

# Spur Gear

Pressure Angle 20°, Module 3.0, Shaft Bore Configurable Type

| Fixing Parts |                  |           |              | Others                |              |
|--------------|------------------|-----------|--------------|-----------------------|--------------|
| Rotary Shaft | Cantilever Shaft | MechaLock | Parallel Key | Bearing with Housings | Shaft Collar |
| P1-837       | P1-901           | P1-1521   | P2-277       | P1-947                | P1-1017      |
| P1-900       | P1-926           | P1-1530   | P2-282       | P1-1014               | P1-1049      |
|              |                  |           |              |                       | P1-297       |
|              |                  |           |              |                       | P1-330       |

For products uncovered by the e-Catalog Standard, see P131.



RoHS10

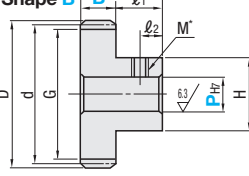
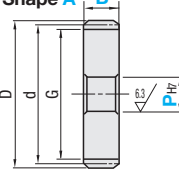
Tapped shaft bores are not available for Shape A.

| Type          |                      | Material        | Surface Treatment          | Accessory                       |
|---------------|----------------------|-----------------|----------------------------|---------------------------------|
| Straight Bore | Keyway, Keyway + Tap |                 |                            |                                 |
| GEAHB         | GEAKB                | S45C Equivalent | -                          | Set Screw (SCM435, Black Oxide) |
| GEAHBB        | GEAKBB               |                 | Black Oxide                |                                 |
| GEAHBG        | GEAKBG               |                 | Electroless Nickel Plating |                                 |
| GEAHS         | GEAKS                | SUS304          | -                          | Set Screw (SUS304)              |

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

Shape A

Shape B



Shaft Bore Specifications (Selectable Gear Shapes)

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

For Tap, Keyway Dimension Details, see P1532.  
Positioning of keyway and teeth is not fixed.

Accuracy Previous JIS B 1702 Class 4 (New JIS B 1702-1 Class 8 Equivalent)

When desiring to fix the gear hub onto the shaft through MechaLock, see Keyless Type on P1557. For configuring the tooth width / hub dimensions, see P1551.

