wheel.

BG · CG

Bronze Worm Wheels & Gray Iron Worm Wheels



* CS has a sand mold casting finish.

NOTE 1. Allowable torques for worm rotation (rpm)

Hub width F	Total length G	Mounting distance J	Allowable torque (N·m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
			30 rpm	100 rpm	300 rpm	600 rpm	900 rpm	1200 rpm			
17	52	71	75.9	61.7	47.9	38.4	33.7	30.1	0.17~0.37	1.91	BG4-20R1
17	52	71	75.9	60.0	44.8	35.7	30.9	27.5	0.17~0.37	1.91	BG4-20R2
17	52	71	75.9	61.7	47.9	38.4	33.7	30.1	0.17~0.37	1.91	BG4-20L1
17	52	71	75.9	60.0	44.8	35.7	30.9	27.5	0.17~0.37	1.91	BG4-20L2

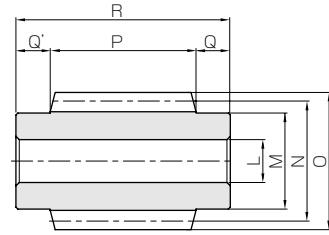
NOTE 1. Allowable torques for worm rotation (rpm)

Hub width F	Total length G	Web thickness (H)	Web O.D. (I)	Mounting distance J	Allowable torque (N·m) NOTE 1				Backlash (mm)	Weight (kg)	Catalog No.
					30 rpm	100 rpm	300 rpm	600 rpm			
17	52	—	—	71	45.6	37.0	28.7	23.0	0.17~0.37	1.56	CG4-20R1
17	52	—	—	71	45.5	36.0	26.9	21.4	0.17~0.37	1.56	CG4-20R2
17	52	(12)	(96)	91	96.3	79.1	62.3	50.9	0.17~0.37	2.52	CG4-30R1
17	52	(12)	(96)	91	96.8	78.3	59.4	47.3	0.17~0.37	2.52	CG4-30R2
17	52	(11)	(136)	111	165	136	108	89.4	0.17~0.37	3.81	CG4-40R1
17	52	(12)	(176)	131	249	205	165	137	0.17~0.37	4.78	CG4-50R1
17	52	(12)	(176)	131	250	204	160	130	0.17~0.37	4.78	CG4-50R2
17	52	(12)	(218)	151	348	288	233	194	0.17~0.37	6.36	CG4-60R1
17	52	—	—	71	45.6	37.0	28.7	23.0	0.17~0.37	1.56	CG4-20L1
17	52	—	—	71	45.5	36.0	26.9	21.4	0.17~0.37	1.56	CG4-20L2
17	52	(12)	(96)	91	96.3	79.1	62.3	50.9	0.17~0.37	2.52	CG4-30L1
17	52	(12)	(96)	91	96.8	78.3	59.4	47.3	0.17~0.37	2.52	CG4-30L2
17	52	(11)	(136)	111	165	136	108	89.4	0.17~0.37	3.81	CG4-40L1
17	52	(12)	(176)	131	249	205	165	137	0.17~0.37	4.78	CG4-50L1
17	52	(12)	(176)	131	250	204	160	130	0.17~0.37	4.78	CG4-50L2
17	52	(12)	(218)	151	348	288	233	194	0.17~0.37	6.36	CG4-60L1

- [Caution on Secondary Operations] ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.



Specifications	
Precision grade	KHK W 001 grade 4
Reference section of gear	Normal plane
Gear teeth	Standard full depth
Normal pressure angle	14° 30'
Material	S45C
Heat treatment	—
Tooth hardness	less than 194HB

