| CTH□-KS | Taper sleeve | Option |

## Specifications

Size

**02**
**04**
CTH **06** —
**10**
**16**

Option code

**KS** : Taper sleeve

**KN** : Perfect nut

**KNR** : Perfect release nut

Taper sleeve and perfect release nut can not be combined.
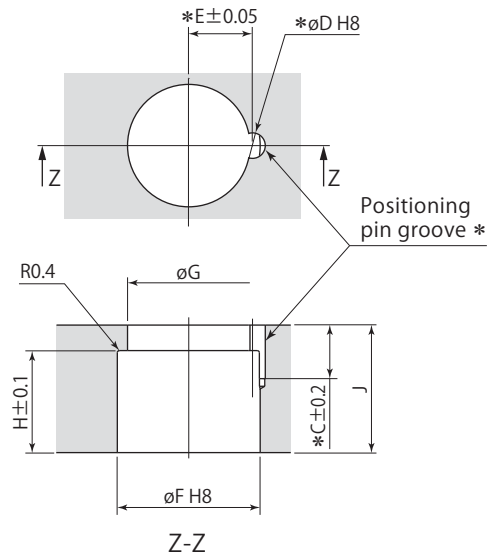
▇ indicates made to order.

## Taper sleeve



øHB
HC
Taper 1/10
øHA
X-X
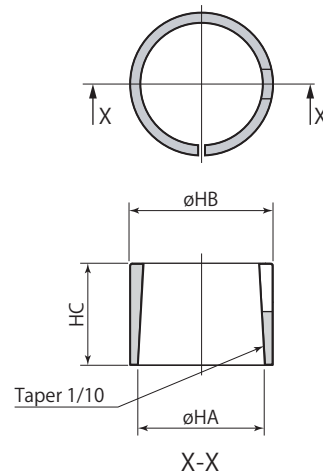
## Clamp arm mounting details

### Not using taper sleeve



*E±0.05   *øD H8

Y

Positioning
pin groove *

(øB)

*C±0.2   J

Taper 1/10   øA

Y-Y

### Using taper sleeve



*E±0.05   *øD H8

Z

Positioning
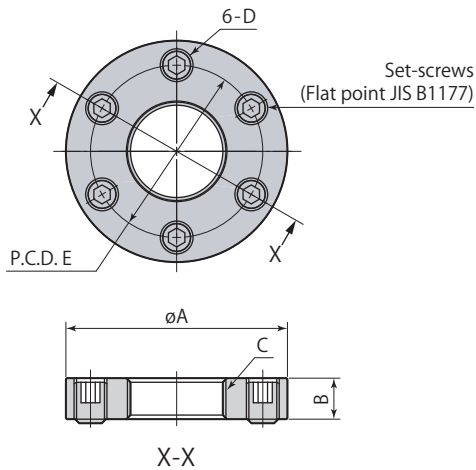pin groove *

R0.4   øG

H±0.1   *C±0.2   J

øF H8

Z-Z
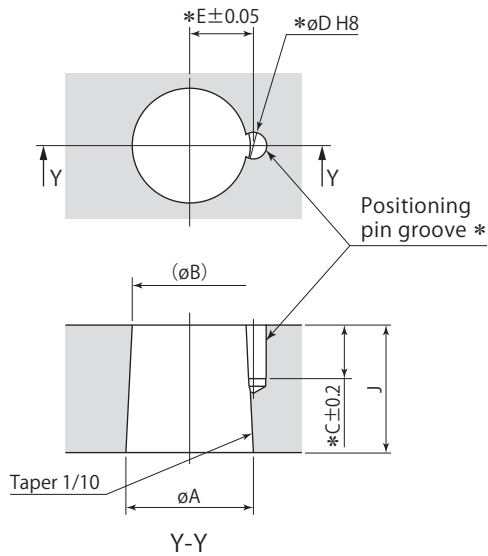
*：No need to machine the pin groove (C, øD, E) unless positioning pin is used for the arm.
　The positioning pin enables a clamp arm to locate on the clamp firmly and easily.