| Part Number                                                   |        | Number of Teeth | B  | Gear Shape | Shaft Bore Dia. PH7 (1mm Increment) |                     | d Reference Dia. | D Tip Dia. | G Root Dia. | H  | L  | ℓ1 | ℓ2 | M (Coarse) | Allowable Transmission Force (N × m) Bending Strength |        |
|---------------------------------------------------------------|--------|-----------------|----|------------|-------------------------------------|---------------------|------------------|------------|-------------|----|----|----|----|------------|-------------------------------------------------------|--------|
| Type                                                          | Module |                 |    |            | Straight Bore                       | Keyway Keyway + Tap |                  |            |             |    |    |    |    |            | S45C Equivalent                                       | SUS304 |
| Straight Bore (Shape A, Shape B)<br>GEAHB<br>GEAHBB<br>GEAHBG | 3      | 12              | 30 | A<br>B     | 8~17                                | 8N~12N              | 36               | 42         | 28.5        | 27 | 48 | 18 | 9  | M5         | 66.66                                                 | 38.04  |
|                                                               |        | 14              |    |            | 8~22                                | 8N~16N              | 42               | 48         | 34.5        | 32 |    |    |    |            | 86.33                                                 | 49.27  |
|                                                               |        | 15              |    |            | 8~24                                | 8N~19N              | 45               | 51         | 37.5        | 35 |    |    |    |            | 96.7                                                  | 55.18  |
|                                                               |        | 16              |    |            | 12~63                               | 12N~50N             | 48               | 54         | 40.5        | 40 |    |    |    |            | 107.1                                                 | 61.12  |
|                                                               |        | 17              |    |            |                                     |                     | 51               | 57         | 43.5        | 40 |    |    |    |            | 117.74                                                | 67.19  |
|                                                               |        | 18              |    |            |                                     |                     | 54               | 60         | 46.5        | 44 |    |    |    |            | 128.5                                                 | 73.33  |
|                                                               |        | 19              |    |            |                                     |                     | 57               | 63         | 49.5        | 45 |    |    |    |            | 139.28                                                | 79.48  |
|                                                               |        | 20              |    |            |                                     |                     | 60               | 66         | 52.5        | 50 |    |    |    |            | 150.49                                                | 85.88  |
|                                                               |        | 21              |    |            |                                     |                     | 63               | 69         | 55.5        | 52 |    |    |    |            | 161.57                                                | 92.2   |
|                                                               |        | 22              |    |            |                                     |                     | 66               | 72         | 58.5        | 54 |    |    |    |            | 173.02                                                | 98.74  |
|                                                               |        | 23              |    |            |                                     |                     | 69               | 75         | 61.5        | 56 |    |    |    |            | 184.17                                                | 105.09 |
|                                                               |        | 24              |    |            |                                     |                     | 72               | 78         | 64.5        | 58 |    |    |    |            | 195.6                                                 | 111.62 |
|                                                               |        | 25              |    |            |                                     |                     | 75               | 81         | 67.5        | 60 |    |    |    |            | 207.33                                                | 118.31 |
|                                                               |        | 26              |    |            |                                     |                     | 78               | 84         | 70.5        | 65 |    |    |    |            | 219.36                                                | 125.18 |
|                                                               |        | 27              |    |            |                                     |                     | 81               | 87         | 73.5        | 70 |    |    |    |            | 230.8                                                 | 131.71 |
|                                                               |        | 28              |    |            |                                     |                     | 84               | 90         | 76.5        | 70 |    |    |    |            | 243.41                                                | 138.9  |
|                                                               |        | 29              |    |            |                                     |                     | 87               | 93         | 79.5        | 75 |    |    |    |            | 254.32                                                | 145.13 |
|                                                               |        | 30              |    |            |                                     |                     | 90               | 96         | 82.5        | 75 |    |    |    |            | 266.4                                                 | 152.02 |
|                                                               |        | 32              |    |            |                                     |                     | 96               | 102        | 88.5        | 80 |    |    |    |            | 288.88                                                | 164.85 |
|                                                               |        | 34              |    |            |                                     |                     | 102              | 108        | 94.5        | 80 |    |    |    |            | 315.62                                                | 180.11 |
|                                                               |        | 35              |    |            |                                     |                     | 105              | 111        | 97.5        | 85 |    |    |    |            | 327.41                                                | 186.84 |
|                                                               |        | 36              |    |            |                                     |                     | 108              | 114        | 100.5       | 85 |    |    |    |            | 337.93                                                | 192.84 |
|                                                               |        | 38              |    |            |                                     |                     | 114              | 120        | 106.5       | 85 |    |    |    |            | 363.48                                                | 207.42 |
|                                                               |        | 40              |    |            |                                     |                     | 120              | 126        | 112.5       | 85 |    |    |    |            | 386.49                                                | 220.55 |
|                                                               |        | 42              |    |            |                                     |                     | 126              | 132        | 118.5       | 85 |    |    |    |            | 411.47                                                | 234.81 |
|                                                               |        | 44              |    |            |                                     |                     | 132              | 138        | 124.5       | 85 |    |    |    |            | 436.93                                                | 249.34 |
|                                                               |        | 45              |    |            |                                     |                     | 135              | 141        | 127.5       | 85 |    |    |    |            | 449.84                                                | 256.7  |
|                                                               |        | 46              |    |            |                                     |                     | 138              | 144        | 130.5       | 85 |    |    |    |            | 462.87                                                | 264.14 |
|                                                               |        | 48              |    |            |                                     |                     | 144              | 150        | 136.5       | 85 |    |    |    |            | 487.2                                                 | 278.02 |
|                                                               |        | 50              |    |            |                                     |                     | 150              | 156        | 142.5       | 85 |    |    |    |            | 511.77                                                | 292.04 |
|                                                               |        | 52              |    |            |                                     |                     | 156              | 162        | 148.5       | 85 |    |    |    |            | 536.6                                                 | 306.21 |
|                                                               |        | 54              |    |            |                                     |                     | 162              | 168        | 154.5       | 85 |    |    |    |            | 561.67                                                | 320.52 |
|                                                               |        | 55              |    |            |                                     |                     | 165              | 171        | 157.5       | 85 |    |    |    |            | 575.63                                                | 328.44 |
|                                                               |        | 56              |    |            |                                     |                     | 168              | 174        | 160.5       | 85 |    |    |    |            | 589.57                                                | 336.44 |
|                                                               |        | 58              |    |            |                                     |                     | 174              | 180        | 166.5       | 85 |    |    |    |            | 612.58                                                | 349.57 |
|                                                               |        | 60              |    |            |                                     |                     | 180              | 186        | 172.5       | 85 |    |    |    |            | 638.4                                                 | 364.31 |
|                                                               |        | 62              |    |            |                                     |                     | 186              | 192        | 178.5       | 85 |    |    |    |            | 661.55                                                | -      |
|                                                               |        | 64              |    |            |                                     |                     | 192              | 198        | 184.5       | 85 |    |    |    |            | 684.66                                                | -      |
|                                                               |        | 66              |    |            |                                     |                     | 195              | 201        | 187.5       | 85 |    |    |    |            | 707.77                                                | -      |
|                                                               |        | 68              |    |            |                                     |                     | 204              | 210        | 196.5       | 90 |    |    |    |            | 755.88                                                | -      |
|                                                               |        | 70              |    |            |                                     |                     | 210              | 216        | 202.5       | 90 |    |    |    |            | 788.99                                                | -      |