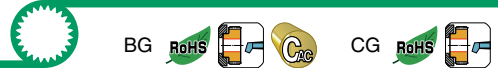


W3

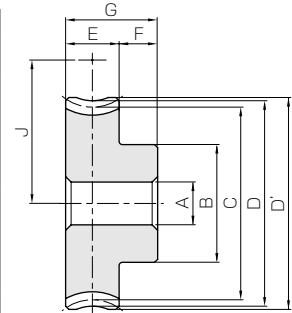
Catalog No.	Normal module	Number of start	Lead angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width (R)	Hub width (L)
						L _{H7}	M	N	O	P	Q	Q'
SW5-R1	m5	1	4°06'	R	W3	25	56	70	80	85	20	20
SW5-R2		2	8°13'	R	W3	25	56	70	80	85	20	20
SW6-R1	m6	1	4°18'	R	W3	30	64	80	92	100	25	25
SW6-R2		2	8°38'	R	W3	30	64	80	92	100	25	25

[Caution on Product Characteristics] ① These worms produce axial thrust forces. See page 512 for more details.

BG · CG Bronze Worm Wheels & Gray Iron Worm Wheels



Specifications		
Catalog No.	BG	CG
Precision grade	KHK W 002 grade 4	KHK W 002 grade 4
Reference section of gear	Normal plane	Normal plane
Gear teeth	Standard full depth	Standard full depth
Normal pressure angle	14° 30'	14° 30'
Material	CAC502 (formerly JIS PBC2)	FC200
Heat treatment	—	—
Tooth ardness	—	—



H1

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width
								A _{H7}	B	C	D	D'	E
BG5-20R1	20	m5	20	1	4°06'	R	H1	22	75	100.26	110	113	45
BG5-20R2			20	2	8°13'	R	H1	22	75	101.04	110	113	45
BG6-20R1	20	m6	20	1	4°18'	R	H1	25	100	120.34	132	136	52
BG6-20R2			20	2	8°38'	R	H1	25	100	121.38	132	136	52

Catalog No.	Reduction ratio	Normal module	No. of teeth	Number of start	Helix angle	Hand of tread	Shape	Bore	Hub dia.	Pitch dia.	Throat dia.	Outside dia.	Face width	
								A _{H7}	B	C	D	D'	E	
CG5-20R1	20	m5	20	1	4°06'	R	H1	22	75	100.26	110	113	45	
CG5-20R2			20	2	8°13'	R	H1	22	75	101.04	110	113	45	
CG5-30R1			30	1	4°06'	R	HB	22	75	150.38	160	163	45	
CG5-30R2			15	30	2	8°13'	R	HB	22	75	151.56	160	163	45
CG5-40R1			40	40	1	4°06'	R	H2	22	90	200.51	210	213	45
CG5-50R1	50	m5	50	1	4°06'	R	H2	22	90	250.61	260	263	45	
CG5-50R2			50	2	8°13'	R	H2	22	90	252.59	260	263	45	
CG5-60R1			60	60	1	4°06'	R	H2	22	100	300.77	310	313	45
CG6-20R1	20	m6	20	1	4°18'	R	H1	25	100	120.34	132	136	52	
CG6-20R2			20	2	8°38'	R	H1	25	100	121.38	132	136	52	
CG6-30R1			30	30	1	4°18'	R	HB	25	100	180.51	192	196	52
CG6-30R2			15	30	2	8°38'	R	HB	25	100	182.06	192	196	52
CG6-40R1			40	40	1	4°18'	R	H2	25	100	240.68	252	256	52
CG6-50R1	50	m6	50	1	4°18'	R	H2	25	100	300.85	312	316	52	
CG6-50R2			50	2	8°38'	R	H2	25	100	303.44	312	316	52	
CG6-60R1			60	60	1	4°18'	R	H2	25	120	361.02	372	376	52

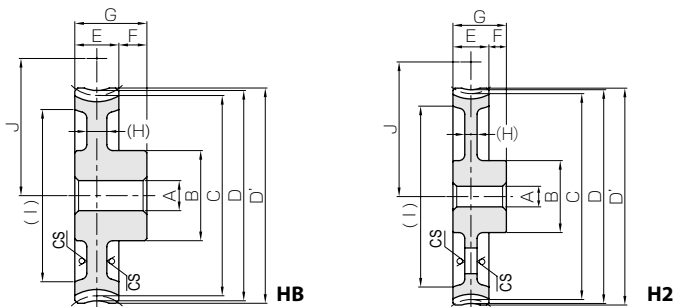
[Caution on Product Characteristics] ① Worm Wheels are profile shifted to create the proper center distance.
 ② H2 Shape Worm Gears have elongated casting holes in the web (H).
 ③ The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 510 for more details.

