# High Torque Timing Pulleys

## 2GT Type

**Feature:** For 2GT High Torque Timing Belts, see **P.1430** and for 2GT Idlers with Teeth, see **P.1424**. For 1.5GT High Torque Timing Belts, please contact MISUMI.

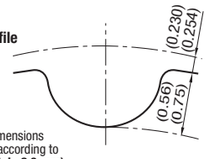
### High Torque Timing Pulleys

RoHS 10

| Belt Width 4 mm | Belt Width 6 mm | Belt Width 9 mm | Material | | Surface Treatment |
|---|---|---|---|---|---|
| A: 5.0 W: 8.3 L: 16.0 | A: 7.0 W: 10.3 L: 18.0 | A: 10.0 W: 13.3 L: 21.0 | Pulley | Flange | |
| GPA__GT2040 | GPA__GT2060 | GPA__GT2090 | 2000 Series Aluminum Alloy | Aluminum Alloy | Clear Anodize |

ⓘ Flanges are installed. Set screws are included with P & N bore hole specification.

**Standard Tooth Profile**

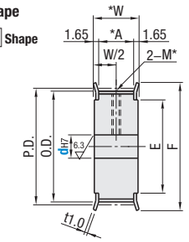



Shaft Bore Specifications H (Round Hole) do not have tapped holes.

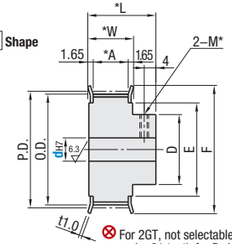
Tooth groove dimensions slightly change according to No. of teeth. **(Pitch: 2.0 mm)**

**Pulley Shape**

**A** Shape




**B** Shape




⊗ For 2GT, not selectable under 21 teeth for B shape.
⊗ For 1.5GT, not selectable under 24 teeth for B shape.

**Number of Teeth, Dimension: 1.5GT**

| mm | Number of Teeth | | | | |
|---|---|---|---|---|---|
| | 18 | 20 | 24 | 30 | 36 |
| P.D. | 8.59 | 9.55 | 11.46 | 14.32 | 17.19 |
| O.D. | 8.13 | 9.09 | 11.00 | 13.86 | 16.73 |
| D | — | — | — | 8 | 10 |
| F | 13 | 14 | 16 | 18 | 22 |
| E | 6 | 7 | 8 | 10 | 13 |

**Belt Nominal Width / Dimension**

| mm | Nominal | | | |
|---|---|---|---|---|
| | GT15040 | GT2040 | GT2060 | GT2090 |
| A | 5.0 | 5.0 | 7.0 | 10.0 |
| W | 8.3 | 8.3 | 10.3 | 13.3 |
| L | 16.0 | 16.0 | 18.0 | 21.0 |

**Tapped Hole Dimensions (Shaft Bores: P, N)**

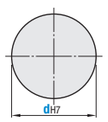
| $d_{H7}$ Shaft Bore Inner Dia. | M (Coarse) | Accessory Set Screw |
|---|---|---|
| 5 | M3 | M3 x 3 |
| 6–22 | M4 | M4 x 3 |

**Number of Teeth, Dimension: 2GT**

| mm | Number of Teeth | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 14 | 15 | 16 | 18 | 20 | 21 | 22 | 24 | 25 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 44 | 48 | 50 | 60 |
| P.D. | 8.91 | 9.55 | 10.19 | 11.46 | 12.73 | 13.37 | 14.01 | 15.28 | 15.92 | 16.55 | 17.83 | 19.10 | 20.37 | 21.65 | 22.92 | 24.19 | 25.46 | 28.01 | 30.56 | 31.83 | 38.20 |
| O.D. | 8.40 | 9.04 | 9.68 | 10.95 | 12.22 | 12.86 | 13.50 | 14.77 | 15.41 | 16.04 | 17.32 | 18.59 | 19.86 | 21.14 | 22.41 | 23.68 | 24.95 | 27.50 | 30.05 | 31.32 | 37.69 |
| D | — | — | — | — | — | — | 8 | 10 | 10 | 10 | 10 | 11 | 13 | 14 | 14 | 16 | 17 | 19 | 22 | 22 | 28 |
| F | 13 | 14 | 14 | 16 | 17 | 18 | 18 | 20 | 20 | 21 | 23 | 24 | 25 | 27 | 27 | 29 | 30 | 32 | 35 | 36 | 42 |
| E | 6 | 7 | 7 | 8 | 9 | 10 | 10 | 12 | 12 | 12 | 14 | 15 | 17 | 18 | 18 | 20 | 21 | 23 | 26 | 27 | 33 |

