# MCHW series

## 180° ANGULAR GRIPPER - Rack & pinion style

## Features:

- For applications where saving space is a necessity.
- Each one of the two fingers, synchronized by a rack and pinion, rotates back perpendicular to the gripper.
- Dust proof construction.
- Auto switch mounting at 4 locations.

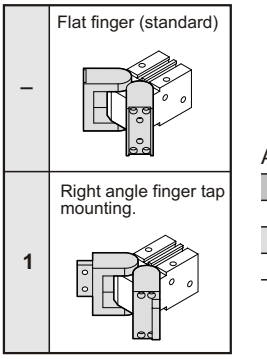
## Specification:

| Model | | MCHW | | | | |
|---|---|---|---|---|---|---|
| Acting Type | | Double Acting | | | | |
| Tube I.D. (mm) | | 20 | 25 | 32 | 40 | 50 |
| Medium | | Air | | | | |
| Operating pressure range | | 1.5~7 kgf/cm$^2$ | | | | |
| Ambient temperature | | −10~+60℃ (No freezing) | | | | |
| Repeatability (mm) | | ±0.2 | | | | |
| Max.operating frequency(c.p.m) | | 60 | 30 | | | |
| Lubrication | | Not required | | | | |
| Effective force (Nm) at (5kgf/cm$^2$) | | 0.30 | 0.73 | 1.61 | 3.70 | 8.27 |
| Operating angle (both sides) | Opened side | 180° | | | | |
| | Closed side | -5° | -6° | -5° | -5° | -4° |
| Weight (kg) | | 0.30 | 0.53 | 1 | 2.2 | 5.15 |

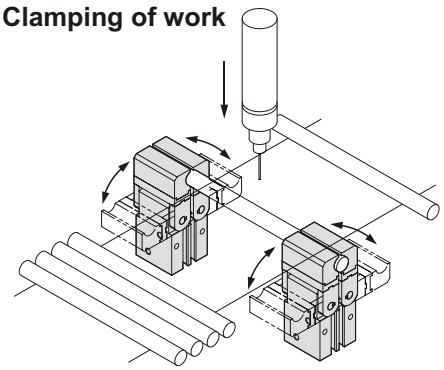
## Order example:

MCHW − 25 D 1 − RK × 1

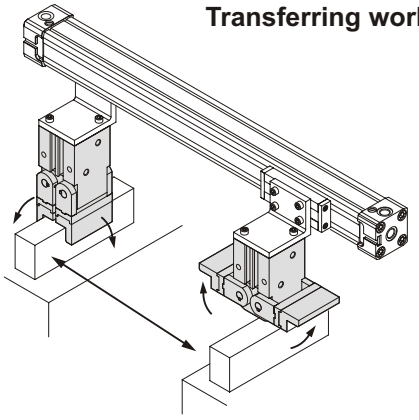
- MODEL: MCHW
- BORE: 25 → ϕ20, ϕ25, ϕ32, ϕ40, ϕ50
- D: Double acting
- FINGER OPTION: – Flat finger (standard); 1 Right angle finger tap mounting.
- AUTO SWITCH TYPE: RK (Reed switch), RKN (NPN), RKP (PNP)
- NUMBER of AUTO SWITCH: 1



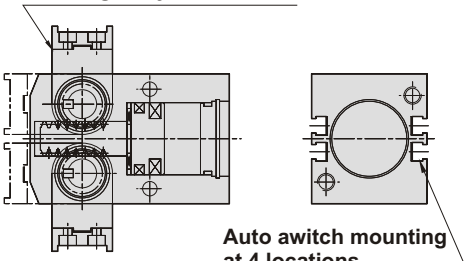
### Clamping of work



### Transferring work



### Two finger styles available



**Key connection is ideal for impact resistance**

Key connection between finger and shaft prevents finger angle slippage during impact.

**Auto awitch mounting at 4 locations**

**Bearings are standard.**

**Dust proof construction**

seal arrangement protects gripper from harsh dusty environments.

