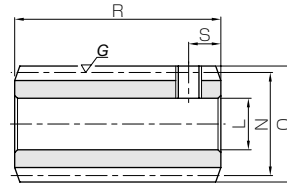




| Specifications | |
|---------------------------|--------------------------|
| Precision grade | KHK W 001 grade 2 * |
| Reference section of gear | Axial |
| Gear teeth | Standard full depth |
| Normal pressure angle | 20° |
| Material | S45C |
| Heat treatment | Teeth induction hardened |
| Tooth hardness | 45 ~ 55HRC |



W2

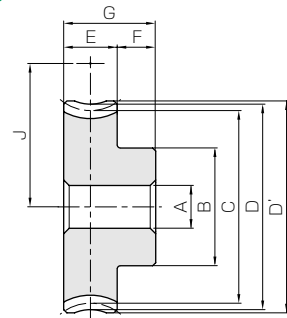
* The precision grade of J Series products is equivalent to the value shown in the table.

| Catalog No. ● : J Series (Available-on-request) | Axial module | Number of start | Lead angle | Hand of tread | Shape | Bore | | Pitch dia. | Outside dia. | Face width | Hub width (R) | Hub width (L) |
|--|--------------|-----------------|------------|---------------|-----------|-----------------|----|------------|--------------|------------|---------------|---------------|
| | | | | | | L _{H7} | M | | | | | |
| SWG1-R1 SWG1-R2 | m1 | 1 | 3°35' | R | W2 | 8 | — | 16 | 18 | — | — | — |
| | | 2 | 7°08' | R | W2 | 8 | — | 16 | 18 | — | — | — |
| SWG1.5-R1 ● SWG1.5-R1J10 | m1.5 | 1 | 3°26' | R | W1 W1K | 10 10 | 20 | 25 | 28 | 30 | 10 | — |
| SWG1.5-R2 ● SWG1.5-R2J10 | | 2 | 6°51' | R | W1 W1K | 10 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 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 Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 1 to 2 mm).

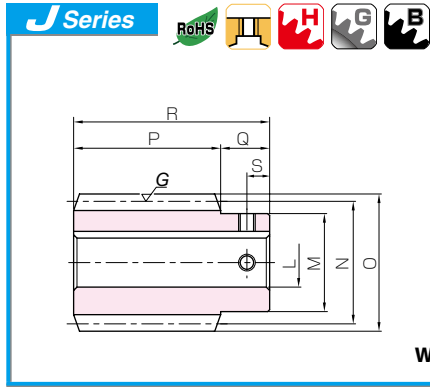


| Specifications | |
|---------------------------|-----------------------------|
| Precision grade | KHK W 002 grade 2 |
| Reference section of gear | Rotating plane |
| Gear teeth | Standard full depth |
| Normal pressure angle | 20° |
| Material | CAC702 (formerly JIS A&BC2) |
| Heat treatment | —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



| Catalog No. | Reduction ratio | Transverse 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 | | | | | |
| AG1-20R1 | 20 | m1 | 20 | 1 | 3°35' | R | H1 | 6 | 16 | 20 | 22 | 23 | 10 | |
| AG1-20R2 | 10 | | 20 | 2 | 7°08' | R | H1 | 6 | 16 | 20 | 22 | 23 | 10 | |
| AG1-30R1 | 30 | | 30 | 1 | 3°35' | R | H1 | 6 | 20 | 30 | 32 | 33 | 10 | |
| AG1-30R2 | 15 | | 30 | 2 | 7°08' | R | H1 | 6 | 20 | 30 | 32 | 33 | 10 | |
| AG1-40R1 | 40 | | 40 | 1 | 3°35' | R | H1 | 8 | 26 | 40 | 42 | 43 | 10 | |
| AG1-50R1 | 50 | | 50 | 1 | 3°35' | R | H1 | 8 | 30 | 50 | 52 | 53 | 10 | |
| AG1-60R1 | 60 | 60 | 1 | 3°35' | R | H1 | 10 | 35 | 60 | 62 | 63 | 10 | | |
| AG1.5-20R1 | 20 | m1.5 | 20 | 1 | 3°26' | R | H1 | 8 | 22 | 30 | 33 | 34.5 | 14 | |
| AG1.5-20R2 | 10 | | 20 | 2 | 6°51' | R | H1 | 8 | 22 | 30 | 33 | 34.5 | 14 | |
| AG1.5-30R1 | 30 | | 30 | 1 | 3°26' | R | H1 | 10 | 30 | 45 | 48 | 49.5 | 14 | |
| AG1.5-30R2 | 15 | | 30 | 2 | 6°51' | R | H1 | 10 | 30 | 45 | 48 | 49.5 | 14 | |
| AG1.5-40R1 | 40 | | 40 | 1 | 3°26' | R | H1 | 12 | 35 | 60 | 63 | 64.5 | 14 | |
| AG1.5-50R1 | 50 | | 50 | 1 | 3°26' | R | H1 | 12 | 45 | 75 | 78 | 79.5 | 14 | |
| AG1.5-60R1 | 60 | 60 | 1 | 3°26' | R | H1 | 12 | 50 | 90 | 93 | 94.5 | 14 | | |