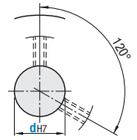
**Shaft Bore Specs.** ⓘ The shaft bore may not have surface treatment.

**H** Round Hole



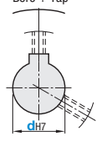

ⓘ No tapped holes and set screws.
ⓘ As long as shaft hole diameter d is within the selection range, shaft hole diameter 4.5, 6.35 can be selected.

**P** Round Hole + Tap



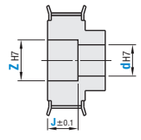

* For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.
ⓘ As long as shaft hole diameter d is within the selection range, shaft hole diameter 6.35 can be selected.

**N** New JIS Keywayed Bore + Tap



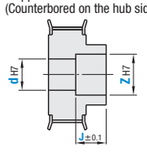

* For Keyway Dimension Details, refer to **P.1338**.

**V** Stepped Hole



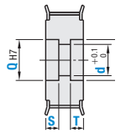

ⓘ No tapped holes or set screws included.
ⓘ As long as shaft hole diameter d is within the selection range, shaft hole diameter 6.35 can be selected.

**F** Stepped Hole (Counterbored on the hub side)




ⓘ Only available for B Shape Pulley.
ⓘ No tapped holes or set screws included.
ⓘ As long as shaft hole diameter d is within the selection range, shaft hole diameter 6.35 can be selected.

**Y** Both Ends Stepped Hole




ⓘ Only available for A Shape Pulley.
ⓘ Shaft hole diameter 0/+1.0.
ⓘ No tapped holes or set screws included.
ⓘ Q(R) – Y ≥ 2

### 1.5GT

| Part Number: Type | Number of Teeth | Type Nominal Width | Pulley Shape | Pulley Shape: A — Shaft Bore Specs. (Selection): H Round Hole | P Round Hole + Tap | N: Keyway + Tap | Pulley Shape: B — Shaft Bore Specs. (Selection): H Round Hole | P Round Hole + Tap |
|---|---|---|---|---|---|---|---|---|
| Aluminum GPA | 18 | GT15040 | A | 3 | — | — | — | — |
| | 20 | | | 3 4 | | | | |
| | 24 | | | 4 4.5 5 | 5 | | | |
| | 30 | | A | 4 4.5 5 6 | 5 6 | — | 4 | 5 6 |
| | 36 | | B | 5 6 6.35 7 8 | 5 6 6.35 7 8 | 8 | 5 6 6.35 7 8 | 5 6 6.35 7 8 |

