

# Spur Gears

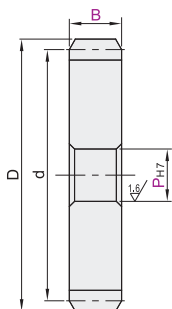
## Module 2.0 Pressure Angle 20°

| Code  | Type              | Material |        | Hardness | Surface Treatment |
|-------|-------------------|----------|--------|----------|-------------------|
|       |                   | GB       | Equiv. |          |                   |
| VNL02 | Straight Bore     | 45       | S45C   | —        | Black Oxide       |
| VNL03 |                   | 0Cr18Ni9 | SUS304 | —        | —                 |
| VNL11 | Straight Bore+Tap | 45       | S45C   | —        | Black Oxide       |
| VNL22 |                   | 0Cr18Ni9 | SUS304 | —        | —                 |
| VNL23 | Keyway+Tap        | 45       | S45C   | —        | Black Oxide       |
| VNL32 |                   | 0Cr18Ni9 | SUS304 | —        | —                 |
| VNL33 | Keyway+Tap        | 45       | S45C   | —        | Black Oxide       |
| VNL41 |                   | 0Cr18Ni9 | SUS304 | —        | —                 |

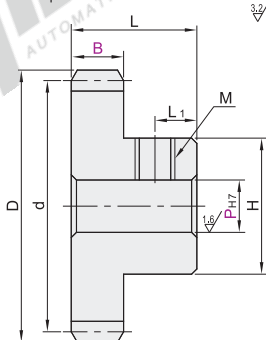


Gear Shape

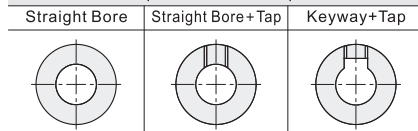
A Shape



B Shape

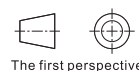


Shaft Bore Specifications P Shape Selection



- ① The Straight Bore+Tap is only suitable for B-shape.
- ② If the Keyway+Tap is A-shaped, there are no screw holes and set screws.
- ③ For Keyway dimensions, please refer to the product introduction.

Unhardened gear accuracy JIS B 1702-1 Class 8  
Hardened gear accuracy JIS B 1702-1 Class 9



| Part Number       |        | Number of Teeth | B  | Gears Shape | Shaft Bore Dia. P <sub>H7</sub> 1 mm Inc. |            | d   | D   | H  | L  | L <sub>1</sub> | M  |
|-------------------|--------|-----------------|----|-------------|-------------------------------------------|------------|-----|-----|----|----|----------------|----|
| Code              | Module |                 |    |             | Straight Bore                             | Keyway+Tap |     |     |    |    |                |    |
| Straight Bore     | 2.0    | 12              | 20 | A           | 8                                         |            | 24  | 28  | 18 |    |                |    |
|                   |        | 13              |    |             | 8~11                                      | 8N         | 26  | 30  | 20 | 32 | 6              |    |
|                   |        | 14              |    |             |                                           |            | 28  | 32  |    |    |                |    |
|                   |        | 15              |    |             | 8~15                                      | 8N~12N     | 30  | 34  | 24 |    |                |    |
|                   |        | 16              |    |             | 8~16                                      |            | 32  | 36  | 25 |    |                |    |
|                   |        | 17              |    |             | 8~19                                      | 8N~14N     | 34  | 38  | 28 |    |                |    |
|                   |        | 18              |    |             | 8~16N                                     |            | 36  | 40  | 30 |    |                | M5 |
|                   |        | 19              |    |             | 8~21                                      | 8N~17N     | 38  | 42  | 31 |    |                |    |
|                   |        | 20              |    |             | 8~23                                      | 8N~18N     | 40  | 44  | 33 |    |                |    |
|                   |        | 21              |    |             | 8~19N                                     |            | 42  | 46  | 34 |    |                |    |
| Straight Bore+Tap | 2.0    | 22              | 20 | A           | 8~25                                      | 8N~21N     | 44  | 48  | 36 |    |                |    |
|                   |        | 23              |    |             | 8~22N                                     |            | 46  | 50  | 37 |    |                |    |
|                   |        | 24              |    |             | 8~28                                      | 8N~23N     | 48  | 52  | 40 |    |                |    |
|                   |        | 25              |    |             |                                           |            | 50  | 54  |    |    |                |    |
|                   |        | 26              |    |             | 8~29                                      | 8N~25N     | 52  | 56  | 42 |    |                |    |
|                   |        | 27              |    |             | 8~31                                      | 8N~28N     | 54  | 58  | 45 |    |                |    |
|                   |        | 28              |    |             |                                           |            | 56  | 60  |    |    |                |    |
|                   |        | 29              |    |             | 8~32                                      | 8N~29N     | 58  | 62  | 47 |    |                |    |
|                   |        | 30              |    |             | 8~33                                      | 8N~30N     | 60  | 64  | 48 |    |                |    |
|                   |        | 32              |    |             | 8~35                                      | 8N~31N     | 64  | 68  | 50 |    |                |    |
| Keyway+Tap        | 2.0    | 34              | 20 | B           | 10~35                                     | 10N~31N    | 68  | 72  |    |    |                |    |
|                   |        | 35              |    |             | 10~36                                     | 10N~33N    | 70  | 74  | 52 |    |                |    |
|                   |        | 36              |    |             | 10~38                                     | 10N~35N    | 72  | 76  | 55 |    |                |    |
|                   |        | 38              |    |             |                                           |            | 76  | 80  |    |    |                |    |
|                   |        | 40              |    |             |                                           |            | 80  | 84  |    |    |                |    |
|                   |        | 42              |    |             |                                           |            | 84  | 88  |    | 36 | 8              |    |
|                   |        | 44              |    |             | 10~42                                     | 10N~38N    | 88  | 92  | 60 |    |                |    |
|                   |        | 45              |    |             |                                           |            | 90  | 94  |    |    |                |    |
|                   |        | 46              |    |             |                                           |            | 92  | 96  |    |    |                |    |
|                   |        | 48              |    |             |                                           |            | 96  | 100 |    |    |                |    |
| Keyway+Tap        | 2.0    | 50              | 20 | B           | 10~43                                     | 10N~40N    | 100 | 104 | 62 |    |                | M6 |
|                   |        | 52              |    |             |                                           |            | 104 | 108 |    |    |                |    |
|                   |        | 54              |    |             |                                           |            | 108 | 112 |    |    |                |    |
|                   |        | 55              |    |             | 12~45                                     | 12N~42N    | 110 | 114 |    |    |                |    |
|                   |        | 56              |    |             |                                           |            | 112 | 116 |    |    |                |    |
|                   |        | 58              |    |             |                                           |            | 116 | 120 |    |    |                |    |
|                   |        | 60              |    |             |                                           |            | 120 | 124 |    |    |                |    |
|                   |        | 62              |    |             |                                           |            | 124 | 128 |    |    |                |    |
|                   |        | 64              |    |             |                                           |            | 128 | 132 | 65 |    |                |    |
|                   |        | 65              |    |             | 15~45                                     | 15N~42N    | 130 | 134 |    |    |                |    |
| Keyway+Tap        | 2.0    | 68              | 20 | B           |                                           |            | 136 | 140 |    |    |                |    |
|                   |        | 70              |    |             |                                           |            | 140 | 144 |    |    |                |    |
|                   |        | 72              |    |             |                                           |            | 144 | 148 |    |    |                |    |
|                   |        | 75              |    |             | 20~45                                     | 20N~42N    | 150 | 154 |    |    |                |    |
|                   |        | 80              |    |             |                                           |            | 160 | 164 |    |    |                |    |
|                   |        | 85              |    |             |                                           |            | 170 | 174 |    |    |                |    |
|                   |        | 90              |    |             | 20~49                                     | 20N~45N    | 180 | 184 | 70 |    |                |    |
|                   |        | 95              |    |             |                                           |            | 190 | 194 |    |    |                |    |
|                   |        | 100             |    |             |                                           |            | 200 | 204 |    |    |                |    |



