

### Pressure Angle 20°, Module 1.0, 1.5, 2.0, 2.5, 3.0

■ **Features:** Spur gears with hardened teeth which provide excellent strength, abrasion resistance and high precision. For Rack Gears - Ground, see  **P.1529.**



RoHS10

| Type          |                     |                      | M Material       | S Surface Treatment | H Hardness                                                 | A Accessory                                 |
|---------------|---------------------|----------------------|------------------|---------------------|------------------------------------------------------------|---------------------------------------------|
| Straight Bore | Straight Bore + Tap | Keyway, Keyway + Tap | EN 1.1191 Equiv. | Black Oxide         | Tooth Induction Hardened<br>51 ~ 55HRC (Depth 1mm or more) | Set Screw<br>(EN 1.7720 Equiv. Black Oxide) |
| GEAHBH        | GEABH               | GEAKBH               |                  |                     |                                                            |                                             |

 Set Screw is not included in Un-tapped Type products.

### Gear Shape

#### Shape A



#### Shape B



 Shaded part has no surface treatment.

 End surface of Shape A may not be surface treated as Shape A is made by cutting the hub of Shape B.

### Shaft Bore Specifications (Selectable Gear Shapes)

| Straight Bore (Shape A, Shape B)                                                  | Straight Bore + Tap (Shape B)                                                     | Keyway (Shape A)                                                                  | Keyway + Tap (Shape B)                                                            |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |  |  |

 Keyway Dimension Details **P.1498**  
 Positioning of keyway and teeth is not fixed.

#### ■ Tapped Hole Dimension List

| Shaft Bore Dia. Ph7 | M (Coarse) | Accessory Set Screw |
|---------------------|------------|---------------------|
| 6~12                | M4         | M4x3                |
| 13~17               | M5         | M5x4                |
| 18~30               | M6         | M6x5                |
| 31~45               | M8         | M8x6                |
| 46~56               | M10        | M10x8               |

Accuracy Previous JIS B 1702 Class 2  
 (New JIS B 1702-1 Class 6 Equiv.)

 Accuracy before shaft bore machining.

