CKD

New Products

3-Way Chuck
CKW-HP Series

Changing "gripping" changes manufacturing

New

Long stroke added
ø50 sizes added

HP
HIGH PRODUCTIVITY

Green Power
WATER

CKD Corporation

CC-1581A 1

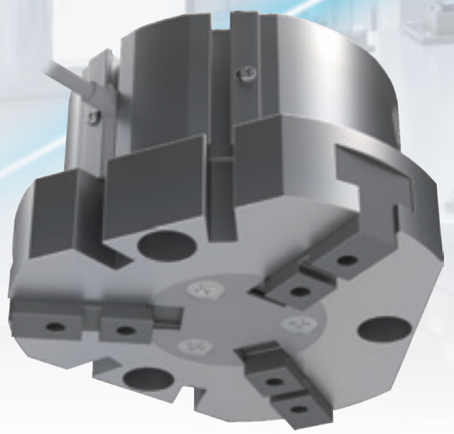
3-way chuck

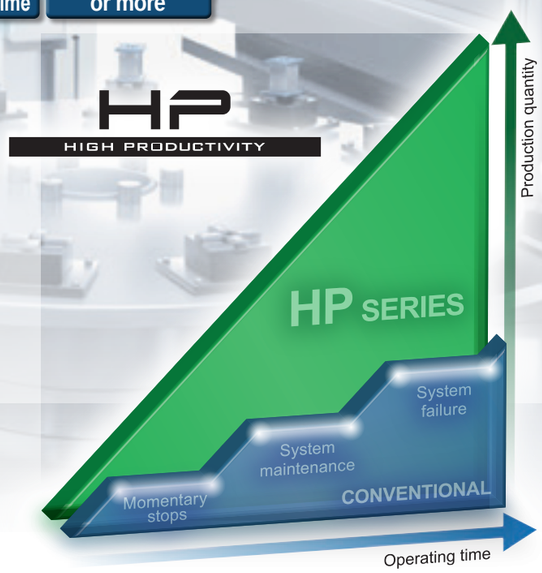
CKW-HP Series

Guide rigidity improved even with 3-way fingers
Achieves high rigidity, precision and durability

Momentary stops greatly reduced | **Number of replacements greatly reduced** | **Significant reduction in replacement time** | **Durability of 10 million cycles or more**

Subject to CKD prescribed conditions

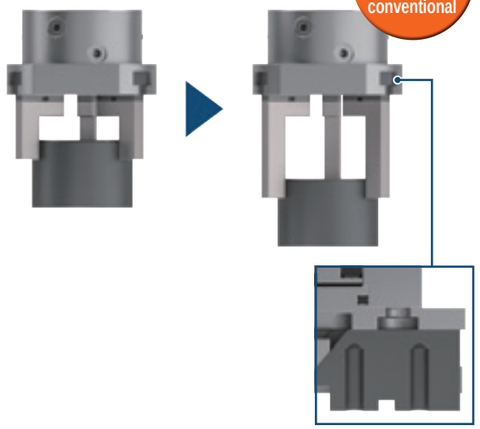




High rigidity

The redesigned guide section has improved the rigidity of the guide.

More than 1.3x conventional



Guide section
Expansion structure

Rubber cover option

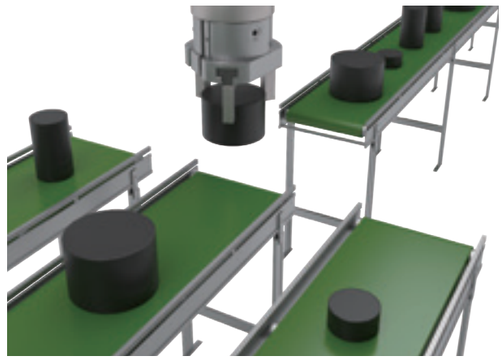
CKW-G-HP Chloroprene rubber

CKW-F-HP Fluoro rubber

Long stroke

Grips workpieces of different diameters

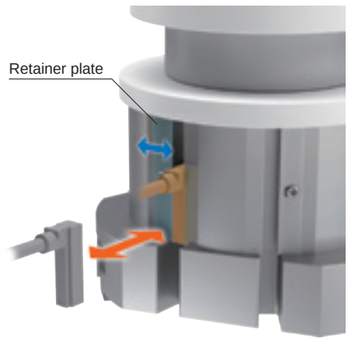
*The mounting pitch for the body is compatible with the standard.



High maintainability

Easy switch replacement

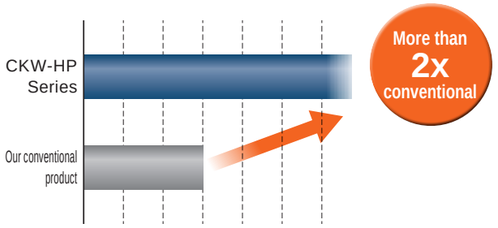
Just slide the retainer plate to replace the switch while still attached to the equipment.

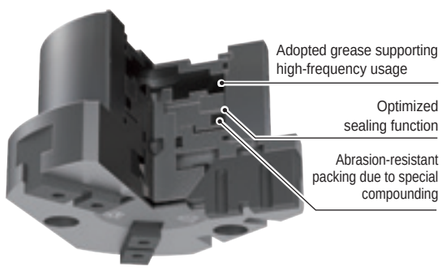


Long service life

Highly advanced sliding technology has enabled durability more than twice that of conventional models.

Operational cycle

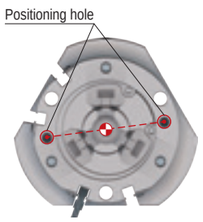




Significant reduction in replacement time

High precision positioning hole ±0.025 mm

Positioning holes with grip center reference have been added. Contributes to reduction of installation and maintenance man-hours



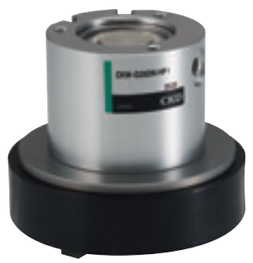
Effective for centering cylindrical workpieces.

Variation

New

Long stroke

Standard



With rubber cover

3-way chuck

CKW-A-HP1 Series

● Operating stroke: 4, 6, 8, 12 mm

Double acting

RoHS

How to order

No switch
(built-in magnet for switch)

CKW - A 16 D N ——— HP1

- CKW: Model No.
- A: Rubber cover — None
- 16: ① Bore size
- D: Actuation — Double acting
- N: ② High precision positioning hole

With switch
(built-in magnet for switch)

CKW - A 16 D N - F2H - D - HP1

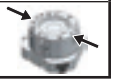
- CKW: Model No.
- A: Rubber cover — None
- 16: ① Bore size
- D: Actuation — Double acting
- N: ② High precision positioning hole
- F2H: ③ Switch model No.
- D: ④ Switch quantity

① Bore size (mm)

Code	Description
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50

② High precision positioning hole

Refer to page 27 for details.

Code	Description	
N	None	
A	Available	

③ Switch model No.

Refer to the "Cylinder Switch Guide" in "Pneumatic Cylinders II" (No. CB-030SA) for switch details. Switches are shipped with the product.

Contact	LED Special function	Wiring (Output)	Load voltage (V)		Load current (mA)		Lead wire		
			AC	DC	AC	DC	Straight	L-type	
Proximity	1-color	2-wire	-	10 to 30	-	5 to 20 *2	-	F2S *	
		3-wire (NPN)	-	30 or less	-	50 or less	-	F3S *	
		2-wire	-	10 to 30	-	5 to 20 *2	F2H *	F2V *	
		3-wire (NPN)	-	30 or less	-	50 or less	F3H *	F3V *	
		3-wire (PNP)	-	30 or less	-	50 or less	F3PH *	F3PV *	

1: For "" ofswitch model No., enter the code selected in the "* lead wire length" table.
*2:Max. value of the load current above: 20 mA is the value at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)
*3: Switches other than the above switch model No. are also available. (Custom-made product) For details, refer to the "Cylinder switch guide" in "Pneumatic Cylinders II" (No. CB-030SA).

*** Lead wire length**

Code	Description
Blank	1 m (standard)
3	3 m (option)

Example) Lead wire length
1 m F2S
3 m F2S 3

④ Switch quantity

Code	Description
R	1 on open side
H	1 on closed side
D	2

How to order switch

SW - F2H

- F2H: ③ Switch model No.

CKD

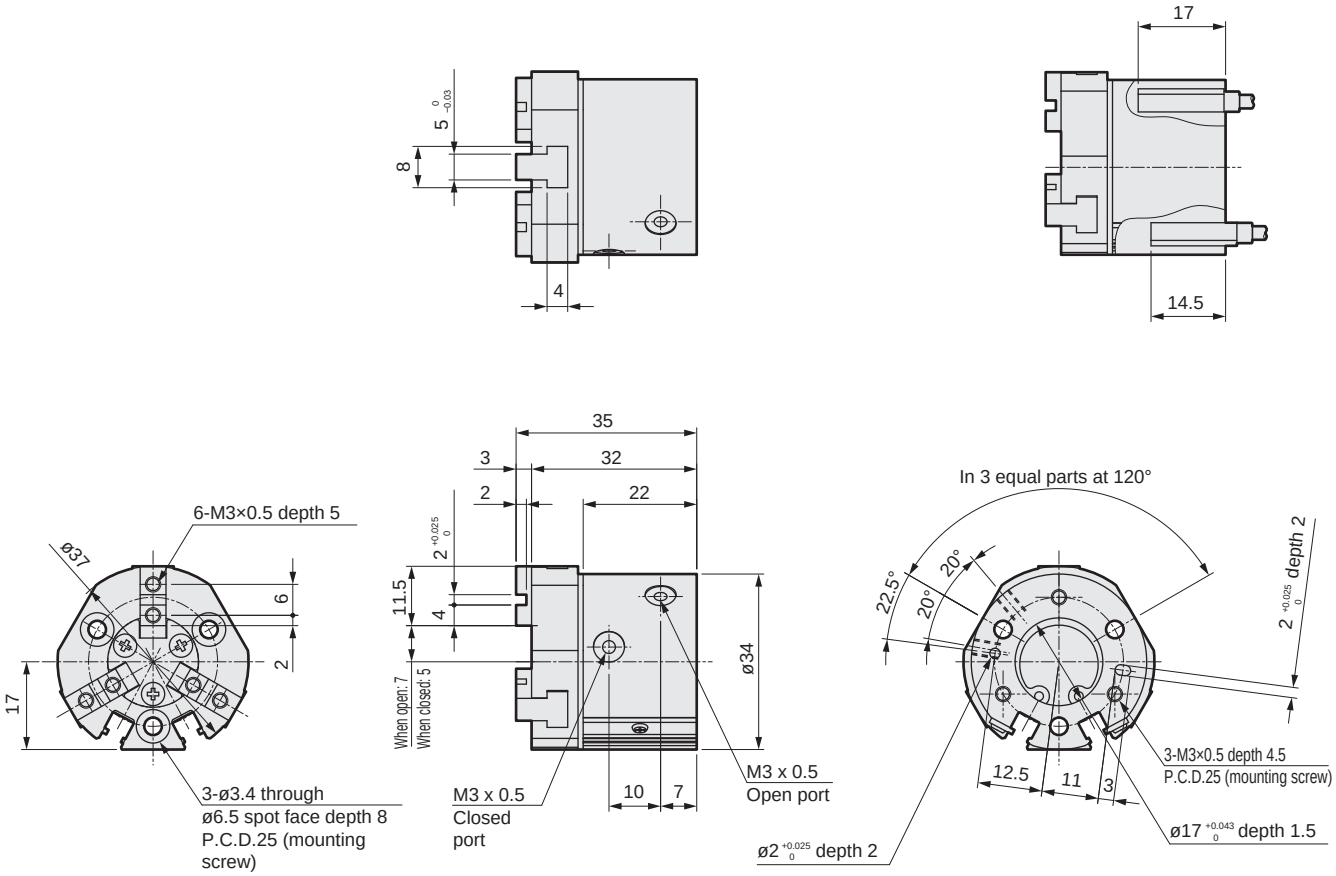
Specifications

Item	CKW-A-HP1					
Bore size mm	ø16	ø20	ø25	ø32	ø40	ø50
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	0.7					
Min. working pressureMPa	0.2			0.1		
Ambient temperature °C	-10 to 60 (no freezing)					
Port size	M3	M5				
Operational stroke mm	4		6	8		12
Rod diameter mm	ø6		ø8	ø10	ø12	ø14
Repeatability mm	±0.01					
Weight kg	0.08	0.13	0.17	0.31	0.46	0.65
Lubrication	Not required					

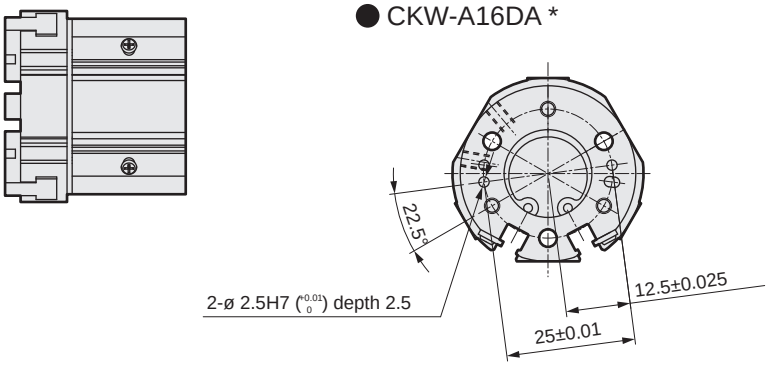
Dimensions diagram (bore size: ø16)