### 2GT

| Part Number: Type | Teeth | Type Nominal Width | Pulley Shape | Pulley Shape: A — #–# : 1mm increments, no "–" : only selection of visible numbers. — H(d) Round Hole | P(d) Round Hole + Tap ⓘ | N(d) JIS Keywayed Bore + Tap ⓘ | V Stepped Hole: V(d) | Z Z–d≥2 | J (1 mm increments) | Y Both Ends Stepped Hole: Y(d) | Q • R | S • T (1 mm increments) | Pulley Shape: B — #–# : 1mm increments, no "–" : only selection of visible numbers. — H(d) Round Hole | P(d) Round Hole + Tap ⓘ | N(d) JIS Keywayed Bore + Tap ⓘ | V • F Stepped Hole: V • F(d) | Z Z(d)2 | J (1 mm increments) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum GPA | 14 | GT2040 GT2060 GT2090 | A | 3 | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 15 | | | 3 4 | | | | | | | | | | | | | | |
| | 16 | | | 3 4 | | | | | | | | | | | | | | |
| | 18 | | | 4 4.5 5 | | | | | | | | | | | | | | |
| | 20 | | | 4 4.5 5 6 | | | | | | | | | | | | | | |
| | 21 | | | 4–6 | | | | | | | | | | | | | | |
| | 22 | | A B | 4–6 | — | — | 4 | 6 | 2–11 2.0≤J≤W–2.0 | 4 | 6 | 3–5 S+T≤W–3 | 4 | — | — | — | — | — |
| | 24 | | | 5–8 | | | 5 6 | 7 8 | | 5 6 | 7 8 | | 5 6 | | | | | |
| | 25 | | | 5–8 | | | 5 6 | 7 8 | | 5 6 | 7 8 | | 5–7 | | | | | |
| | 26 | | | 5–8 | | | 5 6 | 7 8 | | 5 6 | 7 8 | | 5–8 | | | | | |
| | 28 | | | 5–10 | | | 5–8 | 7–10 | | 5–8 | 7–10 | | 5–8 | | | | | |
| | 30 | | | 5–11 | | | 5–9 | 7–11 | | 5–9 | 7–11 | | 5–8 | | | 5 | 7 | 2–19 2.0≤J≤L–2.0 |
| | 32 | | | 5–13 | 5–10 | — | 5–11 | 7–13 | | 5–11 | 7–13 | | 5–9 | 5 6 | — | 5–7 | 7–9 | |
| | 34 | | | 6–14 | 6–10 | | 6–12 | 8–14 | | 6–12 | 8–14 | | 6–10 | 6–8 | | 6–8 | 8–10 | |
| | 36 | | | 6–14 | 6–10 | | 6–12 | 8–14 | | 6–12 | 8–14 | | 6–10 | 6–8 | | 6–8 | 8–10 | |
| | 38 | | | 6–16 | 6–10 | 8 | 6–14 | 8–16 | | 6–14 | 8–16 | | 6–12 | 6–8 | — | 6–10 | 8–12 | |
| | 40 | | | 6–17 | 6–12 | 8 10 | 6–15 | 8–17 | | 6–15 | 8–17 | | 6–13 | 6–10 | | 6–11 | 8–13 | |
| | 44 | | | 6–19 | 6–13 | 8–11 | 6–17 | 8–19 | | 6–17 | 8–19 | | 6–15 | 6–12 | | 6–13 | 8–15 | |
| | 48 | | | 8–22 | 8–15 | 8–13 | 8–20 | 10–22 | | 8–20 | 10–22 | | 8–18 | 8–12 | 8 | 8–16 | 10–18 | |
| | 50 | | | 8–23 | 8–16 | 8–14 | 8–21 | 10–23 | | 8–21 | 10–23 | | 8–18 | 8–12 | 8 | 8–16 | 10–18 | |
| | 60 | | | 8–29 | 8–22 | 8–19 | 8–27 | 10–29 | | 8–27 | 10–29 | | 8–24 | 8–22 | 8–14 | 8–22 | 10–24 | |

⊗ For Shaft Bore Spec. N, shaft diameter 9 is not available.



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# High Torque Timing Pulleys

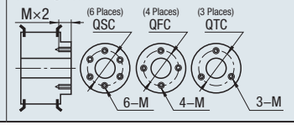
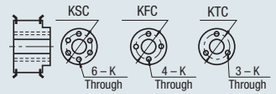
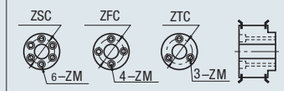
## 2GT Type, *continued*

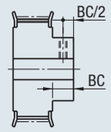
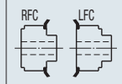
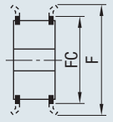
**Part Number Example**

| Part Number | - | Pulley Shape | - | Shaft Bore Spec. / Inner Dia. |
|---|---|---|---|---|
| GPA32GT2060 | - | A | - | H8 |