Total length R	Set screw		Weight (kg)	Catalog No.
	Size	S		
125	—	—	2.86	SW5-R1
125	—	—	2.86	SW5-R2
150	—	—	4.38	SW6-R1
150	—	—	4.38	SW6-R2

- [Caution on Secondary Operations] ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.
- ② Gear tooth hardening of the worm reduces the precision (introduces errors in the lead and pressure angles). Avoid heat hardening as it will create bad tooth contact causing abrasion of the wheel.

BG · CG

Bronze Worm Wheels & Gray Iron Worm Wheels



* CS has a sand mold casting finish.

NOTE 1. Allowable torques for worm rotation (rpm)

Hub width F	Total length G	Mounting distance J	Allowable torque (N·m) NOTE 1						Backlash (mm)	Weight (kg)	Catalog No.
			30 rpm	100 rpm	300 rpm	600 rpm	900 rpm	1200 rpm			
20	65	85	146	117	91.2	73.0	63.7	56.9	0.20~0.40	3.89	BG5-20R1
20	65	85	146	115	85.8	68.4	58.8	52.2	0.20~0.40	3.89	BG5-20R2
20	72	100	232	185	144	115	99.2	88.8	0.22~0.42	6.60	BG6-20R1
20	72	100	235	183	136	109	92.3	82.0	0.22~0.42	6.60	BG6-20R2

NOTE 1. Allowable torques for worm rotation (rpm)

Hub width F	Total length G	Web thickness (H)	Web O.D. (I)	Mounting distance J	Allowable torque (N·m) NOTE 1				Backlash (mm)	Weight (kg)	Catalog No.
					30 rpm	100 rpm	300 rpm	600 rpm			
20	65	—	—	85	87.4	70.3	54.7	43.8	0.20~0.40	3.18	CG5-20R1
20	65	—	—	85	87.9	68.9	51.5	41.0	0.20~0.40	3.18	CG5-20R2
20	65	(13)	(127)	110	185	150	119	96.8	0.20~0.40	4.78	CG5-30R1
20	65	(13)	(127)	110	187	150	114	90.6	0.20~0.40	4.78	CG5-30R2
20	65	(16)	(172)	135	316	258	206	170	0.20~0.40	7.44	CG5-40R1
20	65	(16)	(223)	160	477	390	315	261	0.20~0.40	9.79	CG5-50R1
20	65	(16)	(223)	160	483	390	307	249	0.20~0.40	9.79	CG5-50R2
20	65	(13)	(276)	185	668	548	443	369	0.20~0.40	12.0	CG5-60R1
20	72	—	—	100	139	111	86.2	—	0.22~0.42	5.39	CG6-20R1
20	72	—	—	100	141	110	81.8	—	0.22~0.42	5.39	CG6-20R2
20	72	(15)	(155)	130	294	237	187	—	0.22~0.42	8.28	CG6-30R1
20	72	(15)	(155)	130	299	238	181	—	0.22~0.42	8.28	CG6-30R2
20	72	(15)	(213)	160	502	407	325	—	0.22~0.42	10.9	CG6-40R1
20	72	(16)	(275)	190	760	615	496	—	0.22~0.42	14.0	CG6-50R1
20	72	(16)	(275)	190	774	620	488	—	0.22~0.42	14.0	CG6-50R2
20	72	(17)	(336)	220	1060	865	698	—	0.22~0.42	19.8	CG6-60R1

- [Caution on Secondary Operations] ① Please read "Caution on Performing Secondary Operations" (Page 512) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.