\* marked number of teeth is not available for GEAHS, GEAKS. The "-" text on the above table means that any Shaft Bore Dia. is not selectable.

Shaft bore diameter 9N is not available for Keyway Bore + Tap.

Specify 10K as the P dimension if keyway width of 4.0mm (height 1.8mm) for Keyway + Tap with shaft bore diameter of 10 is desired P1532.

\*1. Allowable Transmission Forces in the table are reference values calculated with prescribed conditions. For conditions, see P1534.

Ordering Example

Part Number - Number of Teeth - B - Gears Shape - P

GEAHB3.0 - 15 - 30 - B - 8

GEAKBG3.0 - 30 - 30 - A - 10N

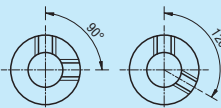
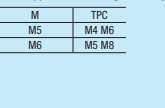
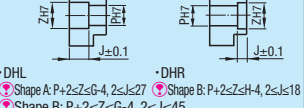
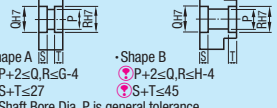
Gear shape will be "B" when not specified.

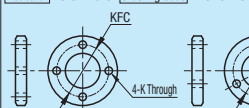
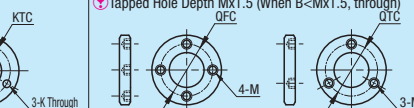
| Number of Teeth | Unit Price    |        |        |       |                      |        |        |       |
|-----------------|---------------|--------|--------|-------|----------------------|--------|--------|-------|
|                 | Straight Bore |        |        |       | Keyway, Keyway + Tap |        |        |       |
|                 | GEAHB         | GEAHBB | GEAHBG | GEAHS | GEAKB                | GEAKBB | GEAKBG | GEAKS |
| 12              |               |        |        |       |                      |        |        |       |
| 14              |               |        |        |       |                      |        |        |       |
| 15              |               |        |        |       |                      |        |        |       |
| 16              |               |        |        |       |                      |        |        |       |
| 17              |               |        |        |       |                      |        |        |       |
| 18              |               |        |        |       |                      |        |        |       |
| 19              |               |        |        |       |                      |        |        |       |
| 20              |               |        |        |       |                      |        |        |       |
| 21              |               |        |        |       |                      |        |        |       |
| 22              |               |        |        |       |                      |        |        |       |
| 23              |               |        |        |       |                      |        |        |       |
| 24              |               |        |        |       |                      |        |        |       |
| 25              |               |        |        |       |                      |        |        |       |
| 26              |               |        |        |       |                      |        |        |       |
| 27              |               |        |        |       |                      |        |        |       |
| 28              |               |        |        |       |                      |        |        |       |
| 29              |               |        |        |       |                      |        |        |       |
| 30              |               |        |        |       |                      |        |        |       |
| 32              |               |        |        |       |                      |        |        |       |
| 34              |               |        |        |       |                      |        |        |       |
| 35              |               |        |        |       |                      |        |        |       |
| 36              |               |        |        |       |                      |        |        |       |
| 38              |               |        |        |       |                      |        |        |       |
| 40              |               |        |        |       |                      |        |        |       |
| 42              |               |        |        |       |                      |        |        |       |
| 44              |               |        |        |       |                      |        |        |       |
| 45              |               |        |        |       |                      |        |        |       |
| 46              |               |        |        |       |                      |        |        |       |
| 48              |               |        |        |       |                      |        |        |       |
| 50              |               |        |        |       |                      |        |        |       |
| 52              |               |        |        |       |                      |        |        |       |
| 54              |               |        |        |       |                      |        |        |       |
| 55              |               |        |        |       |                      |        |        |       |
| 56              |               |        |        |       |                      |        |        |       |
| 58              |               |        |        |       |                      |        |        |       |
| 60              |               |        |        |       |                      |        |        |       |
| 62              |               |        |        |       |                      |        |        |       |
| 64              |               |        |        |       |                      |        |        |       |
| 65              |               |        |        |       |                      |        |        |       |
| 68              |               |        |        |       |                      |        |        |       |
| 70              |               |        |        |       |                      |        |        |       |