● CKW-A16-HP1

● With switch



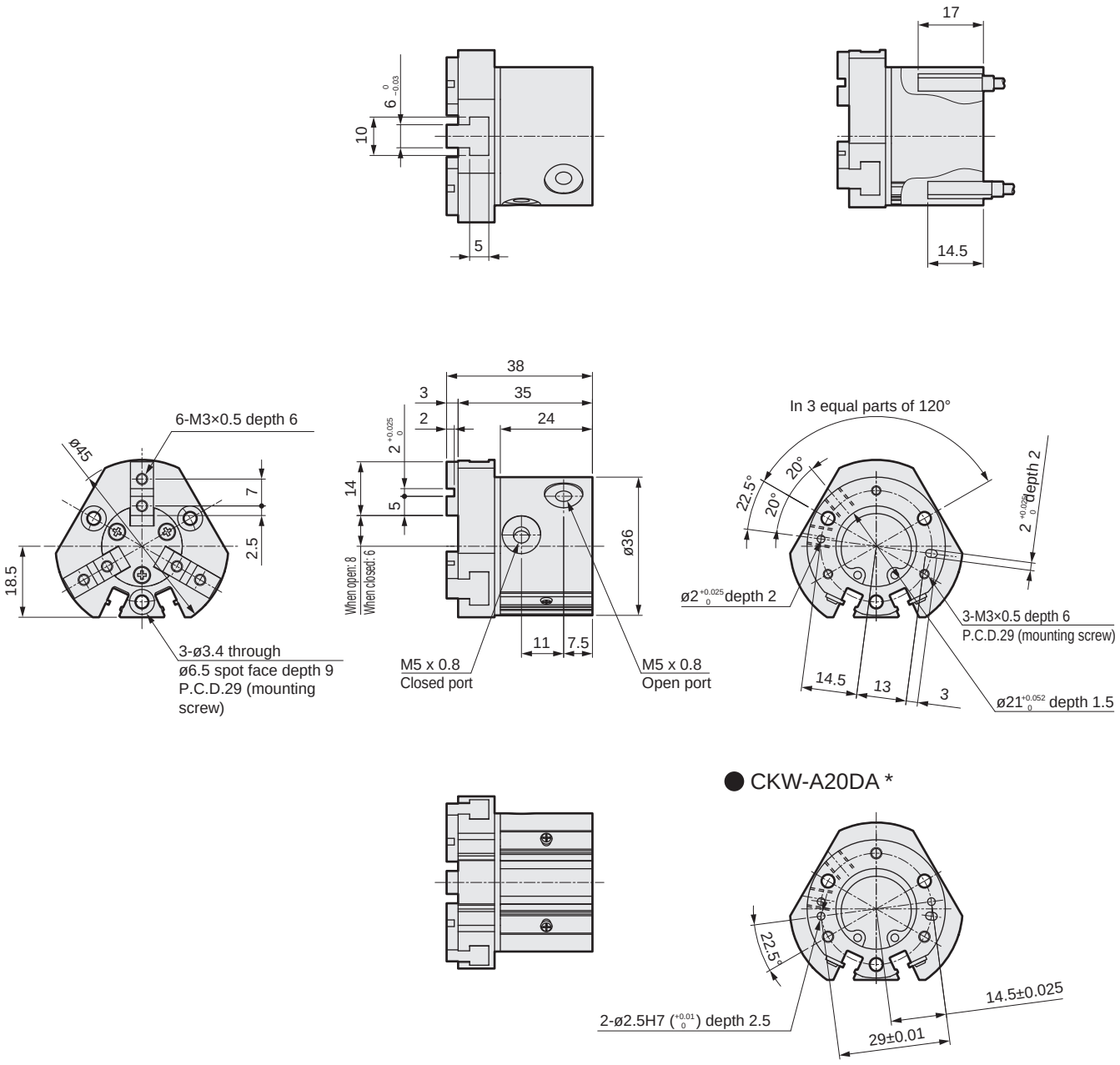
● CKW-A16DA *



Dimensions diagram (bore size: ø20)

● CKW-A20-HP1

● With switch

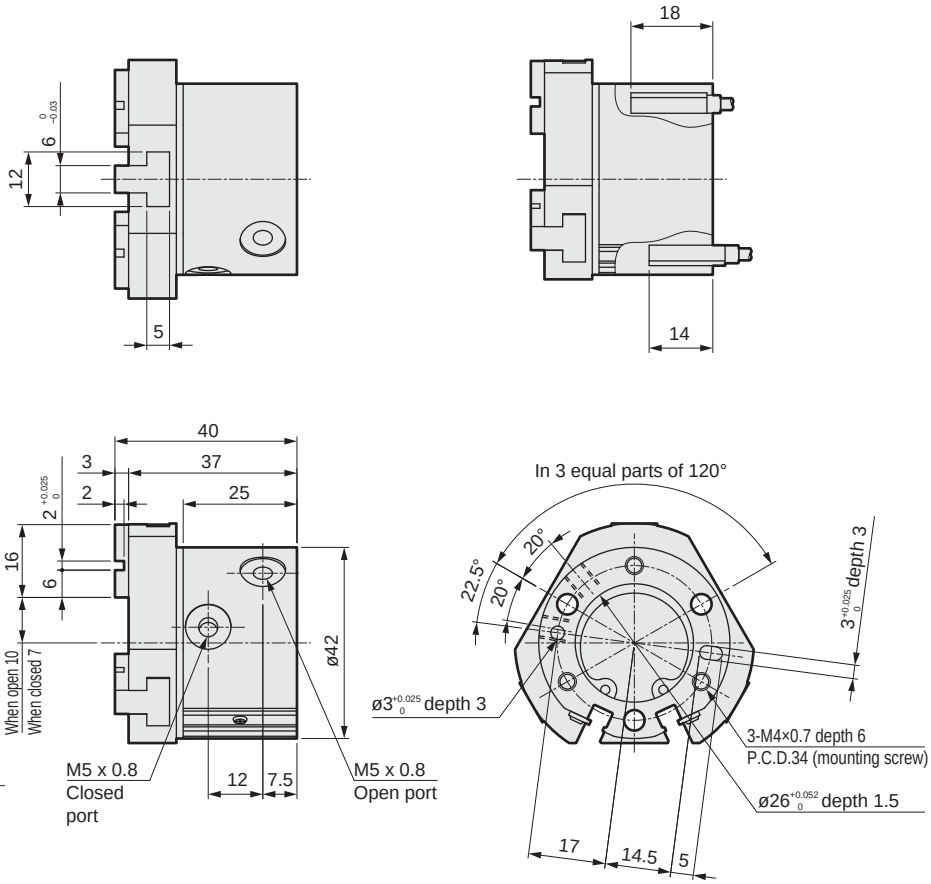


● CKW-A20DA *

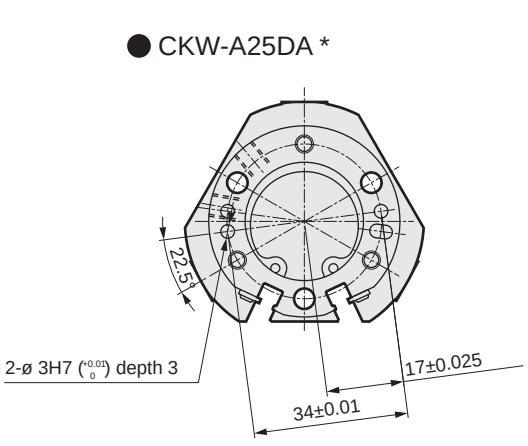
Dimensions diagram (bore size: ø25)

● CKW-A25-HP1

● With switch

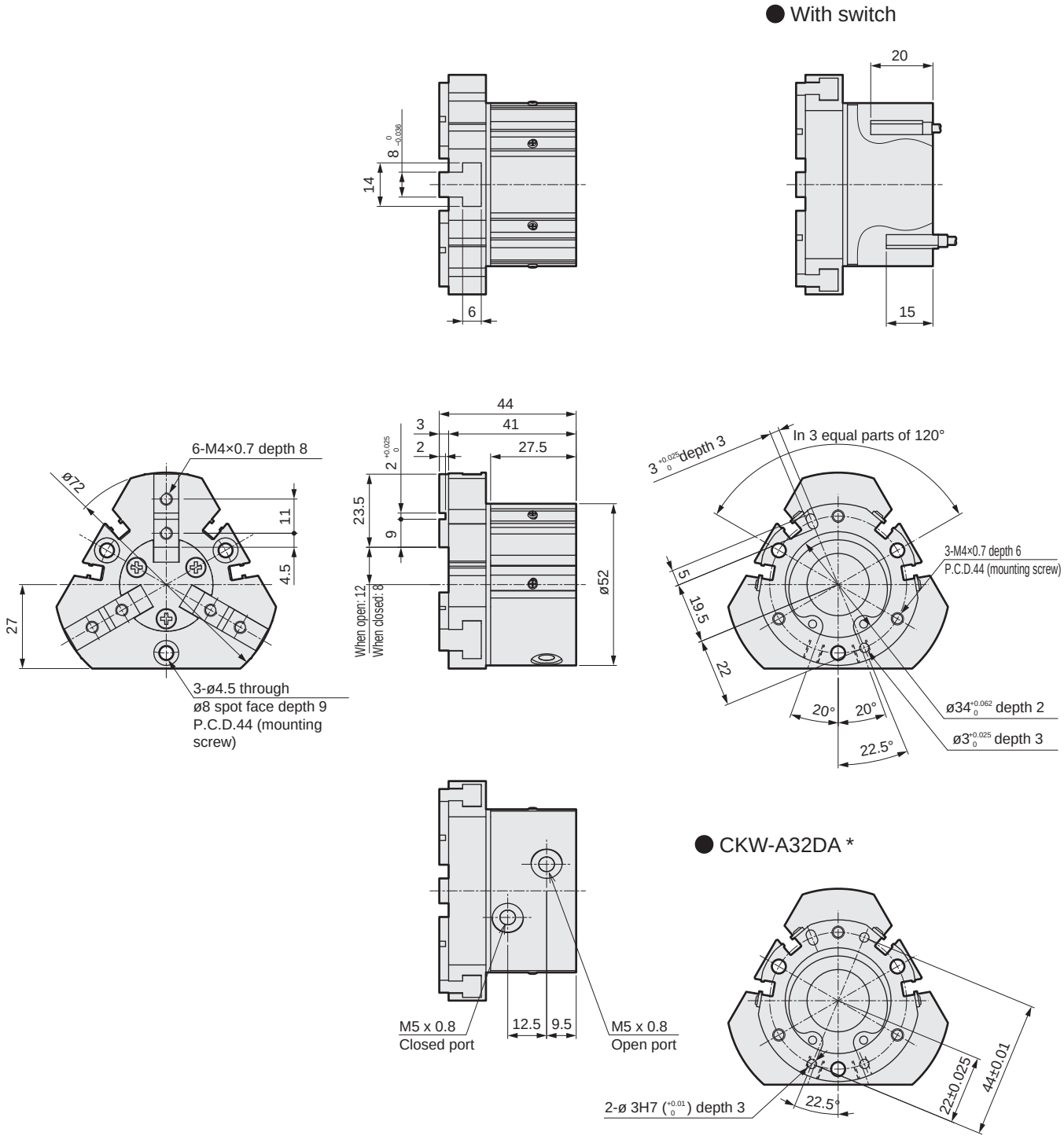


● CKW-A25DA *



Dimensions diagram (bore size: ø32)