| Part Number                                                                                                                                                                           |        | Number of Teeth | B       | Gear Shape | Shaft Hole Dia $P_{H7}$ (1mm Increment) |                        | d<br>Reference Dia. | D<br>Tip Dia. | G<br>Root Dia. | H     | L     | $\ell_1$ | $\ell_2$ | *1. Allowable Transmission Force (N, m)<br>Bending Strength | Unit Price 1 ~ 10 pc(s). |                     |                        |        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------|---------|------------|-----------------------------------------|------------------------|---------------------|---------------|----------------|-------|-------|----------|----------|-------------------------------------------------------------|--------------------------|---------------------|------------------------|--------|
| Type                                                                                                                                                                                  | Module |                 |         |            | Straight Bore<br>Straight Bore + Tap    | Keyway<br>Keyway + Tap |                     |               |                |       |       |          |          |                                                             | Straight Bore            | Straight Bore + Tap | Keyway<br>Keyway + Tap |        |
| Straight Bore<br>(Shape A, Shape B)<br><b>GEAHBH</b><br><br>Straight Bore + Tap<br>(Shape B)<br><b>GEABH</b><br><br>Keyway<br>(Shape A)<br>Keyway + Tap<br>(Shape B)<br><b>GEAKBH</b> | 1.0    | 18              | 8       | A          | B                                       | 6~10                   | -                   | 18            | 20             | 15.5  | 15    | 18       | 10       | 5                                                           | 4.76                     | GEAHBH              | GEABH                  | GEAKBH |
|                                                                                                                                                                                       |        | 20              |         |            |                                         | 6~11                   | 8N, 10N             | 20            | 22             | 17.5  | 17    |          |          |                                                             | 5.57                     |                     |                        | -      |
|                                                                                                                                                                                       |        | 22              |         |            |                                         | 8~14                   | 8N~12N              | 22            | 24             | 19.5  | 18    |          |          |                                                             | 6.42                     |                     |                        |        |
|                                                                                                                                                                                       |        | 24              |         |            |                                         |                        |                     | 24            | 26             | 21.5  | 20    |          |          |                                                             | 7.27                     |                     |                        |        |
|                                                                                                                                                                                       |        | 25              |         |            |                                         |                        |                     | 25            | 27             | 22.5  |       |          |          |                                                             | 7.69                     |                     |                        |        |
|                                                                                                                                                                                       |        | 26              |         |            |                                         |                        |                     | 26            | 28             | 23.5  |       |          |          |                                                             | 8.12                     |                     |                        |        |
|                                                                                                                                                                                       |        | 28              |         |            |                                         |                        |                     | 28            | 30             | 25.5  |       |          |          |                                                             | 9.02                     |                     |                        |        |
|                                                                                                                                                                                       |        | 30              |         |            |                                         | 10~17                  | 10N~15N             | 30            | 32             | 27.5  | 25    |          |          |                                                             | 9.87                     |                     |                        |        |
|                                                                                                                                                                                       |        | 32              |         |            |                                         |                        |                     | 32            | 34             | 29.5  |       |          |          |                                                             | 10.79                    |                     |                        |        |
|                                                                                                                                                                                       |        | 35              |         |            |                                         |                        |                     | 35            | 37             | 32.5  |       |          |          |                                                             | 12.13                    |                     |                        |        |
|                                                                                                                                                                                       |        | 36              |         |            |                                         |                        |                     | 36            | 38             | 33.5  |       |          |          |                                                             | 12.52                    |                     |                        |        |
|                                                                                                                                                                                       |        | 40              |         |            |                                         | 10~21                  | 10N~18N             | 40            | 42             | 37.5  | 30    |          |          |                                                             | 13.07                    |                     |                        |        |
|                                                                                                                                                                                       |        | 45              |         |            |                                         |                        |                     | 45            | 47             | 42.5  |       |          |          |                                                             | 15.18                    |                     |                        |        |
|                                                                                                                                                                                       |        | 48              |         |            |                                         |                        |                     | 48            | 50             | 45.5  |       |          |          |                                                             | 16.44                    |                     |                        |        |
|                                                                                                                                                                                       |        | 50              |         |            |                                         | 12~24                  | 12N~18N             | 50            | 52             | 47.5  | 35    |          |          |                                                             | 17.23                    |                     |                        |        |
|                                                                                                                                                                                       | 60     | 12~28           | 12N~25N | 60         | 62                                      |                        |                     | 57.5          | 40             | 21.50 |       |          |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       | 70     |                 |         | 70         | 72                                      | 67.5                   | 40                  | 25.74         |                |       |       |          |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       | 1.5    | 15              | A       | B          | 15~35                                   | 15N~30N                | 80                  | 82            | 77.5           | 50    | 29.98 |          |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       |        |                 |         |            |                                         |                        | 100                 | 102           | 97.5           | 50    | 38.72 |          |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       |        |                 |         |            | 15                                      | 10~12                  | 10N                 | 22.5          | 25.5           | 18.75 | 18    | 15.11    |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       |        |                 |         |            | 16                                      | 10~13                  | 10N, 11N            | 24            | 27             | 20.25 | 19.5  | 16.74    |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       |        |                 |         |            | 18                                      | 10~15                  | 10N~13N             | 27            | 30             | 23.25 | 22    | 20.08    |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       |        |                 |         |            | 20                                      | 10~16                  | 10N~14N             | 30            | 33             | 26.25 | 24    | 23.51    |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       |        |                 |         |            | 24                                      | 12~19                  | 12N~17N             | 36            | 39             | 32.25 | 28    | 30.56    |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       |        |                 |         |            | 25                                      | 12~21                  | 12N~18N             | 37.5          | 40.5           | 33.75 | 30    | 32.39    |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       |        |                 |         |            | 26                                      | 12~22                  | 12N~19N             | 39            | 42             | 35.25 | 32    | 31.16    |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       |        |                 |         |            | 28                                      | 15~25                  | 15N~19N             | 42            | 45             | 38.25 | 36    | 34.58    |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       | 30     | 15~26           | 15N~23N | 45         | 48                                      | 41.25                  | 38                  | 37.84         |                |       |       |          |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       | 32     | 15~28           | 15N~24N | 48         | 51                                      | 44.25                  | 40                  | 41.03         |                |       |       |          |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       | 35     | 15~29           | 15N~26N | 52.5       | 55.5                                    | 48.75                  | 42                  | 46.51         |                |       |       |          |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       | 36     | 15~31           | 15N~28N | 54         | 57                                      | 50.25                  | 45                  | 48.00         |                |       |       |          |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       | 40     | 15~35           | 15N~31N | 60         | 63                                      | 56.25                  | 50                  | 54.90         |                |       |       |          |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       | 45     | 18~35           | 18N~31N | 67.5       | 70.5                                    | 63.75                  |                     | 63.90         |                |       |       |          |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       | 48     |                 |         | 72         | 75                                      | 68.25                  |                     | 69.20         |                |       |       |          |          |                                                             |                          |                     |                        |        |
|                                                                                                                                                                                       | 50     | 18~42           | 18N~38N | 75         | 78                                      | 71.25                  | 60                  | 72.69         |                |       |       |          |          |                                                             |                          |                     |                        |        |
| 60                                                                                                                                                                                    | 90     |                 |         | 93         | 86.25                                   | 90.68                  |                     |               |                |       |       |          |          |                                                             |                          |                     |                        |        |
| 70                                                                                                                                                                                    | 20~42  | 20N~38N         | 105     | 108        | 101.25                                  |                        | 108.59              |               |                |       |       |          |          |                                                             |                          |                     |                        |        |