| Code            | Spec.                                                                                                                                                                                                                                                                                        |                 |    |       |       |        |       |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----|-------|-------|--------|-------|
| HC90            | <b>Adds another set screw at 90° position</b><br><br><b>Ordering Code</b> HC90<br>① Adds another set screw at 90° position.<br>② Not applicable to Shape A.                                                                                                                                  |                 |    |       |       |        |       |
|                 | <b>Adds another set screw at 120° position</b><br><br><b>Ordering Code</b> HC120<br>① Adds another set screw at 120° position.<br>② Not applicable to Shape A.                                                                                                                               |                 |    |       |       |        |       |
| MC ( )          | <b>Change Tapped Hole Dimensions</b><br><b>Ordering Code</b> MC4<br>③ Tapped hole designation table<br><table border="1"> <tr> <th>Number of Teeth</th><th>MC</th></tr> <tr> <td>12~24</td><td>M4 M6</td></tr> <tr> <td>25~100</td><td>M5 M8</td></tr> </table> ④ Not applicable to Shape A. | Number of Teeth | MC | 12~24 | M4 M6 | 25~100 | M5 M8 |
| Number of Teeth | MC                                                                                                                                                                                                                                                                                           |                 |    |       |       |        |       |
| 12~24           | M4 M6                                                                                                                                                                                                                                                                                        |                 |    |       |       |        |       |
| 25~100          | M5 M8                                                                                                                                                                                                                                                                                        |                 |    |       |       |        |       |

| Part Number | Code | Module | Number of Teeth | B | Gears Shape | Shaft Bore Dia. P <sub>H7</sub> |
|-------------|------|--------|-----------------|---|-------------|---------------------------------|
| VNL32       | 2.0  | 12     | 12              | A | 8           | 8N                              |
| VNL33       | 2.0  | 13     | 13              | B | 8~11        | 8N                              |

VNL32—2.0—14—B20—B—P8N

| Part Number | Code | Module | Number of Teeth | B | Gears Shape | Shaft Bore Dia. P <sub>H7</sub> | Optional Processing Code |
|-------------|------|--------|-----------------|---|-------------|---------------------------------|--------------------------|
| VNL32       | 2.0  | 12     | 12              | A | 8           | 8N                              | HC90 (C120)              |
| VNL33       | 2.0  | 13     | 13              | B | 8~11        | 8N                              | MC ( )                   |

VNL32—2.0—14—B20—B—P8N—HC120

Discount price  
Per 1~4 5~  
Price 100% Additional quotation

Delivery  
12