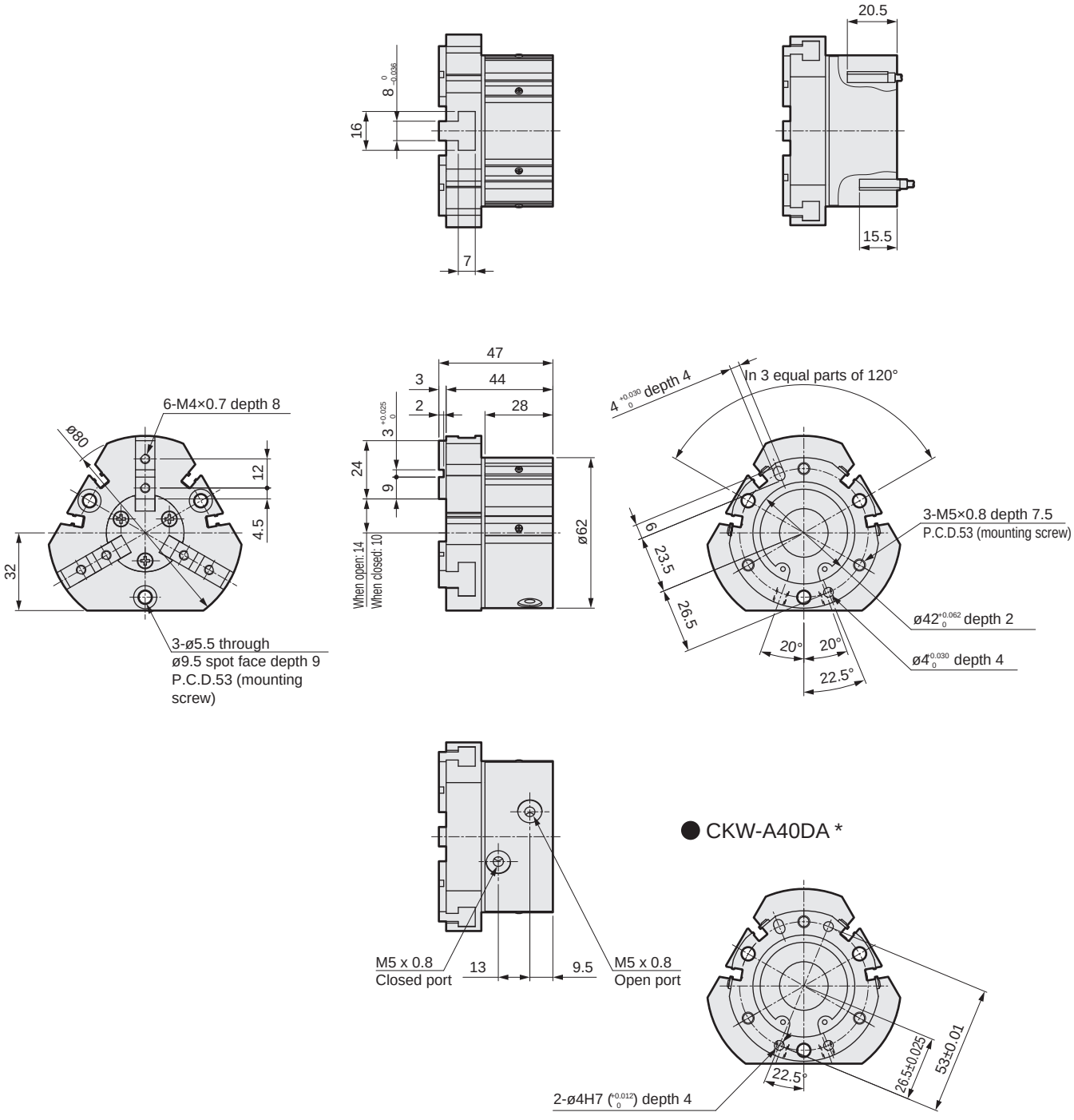
● CKW-A32-HP1



Dimensions diagram (bore size: ø40)

● CKW-A40-HP1

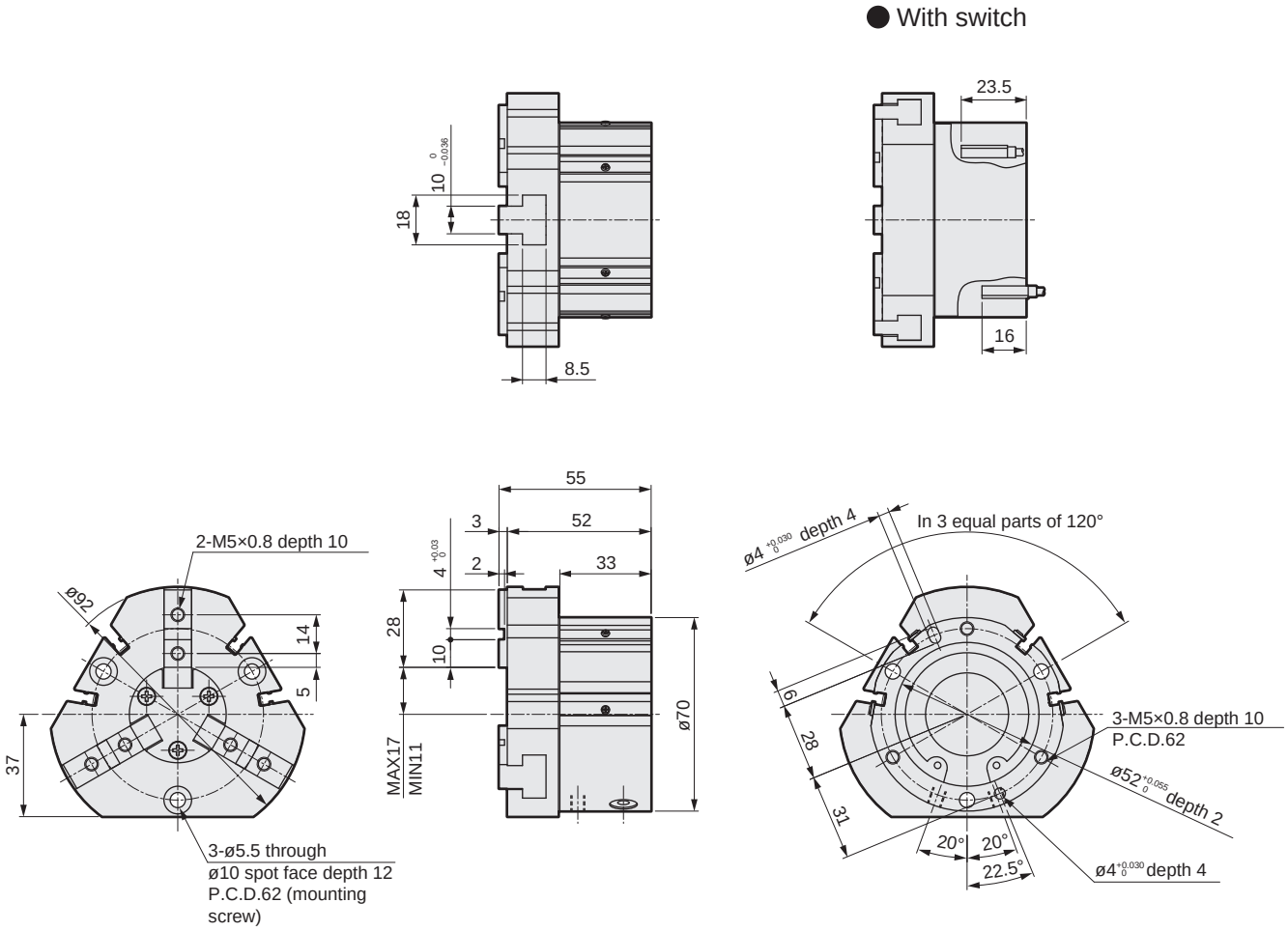
● With switch

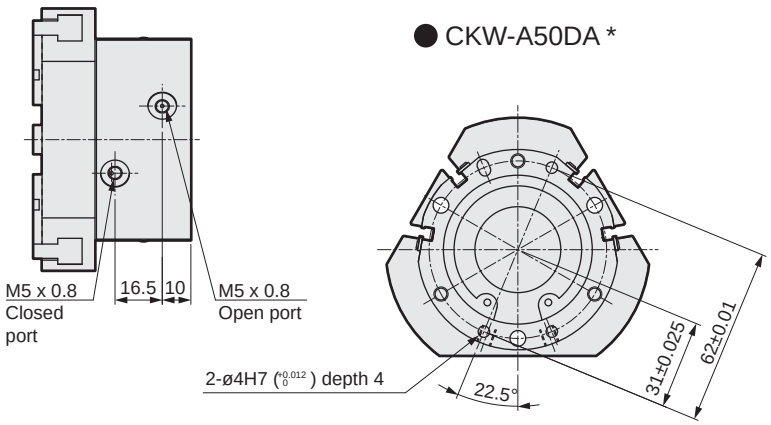


● CKW-A40DA *

Dimensions diagram (bore size: ø50)

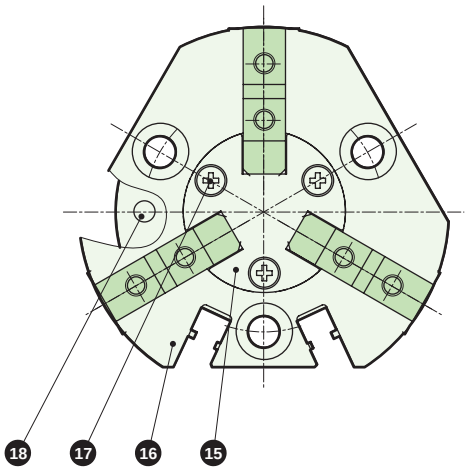
● CKW-A50-HP1

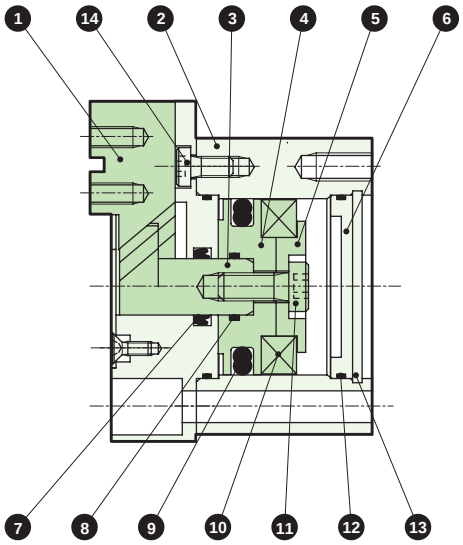


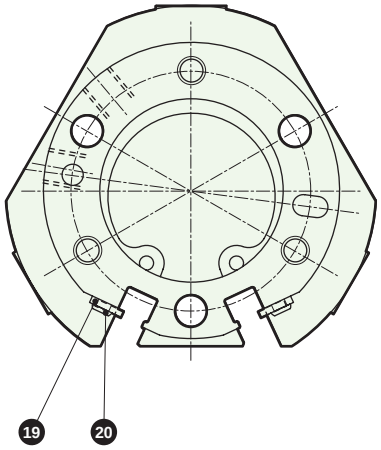


Internal structure / material

● CKW-A16 to 50-HP1







Part No.	Part name	Material	Remarks	Part No.	Part name	Material	Remarks
1	Finger	Steel		11	Hexagon socket head cap screw	Stainless steel	
2	Body	Aluminum alloy	Hard alumite	12	Gasket	Nitrile rubber	
3	Piston 1	Steel		13	C-snap ring	Stainless steel	
4	Piston 2	Aluminum alloy	Chromate	14	Hexagon socket head cap screw	Stainless steel	
5	Piston 3	Aluminum alloy	Chromate	15	Cover	Stainless steel	
6	Base plate	Aluminum alloy	Chromate	16	Adapter	Aluminum alloy	Hard alumite
7	Rod packing	Nitrile rubber		17	Cross-recessed flat head machine screw	Stainless steel	
8	Piston gasket	Nitrile rubber		18	Parallel pin	Stainless steel	
9	Piston packing	Nitrile rubber		19	Retainer plate	Stainless steel	
10	Magnet	-		20	Pan head machine screw	Stainless steel	

Consumable parts list

Bore size	Kit No.	Consumable parts No.
ø16	CKW-16K-HP1	❼❽❾⓬
ø20	CKW-20K-HP1	
ø25	CKW-25K-HP1	
ø32	CKW-32K-HP1	
ø40	CKW-40K-HP1	
ø50	CKW-50K-HP1	

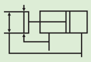
MEMO

3-way jaw chuck with rubber cover

CKW-G-HP1, CKW-F-HP1 Series

● Operating stroke: 4, 6, 8 mm

Double acting



RoHS

How to order

No switch (built-in magnet for switch)

CKW - G 16 D N ———— HP1

Model No. ❶ ❷ Actuation Double acting ❸

With switch (built-in magnet for switch)

CKW - G 16 D N - F2H - D - HP1

Model No. / ❶ Rubber cover / ❷ Bore size (mm) / Actuation Double acting / ❸ High precision positioning hole / ❹ Switch model No. / ❺ Switch quantity

❶ Rubber cover

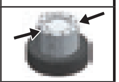
Code	Description
G	Chloroprene rubber
F	Fluoro rubber

❷ Bore size (mm)

Code	Description
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40

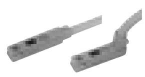
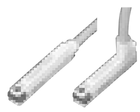
❸ High precision positioning hole

Refer to page 27 for details.

Code	Description	
N	None	
A	Available	

❹ Switch model No.

For more information on switches," Cylinder Switch Guide" in "Pneumatic Cylinders II" (No. CB-030SA). Switches are shipped with the product.

Contact	LED Special function	Wiring (Output)	Load voltage (V) AC	Load voltage (V) DC	Load current (mA) AC	Load current (mA) DC	Lead wire Straight	Lead wire L-type	
Proximity	1-color	2-wire	-	10 to 30	-	5 to 20 *2	-	F2S *	
		3-wire (NPN)	-	30 or less	-	50 or less	-	F3S *	
		2-wire	-	10 to 30	-	5 to 20 *2	F2H *	F2V *	
		3-wire (NPN)	-	30 or less	-	50 or less	F3H *	F3V *	
		3-wire (PNP)	-	30 or less	-	50 or less	F3PH *	F3PV *	

1: For "" ofswitch model No., enter the code selected in the "* lead wire length" table.
*2: Max. value of the load current above: 20 mA is the value at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25˚C. (5 to 10 mA at 60°C)
*3: Switches other than the above switch model No. are also available. (Custom-made product) For details, refer to the "Cylinder switch guide" in "Pneumatic Cylinders II" (No. CB-030SA).