- [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 510 for more details.



Ground Worms

Newly added



| Total length R | Keyway Width×Depth | 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 | 4 x 1.8 | M4 | 5 | 0.12 0.11 | SWG1.5-R1 ● SWG1.5-R1J10 |
| 40 | 4 x 1.8 | M4 | 5 | 0.12 0.11 | SWG1.5-R2 ● SWG1.5-R2J10 |

- [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.

Spur Gears
Helical Gears
Internal Gears
Racks
CP Racks & Pinions

AG

Worm Wheels



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 | 1800 rpm | | | |
| 10 | 20 | — | — | 18 | 3.35 | 2.79 | 2.23 | 1.83 | 1.63 | 1.50 | 1.30 | 0.08~0.19 | 0.038 | AG1-20R1 |
| 10 | 20 | — | — | 18 | 3.31 | 2.69 | 2.06 | 1.68 | 1.48 | 1.35 | 1.15 | 0.08~0.19 | 0.038 | AG1-20R2 |
| 10 | 20 | — | — | 23 | 7.08 | 5.98 | 4.84 | 4.05 | 3.63 | 3.31 | 2.92 | 0.08~0.19 | 0.078 | AG1-30R1 |
| 10 | 20 | — | — | 23 | 7.03 | 5.84 | 4.56 | 3.72 | 3.33 | 3.03 | 2.63 | 0.08~0.19 | 0.078 | AG1-30R2 |
| 10 | 20 | — | — | 28 | 12.1 | 10.2 | 8.43 | 7.12 | 6.38 | 5.86 | 5.13 | 0.08~0.19 | 0.13 | AG1-40R1 |
| 10 | 20 | — | — | 33 | 18.3 | 15.5 | 12.9 | 10.9 | 9.87 | 9.09 | 7.95 | 0.08~0.19 | 0.20 | AG1-50R1 |
| 10 | 20 | — | — | 38 | 25.6 | 21.8 | 18.1 | 15.4 | 14.1 | 12.9 | 11.4 | 0.08~0.19 | 0.29 | AG1-60R1 |
| 10 | 24 | — | — | 27.5 | 9.84 | 8.18 | 6.40 | 5.30 | 4.68 | 4.25 | 3.68 | 0.10~0.21 | 0.10 | AG1.5-20R1 |
| 10 | 24 | — | — | 27.5 | 9.72 | 7.87 | 5.92 | 4.87 | 4.25 | 3.83 | 3.27 | 0.10~0.21 | 0.10 | AG1.5-20R2 |
| 10 | 24 | — | — | 35 | 20.8 | 17.5 | 13.9 | 11.7 | 10.4 | 9.40 | 8.28 | 0.10~0.21 | 0.22 | AG1.5-30R1 |
| 10 | 24 | — | — | 35 | 20.7 | 17.1 | 13.1 | 10.8 | 9.56 | 8.58 | 7.46 | 0.10~0.21 | 0.22 | AG1.5-30R2 |
| 10 | 24 | — | — | 42.5 | 35.6 | 30.0 | 24.2 | 20.6 | 18.3 | 16.6 | 14.6 | 0.10~0.21 | 0.37 | AG1.5-40R1 |
| 10 | 24 | — | — | 50 | 53.8 | 45.4 | 36.9 | 31.6 | 28.3 | 25.8 | 22.6 | 0.10~0.21 | 0.59 | AG1.5-50R1 |
| 10 | 24 | — | — | 57.5 | 75.3 | 63.8 | 51.9 | 44.7 | 40.4 | 36.7 | 32.4 | 0.10~0.21 | 0.83 | AG1.5-60R1 |

- [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.

