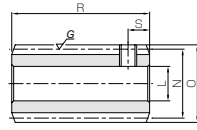


SWG Ground Worms

Module 1, 1.5



Specifications	
Precision grade	KHK W 001 grade 2 *
Reference section of gear	Axial
Gear teeth	Standard full depth
Normal pressure angle	20°
Material	S45C
Heat treatment	Teeth induction hardened
Tooth hardness	50 ~ 60HRC



W2

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

Catalog No. ● J Series (Available-on-request)	Axial module	Number of starts	Lead angle	Hand thread	Shape	Bore		Pitch dia.	Outside dia.	Face width	Hub width (R)	Hub width (L)
						L _{H7}	M					
SWG1-R1	m1	1	3°35'	R	W2	8	—	16	18	—	—	—
SWG1-R2		2	7°08'	R	W2	8	—	16	18	—	—	—
SWG1.5-R1	m1.5	1	3°26'	R	W1	10	20	25	28	30	10	—
● SWG1.5-R1J10		1	3°26'	R	W1K	10	20	25	28	30	10	—
SWG1.5-R2	m1.5	2	6°51'	R	W1	10	20	25	28	30	10	—
● SWG1.5-R2J10		2	6°51'	R	W1K	10	20	25	28	30	10	—

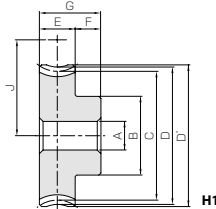
- [Caution on Product Characteristics] ① For W2-shaped products, a set screw is included. When setting up the mating wheel, make sure no friction occurs within the set screw.
② These worms produce axial thrust forces. See Page 344 for more details.
- [Caution on Secondary Operations] ① Please read "Caution on Performing Secondary Operations" (Page 344) 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.
② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).

AG Worm Wheels

Module 1, 1.5



Specifications	
Precision grade	KHK W 002 grade 2
Reference section of gear	Rotating plane
Gear teeth	Standard full depth
Normal pressure angle	20°
Material	CACT02 (formerly JIS A & BC2)
Heat treatment	—
Tooth hardness	—
Module	m1 m1.5
Face width (E)	10 14
Hub width (F)	10 10
Total length (G)	20 24
Screw offset (L)	5 5



H1

- A_{H7} Bore
- B Hub dia.
- C Pitch dia.
- D Throat dia.
- D' Outside dia.
- (H) Web thickness
- (J) Mounting distance

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

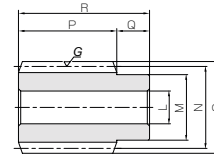
NOTE 1: Allowable torque for worm revolution (rpm)