*** Lead wire length**

Code	Description
Blank	1 m (standard)
3	3 m (option)

Example) Lead wire length
1 m F2S
3 m F2S 3

❺ Switch quantity

Code	Description
R	1 on open side
H	1 on closed side
D	2

How to order switch

SW - F2H

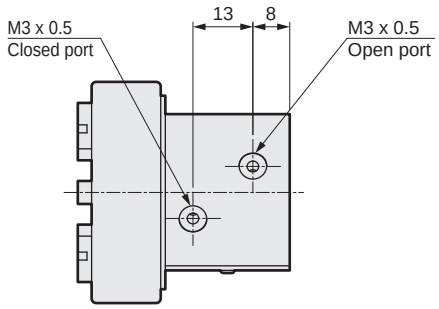
❹ Switch model No.

Specifications

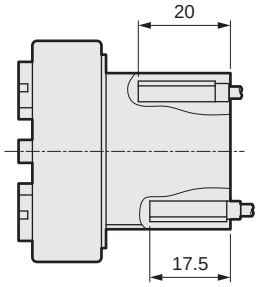
Item	CKW-G-HP1, CKW-F-HP1				
Bore size mm	ø16	ø20	ø25	ø32	ø40
Actuation	Double acting				
Working fluid	Compressed air				
Max. working pressure MPa	0.7				
Min. working pressure MPa	0.2			0.1	
Ambient temperature °C	-10 to 60 (no freezing)				
Port size	M3	M5			
Operational stroke mm	4		6	8	
Rod diameter mm	ø6		ø8	ø10	ø12
Repeatability mm	±0.01				
Weight kg	0.12	0.19	0.26	0.50	0.65
Lubrication	Not required				

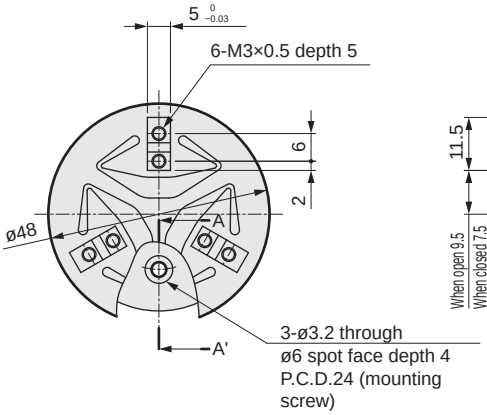
Dimensions diagram (bore size: ø16)

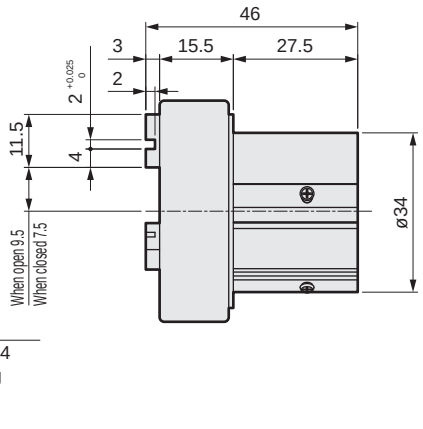
● CKW-G16-HP1, CKW-F16-HP1

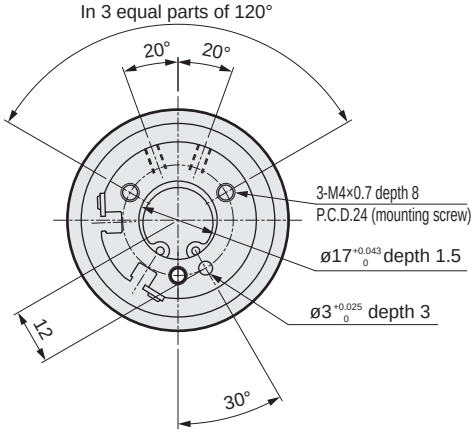


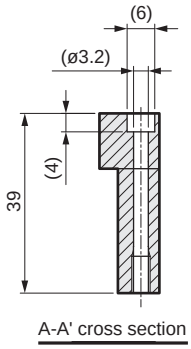
● With switch





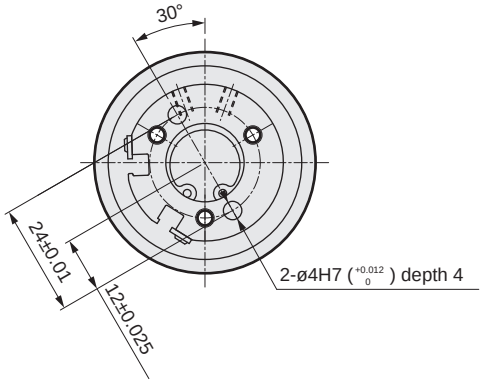






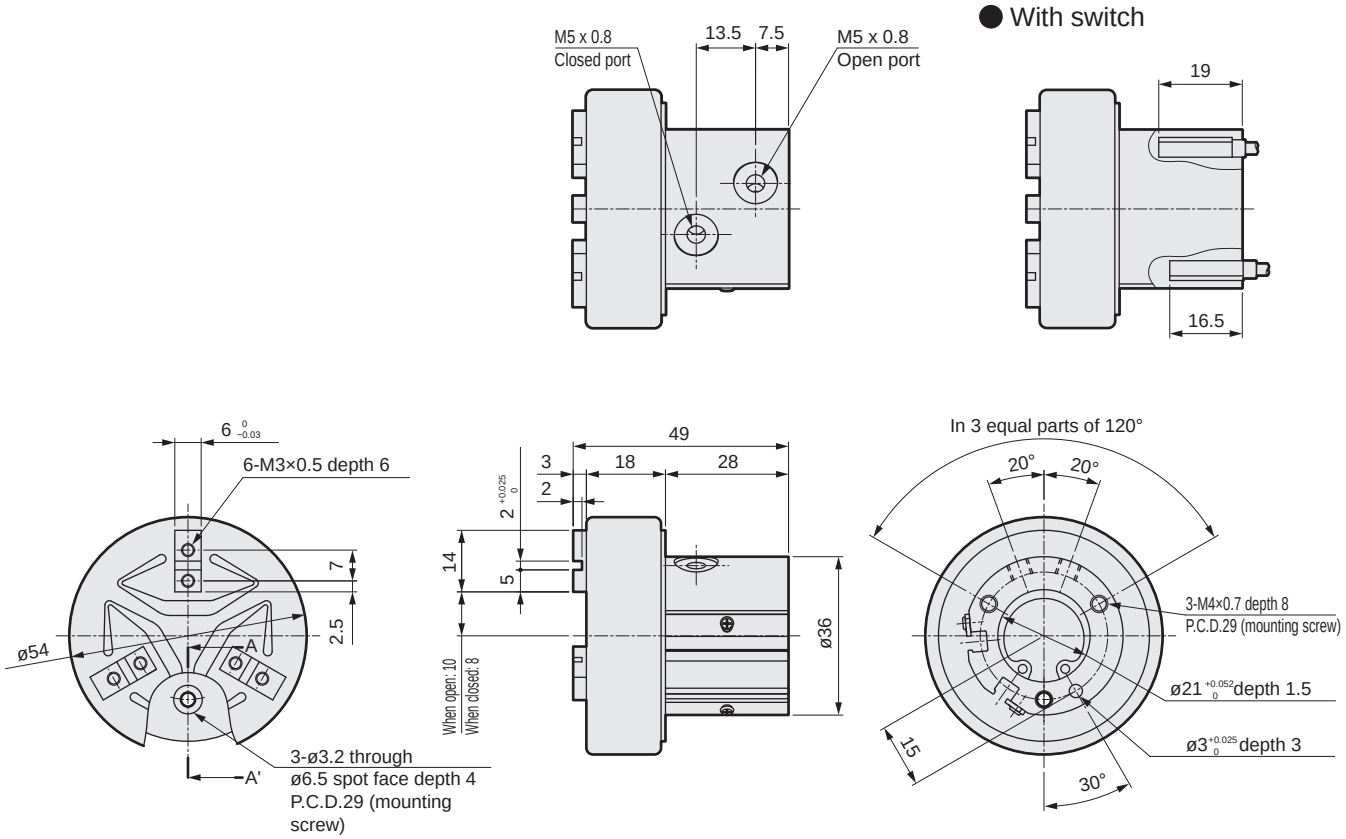
A-A' cross section

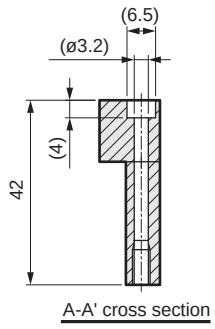
● CKW-G16DA*, CKW-F16DA*



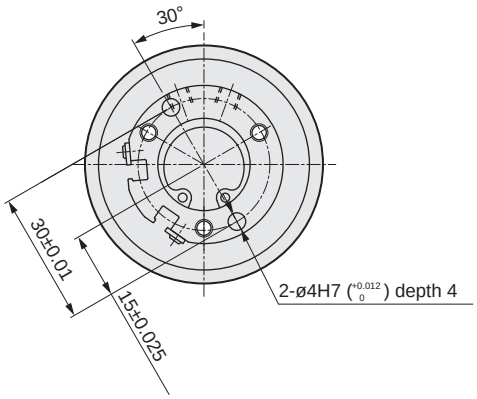
Dimensions diagram (bore size: ø20)

● CKW-G20-HP1, CKW-F20-HP1





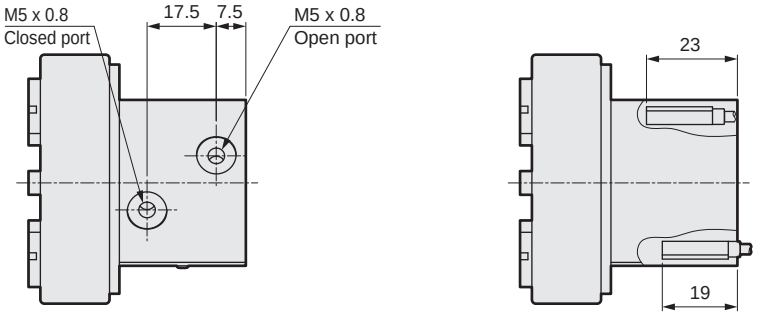
●CKW-G20DA*, CKW-F20DA*

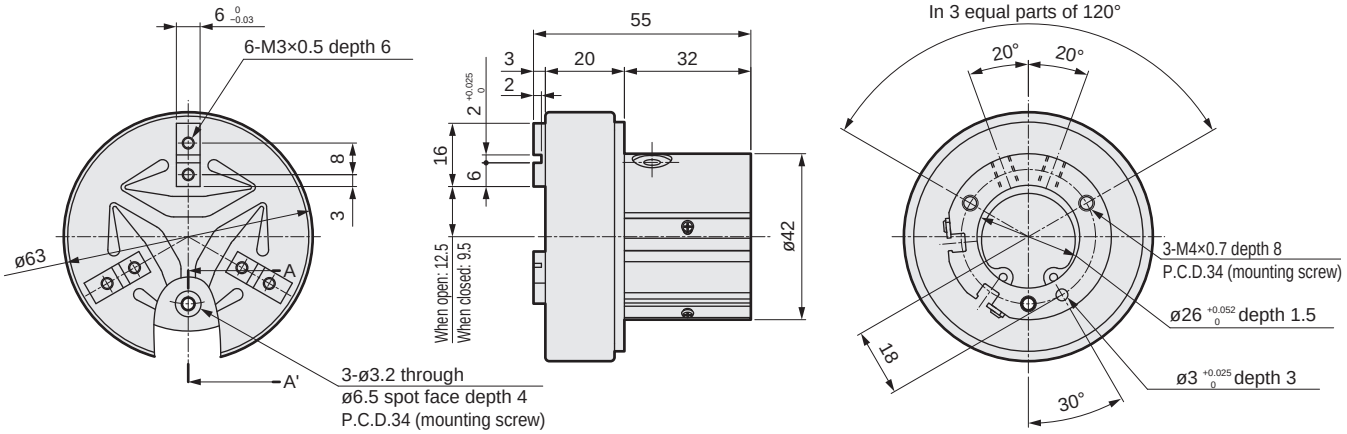


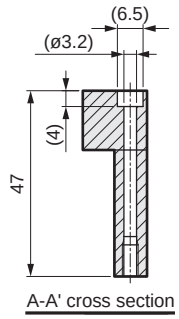
Dimensions diagram (bore size: ø25)