⚠ Shaft bore diameter 6.35 is available for Straight Bore and Straight Bore + Tap. ⚠ Shaft bore diameter 9N is not available for Keyway Bore + Tap.

For orders larger than indicated quantity, please request a quotation.

Specify 10K as P dimension if keyway width of 4.0mm (height 1.8mm) for Keyway + Tap with shaft bore diameter of 10 is desired.  **P.1498**

\*1 Allowable Transmission Forces in the table are reference values calculated with prescribed conditions. For conditions, see **P. 1498**.

## Module 2.0, 2.5, 3.0

| Part Number                                                                                                                                                                           |        | Number of Teeth | B       | Gear Shape | Shaft Hole Dia PH7 (1mm Increment)   |                        | d<br>Reference Dia. | D<br>Tip Dia. | G<br>Root Dia. | H  | L  | ℓ1 | ℓ2 | *1. Allowable Transmission Force (N·m)<br>Bending Strength | Unit Price 1 ~ 30 pc(s). |                     |                        |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------|---------|------------|--------------------------------------|------------------------|---------------------|---------------|----------------|----|----|----|----|------------------------------------------------------------|--------------------------|---------------------|------------------------|--|
| Type                                                                                                                                                                                  | Module |                 |         |            | Straight Bore<br>Straight Bore + Tap | Keyway<br>Keyway + Tap |                     |               |                |    |    |    |    |                                                            | Straight Bore            | Straight Bore + Tap | Keyway<br>Keyway + Tap |  |
|                                                                                                                                                                                       |        |                 |         |            |                                      |                        |                     |               |                |    |    |    |    |                                                            | GEAHBH                   | GEABH               | GEAKBH                 |  |
| Straight Bore<br>(Shape A, Shape B)<br><b>GEAHBH</b><br><br>Straight Bore + Tap<br>(Shape B)<br><b>GEABH</b><br><br>Keyway<br>(Shape A)<br>Keyway + Tap<br>(Shape B)<br><b>GEAKBH</b> | 2.0    | 15              | 20      | A          | 12~17                                | 12N~14N                | 30                  | 34            | 25             | 24 | 36 | 16 | 8  | 35.81                                                      |                          |                     |                        |  |
|                                                                                                                                                                                       |        | 16              |         |            | 12~18                                | 12N~15N                | 32                  | 36            | 27             | 26 |    |    |    | 39.67                                                      |                          |                     |                        |  |
|                                                                                                                                                                                       |        | 18              |         |            | 12~21                                | 12N~18N                | 36                  | 40            | 31             | 30 |    |    |    | 47.59                                                      |                          |                     |                        |  |
|                                                                                                                                                                                       |        | 20              |         |            | 15~22                                | 15N~19N                | 40                  | 44            | 35             | 32 |    |    |    | 50.67                                                      |                          |                     |                        |  |
|                                                                                                                                                                                       |        | 22              |         |            |                                      |                        | 44                  | 48            | 39             | 36 |    |    |    | 58.24                                                      |                          |                     |                        |  |
|                                                                                                                                                                                       |        | 24              |         |            |                                      |                        | 15~26               | 15N~23N       | 48             | 52 |    |    |    | 43                                                         | 38                       | 65.86               |                        |  |
|                                                                                                                                                                                       |        | 25              |         |            | 15~28                                | 15N~24N                | 50                  | 54            | 45             | 40 |    |    |    | 69.81                                                      |                          |                     |                        |  |
|                                                                                                                                                                                       |        | 28              |         |            | 15~31                                | 15N~28N                | 56                  | 60            | 51             | 45 |    |    |    | 81.96                                                      |                          |                     |                        |  |
|                                                                                                                                                                                       |        | 30              |         |            | 18~35                                | 18N~31N                | 60                  | 64            | 55             | 50 |    |    |    | 89.70                                                      |                          |                     |                        |  |
|                                                                                                                                                                                       |        | 32              |         |            |                                      |                        | 64                  | 68            | 59             |    |    |    |    | 97.27                                                      |                          |                     |                        |  |
|                                                                                                                                                                                       |        | 36              |         |            |                                      |                        | 72                  | 76            | 67             |    |    |    |    | 113.78                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       |        | 40              |         |            |                                      |                        | 80                  | 84            | 75             |    |    |    |    | 130.13                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 45     | 20~42           | 20N~38N | 90         | 94                                   | 85                     | 60                  | 151.46        |                |    |    |    |    |                                                            |                          |                     |                        |  |