Catalog No.	Reduction ratio	No. of teeth	Number of starts	Helix angle	Hand thread	Shape	A _{H7}	B	C	D	D'	J	Allowable torque (N·m) <small>NOTE 1</small>						Backlash (mm)	Weight (kg)	
													30 rpm	100 rpm	300 rpm	600 rpm	900 rpm	1200 rpm			1800 rpm
AG1-20R1	20	20	1	3°35'	R	H1	6	16	20	22	23	18	3.35	2.79	2.23	1.83	1.63	1.50	1.30	0.08~0.19	0.038
AG1-20R2	10	20	2	7°08'	R	H1	6	16	20	22	23	18	3.31	2.69	2.06	1.68	1.48	1.35	1.15	0.08~0.19	0.038
AG1-30R1	30	30	1	3°35'	R	H1	6	20	30	32	33	23	7.08	5.98	4.84	4.05	3.63	3.31	2.92	0.08~0.19	0.078
AG1-30R2	15	30	2	7°08'	R	H1	6	20	30	32	33	23	7.03	5.84	4.56	3.72	3.33	3.03	2.63	0.08~0.19	0.078
AG1-40R1	40	40	1	3°35'	R	H1	8	26	40	42	43	28	12.1	10.2	8.43	7.12	6.38	5.86	5.13	0.08~0.19	0.13
AG1-50R1	50	50	1	3°35'	R	H1	8	30	50	52	53	33	18.3	15.5	12.9	10.9	9.87	9.09	7.95	0.08~0.19	0.20
AG1-60R1	60	60	1	3°35'	R	H1	10	35	60	62	63	38	25.6	21.8	18.1	15.4	14.1	12.9	11.4	0.08~0.19	0.29
AG1.5-20R1	20	20	1	3°26'	R	H1	8	22	30	33	34.5	27.5	9.84	8.18	6.40	5.30	4.68	4.25	3.68	0.10~0.21	0.10
AG1.5-20R2	10	20	2	6°51'	R	H1	8	22	30	33	34.5	27.5	9.72	7.87	5.92	4.87	4.25	3.83	3.27	0.10~0.21	0.10
AG1.5-30R1	30	30	1	3°26'	R	H1	10	30	45	48	49.5	35	20.8	17.5	13.9	11.7	10.4	9.40	8.28	0.10~0.21	0.22
AG1.5-30R2	15	30	2	6°51'	R	H1	10	30	45	48	49.5	35	20.7	17.1	13.1	10.8	9.56	8.58	7.46	0.10~0.21	0.22
AG1.5-40R1	40	40	1	3°26'	R	H1	12	35	60	63	64.5	42.5	35.6	30.0	24.2	20.6	18.3	16.6	14.6	0.10~0.21	0.37
AG1.5-50R1	50	50	1	3°26'	R	H1	12	45	75	78	79.5	50	53.8	45.4	36.9	31.6	28.3	25.8	22.6	0.10~0.21	0.59
AG1.5-60R1	60	60	1	3°26'	R	H1	12	50	90	93	94.5	57.5	75.3	63.8	51.9	44.7	40.4	36.7	32.4	0.10~0.21	0.83

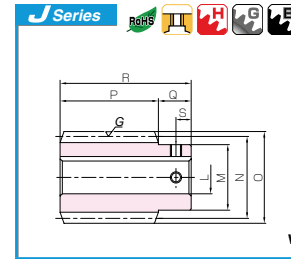
- [Caution on Product Characteristics] ① The allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see Page 342 for more details.
- [Caution on Secondary Operations] ① Please read "Caution on Performing Secondary Operations" (Page 344) when performing 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.

SWG

Ground Worms



W1



W1K



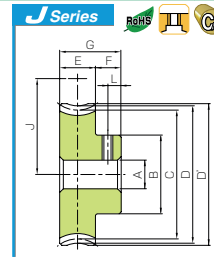
Total length	Keyway	Set Screw		Weight (kg)	Catalog No. ● J Series (Available-on-request)
		Size	S		
32	—	M4	5	0.037	SWG1-R1
32	—	M4	5	0.037	SWG1-R2
40	—	—	—	0.12	SWG1.5-R1
40	4 x 1.8	M4	5	0.11	● SWG1.5-R1J10
40	—	—	—	0.12	SWG1.5-R2
40	4 x 1.8	M4	5	0.11	● SWG1.5-R2J10

- [Caution on J series] ① As available-on-request products, requires a lead-time for shipping within 2 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, Js9 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.

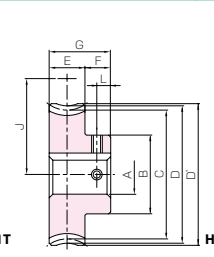


AG Worm Wheels

Module 1, 1.5



H1T



H1K



AG

Worm Wheels Newly added

To order J Series products, please specify; Catalog No. + J + BORE

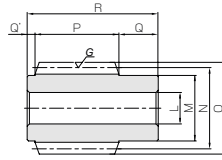
Bore H7	* The product shapes of J Series items are identified by background color.																	
	6	8	10	12	14	15	16	17	18	19	20	22	25	28	30			
Keyway Js9	6			8			10			12			15			18		
Screw size	—			4 x 1.8			5 x 2.3			6 x 2.8			8 x 3.3					
Catalog No.	M4	M5	M4						M5						M6			
AG1-20R1 J BORE																		
AG1-20R2 J BORE																		
AG1-30R1 J BORE																		
AG1-30R2 J BORE																		
AG1-40R1 J BORE																		
AG1-50R1 J BORE																		
AG1-60R1 J BORE																		
AG1.5-20R1 J BORE																		
AG1.5-20R2 J BORE																		
AG1.5-30R1 J BORE																		
AG1.5-30R2 J BORE																		
AG1.5-40R1 J BORE																		
AG1.5-50R1 J BORE																		
AG1.5-60R1 J BORE																		