● CKW-G25-HP1, CKW-F25-HP1

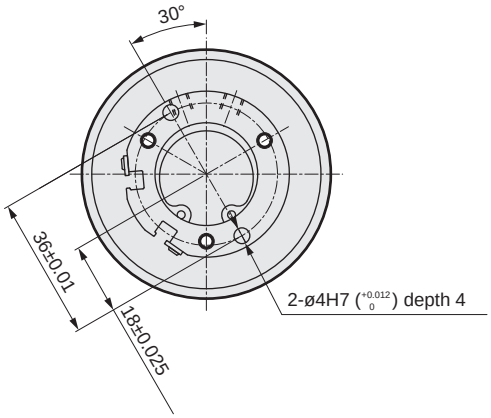
● With switch





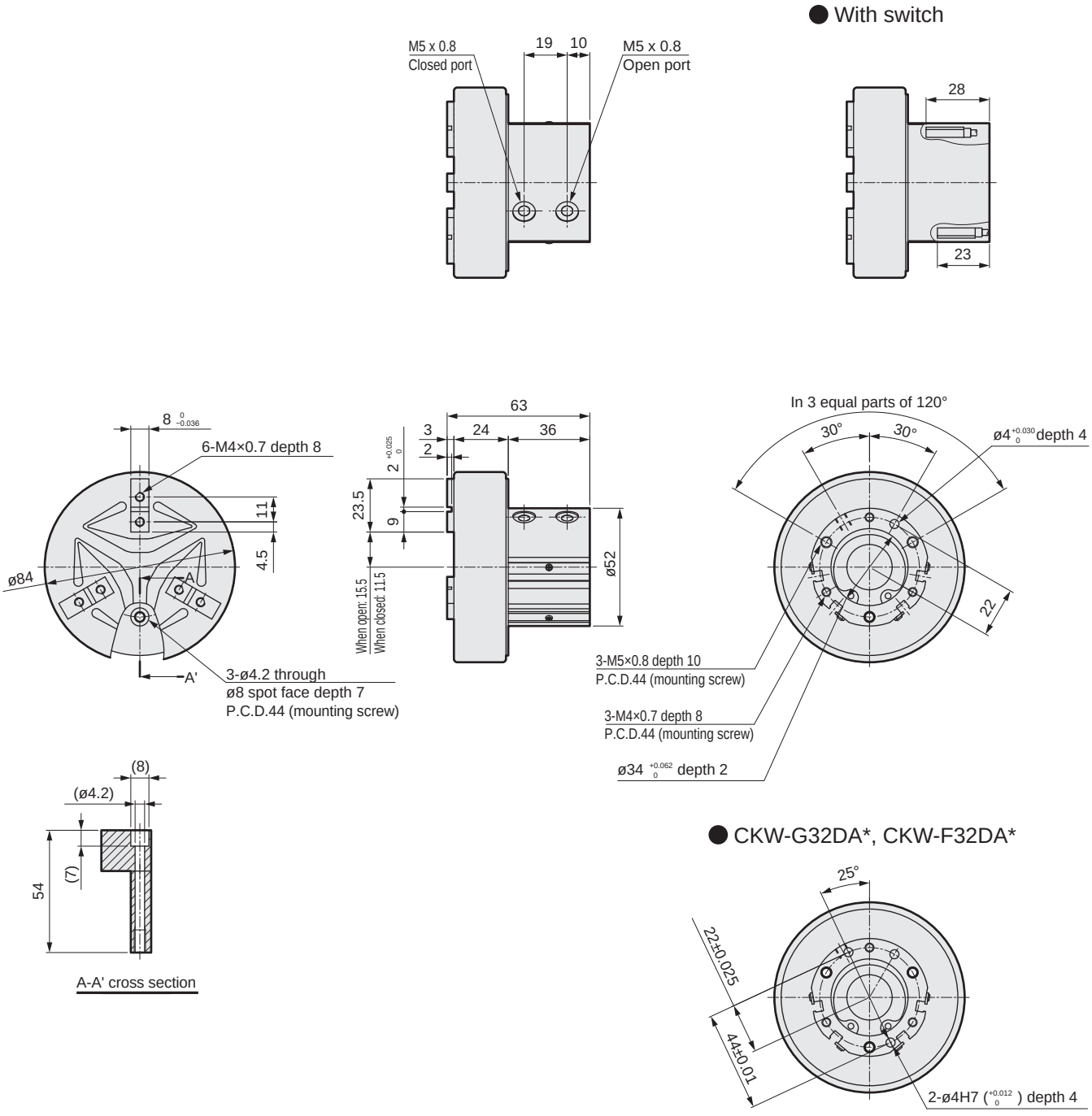


● CKW-G25DA*, CKW-F25DA*



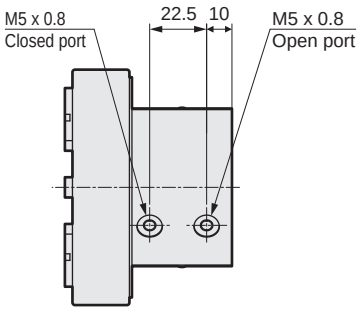
Dimensions diagram (bore size: ø32)

● CKW-G32-HP1, CKW-F32-HP1

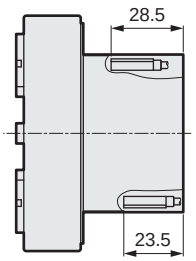


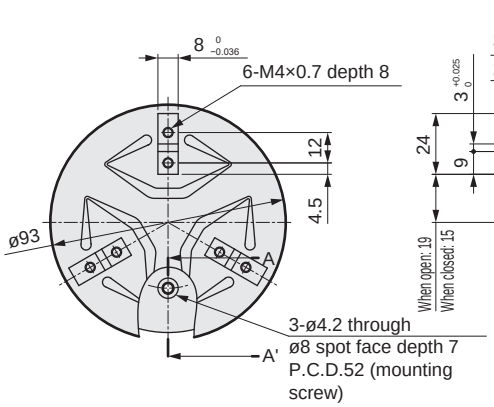
Dimensions diagram (bore size: ø40)

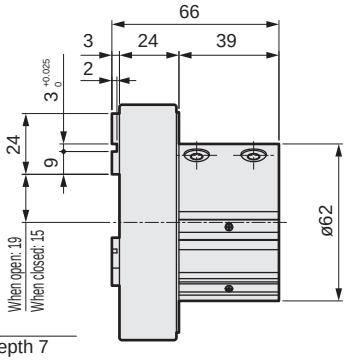
● CKW-G40-HP1, CKW-F40-HP1

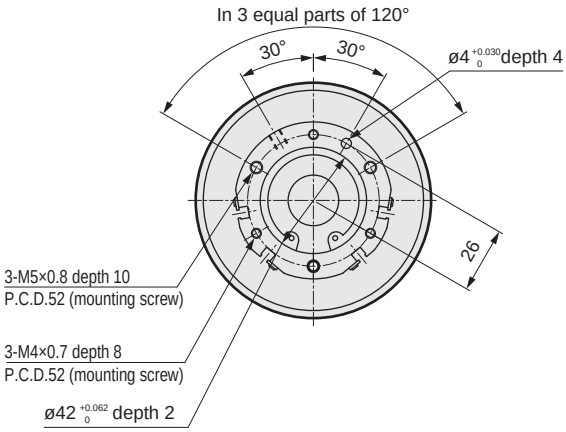


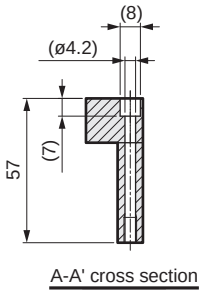
● With switch





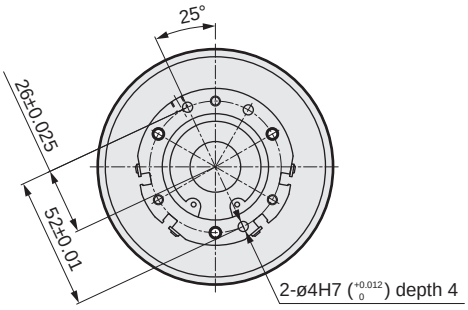






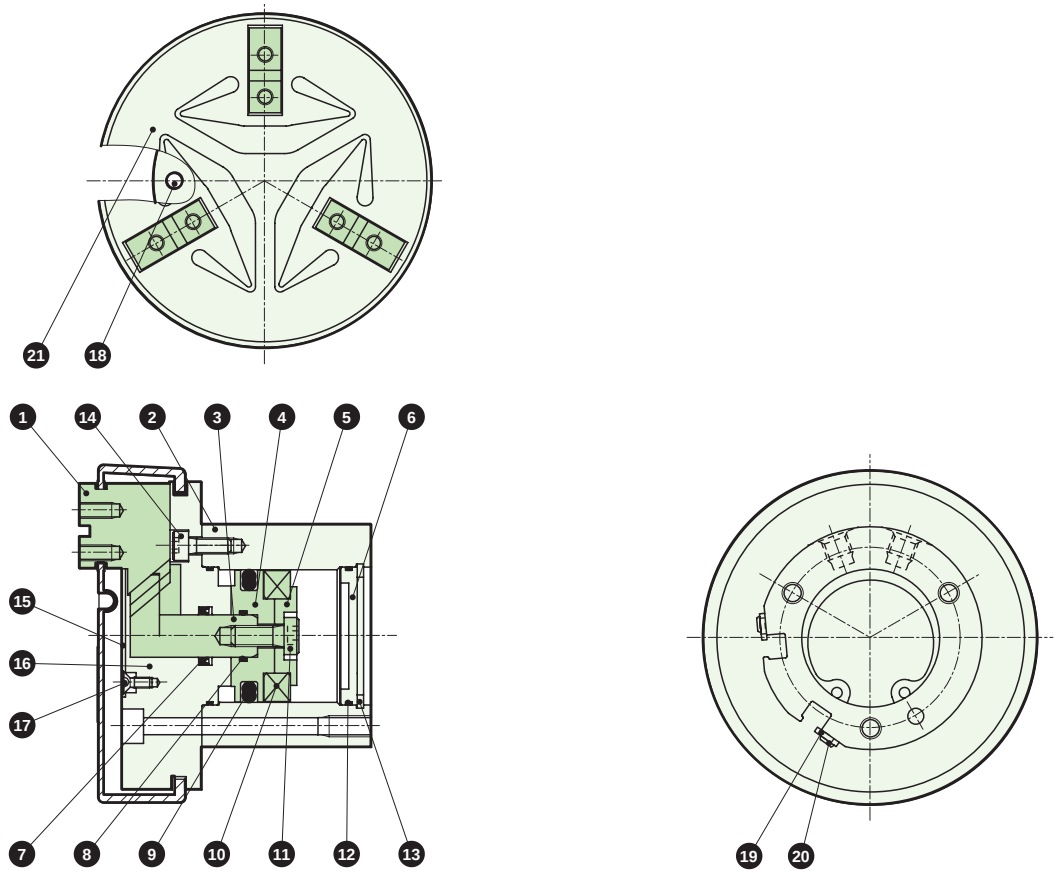
A-A' cross section

●CKW-G40DA*, CKW-F40DA*



Internal structure / material

● CKW-G16 to 40-HP1, CKW-F16 to 40-HP1



Part No.	Part name	Material	Remarks	Part No.	Part name	Material	Remarks
1	Finger	Steel		12	Gasket	Nitrile rubber	
2	Body	Aluminum alloy	Hard alumite	13	C-snap ring	Stainless steel	
3	Piston 1	Steel		14	Hexagon socket head cap screw	Stainless steel	
4	Piston 2	Aluminum alloy	Chromate	15	Cover	Stainless steel	
5	Piston 3	Aluminum alloy	Chromate	16	Adapter	Aluminum alloy	Hard alumite
6	Base plate	Aluminum alloy	Chromate	17	Cross-recessed flat head machine screw	Stainless steel	
7	Rod packing	Nitrile rubber		18	Parallel pin	Stainless steel	
8	Piston gasket	Nitrile rubber		19	Retainer plate	Stainless steel	
9	Piston packing	Nitrile rubber		20	Pan head machine screw	Stainless steel	
10	Magnet	-		21	Rubber cover	CKW-G: Chloroprene rubber CKW-F: Fluoro rubber	
11	Hexagon socket head cap screw	Stainless steel					

Consumable parts list

Bore size	Kit No.	Consumable parts No.
ø16	CKW-16K-HP1	❼❽❾⓬
ø20	CKW-20K-HP1	
ø25	CKW-25K-HP1	
ø32	CKW-32K-HP1	
ø40	CKW-40K-HP1	

Bore size	Kit No.	Consumable parts No.	Remarks
ø16	CKW-G16K	㉑	Material: Chloroprene rubber
ø20	CKW-G20K		
ø25	CKW-G25K		
ø32	CKW-G32K		
ø40	CKW-G40K		

Bore size	Kit No.	Consumable parts No.	Remarks
ø16	CKW-F16K	㉑	Material: Fluoro rubber
ø20	CKW-F20K		
ø25	CKW-F25K		
ø32	CKW-F32K		
ø40	CKW-F40K		

3-way jaw long stroke chuck

CKWL-A-HP1 Series

● Operating stroke: 10, 12, 16, 20 mm

Double acting

RoHS

How to order

No switch
(built-in magnet for switch)

CKWL - A 16 D N — HP1

- CKWL: Model No.
- A: Rubber cover — None
- 16: ① Bore size
- D: Actuation — Double acting
- N: ② High precision positioning hole

With switch
(built-in magnet for switch)

CKWL - A 16 D N - F2H - D - HP1

- CKWL: Model No.
- A: Rubber cover — None
- 16: ① Bore size
- D: Actuation — Double acting
- N: ② High precision positioning hole
- F2H: ③ Switch model No.
- D: ④ Switch quantity

① Bore size (mm)

Code	Description
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40

② High precision positioning hole

Refer to page 27 for details.

Code	Description	
N	None	
A	Available	

③ Switch model No.

For more information on switches," Cylinder Switch Guide" in "Pneumatic Cylinders II" (No. CB-030SA). Switches are shipped with the product.