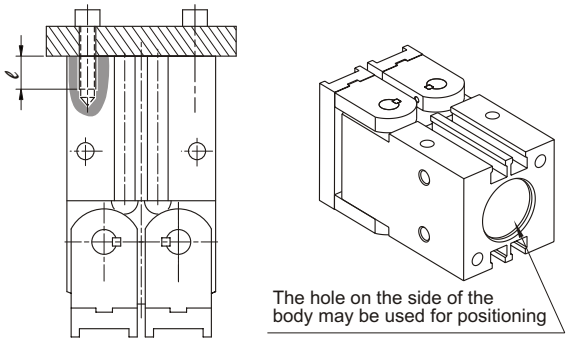
# MCHW Mounting $\phi$20~$\phi$50

## 180° ANGULAR GRIPPER - Rack & pinion style

Mindman

## Mounting

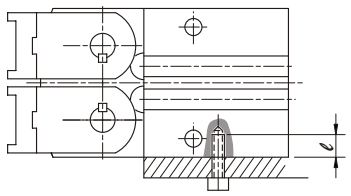
### Axisl mounting (body tapped)




| Model | Bolt | Max.torque N.m | Max.screw depth ℓ (mm) |
|---|---|---|---|
| MCHW-20 | M5×0.8 | 4.3 | 10 |
| MCHW-25 | M6×1 | 7.4 | 12 |
| MCHW-32 | M6×1 | 7.4 | 12 |
| MCHW-40 | M8×1.25 | 17.7 | 15 |
| MCHW-50 | M10×1.5 | 37.2 | 20 |

| Model | Hole diameter (mm) | Height (mm) |
|---|---|---|
| MCHW-20 | $\phi$21H9 $^{+0.052}_{-0}$ | 3 |
| MCHW-25 | $\phi$26H9 $^{+0.052}_{-0}$ | 3 |
| MCHW-32 | $\phi$34H9 $^{+0.062}_{-0}$ | 4 |
| MCHW-40 | $\phi$43H9 $^{+0.062}_{-0}$ | 4 |
| MCHW-50 | $\phi$52H9 $^{+0.074}_{-0}$ | 5 |

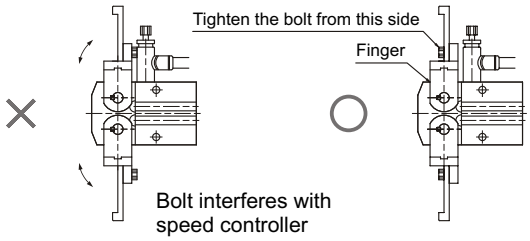
### Vertical mounting (body tapped)



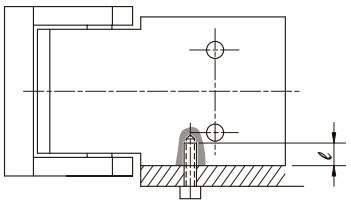

| Model | Bolt | Max.torque N.m | Max.screw depth ℓ (mm) |
|---|---|---|---|
| MCHW-20 | M5×0.8 | 2.9 | 7 |
| MCHW-25 | M6×1 | 5.9 | 10 |
| MCHW-32 | M6×1 | 5.9 | 10 |
| MCHW-40 | M8×1.25 | 17.7 | 15 |
| MCHW-50 | M10×1.5 | 37.2 | 20 |

### Warning

- When using right angle finger tap mounting type, pay attention the interference of bolt and speed controller.