- [Caution on J series] ① As available-on-request products, requires a lead-time for shipping within 2 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, Js9 tolerance.
④ Certain products which would otherwise have a very long tapped hole are conterbored to reduce the length of the tap.
⑤ For products having a tapped hole, a set screw is included.
⑥ The use of H1T shaped Set Screws for fastening gears to a shaft is a method only applicable to the usage for light loads. For secure fastening, please use dowel pins in combination.

SWG Ground Worms



Specifications	
Precision grade	KHK W 001 grade 2 *
Reference section of gear	Axial
Gear teeth	Standard full depth
Normal pressure angle	20°
Material	S45C
Heat treatment	Teeth induction hardened
Tooth hardness	50 ~ 60HRC



W3

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

Catalog No.	Axial module	Number of starts	Lead angle	Hand thread	Shape	Bore						
						L _{H7}	M	N	O	P	Q	Q'
SWG2-R1 ● SWG2-R1J12 ● SWG2-R1J14	m2	1	3°41'	R	W3	12	25	31	35	32	15	3
12												
14												
SWG2-R2 ● SWG2-R2J12 ● SWG2-R2J14	2	2	7°21'	R	W3	12	25	31	35	32	15	3
12												
14												
SWG2.5-R1 ● SWG2.5-R1J15 ● SWG2.5-R1J16 ● SWG2.5-R1J17	m2.5	1	3°52'	R	W3	15	30	37	42	45	17	3
15												
17												
SWG2.5-R2 ● SWG2.5-R2J15 ● SWG2.5-R2J16 ● SWG2.5-R2J17	2	2	7°42'	R	W3	15	30	37	42	45	17	3
15												
17												

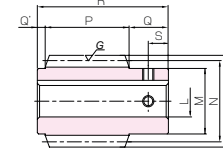
① These worms produce axial thrust forces. See Page 344 for more details.

Module 2, 2.5

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

J Series

Ground Worms



W3K



Total length	Keyway	Set Screw		Weight (kg)	Catalog No.
		Size	S		
50	4 x 1.8	M4	7.5	0.21	SWG2-R1 ● SWG2-R1J12 ● SWG2-R1J14
		M4	7.5	0.19	
		M4	7.5	0.19	
50	4 x 1.8	M4	7.5	0.21	SWG2-R2 ● SWG2-R2J12 ● SWG2-R2J14
		M4	7.5	0.21	
		M4	7.5	0.19	
65	5 x 2.3	M4	8.5	0.40	SWG2.5-R1 ● SWG2.5-R1J15 ● SWG2.5-R1J16 ● SWG2.5-R1J16
		M4	8.5	0.38	
		M4	8.5	0.37	
65	5 x 2.3	M4	8.5	0.40	SWG2.5-R2 ● SWG2.5-R2J15 ● SWG2.5-R2J16 ● SWG2.5-R2J17
		M4	8.5	0.39	
		M4	8.5	0.37	

[Caution on Secondary Operations]

- Please read "Caution on Performing Secondary Operations" (Page 344) 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.
- Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).

[Caution on J series] ① As available-on-request products, requires a lead-time for shipping within 2 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, JS9 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.

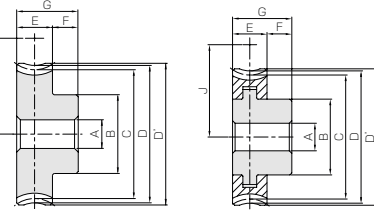
AG Worm Wheels



Specifications	
Precision grade	KHK W 002 grade 2 *
Reference section of gear	Rotating plane
Gear teeth	Standard full depth
Normal pressure angle	20°
Material	CA6702 (formerly JIS A1 BC2) **
Heat treatment	—
Tooth hardness	—
Module	m2 m2.5
Face width (E)	18 20
Hub width (F)	15 14
Total length (G)	33 34
Screw offset (L)	7.5 7

Symbol	Description
A _{H7}	Bore
B	Hub dia.
C	Pitch dia.
D	Throat dia.
D'	Outside dia.
(H)	Web thickness
(I)	Web O.D.
J	Mounting distance

Module 2, 2.5



H1

H4

* The precision grade of J Series products is equivalent to the value shown in the table.
** H4, H5 shape have a hub made from FC200 cast iron.