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| Taper sleeve | CTH02-KS | CTH04-KS | CTH06-KS | CTH10-KS | CTH16-KS |
|---|---|---|---|---|---|
| Applicable swing clamp | CTK02 | CTK04 | CTK06 | CTK10 | CTK16 |
| øHA | 12 | 16 | 20 | 25 | 32 |
| øHB | 14 | 18 | 22 | 28 | 36 |
| HC | 9.5 | 11 | 13 | 16 | 22 |
| øA | $12_{-0.034}^{-0.016}$ | $16_{-0.034}^{-0.016}$ | $20_{-0.041}^{-0.020}$ | $25_{-0.041}^{-0.020}$ | $32_{-0.050}^{-0.025}$ |
| øB | 10.8 | 14.6 | 18.4 | 23.1 | 29.5 |
| C | 6.5 | 8.5 | 10.5 | 12.5 | 12.5 |
| øD (pin groove diameter) | $2.5_{0}^{+0.014}$ | $3_{0}^{+0.014}$ | $4_{0}^{+0.018}$ | $5_{0}^{+0.018}$ | $6_{0}^{+0.018}$ |
| E | 6.05 | 8.1 | 10.1 | 12.6 | 16.1 |
| øF | $14_{0}^{+0.027}$ | $18_{0}^{+0.027}$ | $22_{0}^{+0.033}$ | $28_{0}^{+0.033}$ | $36_{0}^{+0.039}$ |
| øG | 11.5 | 15 | 19 | 23.5 | 30 |
| H | 9.5 | 11 | 13 | 16 | 22 |
| J | 12 | 14 | 16 | 19 | 25 |

## CTH□-KN□ | Perfect nut, Perfect release nut | Option

### Perfect nut



X-X

### Perfect release nut



Y-Y
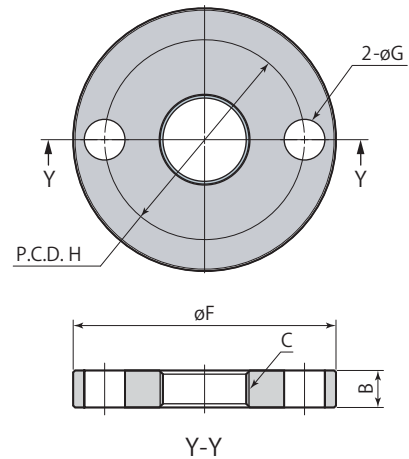
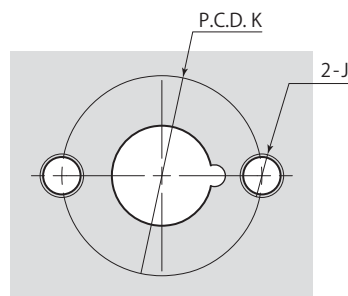Perfect nut and perfect release nut are not included with swing clamp. Place an order by specifying following models.

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| | | | | | | |
|---|---|---|---|---|---|---|
| Perfect nut | | CTH02-KN | CTH04-KN | CTH06-KN | CTH10-KN | CTH16-KN |
| Perfect release nut | | CTH02-KNR | CTH04-KNR | CTH06-KNR | CTH10-KNR | CTH16-KNR |
| Applicable swing clamp | | CTK02 | CTK04 | CTK06 | CTK10 | CTK16 |
| Set-screw | Size | M4×0.7 length 6 | M5×0.8 length 8 | M6×1 length 8 | M8×1.25 length 8 | M8×1.25 length 8 |
| | Recommended tightening torque | 0.8 N·m | 2 N·m | 3 N·m | 6 N·m | 7 N·m |
| Recommended draw screw | | M5×0.8 | M6×1 | M8×1.25 | M10×1.5 | M10×1.5 |
| øA | | 23 | 30 | 36 | 48 | 55 |
| B | | 6.5 | 8 | 9 | 10 | 11 |
| C | | M10×0.75 | M14×1.5 | M18×1.5 | M22×1.5 | M28×1.5 |
| D | | M4×0.7 | M5×0.8 | M6×1 | M8×1.25 | M8×1.25 |
| E | | 17 | 22 | 26.5 | 35 | 42 |
| øF | | 33 | 40 | 50 | 62 | 70 |
| øG | | 5.5 | 6.8 | 9 | 11 | 11 |
| H | | 23 | 29 | 36 | 45 | 52 |
| Mass | Perfect nut | 0.02 kg | 0.04 kg | 0.06 kg | 0.12 kg | 0.16 kg |
| | Perfect release nut | 0.04 kg | 0.07 kg | 0.12 kg | 0.21 kg | 0.28 kg |