**Part Number Alterations**

| Part Number | - | Pulley Shape | - | Shaft Bore Spec. / Inner Dia. | - | (KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC) |
|---|---|---|---|---|---|---|
| GPA32GT2060 | - | A | - | H8 | - | NFC |

| Alterations | Set Screw Angle | Side Tapped Hole | Side Through Holes | Side Counterbore Holes |
|---|---|---|---|---|
| Code | KC90 | QSC / QFC / QTC | KSC-KTC-KFC | ZTC-ZFC-ZSC |
| Spec. | Changes an angle of set screw to 90°.<br>ⓘ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.<br>  | Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 0.5 mm Increment)<br>ⓘ Thickness required: minimum 2mm<br>A Shape: d+M+4≤QSC(QFC / QTC)≤E-(M+4)<br>B Shape: d+M+4≤QSC(QFC / QTC)≤D-(M+4)<br>ⓘ d=Z when the Shaft Bore Specifications is V.<br>ⓘ Specify KC90 when selecting QFC for Shaft Bore specifications P, PU, HU, N, and C.<br>ⓘ The pilot hole for tapping may go through.<br>⊗ Not applicable to Shaft Bore Specifications F or Y.<br>⊗ When the Shaft Bore Specifications are P, PU, HU, N or C, QSC is not applicable.<br>⊗ Not applicable to K Shape.<br>M Selection: M3, M4, M5, M6, M8<br>**Ordering Code:** QFC28-M4<br>  | Machines through hole on the side surface of hub side.<br>**Ordering Code:** KTC28-K4.5<br>**K, C Selection:**<br>Please specify the hole's manufacturing position (P.C.D.)<br>**K Specification:** K4.0-11.0 (0.5mm increments)<br>Application Notes<br>⊗ Not available for K shape<br>  | Machines countbore holes on the side surface of the hub side.<br>**Ordering Code:** ZTC28-ZM4<br>**Z/C Selection:** Please specify the hole's manufacturing position (P.C.D.)<br>**ZM Selection:** ZM3, ZM4, ZM5, ZM6, ZM8<br>Application Notes<br>⊗ Not applicable for 1.5GT<br>ⓘ Minimum thickness is 2mm<br>ⓘ Conditions vary depending on the shaft hole specifications<br>  |

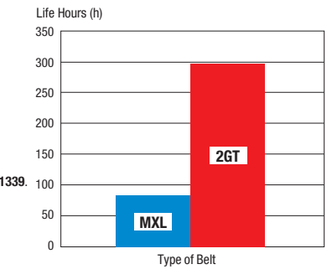
| Alterations | Hub Shortening | Flange Not Swaged | Flange Swaged on One Side | Flange Cut |
|---|---|---|---|---|
| Code | BC | NFC | RFC / LFC | FC |
| Spec. | Cuts the hub length in 0.5mm increments<br>**Ordering Code:** BC6.5<br>Application Notes<br>ⓘ Shaft Bore specification H, V, F: 3≤BC≤L-W<br>ⓘ Shaft Bore specification P, N, C: M+3≤BC≤L-W<br>⊗ Not available for K, A shape<br>  | Flange is not Installed. (Flange included)<br>  | Flange installed on the hub side (RFC) or the opposite side (LFC) only.<br>ⓘ Same on A Shape<br>  | Cuts the outer diameter of the flange in 0.5mm increments<br>**Ordering Code:** FC17<br>Application Notes<br>ⓘ FC ≥ (O.D.) + 1<br>ⓘ FC ≤ F - 2<br>ⓘ No surface treatment applied on flange circumference.<br>  |

### Performance Comparison Between MXL & 2GT Belts

**Reference (1): Durability**

**Performance Conditions**
No. of Belt Teeth: 126
Belt Width: 9.5 mm
No. of Pulley Teeth: 12 (2GT)
: 14 (MXL)
Revolutions: 7,900 rpm
Load Torque: 24.3 Nm

*Technical Data for backlash, **P.1339**.




**Reference (2): Jumping Torque Capability**

**Performance Conditions**
No. of Belt Teeth: 126
Belt Width: 4.8 mm
No. of Pulley Teeth: 20 (2GT)
: 20 (MXL)
Revolutions: 1,130 rpm

Teeth Height
MXL: 0.51 mm
2GT: 0.75 mm

*Jumping Torque represents the max. torque when a jumping occurs.