Miter Gears
Bevel Gears
Screw Gears
Worm Gear Pair

Other Products Gearboxes

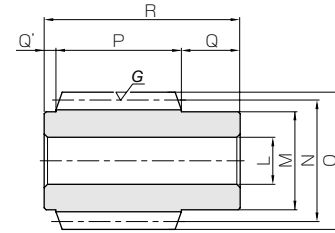


SWG Ground Worms

Module 2, 2.5



| 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 | 45 ~ 55HRC |



W3

* 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 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 | | | | | | |
| SWG2-R1 ● SWG2-R1J12 ● SWG2-R1J14 | m2 | 1 | 3°41' | R | W3 W3K W3K | 12 | 25 | 31 | 35 | 32 | 15 | 3 | |
| 14 | | | | | | | | | | | | | |
| SWG2-R2 ● SWG2-R2J12 ● SWG2-R2J14 | m2 | 2 | 7°21' | R | W3 W3K W3K | 12 | 25 | 31 | 35 | 32 | 15 | 3 | |
| 14 | | | | | | | | | | | | | |
| SWG2.5-R1 ● SWG2.5-R1J15 ● SWG2.5-R1J16 | m2.5 | 1 | 3°52' | R | W3 W3K W3K | 15 | 30 | 37 | 42 | 45 | 17 | 3 | |
| 16 | | | | | | | | | | | | | |
| SWG2.5-R2 ● SWG2.5-R2J15 ● SWG2.5-R2J16 | m2.5 | 2 | 7°42' | R | W3 W3K W3K | 15 | 30 | 37 | 42 | 45 | 17 | 3 | |
| 16 | | | | | | | | | | | | | |

[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 Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 1 to 2 mm).

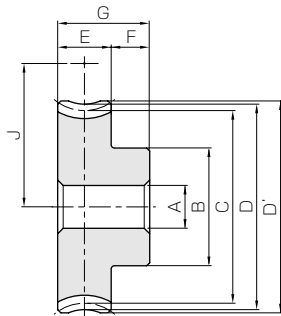


AG Worm Wheels

Module 2, 2.5



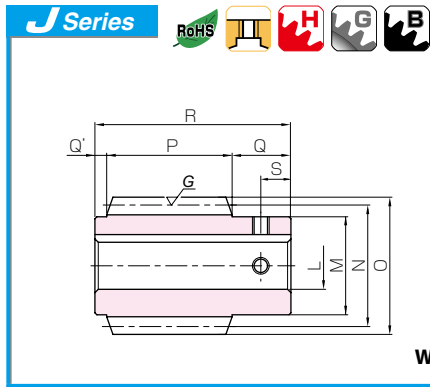
| Specifications | |
|---------------------------|-------------------------------|
| Precision grade | KHK W 002 grade 2 |
| Reference section of gear | Rotating plane |
| Gear teeth | Standard full depth |
| Normal pressure angle | 20° |
| Material | CAC702 (formerly JIS A&BC2) * |
| Heat treatment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



* H8, H9 shape have a hub made from FC200 cast iron.