● Draw screws are not included with perfect release nut.

### Clamp arm details

### (Using perfect release nut)



mm

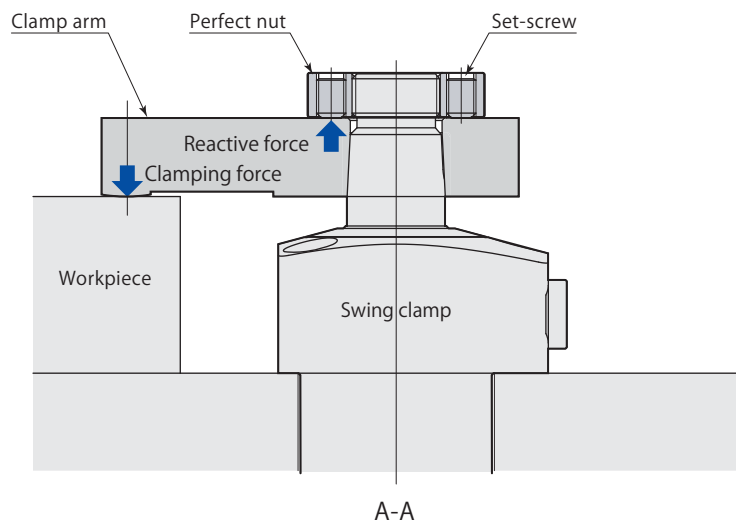| Applicable swing clamp | CTK02 | CTK04 | CTK06 | CTK10 | CTK16 |
|---|---|---|---|---|---|
| J | M5 | M6 | M8 | M10 | M10 |
| K | 23 | 29 | 36 | 45 | 52 |

● For the finished dimensions of clamp arm in those portions other than the perfect release nut using part, refer to .

## Perfect nut (Arm mounting guide)

1. Set clamp arm and turn perfect nut as tight as it gets manually.

2. Turn back perfect nut to the position where two set-screws hold against reactive force of arm, as shown in diagram below.

3. Tighten set-screws with recommended torque in order of ❶ to ❻ in diagram below.

4. Once set-screws are tightened to ❻ , ❶ becomes loose, so retighten in sequence of ❶ to ❻ again.

5. Repeat tightening of set-screws ❶ to ❻ six times.

6. Repeat clamping and unclamping of workpiece five times (this operation allows taper section to become accustomed to use).

7. Return to unclamped condition and then retighten set-screws in order of ❶ to ❻.
   Once tightening in sequence of ❶ to ❻ is repeated three times, all set-screws will be fixed and clamp arm is completely mounted.

Clamp arm    Perfect nut    Set-screw

A

Clamping point
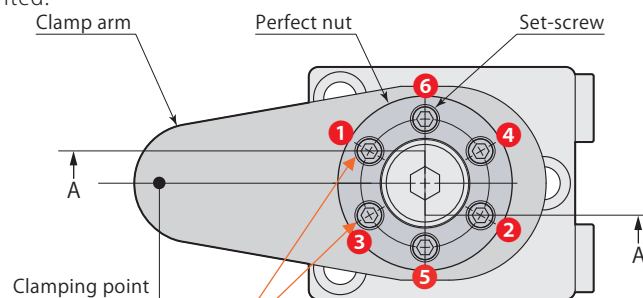
Set a position which receives the arm reactive force at 2 pieces of set-screws.