Contact	LED Special function	Wiring (Output)	Load voltage (V)		Load current (mA)		Lead wire		
			AC	DC	AC	DC	Straight	L-type	
Proximity	1-color	2-wire	-	10 to 30	-	5 to 20 *2	-	F2S*	
		3-wire (NPN)	-	30 or less	-	50 or less	-	F3S*	
		2-wire	-	10 to 30	-	5 to 20 *2	F2H*	F2V*	
		3-wire (NPN)	-	30 or less	-	50 or less	F3H*	F3V*	
		3-wire (PNP)	-	30 or less	-	50 or less	F3PH*	F3PV*	

1: For "" ofswitch model No., enter the code selected in the "* lead wire length" table.
*2: Max. value of the load current above: 20 mA is the value at 25°C.
The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25˚C. (5 to 10 mA at 60°C)
*3: Switches other than the above switch model No. are also available. (Custom-made product) For details, refer to the "Cylinder switch guide" in "Pneumatic Cylinders II" (No. CB-030SA).

* Lead wire length

Code	Description
Blank	1 m (standard)
3	3 m (option)

Ex.) Lead wire length
1 m F2S
3 m F2S 3

④ Switch quantity

Code	Description
R	1 included on open side
H	1 included on closed side
D	2 included

How to order switch

SW - F2H

- F2H: ③ Switch model No.

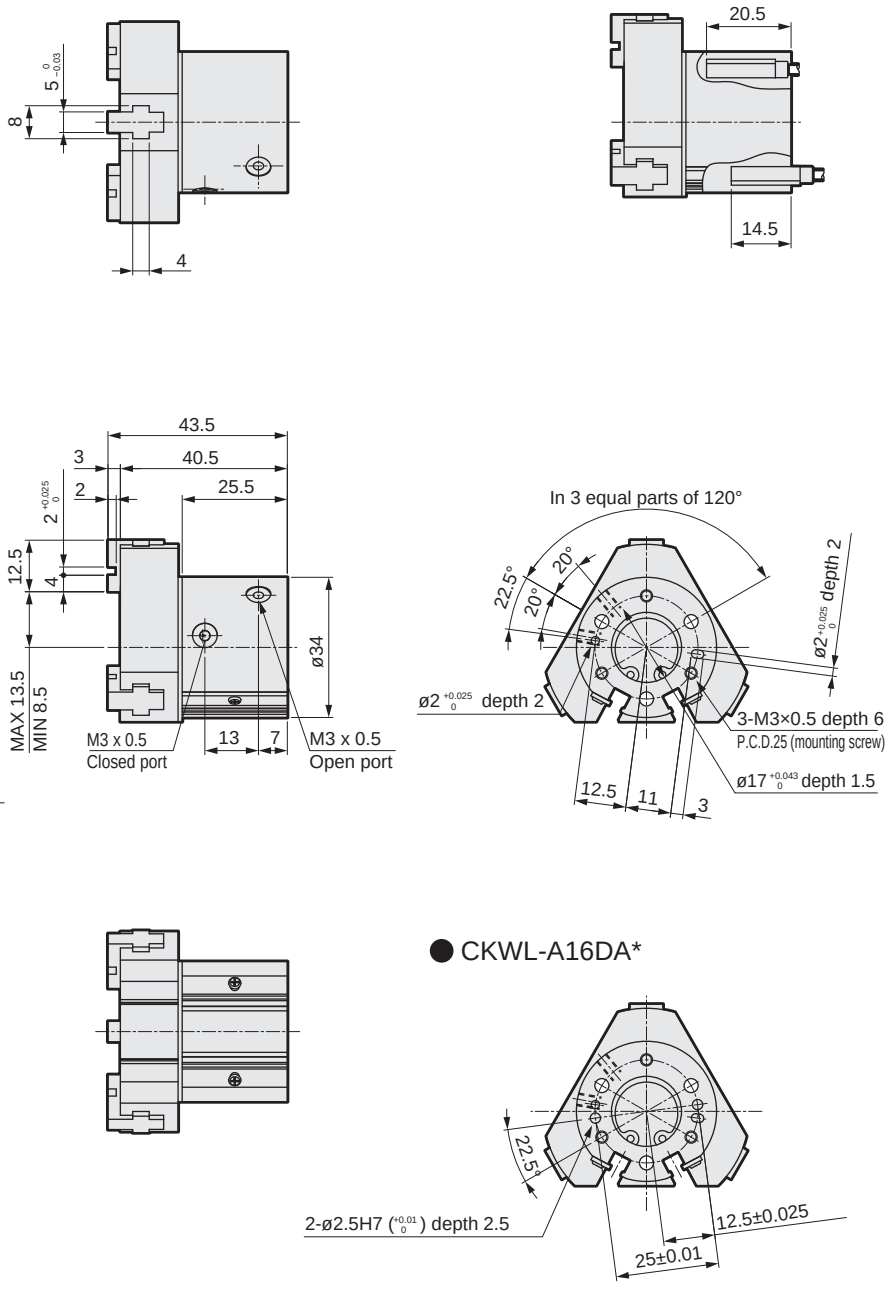
Specifications

Item	CKWL-A-HP1				
Bore size mm	ø16	ø20	ø25	ø32	ø40
Actuation	Double acting				
Working fluid	Compressed air				
Max. working pressure MPa	0.7				
Min. working pressure MPa	0.2			0.1	
Ambient temperature °C	-10 to 60 (no freezing)				
Port size	M3	M5			
Operational stroke mm	10		12	16	20
Rod diameter mm	ø6		ø8	ø10	ø12
Repeatability mm	±0.01				
Weight kg	0.13	0.18	0.22	0.46	0.66
Lubrication	Not required				

Dimensions diagram (bore size: ø16)

● CKWL-A16-HP1

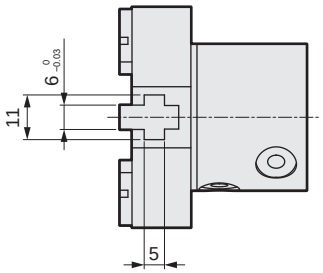
● With switch



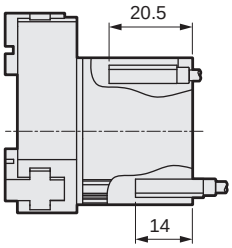
● CKWL-A16DA*

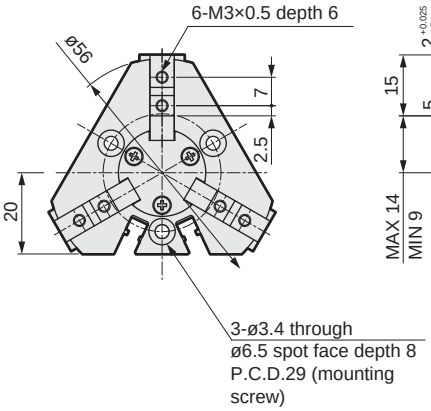
Dimensions diagram (bore size: ø20)

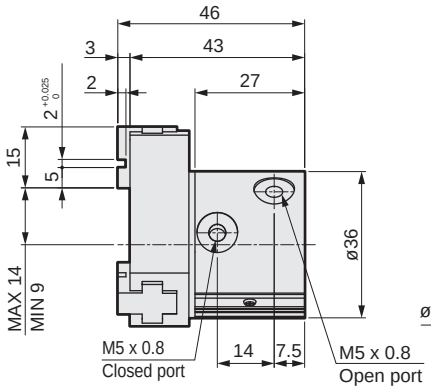
● CKWL-A20-HP1

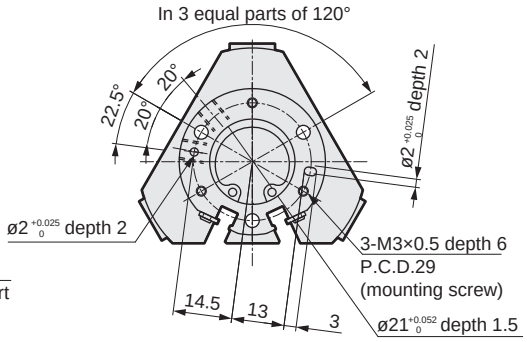


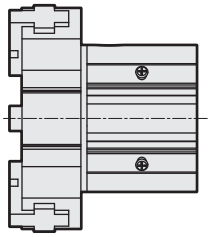
● With switch



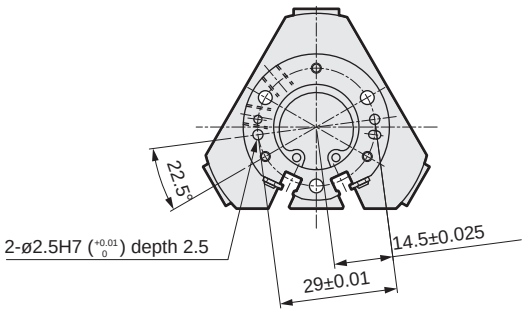








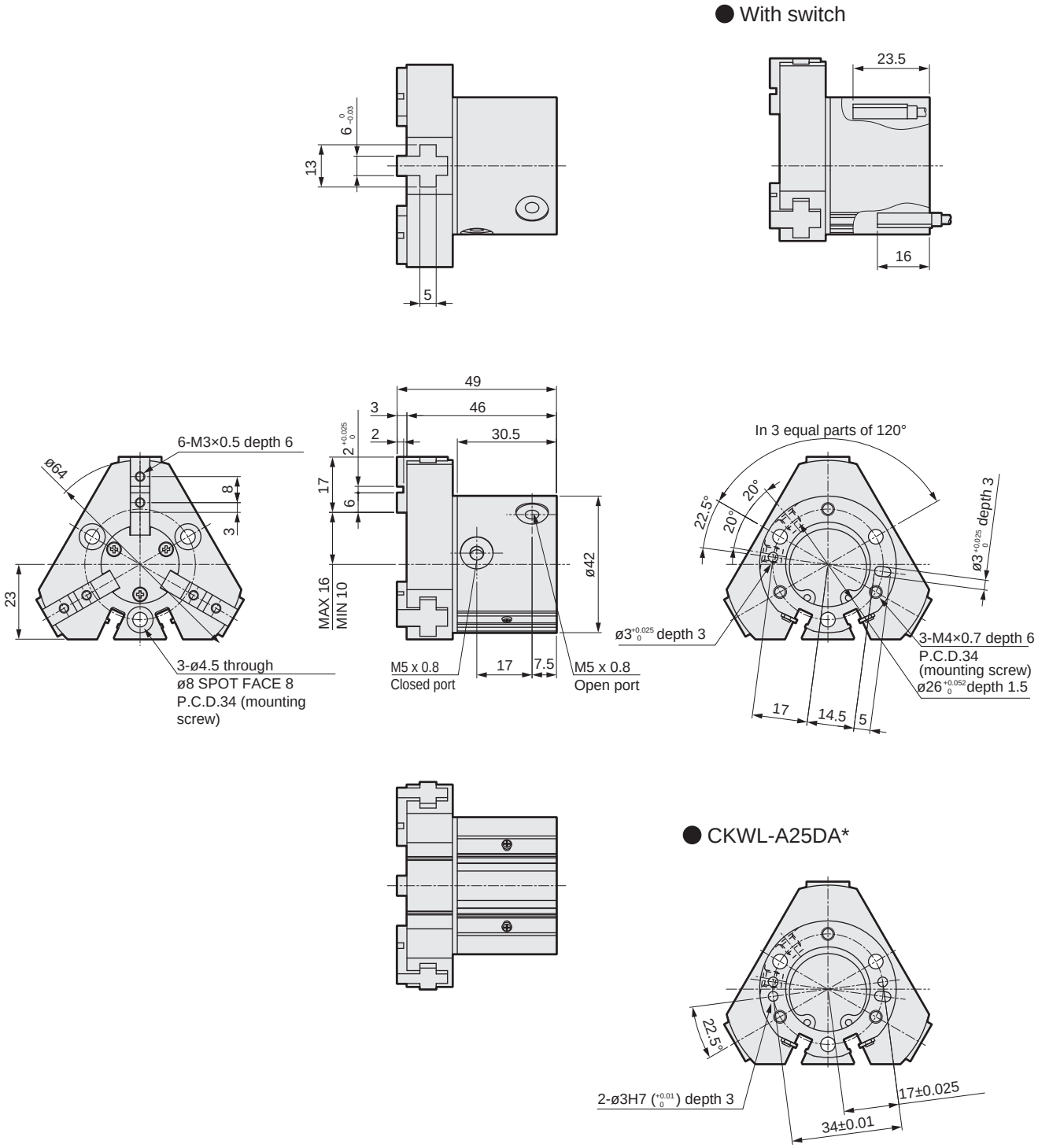
● CKWL-A20DA*



Dimensions diagram (bore size: ø25)