NOTE 1: Allowable torque for worm revolution (rpm)

Catalog No.	Reduction ratio	No. of teeth	Number of starts	Helix angle	Hand thread	Shape	A _{H7}	B	C	D	D'	(H)	(I)	J	Allowable torque (N·m) [NOTE 1]						Backlash (mm)	Weight (kg)	
															30 _{rpm}	100 _{rpm}	300 _{rpm}	600 _{rpm}	900 _{rpm}	1200 _{rpm}			1800 _{rpm}
															20	30	40	50	60	80			100
AG2-20R1	20	20	1	3°41'	H1	H1	33	40	44	46	—	—	35.5	21.0	17.5	13.6	11.2	9.84	8.94	7.75	0.26		
AG2-20R2	10	20	2	7°21'	H1	H1	33	40	44	46	—	—	35.5	20.7	16.8	12.6	10.3	8.93	8.05	6.89	0.26		
AG2-30R1	30	30	1	3°41'	H4	H4	40	60	64	66	—	—	45.5	44.3	37.3	29.6	24.8	21.9	19.8	17.4	0.51		
AG2-30R2	15	30	2	7°21'	H4	H4	40	60	64	66	—	—	45.5	44.0	36.5	27.8	22.8	20.1	18.0	15.7	0.51		
AG2-40R1	40	40	1	3°41'	H4	H4	45	80	84	86	—	—	55.5	75.8	64.0	51.4	43.6	38.5	34.9	30.7	0.85		
AG2-50R1	50	50	1	3°41'	H5	H5	50	100	104	106	(8)	(83)	65.5	115	96.8	78.4	66.9	59.5	54.2	47.6	1.05		
AG2-60R1	60	60	1	3°41'	H5	H5	55	120	124	126	(11)	(100)	75.5	160	136	110	94.6	84.9	77.2	68.1	1.52		
AG2.5-20R1	20	20	1	3°52'	H1	H1	12	35	50	55	57.5	—	—	43.5	34.6	28.5	22.3	18.3	16.0	14.6	12.5	0.39	
AG2.5-20R2	10	20	2	7°42'	H1	H1	12	35	50	55	57.5	—	—	43.5	34.2	27.4	20.6	16.8	14.5	13.1	11.1	0.39	
AG2.5-30R1	30	30	1	3°52'	H4	H4	12	40	75	80	82.5	—	—	56	73.2	61.0	48.3	40.5	35.5	32.2	28.1	0.79	
AG2.5-30R2	15	30	2	7°42'	H4	H4	12	40	75	80	82.5	—	—	56	72.7	59.6	45.5	37.2	32.6	29.4	25.3	0.79	
AG2.5-40R1	40	40	1	3°52'	H5	H5	15	45	100	105	107.5	(11)	(81)	68.5	125	105	84.0	71.2	62.5	57.0	49.5	1.11	
AG2.5-50R1	50	50	1	3°52'	H5	H5	15	55	125	130	132.5	(12)	(106)	81	189	158	128	109	96.7	88.5	76.7	1.70	
AG2.5-60R1	60	60	1	3°52'	H5	H5	15	60	150	155	157.5	(12)	(130)	93.5	265	222	180	154	138	126	110	2.32	

[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 342 for more details.