|                                                                                                                                                                                       | 48     |                 |         | 96         | 100                                  | 91                     |                     | 164.04        |                |    |    |    |    |                                                            |                          |                     |                        |  |
|                                                                                                                                                                                       | 50     |                 |         | 100        | 104                                  | 95                     |                     | 172.31        |                |    |    |    |    |                                                            |                          |                     |                        |  |
|                                                                                                                                                                                       | 60     | 25~42           | 25N~38N | 120        | 124                                  | 115                    | 65                  | 205.60        |                |    |    |    |    |                                                            |                          |                     |                        |  |
|                                                                                                                                                                                       | 16     | 2.5             | 25      | B          | 15~22                                | 15N~19N                | 40                  | 45            | 33.75          | 32 | 43 | 18 | 9  | 70.43                                                      |                          |                     |                        |  |
|                                                                                                                                                                                       | 20     |                 |         |            | 18~28                                | 18N~24N                | 50                  | 55            | 43.75          | 40 |    |    |    | 98.97                                                      |                          |                     |                        |  |
|                                                                                                                                                                                       | 24     |                 |         |            | 18~33                                | 18N~30N                | 60                  | 65            | 53.75          | 48 |    |    |    | 128.63                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 25     |                 |         |            | 20~35                                | 20N~31N                | 62.5                | 67.5          | 56.25          | 50 |    |    |    | 136.34                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 28     |                 |         |            | 20~42                                | 20N~38N                | 70                  | 75            | 63.75          | 60 |    |    |    | 160.07                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 30     |                 |         |            | 20~45                                | 20N~42N                | 75                  | 80            | 68.75          | 65 |    |    |    | 175.19                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 36     |                 |         |            | 20~49                                | 20N~45N                | 90                  | 95            | 83.75          | 70 |    |    |    | 222.23                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 40     |                 |         |            | 25~49                                | 25N~45N                | 100                 | 105           | 93.75          |    |    |    |    | 254.16                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 45     |                 |         |            | 25~52                                | 25N~49N                | 112.5               | 117.5         | 106.25         | 75 |    |    |    | 295.82                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 48     |                 |         |            |                                      |                        | 120                 | 125           | 113.75         |    |    |    |    | 306.46                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 50     |                 |         |            |                                      |                        | 125                 | 130           | 118.75         |    |    |    |    | 80                                                         | 321.92                   |                     |                        |  |
|                                                                                                                                                                                       | 16     |                 |         |            |                                      |                        | 16~26               | 16N~23N       | 48             |    |    |    |    | 54                                                         | 40.5                     | 38                  | 121.71                 |  |
|                                                                                                                                                                                       | 20     | 3.0             | 30      | A          | 20~35                                | 20N~31N                | 60                  | 66            | 52.5           | 50 | 50 | 20 | 10 | 171.01                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 24     |                 |         |            | 20~40                                | 20N~37N                | 72                  | 78            | 64.5           | 58 |    |    |    | 222.27                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 25     |                 |         |            | 20~42                                | 20N~38N                | 75                  | 81            | 67.5           | 60 |    |    |    | 235.60                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 30     |                 |         |            | 25~52                                | 25N~49N                | 90                  | 96            | 82.5           | 75 |    |    |    | 302.72                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 32     |                 |         |            |                                      |                        | 96                  | 102           | 88.5           |    |    |    |    | 328.27                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 36     |                 |         |            |                                      |                        | 108                 | 114           | 100.5          |    |    |    |    | 384.01                                                     |                          |                     |                        |  |
|                                                                                                                                                                                       | 40     |                 |         |            | 25~56                                | 25N~50N                | 120                 | 126           | 112.5          | 80 |    |    |    | 420.10                                                     |                          |                     |                        |  |