Alterations

Part Number - Number of Teeth - B - Gears Shape - P - (KC90, KC120, TPC, DHL, DHR, WDH, LFC, LTC, KFC, KTC, QFC, QTC)

GEAHB3.0 - 30 - 30 - A - 20 - KFC40-K6.0

| Alterations Code | Set Screw KC90, KC120                                                                                                                                                                                                                                            | Tapped Hole Dimension TPC                                                                                                                                                                                                                                                                                                                   | Stepped Hole DHL, DHR | Both Ends Stepped Bore WDH |    |       |    |       |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                     |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------|----|-------|----|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spec.            | KC90: Adds another set screw at 90° position.<br>KC120: Adds another set screw at 120° position.<br>Not applicable to Shape A.<br>Not applicable to Straight Bore Type.<br> | Changes the tapped hole dimension.<br>Ordering Code TPC4<br>Not applicable to Shape A.<br>Not applicable to Straight Bore Type.<br><table><tr><td>M</td><td>TPC</td></tr><tr><td>M5</td><td>M4 M6</td></tr><tr><td>M6</td><td>M5 M8</td></tr></table>  | M                     | TPC                        | M5 | M4 M6 | M6 | M5 M8 | Changes shaft bores to stepped bores.<br>(Z: 1mm Increment, J: 0.1mm Increment)<br>Ordering Code DHL-Z20-J4.0<br>Applicable to Straight Bore Type Only.<br> | Changes shaft bores to both ends stepped bore.<br>(Q, R, S, T: 1mm Increment)<br>Ordering Code WDH-Q10-R10-S5-T5<br>Applicable to Straight Bore Type Only.<br> |
| M                | TPC                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                             |                       |                            |    |       |    |       |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                     |
| M5               | M4 M6                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                             |                       |                            |    |       |    |       |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                     |
| M6               | M5 M8                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                             |                       |                            |    |       |    |       |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                     |

| Alterations Code | Side Slotted Hole LFC, LTC                                                                                                                                                                                                                                                          | Side Through Hole KFC, KTC                                                                                                                                                                                                                                                                        | Side Tapped Hole QFC, QTC                                                                                                                                                                                                                                                                                                                         |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spec.            | Machines slotted holes on the side surface (30°).<br>(LFC, LTC: 1mm Increment)<br>P+K+4≤LFC(LTC)≤G-K-4<br>Applicable to Shape A only.<br>M Selection M3 M4 M5 M6<br>Ordering Code LFC20-M3<br> | Machines through holes on the side surface.<br>(KFC, KTC: 1mm Increment, K: 0.5mm Increment)<br>Applicable to Shape A only.<br>P+K+4≤KFC(KTC)≤G-K-4<br>K Selection K3.0-K6.0<br>Ordering Code KFC20-K3.5<br> | Machines tapped holes on the side surface of the gear (QFC, QTC: 1mm Increment).<br>Applicable to Shape A only.<br>P+M+4≤QFC(QTC)≤G-M-4<br>M Selection M3, M4<br>Ordering Code QFC25-M3<br>Tapped Hole Depth Mx1.5 (When B-Mx1.5, through)<br>QFC<br>QTC<br> |