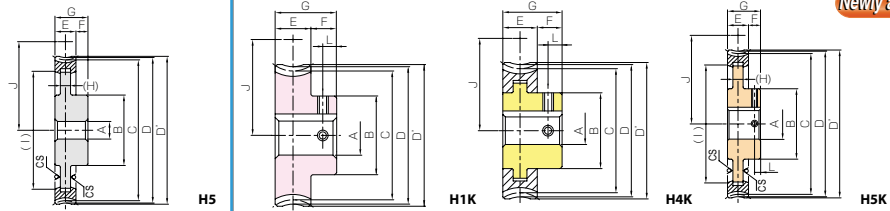
[Caution on Secondary Operations]

- There may be space in the casting between the two materials, but it will not affect the joint strength.
- Please read "Caution on Performing Secondary Operations" (Page 344) 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.
- The tooth and the hub areas, fastened by casting, are designed to have higher hardness than other parts of the gear. However, please avoid areas other than the hub. Also, the strength may decrease if secondary operations are performed.

J Series

Worm Wheels

Newly added



H5

H1K

H4K

H5K

To order J Series products, please specify; **Catalog No. + J + BORE**

Bore H7	* The product shapes of J Series items are identified by background color.															
	12	14	15	16	17	18	19	20	22	25	28	30	32	35		
Keyway Js9	4 x 1.8				5 x 2.3				6 x 2.8				8 x 3.3		10 x 3.3	
Screw size	M4				M5				M6				M8			
Catalog No.	AG2-20R1 J BORE				AG2-20R2 J BORE				AG2-30R1 J BORE				AG2-30R2 J BORE			
	AG2-40R1 J BORE				AG2-50R1 J BORE				AG2-60R1 J BORE				AG2.5-20R1 J BORE			
	AG2.5-20R2 J BORE				AG2.5-30R1 J BORE				AG2.5-30R2 J BORE				AG2.5-40R1 J BORE			
	AG2.5-50R1 J BORE				AG2.5-60R1 J BORE											

[Caution on J series] ① As available-on-request products, requires a lead-time for shipping within 2 working-days (excludes the day ordered), after placing an order. Please allow additional shipping time to get to your local distributor.

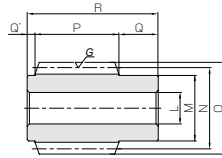
- Number of products we can process for one order is 1 to 20 units. For quantities of 21 or more pieces, we need to quote price and lead time.
- Keyways are made according to JIS B1301 standards, JS9 tolerance.
- Certain products which would otherwise have a very long tapped hole are centerbored to reduce the length of the tap.
- For products having a tapped hole, a set screw is included.

SWG Ground Worms

Module 5, 6



Specifications	
Precision grade	KHK W 001 grade 2
Reference section of gear	Axial
Gear teeth	Standard full depth
Normal pressure angle	20°
Material	S45C
Heat treatment	Teeth induction hardened
Tooth hardness	50 ~ 60HRC



W3

Catalog No.	Axial module	Number of starts	Lead angle	Hand thread	Shape	Bore		Pitch dia.	Outside dia.	Face width	Hub width (R)		Hub width (L)
						L _{H7}	M				N	O	
SWG5-R1	m5	1	4°05'	R	W3	25	56	70	80	85	30	5	5
SWG5-R2		2	8°08'	R	W3	25	56	70	80	85	30	5	
SWG6-R1	m6	1	4°17'	R	W3	30	63	80	92	100	35	5	5
SWG6-R2		2	8°32'	R	W3	30	63	80	92	100	35	5	

Ⓛ Caution on Product Characteristics Ⓛ ① These worms produce axial thrust forces. See Page 344 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.

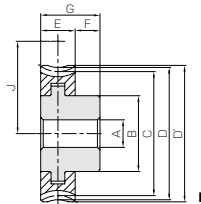
AG Worm Wheels

Module 5, 6



Specifications	
Precision grade	KHK W 002 grade 2
Reference section of gear	Rotating plane
Gear teeth	Standard full depth
Normal pressure angle	20°
Material	CAC702 (formerly JIS A/BC2) *
Heat treatment	—
Tooth hardness	—

* H4, H5 shape have a hub made from FC200 cast iron.