| Catalog No. | Reduction ratio | Transverse 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 | | | | | |
| AG2-20R1 | 20 | m2 | 20 | 1 | 3°41' | R | H1 | 12 | 33 | 33 | 40 | 44 | 46 | 18 |
| AG2-20R2 | 10 | | 20 | 2 | 7°21' | R | H1 | 12 | | | | | | |
| AG2-30R1 | 30 | | 30 | 1 | 3°41' | R | H4 | 12 | | | | | | |
| AG2-30R2 | 15 | | 30 | 2 | 7°21' | R | H4 | 12 | | | | | | |
| AG2-40R1 | 40 | | 40 | 1 | 3°41' | R | H4 | 12 | | | | | | |
| | | | 40 | 1 | 3°41' | R | H4 | 12 | | | | | | |
| AG2-50R1 | 50 | m2.5 | 50 | 1 | 3°41' | R | H5 | 12 | 50 | 50 | 100 | 104 | 106 | 18 |
| AG2-60R1 | 60 | | 60 | 1 | 3°41' | R | H5 | 12 | | | | | | |
| AG2.5-20R1 | 20 | | 20 | 1 | 3°52' | R | H1 | 12 | | | | | | |
| AG2.5-20R2 | 10 | | 20 | 2 | 7°42' | R | H1 | 12 | | | | | | |
| AG2.5-30R1 | 30 | | 30 | 1 | 3°52' | R | H4 | 12 | | | | | | |
| AG2.5-30R2 | 15 | | 30 | 2 | 7°42' | R | H4 | 12 | | | | | | |
| AG2.5-40R1 | 40 | 40 | 1 | 3°52' | R | H5 | 15 | | | | | | | |
| AG2.5-50R1 | 50 | m2.5 | 50 | 1 | 3°52' | R | H5 | 15 | 55 | 55 | 125 | 130 | 132.5 | 20 |
| AG2.5-60R1 | 60 | | 60 | 1 | 3°52' | R | H5 | 15 | | | | | | |

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



Ground Worms

Newly added



W3K

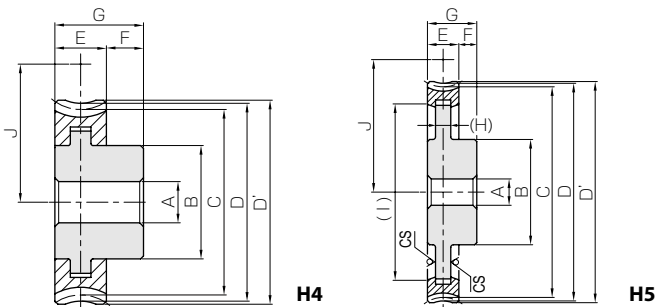
| Total length R | Keyway Width×Depth | Set screw | | Weight (kg) | Catalog No. ● : J Series (Available-on-request) |
|-------------------|-----------------------|-----------|-----|----------------|--|
| | | Size | S | | |
| 50 | — | — | — | 0.21 | SWG2-R1 ● SWG2-R1J12 ● SWG2-R1J14 |
| | 4 x 1.8 | M4 | 7.5 | 0.21 | |
| | 5 x 2.3 | M4 | 7.5 | 0.19 | |
| 50 | — | — | — | 0.21 | SWG2-R2 ● SWG2-R2J12 ● SWG2-R2J14 |
| | 4 x 1.8 | M4 | 7.5 | 0.21 | |
| | 5 x 2.3 | M4 | 7.5 | 0.19 | |
| 65 | — | — | — | 0.40 | SWG2.5-R1 ● SWG2.5-R1J15 ● SWG2.5-R1J16 |
| | 5 x 2.3 | M4 | 8.5 | 0.39 | |
| | 5 x 2.3 | M4 | 8.5 | 0.38 | |
| 65 | — | — | — | 0.40 | SWG2.5-R2 ● SWG2.5-R2J15 ● SWG2.5-R2J16 |
| | 5 x 2.3 | M4 | 8.5 | 0.39 | |
| | 5 x 2.3 | M4 | 8.5 | 0.38 | |

[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.