Clamp arm    Perfect nut    Set-screw

Reactive force
Clamping force

Workpiece

Swing clamp

A-A

● The clamp arm may bite at the taper of the clamp rod and it will cause the demount failure if the set screw is tightened with excessive force. Be sure to use recommended torque when tightening.

● More secure tightening can be accomplished by applying some thread adhesive on set-screws.
   Recommended adhesive: LOCTITE 243 (medium strength type)

## Perfect release nut (Arm dismounting guide)

1. Loosen all set-screws of perfect nut and dismount perfect nut from piston rod.

2. Mount perfect release nut and turn it until clamp arm comes into contact.

3. Turn perfect release nut back one or two more times, align the nut hole with tap hole of clamp arm and then mount the draw screws.

4. Once draw screws are tightened, clamp arm can be pulled off piston rod.



B-B
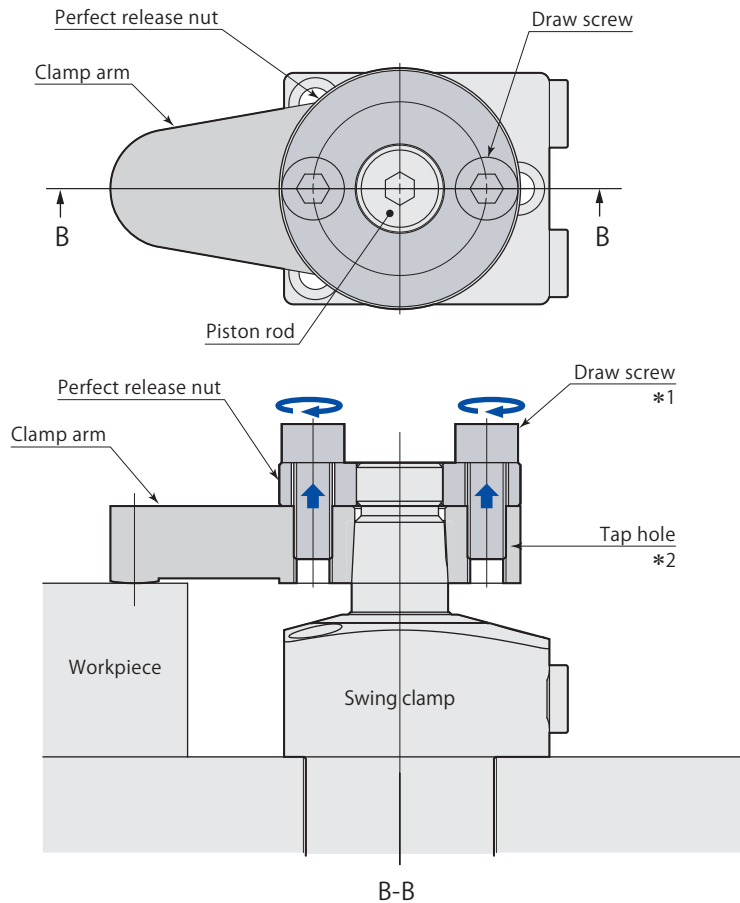
*1：Turn draw screws as a pair, alternately turning 45° to 90° at a time to tighten them evenly.
　　Some movement is felt in hand as clamp arm comes off, but there is no danger involved in this procedure.

*2：Tap holes for draw screws are needed on clamp arm in order to use perfect release nut.
　　Refer to clamp arm details on **page →43** for details on tap holes.

## Caution in use

In the event that a clamp arm is used with taper sleeve, the perfect release nut cannot remove the clamp arm due to the taper sleeve remaining on the piston rod. (When using a taper sleeve, please use a gear puller (or similar) to remove clamp arm.)

To be able to easily remove clamp arms using the perfect release nut, drill a 1/10 taper hole into the clamp arm. (Clamp arm mounting details refer to **page →42**)