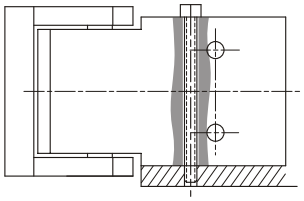



### Leteral mounting (body tapped)



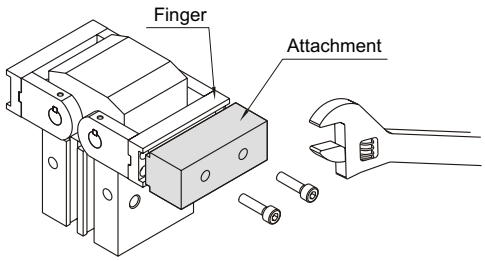

| Model | Bolt | Max.torque N.m | Max.screw depth ℓ (mm) |
|---|---|---|---|
| MCHW-20 | M5×0.8 | 4.3 | 10 |
| MCHW-25 | M6×1 | 7.4 | 12 |
| MCHW-32 | M6×1 | 7.4 | 12 |
| MCHW-40 | M8×1.25 | 17.7 | 16 |
| MCHW-50 | M10×1.5 | 37.2 | 20 |

### Leteral mounting (body through hole)



| Model | Bolt | Max.torque N.m |
|---|---|---|
| MCHW-20 | M4×0.7 | 2.1 |
| MCHW-25 | M5×0.8 | 4.3 |
| MCHW-32 | M5×0.8 | 4.3 |
| MCHW-40 | M6×1 | 7.4 |
| MCHW-50 | M8×1.25 | 17.7 |

### How to mount attachment on fingers




- To mount an attachment to a finger, make sure to use a wrench to support the attachment so as not to apply undue strain on the finger.
- Refer to the table below for the proper tightening torque on the bolt used for securing the attachment to the finger.

| Model | Bolt | Max.torque N.m |
|---|---|---|
| MCHW-20 | M4×0.7 | 1.4 |
| MCHW-25 | M5×0.8 | 2.5 |
| MCHW-32 | M6×1 | 4.1 |
| MCHW-40 | M8×1.25 | 10.6 |
| MCHW-50 | M10×1.5 | 24.5 |

## Effective holding force

**L**: Holding point distance **F**: Thrust of one finger

### Indication of effective holding force

1.Although the condition differs according to the coefficient of friction between the attachment and work, select a model that can produce a holding force of 10 to 20 times the work.

2.Further allowance should be provided when great acceleration or impact is expected during work transfer.

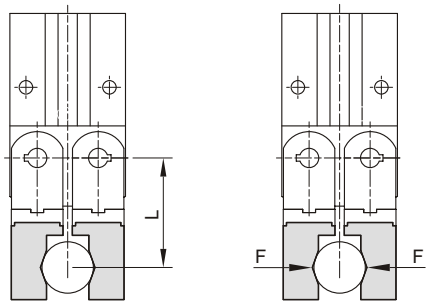
Ex.)

For setting the holding force to be at least 20 times the work weight;

Required holding force = 0.1kg X 20 X 9.8m/s$^2$ = 20N min.

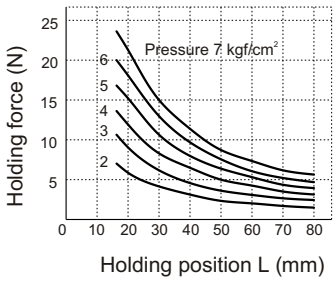
When MCHW-25 is selected, the holding force is determined to be 23N according to the holding point distance (L = 30mm) and the pressure (5kgf/cm$^2$).

3.The holding force shown in the tables represents the holding force of one finger when all fingers and attachments are in contact with the work.