AG

Worm Wheels



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 | 1800 rpm | | | |
| 15 | 33 | — | — | 35.5 | 21.0 | 17.5 | 13.6 | 11.2 | 9.84 | 8.94 | 7.75 | 0.11~0.24 | 0.26 | AG2-20R1 |
| 15 | 33 | — | — | 35.5 | 20.7 | 16.8 | 12.6 | 10.3 | 8.93 | 8.05 | 6.89 | 0.11~0.24 | 0.26 | AG2-20R2 |
| 15 | 33 | — | — | 45.5 | 44.3 | 37.3 | 29.6 | 24.8 | 21.9 | 19.8 | 17.4 | 0.11~0.24 | 0.51 | AG2-30R1 |
| 15 | 33 | — | — | 45.5 | 44.0 | 36.5 | 27.8 | 22.8 | 20.1 | 18.0 | 15.7 | 0.11~0.24 | 0.51 | AG2-30R2 |
| 15 | 33 | — | — | 55.5 | 75.8 | 64.0 | 51.4 | 43.6 | 38.5 | 34.9 | 30.7 | 0.11~0.24 | 0.85 | AG2-40R1 |
| 15 | 33 | (8) | (83) | 65.5 | 115 | 96.8 | 78.4 | 66.9 | 59.5 | 54.2 | 47.6 | 0.11~0.24 | 1.05 | AG2-50R1 |
| 15 | 33 | (11) | (100) | 75.5 | 160 | 136 | 110 | 94.6 | 84.9 | 77.2 | 68.1 | 0.11~0.24 | 1.52 | AG2-60R1 |
| 14 | 34 | — | — | 43.5 | 34.6 | 28.5 | 22.3 | 18.3 | 16.0 | 14.6 | 12.5 | 0.14~0.27 | 0.39 | AG2.5-20R1 |
| 14 | 34 | — | — | 43.5 | 34.2 | 27.4 | 20.6 | 16.8 | 14.5 | 13.1 | 11.1 | 0.14~0.27 | 0.39 | AG2.5-20R2 |
| 14 | 34 | — | — | 56 | 73.2 | 61.0 | 48.3 | 40.5 | 35.5 | 32.2 | 28.1 | 0.14~0.27 | 0.79 | AG2.5-30R1 |
| 14 | 34 | — | — | 56 | 72.7 | 59.6 | 45.5 | 37.2 | 32.6 | 29.4 | 25.3 | 0.14~0.27 | 0.79 | AG2.5-30R2 |
| 14 | 34 | (11) | (81) | 68.5 | 125 | 105 | 84.0 | 71.2 | 62.5 | 57.0 | 49.5 | 0.14~0.27 | 1.11 | AG2.5-40R1 |
| 14 | 34 | (12) | (106) | 81 | 189 | 158 | 128 | 109 | 96.7 | 88.5 | 76.7 | 0.14~0.27 | 1.70 | AG2.5-50R1 |
| 14 | 34 | (12) | (130) | 93.5 | 265 | 222 | 180 | 154 | 138 | 126 | 110 | 0.14~0.27 | 2.32 | AG2.5-60R1 |

[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.
- 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.

To find information on new products, see Page 6 and 7.

Spur Gears

Helical Gears

Internal Gears

Racks

CP Racks & Pinions

Miter Gears

Bevel Gears

Screw Gears

Worm Gear Pair

Bevel Gearboxes

Other Products

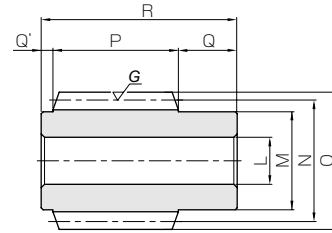


SWG Ground Worms

Module 3, 4



| 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 | 45 ~ 55HRC |



W3

* 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 start | Lead angle | Hand of tread | Shape | Bore | | Hub dia. | Pitch dia. | Outside dia. | Face width | Hub width (R) | Hub width (L) |
|---|--------------|-----------------|------------|---------------|-------------------------|----------------------|----|----------|------------|--------------|------------|---------------|---------------|
| | | | | | | LH7 | M | | | | | | |
| SWG3-R1 ● SWG3-R1J18 ● SWG3-R1J19 ● SWG3-R1J20 | m3 | 1 | 3°54' | R | W3 W3K W3K W3K | 16 18 19 20 | 35 | 44 | 50 | 50 | 20 | 4 | |
| SWG3-R2 ● SWG3-R2J18 ● SWG3-R2J19 ● SWG3-R2J20 | | 2 | 7°46' | R | W3 W3K W3K W3K | 16 18 19 20 | 35 | 44 | 50 | 50 | 20 | 4 | |
| SWG3-R3 ● SWG3-R3J18 ● SWG3-R3J19 ● SWG3-R3J20 | | 3 | 11°34' | R | W3 W3K W3K W3K | 16 18 19 20 | 35 | 44 | 50 | 50 | 20 | 4 | |
| SWG4-R1 SWG4-R2 SWG4-R3 | m4 | 1 | 3°41' | R | W3 | 22 | 50 | 62 | 70 | 70 | 25 | 5 | |
| | | 2 | 7°21' | R | W3 | 22 | 50 | 62 | 70 | 70 | 25 | 5 | |
| | | 3 | 10°57' | R | W3 | 22 | 50 | 62 | 70 | 70 | 25 | 5 | |