H4

Catalog No.	Reduction ratio	Transverse module	No. of teeth	Number of starts	Helix angle	Hand thread	Shape	Bore		Pitch dia.	Throat dia.	Outside dia.		Face width
								A _{H7}	B			C	D	
AG5-20R1	20	m5	20	1	4°05'	R	H4	22	75	100	110	115	35	
AG5-20R2	10		20	2	8°08'	R	H4	22	75	100	110	115	35	
AG5-30R1	30		30	1	4°05'	R	H5	22	75	150	160	165	35	
AG5-30R2	15		30	2	8°08'	R	H5	22	75	150	160	165	35	
AG5-40R1	40		40	1	4°05'	R	H5	22	110	200	210	215	35	
AG5-50R1	50	m6	50	1	4°05'	R	H5	22	120	250	260	265	35	
AG5-60R1	60		60	1	4°05'	R	H5	22	130	300	310	315	35	
AG6-20R1	20	m6	20	1	4°17'	R	H4	25	85	120	132	138	40	
AG6-20R2	10		20	2	8°32'	R	H4	25	85	120	132	138	40	
AG6-30R1	30		30	1	4°17'	R	H5	25	100	180	192	198	40	
AG6-30R2	15		30	2	8°32'	R	H5	25	100	180	192	198	40	
AG6-40R1	40		40	1	4°17'	R	H5	25	120	240	252	258	40	
AG6-50R1	50	m6	50	1	4°17'	R	H5	25	130	300	312	318	40	
AG6-60R1	60		60	1	4°17'	R	H5	25	150	360	372	378	40	

Ⓛ 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 342 for more details.
 ② There may be space in the casting between the two materials, but it will not affect the joint strength.

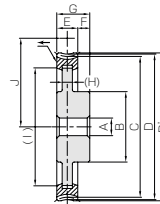
Total length	Set Screw		Weight (kg)	Catalog No.
	R	Size		
120	—	—	2.78	SWG5-R1
120	—	—	2.78	SWG5-R2
140	—	—	4.15	SWG6-R1
140	—	—	4.15	SWG6-R2

Ⓛ Caution on Secondary Operations Ⓛ ① Please read "Caution on Performing Secondary Operations" (Page 344) 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.
 ② Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).

Ground Worms

AG

Worm Wheels



H5



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	1200 rpm	1800 rpm			
25	60	—	—	85	202	163	127	101	88.4	79.0	65.5	0.22~0.35	2.79	AG5-20R1
25	60	—	—	85	200	157	117	93.2	80.2	71.1	58.1	0.22~0.35	2.79	AG5-20R2
25	60	(21)	(120)	110	427	348	275	224	196	175	147	0.22~0.35	4.75	AG5-30R1
25	60	(21)	(120)	110	425	340	259	206	180	159	132	0.22~0.35	4.75	AG5-30R2
25	60	(23)	(168)	135	731	597	478	394	346	309	259	0.22~0.35	8.84	AG5-40R1
25	60	(23)	(215)	160	1110	903	729	605	534	479	402	0.22~0.35	12.7	AG5-50R1
25	60	(24)	(260)	185	1550	1270	1030	855	763	682	575	0.22~0.35	17.6	AG5-60R1
30	70	—	—	100	315	252	196	157	135	121	99.6	0.24~0.37	4.53	AG6-20R1
30	70	—	—	100	314	244	182	145	124	110	89.3	0.24~0.37	4.53	AG6-20R2
30	70	(26)	(142)	130	666	538	424	346	300	267	224	0.24~0.37	8.52	AG6-30R1
30	70	(26)	(142)	130	668	532	403	321	278	246	203	0.24~0.37	8.52	AG6-30R2
30	70	(28)	(200)	160	1140	923	738	609	528	472	394	0.24~0.37	14.2	AG6-40R1
30	70	(30)	(258)	190	1720	1400	1130	935	816	733	611	0.24~0.37	21.0	AG6-50R1
30	70	(30)	(312)	220	2410	1960	1580	1320	1170	1040	875	0.24~0.37	29.7	AG6-60R1

Ⓛ Caution on Secondary Operations Ⓛ ① Please read "Caution on Performing Secondary Operations" (Page 344) 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.
 ② The tooth and the hub areas, fastened by casting, are designed to have higher hardness than other parts of the gear. However, please avoid areas other than the hub. Also, the strength may decrease if secondary operations are performed.