● CKWL-A25-HP1

● With switch

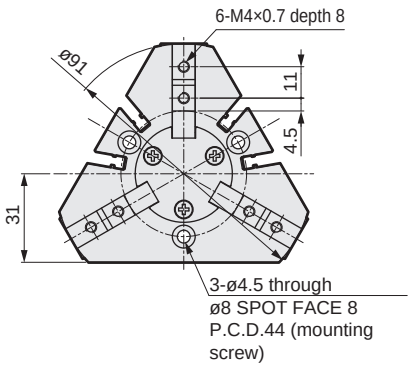


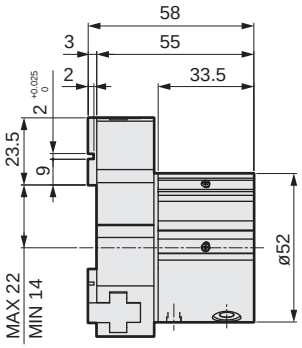
● CKWL-A25DA*

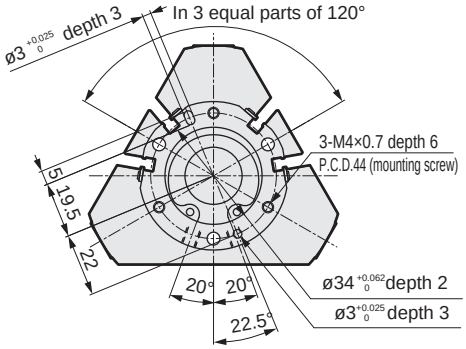
Dimensions diagram (bore size: ø32)

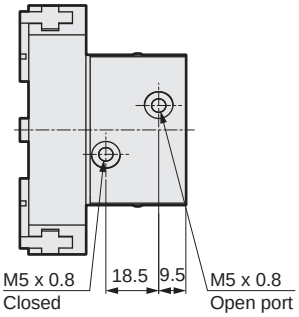
● CKWL-A32-HP1

● With switch

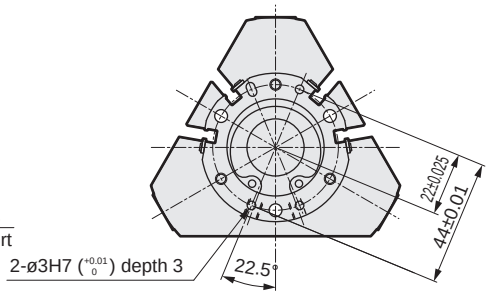






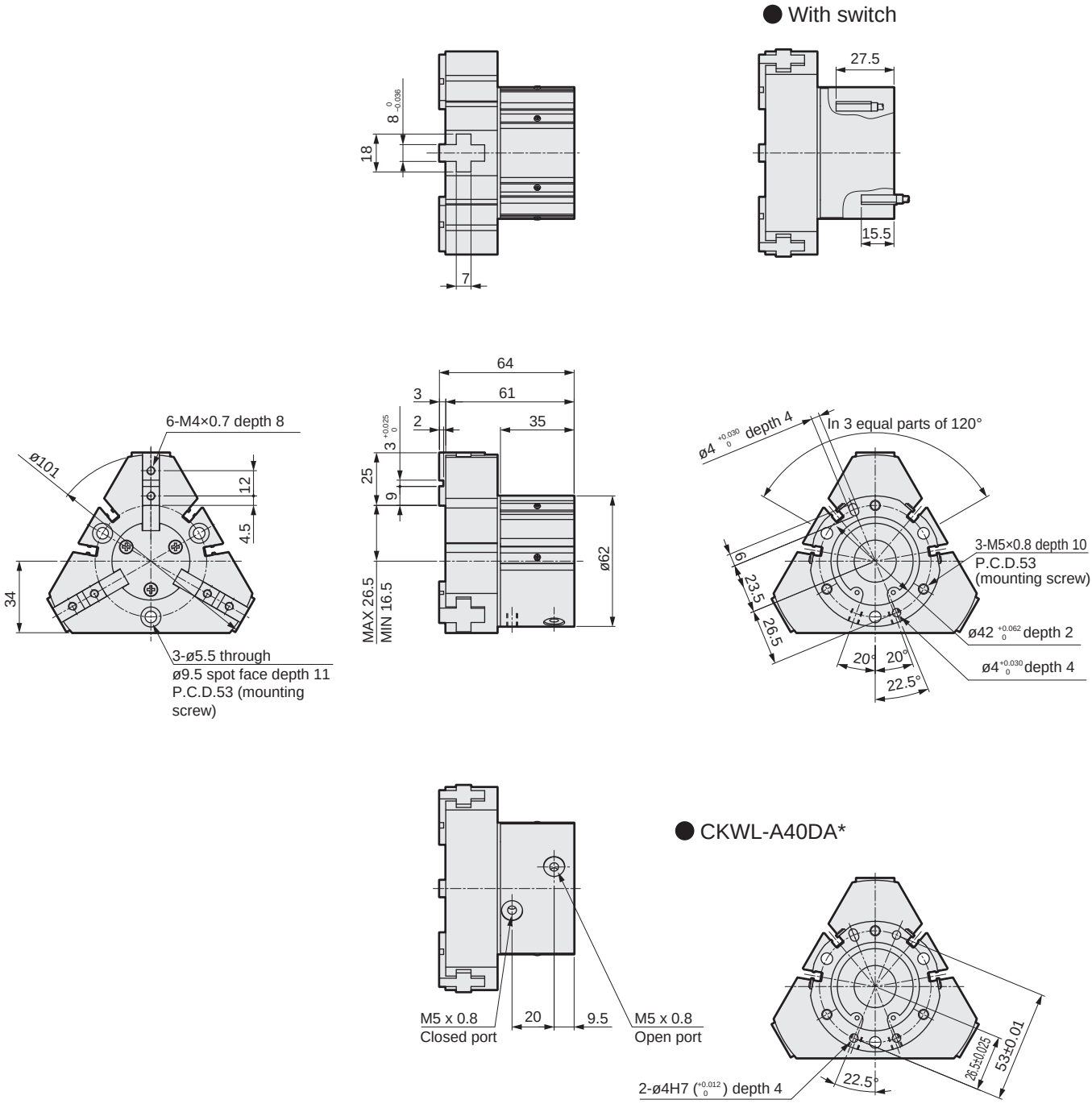


● CKWL-A32DA*



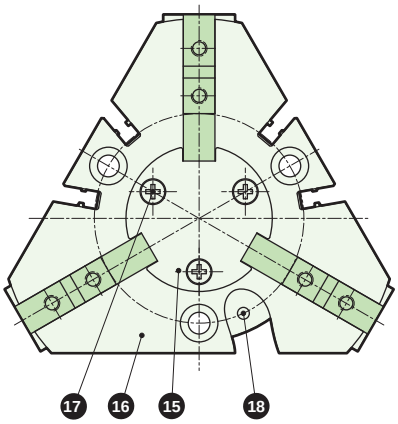
Dimensions diagram (bore size: ø40)

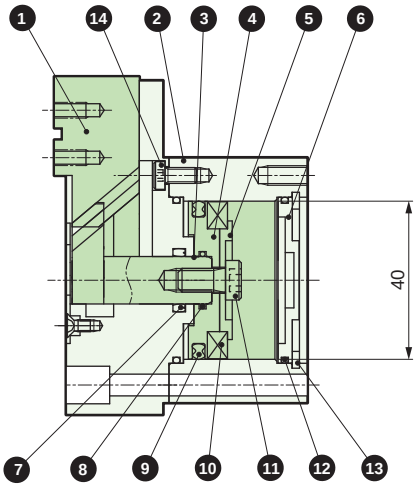
● CKWL-A40-HP1

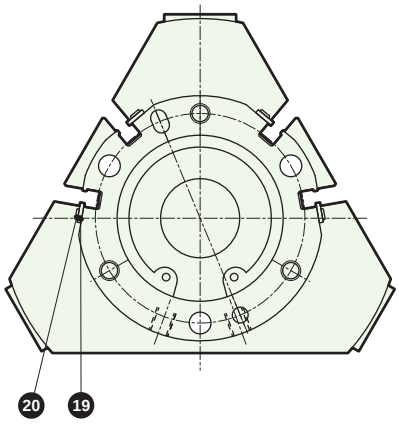


Internal structure / material

● CKWL-A16 to 40-HP1







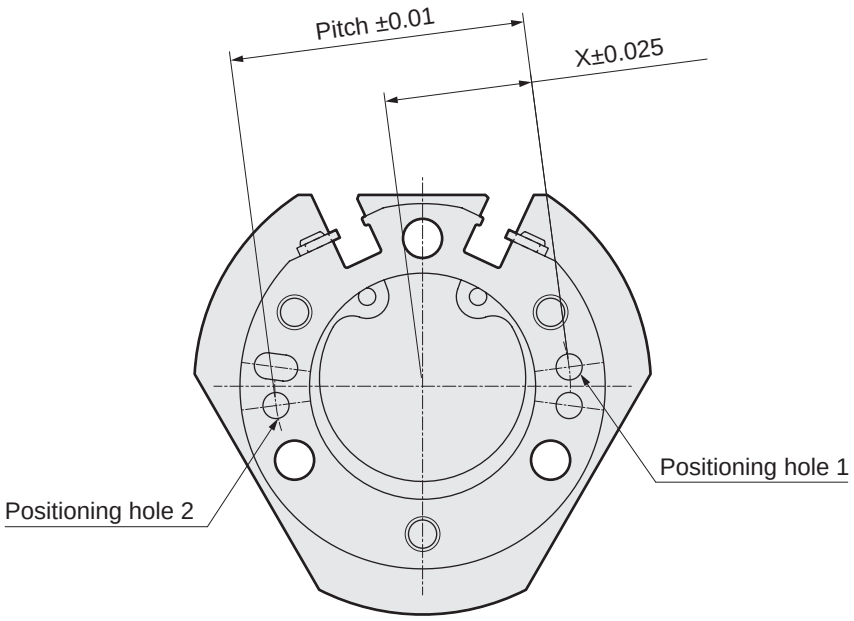
Part No.	Part name	Material	Remarks	Part No.	Part name	Material	Remarks
1	Finger	Steel		11	Hexagon socket head cap screw	Stainless steel	
2	Body	Aluminum alloy	Hard alumite	12	Cylinder gasket	Nitrile rubber	
3	Piston 1	Steel		13	C-snap ring	Stainless steel	
4	Piston 2	Aluminum alloy	Chromate	14	Hexagon socket head cap screw	Stainless steel	
5	Piston 3	Aluminum alloy	Chromate	15	Cover	Stainless steel	
6	Base plate	Aluminum alloy	Chromate	16	Adapter	Aluminum alloy	Hard alumite
7	Rod packing	Nitrile rubber		17	Cross-recessed flat head machine screw	Stainless steel	
8	Piston gasket	Nitrile rubber		18	Parallel pin	Stainless steel	
9	Piston packing	Nitrile rubber		19	Retainer plate	Stainless steel	
10	Magnet	-		20	Pan head machine screw	Stainless steel	

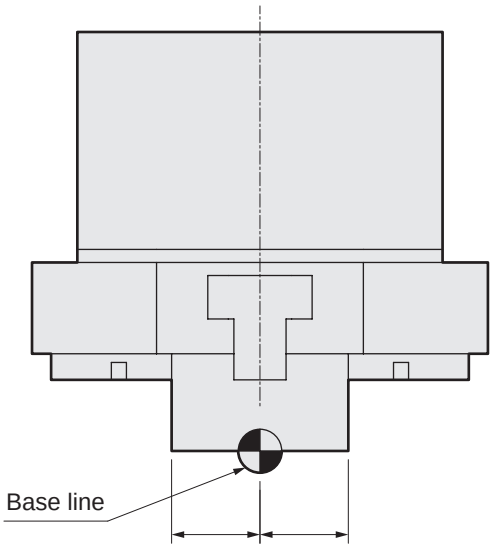
Consumable parts list

Bore size	Kit No.	Consumable parts No.
ø16	CKW-16K-HP1	❼❽❾⓬
ø20	CKW-20K-HP1	
ø25	CKW-25K-HP1	
ø32	CKW-32K-HP1	
ø40	CKW-40K-HP1	

Base line of positioning hole

● Grip center reference, high precision positioning hole
Positioning can be performed with reference to the gripping center.





Base line of positioning hole
Center when gripping with the inner side of the fingers at the intermediate stroke

CKW-HP1 selection guide

STEP-1 Select a suitable model by required gripping force

①Calculation of required gripping force

To transport the workpiece (weight WL), a gripping force FW satisfying the following equation is required.

$$F_W > \frac{W_L \times g \times K}{n}$$

F_W : Required gripping force [N]
n : Number of attachments = 3
W_L : Weight of workpiece [kg]
g : Gravity acceleration 9.8 [m/s^2]
K : Transport coefficient
5 [holding only]
10 [normal transport]
20 [suddenly accelerated transport]

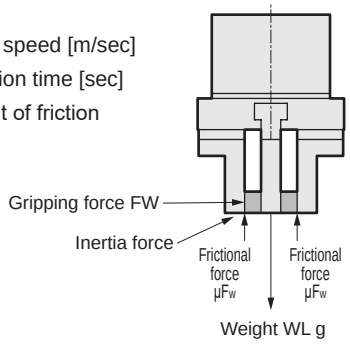
Transport coefficient K

Calculation example: When decelerating and stopping in 0.1 second from transport speed of V = 0.75 m/s with friction coefficient μ of workpiece and jaw as 0.1, See below.