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

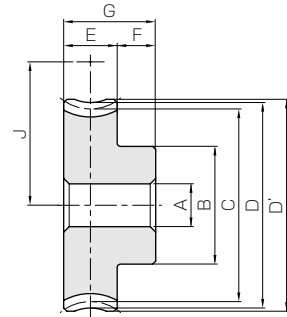


AG Worm Wheels

Module 3, 4



| 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 | — |

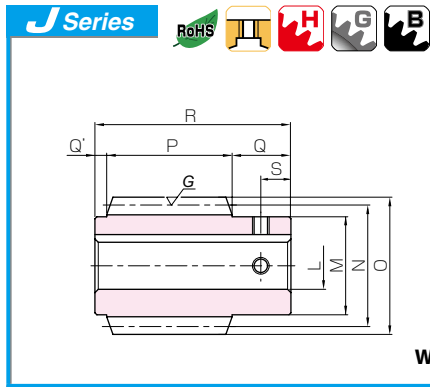


* H8, H9 shape have a hub made from FC200 cast iron.

| Catalog No. | Reduction ratio | Transverse 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 |
| AG3-20R1 | 20 | m3 | 20 | 1 | 3°54' | R | H1 | 20 | 50 | 60 | 66 | 69 | 25 |
| AG3-20R2 | 10 | | 20 | 2 | 7°46' | R | H1 | 20 | 50 | 60 | 66 | 69 | 25 |
| AG3-30R1 | 30 | | 30 | 1 | 3°54' | R | H4 | 20 | 55 | 90 | 96 | 99 | 25 |
| AG3-30R2 | 15 | | 30 | 2 | 7°46' | R | H4 | 20 | 55 | 90 | 96 | 99 | 25 |
| AG3-30R3 | 10 | | 30 | 3 | 11°34' | R | H4 | 20 | 55 | 90 | 96 | 99 | 25 |
| AG3-40R1 | 40 | | 40 | 1 | 3°54' | R | H5 | 20 | 65 | 120 | 126 | 129 | 25 |
| AG3-45R3 | 15 | 45 | 3 | 11°34' | R | H5 | 20 | 70 | 135 | 141 | 144 | 25 | |
| AG3-50R1 | 50 | 50 | 1 | 3°54' | R | H5 | 20 | 75 | 150 | 156 | 159 | 25 | |
| AG3-60R1 | 60 | 60 | 1 | 3°54' | R | H5 | 20 | 85 | 180 | 186 | 189 | 25 | |
| AG4-20R1 | 20 | m4 | 20 | 1 | 3°41' | R | H1 | 20 | 60 | 80 | 88 | 92 | 30 |
| AG4-20R2 | 10 | | 20 | 2 | 7°21' | R | H1 | 20 | 60 | 80 | 88 | 92 | 30 |
| AG4-30R1 | 30 | | 30 | 1 | 3°41' | R | H4 | 20 | 65 | 120 | 128 | 132 | 30 |
| AG4-30R2 | 15 | | 30 | 2 | 7°21' | R | H4 | 20 | 65 | 120 | 128 | 132 | 30 |
| AG4-30R3 | 10 | | 30 | 3 | 10°57' | R | H4 | 20 | 65 | 120 | 128 | 132 | 30 |
| AG4-40R1 | 40 | | 40 | 1 | 3°41' | R | H5 | 20 | 80 | 160 | 168 | 172 | 30 |
| AG4-45R3 | 15 | 45 | 3 | 10°57' | R | H5 | 20 | 90 | 180 | 188 | 192 | 30 | |
| AG4-50R1 | 50 | 50 | 1 | 3°41' | R | H5 | 20 | 90 | 200 | 208 | 212 | 30 | |
| AG4-60R1 | 60 | 60 | 1 | 3°41' | R | H5 | 20 | 100 | 240 | 248 | 252 | 30 | |

[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 510 for more details.