\*1 Allowable Transmission Forces in the table are reference values calculated with prescribed conditions. For conditions, see  P. 1498.

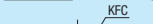
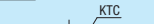
📌 For orders larger than indicated quantity, please request a quotation.



| Ordering Example | Part Number | - | Number of Teeth | - | B  | - | Gear Shape | - | P   |
|------------------|-------------|---|-----------------|---|----|---|------------|---|-----|
|                  | GEAKBH2.0   | - | 30              | - | 20 | - | A          | - | 25N |
|                  | GEABH1.0    | - | 30              | - | 8  | - | B          | - | 15  |



Alterations  **Part Number** - **Number of Teeth** - **B** - **Gears Shape** - **P** - **(KC90, KC120...etc.)**  
GEAKBH2.0 - 40 - 20 - B - 30N - KC90

| Alterations<br>Code | Set Screw<br>KC90                                                                     | Set Screw<br>KC120                                                                    | Side Through Hole<br>KFC, KTC                                                                                                                                                                              | Side Tapped Hole<br>QFC, QTC                                                                                                                                                                                            |
|---------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     | Adds another set screw at 90° position.<br>⊗ Not applicable to Straight Bore Type.    | Adds another set screw at 120° position.<br>⊗ Not applicable to Straight Bore Type.   | Machines through holes on the side surface.<br>(KFC, KTC: 1mm Increment; K: 0.5mm Increment)<br>⊗ Applicable to Shape A only. ⊕ P+K+4≤KFC(KTC)≤G-K-4<br>[K Selection] K3.0~K6.0 [Ordering Code] KFC20-K3.5 | Machines tapped holes on the side surface of the gear (QFC, QTC: 1mm Increment).<br>⊗ Applicable to Shape A only. ⊕ P+M-4<QFC(QTC)≤G-M-4<br>[M Selection] M3 M4 [Ordering Code] QFC25-M3 ⊕ The tapped holes go through. |
| Spec.               |  |  |                                                                                                                       |                                                                                                                                    |