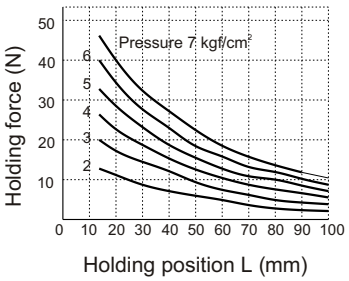



**External hold**

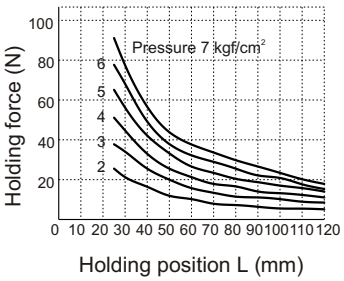
MCHW-20



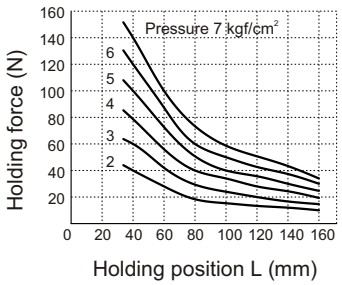

MCHW-25



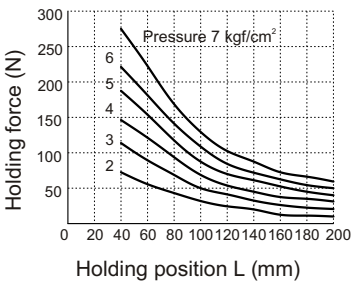

MCHW-32




MCHW-40

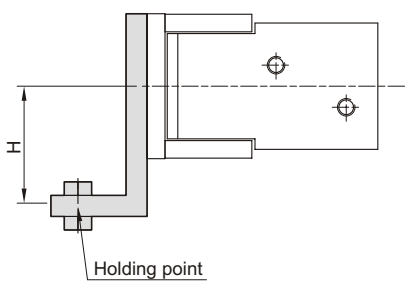



MCHW-50

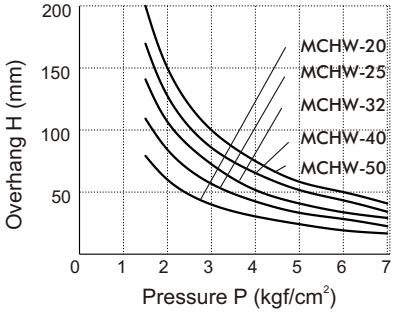



## Confirmation of holding point

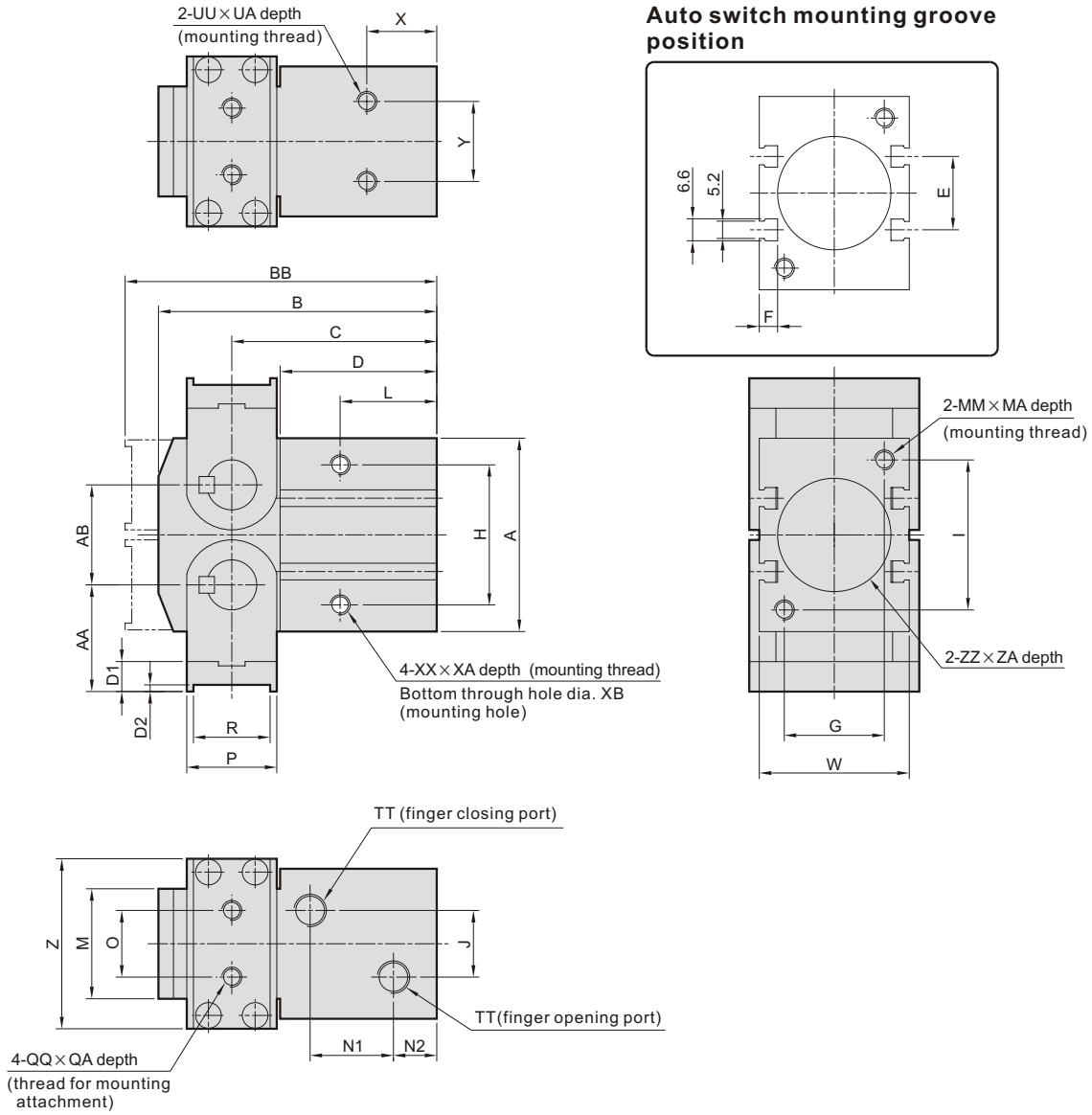
Work should be held at a point within the tange of overhanging distance (H) for a given preaaure bindicated in the tables. When the work is held at a point outside of the recommended range for a given pressure. it may causes adverse effect on the product life.