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



Ground Worms

Newly added



W3K

| Total length R | Keyway Width×Depth | Set screw | | Weight (kg) | Catalog No. ● : J Series (Available-on-request) |
|-------------------|-----------------------|-----------|----|----------------|--|
| | | Size | S | | |
| 74 | — | — | — | 0.66 | SWG3-R1 |
| | 6 x 2.8 | M5 | 10 | 0.62 | ● SWG3-R1J18 |
| | 6 x 2.8 | M5 | 10 | 0.60 | ● SWG3-R1J19 |
| | 6 x 2.8 | M5 | 10 | 0.58 | ● SWG3-R1J20 |
| 74 | — | — | — | 0.66 | SWG3-R2 |
| | 6 x 2.8 | M5 | 10 | 0.62 | ● SWG3-R2J18 |
| | 6 x 2.8 | M5 | 10 | 0.60 | ● SWG3-R2J19 |
| | 6 x 2.8 | M5 | 10 | 0.58 | ● SWG3-R2J20 |
| 74 | — | — | — | 0.66 | SWG3-R3 |
| | 6 x 2.8 | M5 | 10 | 0.62 | ● SWG3-R3J18 |
| | 6 x 2.8 | M5 | 10 | 0.60 | ● SWG3-R3J19 |
| | 6 x 2.8 | M5 | 10 | 0.58 | ● SWG3-R3J20 |
| 100 | — | — | — | 1.82 | SWG4-R1 |
| 100 | — | — | — | 1.82 | SWG4-R2 |
| 100 | — | — | — | 1.82 | SWG4-R3 |

[Caution on J series]

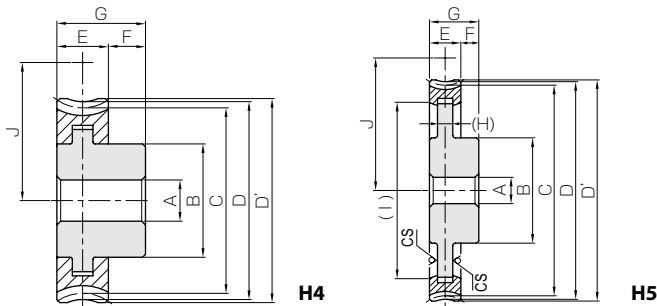
- ① As available-on-request products, requires a lead-time for shipping within **3 working-days (excludes the day ordered), after placing an order.** Please allow additional shipping time to get to your local distributor.
- ② Number of products we can process for one order is **1 to 20 units.** For quantities 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 Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 1 to 2 mm).