MCHW



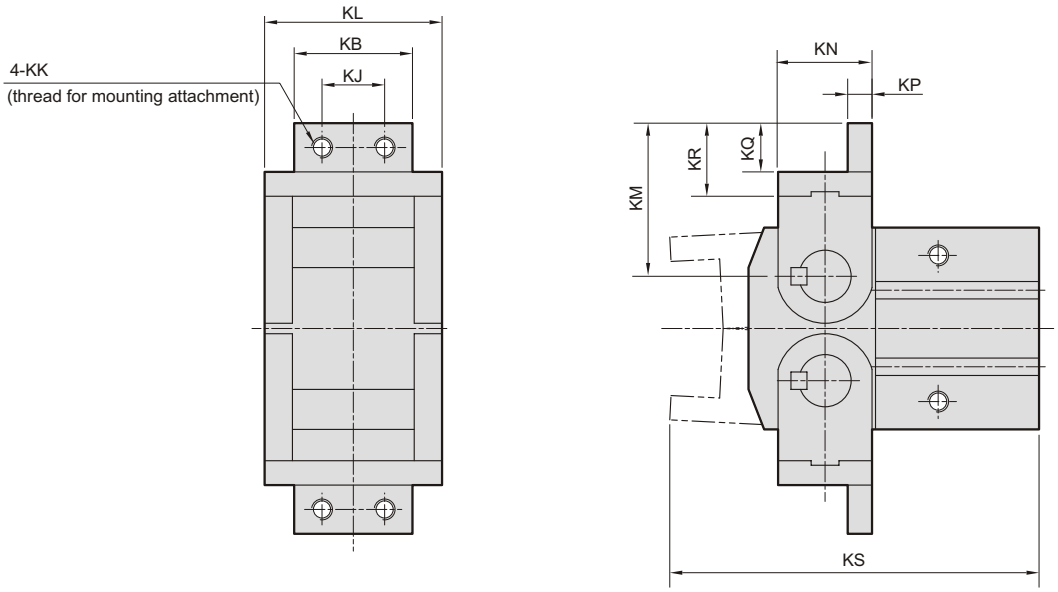
## Flat finger (standard)




| Code / Tube I.D. | A | AA | AB | B | BB | C | D | D1 | D2 | E | F | G | H | I | J | L | M | MA | MM | N1 | N2 | O | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 36 | 23 | 18 | 60 | 68 | 45 | 35 | 7 | 2 | 8 | 5 | 26 | 27 | 26 | 12 | 23 | 30 | 10 | M5×0.8 | 20 | 9 | 18 | 16 |
| 25 | 45 | 27 | 24 | 69 | 78 | 51 | 40 | 8 | 2 | 9 | 5 | 30 | 34 | 30 | 16 | 27 | 30.3 | 12 | M6×1 | 23 | 10 | 20 | 21 |
| 32 | 58 | 32 | 30 | 83.5 | 93.5 | 61.5 | 47 | 9 | 2 | 22 | 5.5 | 30 | 42 | 45 | 20 | 29 | 32.9 | 12 | M6×1 | 25 | 13 | 20 | 27 |
| 40 | 80 | 42 | 40 | 104.5 | 117.5 | 75.5 | 56.5 | 12 | 3 | 20 | 5 | 36 | 54 | 60 | 20 | 37.5 | 45 | 15 | M8×1.25 | 33.5 | 14 | 28 | 36 |
| 50 | 112 | 58 | 56 | 136 | 154 | 96 | 69 | 17 | 4 | 26 | 5 | 40 | 70 | 80 | 30 | 48 | 58.6 | 20 | M10×1.5 | 22 | 16 | 38 | 52 |

| Code / Tube I.D. | R | QA | QQ | TT | UA | UU | W | X | XA | XB | XX | Y | Z | ZA | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | $12^{+0.2}_{+0.1}$ | 5 | M4×0.7 | M5×0.8 | 7 | M5×0.8 | 36 | 17 | 10 | 4.2 | M5×0.8 | 20 | 41 | 3 | $\phi$21H9 $^{+0.052}_{+0}$ |
| 25 | $17^{+0.2}_{+0.1}$ | 6 | M5×0.8 | M5×0.8 | 10 | M6×1 | 40 | 20 | 12 | 5.1 | M6×1 | 24 | 45 | 3 | $\phi$26H9 $^{+0.052}_{+0}$ |
| 32 | $23^{+0.2}_{+0.1}$ | 7 | M6×1 | Rc 1/8 | 10 | M6×1 | 45 | 21 | 12 | 5.1 | M6×1 | 24 | 51 | 4 | $\phi$34H9 $^{+0.062}_{+0}$ |
| 40 | $30^{+0.3}_{+0.1}$ | 9 | M8×1.25 | Rc 1/8 | 16 | M8×1.25 | 56 | 27.5 | 16 | 6.8 | M8×1.25 | 30 | 67 | 4 | $\phi$42H9 $^{+0.062}_{+0}$ |
| 50 | $44^{+0.4}_{+0.1}$ | 13 | M10×1.5 | Rc 1/4 | 20 | M10×1.5 | 66 | 36 | 20 | 8.5 | M10×1.5 | 40 | 85 | 5 | $\phi$52H9 $^{+0.074}_{+0}$ |

## Right angle finger




| Code / Tube I.D. | KA | KB | KJ | KK | KL | KM | KN | KP | KQ | KR | KS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 5 | 28 | 14 | M4×0.7 | 41 | 31 | 16 | 5 | 10 | 15 | 76 |
| 25 | 6 | 30 | 16 | M5×0.8 | 45 | 37 | 21 | 6 | 12 | 18 | 88.5 |
| 32 | 7 | 34 | 18 | M6×1 | 51 | 44 | 27 | 7 | 14 | 21 | 106 |
| 40 | 10 | 44 | 24 | M8×1.25 | 67 | 60 | 36 | 10 | 21 | 30 | 136 |
| 50 | 12 | 58 | 30 | M10×1.5 | 85 | 85 | 52 | 13 | 24 | 37 | 175 |