AG

Worm Wheels



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 | 1800 rpm | | | |
| 18 | 43 | — | — | 52 | 59.5 | 48.8 | 38.0 | 30.9 | 27.0 | 24.7 | 20.9 | 0.16~0.29 | 0.75 | AG3-20R1 |
| 18 | 43 | — | — | 52 | 58.7 | 46.9 | 35.1 | 28.4 | 24.5 | 22.2 | 18.5 | 0.16~0.29 | 0.75 | AG3-20R2 |
| 18 | 43 | — | — | 67 | 126 | 104.3 | 82.4 | 68.4 | 59.9 | 54.5 | 46.9 | 0.16~0.29 | 1.46 | AG3-30R1 |
| 18 | 43 | — | — | 67 | 125 | 102 | 77.6 | 62.8 | 55.1 | 49.7 | 42.2 | 0.16~0.29 | 1.46 | AG3-30R2 |
| 18 | 43 | — | — | 67 | 129 | 103 | 77.1 | 62.4 | 53.8 | 48.7 | 40.6 | 0.16~0.29 | 1.46 | AG3-30R3 |
| 18 | 43 | (10) | (103) | 82 | 215 | 179 | 143 | 120 | 106 | 96.4 | 82.5 | 0.16~0.29 | 2.03 | AG3-40R1 |
| 18 | 43 | (11) | (120) | 89.5 | 274 | 224 | 171 | 138 | 121 | 109 | 92.6 | 0.16~0.29 | 2.44 | AG3-45R3 |
| 18 | 43 | (15) | (130) | 97 | 325 | 270 | 219 | 185 | 163 | 150 | 128 | 0.16~0.29 | 3.22 | AG3-50R1 |
| 18 | 43 | (15) | (155) | 112 | 455 | 380 | 308 | 261 | 233 | 213 | 183 | 0.16~0.29 | 4.52 | AG3-60R1 |
| 20 | 50 | — | — | 71 | 115 | 93.6 | 72.7 | 58.2 | 51.1 | 45.7 | 38.4 | 0.19~0.32 | 1.53 | AG4-20R1 |
| 20 | 50 | — | — | 71 | 114 | 90.0 | 67.2 | 53.5 | 46.4 | 41.2 | 34.1 | 0.19~0.32 | 1.53 | AG4-20R2 |
| 20 | 50 | — | — | 91 | 244 | 200 | 158 | 129 | 114 | 101 | 86.3 | 0.19~0.32 | 3.00 | AG4-30R1 |
| 20 | 50 | — | — | 91 | 242 | 196 | 148 | 118 | 104 | 92.2 | 77.6 | 0.19~0.32 | 3.00 | AG4-30R2 |
| 20 | 50 | — | — | 91 | 250 | 198 | 147 | 117 | 102 | 90.2 | 74.7 | 0.19~0.32 | 3.00 | AG4-30R3 |
| 20 | 50 | (15) | (133) | 111 | 417 | 343 | 274 | 226 | 200 | 179 | 152 | 0.19~0.32 | 4.32 | AG4-40R1 |
| 20 | 50 | (16) | (153) | 121 | 531 | 430 | 326 | 259 | 229 | 202 | 170 | 0.19~0.32 | 5.44 | AG4-45R3 |
| 20 | 50 | (16) | (173) | 131 | 630 | 519 | 418 | 347 | 309 | 277 | 236 | 0.19~0.32 | 6.25 | AG4-50R1 |
| 20 | 50 | (17) | (210) | 151 | 881 | 730 | 589 | 491 | 441 | 395 | 337 | 0.19~0.32 | 8.74 | AG4-60R1 |

[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.
- 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.

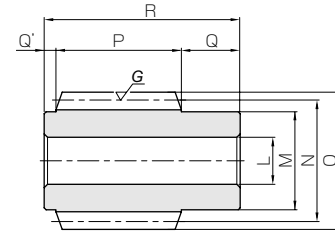


SWG Ground Worms

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 | 45 ~ 55HRC |



W3

| Catalog No. | Axial 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' |
| SWG5-R1 | m5 | 1 | 4°05' | R | W3 | 25 | 56 | 70 | 80 | 85 | 30 | 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 |
| 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 512 for more details.

Spur Gears

Helical Gears

Internal Gears

Racks

CP Racks & Pinions

Miter Gears



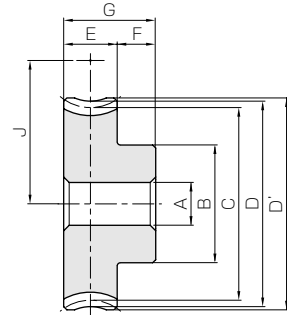
AG Worm Wheels

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 | — |

* H8, H9 shape have a hub made from FC200 cast iron.



H1

| Catalog No. | Reduction ratio | Transverse 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 |
| 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 | | 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 | | 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 510 for more details.

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

Worm Gear Pair

Screw Gears

Bevel Gears

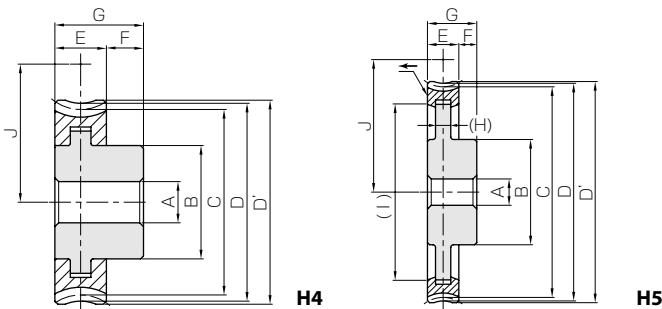
Other Products Gearboxes

| Total length R | Set screw | | Weight (kg) | Catalog No. |
|-------------------|-----------|---|----------------|----------------|
| | Size | S | | |
| 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 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 Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 1 to 2 mm).

AG

Worm Wheels



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 | 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 |

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 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.