Obtain the transport coefficient K from the force applied to the workpiece

- Inertial force = W_L (V/t)
- Gravity = W_L g
- Required gripping force F_W] $\dfrac{W_L(V/t) + W_L g}{n\mu} = \dfrac{W_L (V/t + g)}{n\mu} = \dfrac{17.3W_L}{3 \times 0.1} = 57.7W_L$
- Here, the transport coefficient K is calculated from the above equation: $\dfrac{V/t + g}{\mu g} = \dfrac{0.75/0.1 + 9.8}{0.1 \times 9.8} \approx 20$

V : Transport speed [m/sec]
t : Deceleration time [sec]
μ : Coefficient of friction

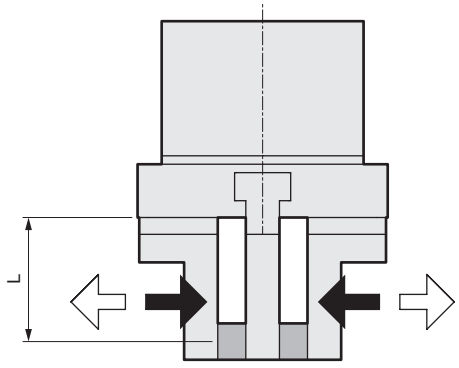


Note) Allowance is required for transport coefficient K due to impacts during transportation, etc.
Coefficient of friction μ even when μ is higher than μ = 0.1, Set transport coefficient K from 10 to 20 or more for safety.

②Model selection based on required gripping force

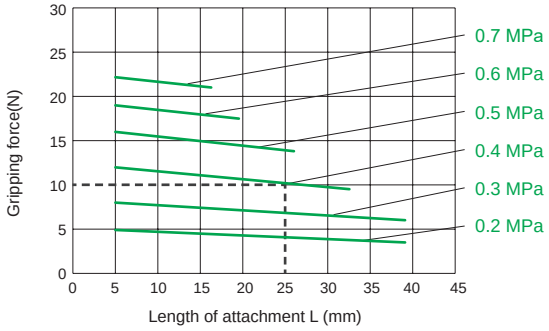
The gripping force changes depending on the "grip direction", "attachment length", and "supply pressure". Confirm on the gripping force graph that sufficient force can be obtained under the usage conditions.
For the gripping force graph Refer to pages 30, 31.

Grip direction



●Open direction (⇦)
●Close direction (➡)

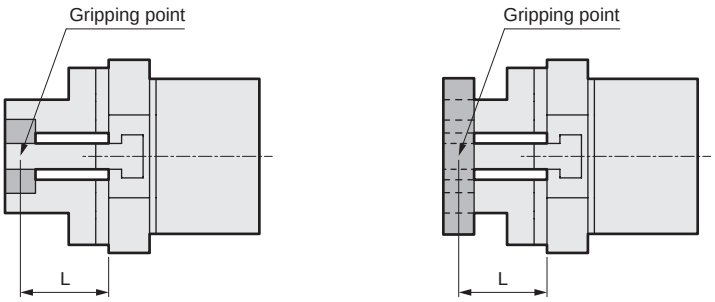
Understanding the gripping force graph
(For CKW-A16 outer diameter gripping force)



For example, when supply pressure is 0.4 MPa and attachment length is 25 mm, the gripping force is 10 N.

STEP-2 Confirmation of attachment shape

Use the attachment within the ranges shown on pages 30 and 31.



●Use attachments as short and lightweight as possible.

If the attachment is long and heavy, inertia increases when opening and closing, this may cause play in the finger, and adversely affect durability.

●Even if the attachment shape is within the performance data, by making it as small as possible enables the product to have a longer service life. Also, if L is long, unexpected vibration, etc., could cause erroneous gripping and falling during transport. With "Cylinder diameter ×1.3/working pressure" as a guide, if L is longer than that, set the transport coefficient of STEP-1 to a high value (Guideline: Transport coefficient 20 or more)

●The weight of the attachment affects the service life, so check that the weight is less than the following value.

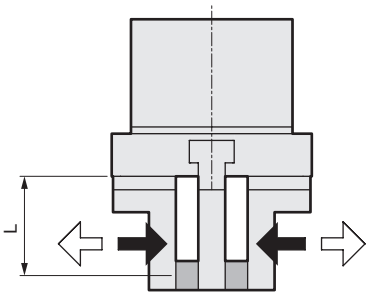
W<1/4H for 1 pc. W : Weight of attachment

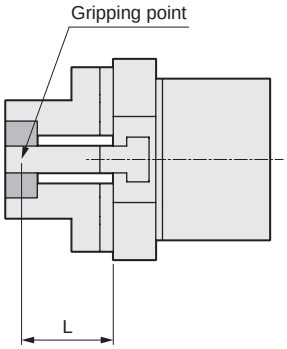
H : Weight of Hand product

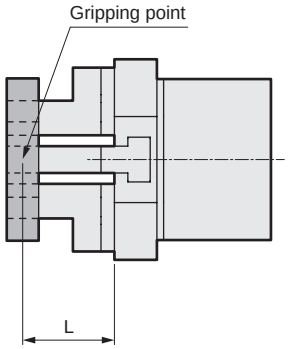
Gripping force performance data CKW-A-HP1, CKWL-A-HP1

- Gripping force is the thrust (one finger) in the direction of the arrow shown in the figure.
- The gripping force with finger length L of hand with a supply pressure up to 0.7MPa is shown.
- Use the attachment length within the following range.

●Open direction (⇦)
●Close direction (➡)

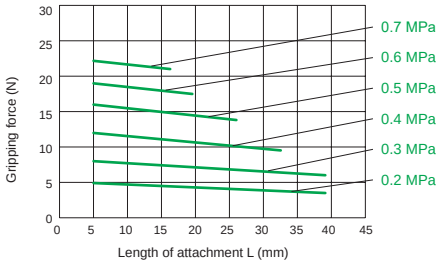




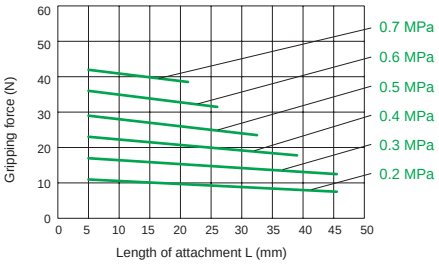


O.D. gripping force

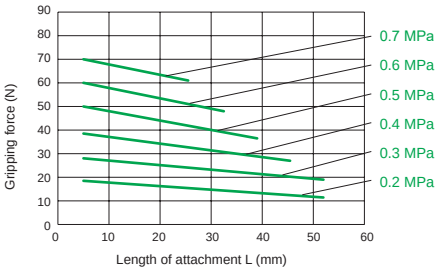
CKW*-A16



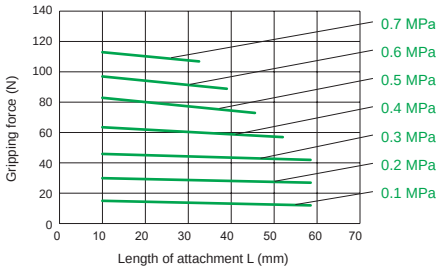
CKW*-A20



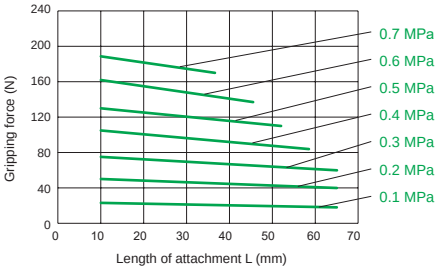
CKW*-A25



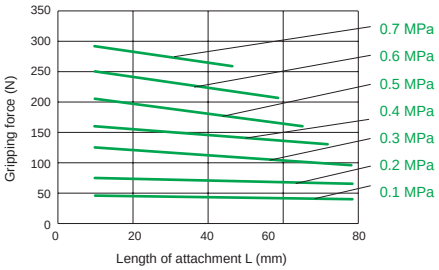
CKW*-A32



CKW*-A40

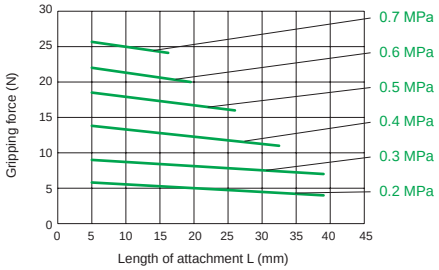


CKW-A50

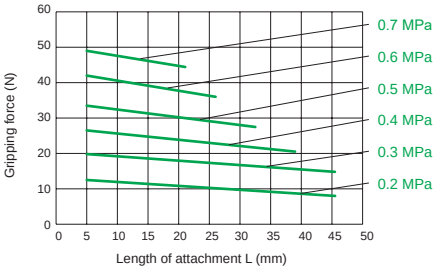


Inner diameter gripping force

CKW*-A16



CKW*-A20



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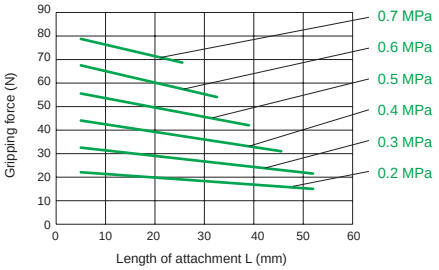

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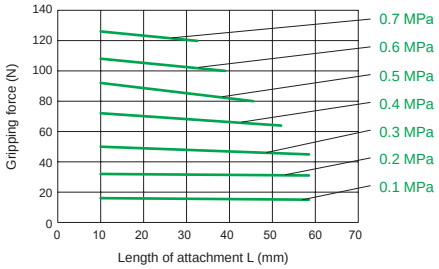
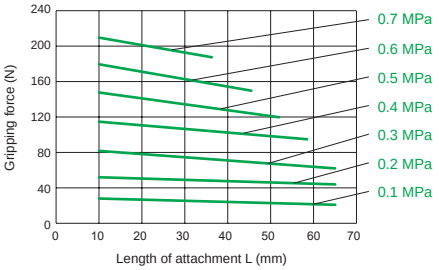
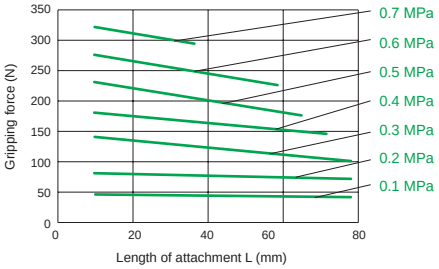


CKW*-A40



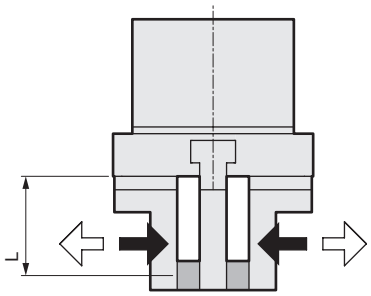
CKW-A50

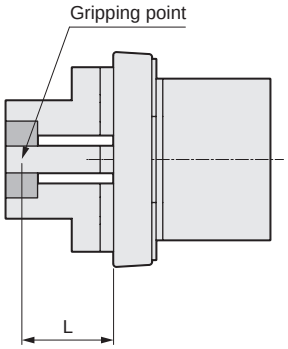


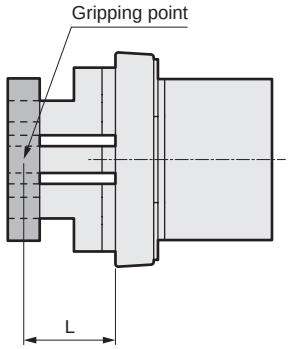
Gripping force performance data CKW-G-HP1, CKW-F-HP1

- Gripping force is the thrust (one finger) in the direction of the arrow shown in the figure.
- The gripping force with finger length L of hand with a supply pressure up to 0.7 MPa is shown.
- Use the attachment length within the following range.

●Open direction (⇦)
●Close direction (⇨)

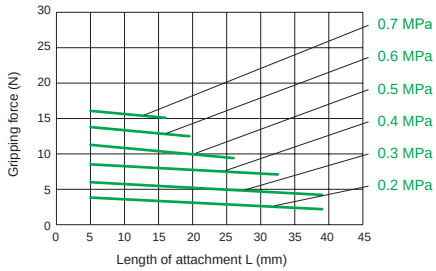




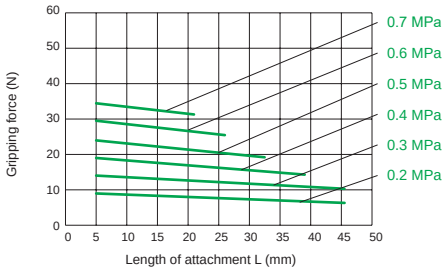


O.D. gripping force

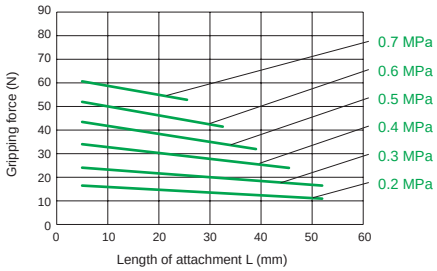
CKW-G/F16



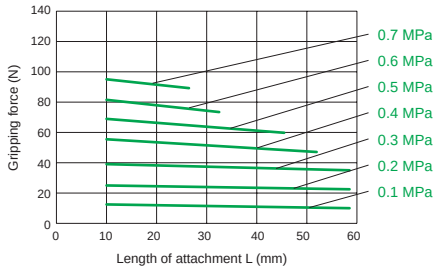
CKW-G/F20



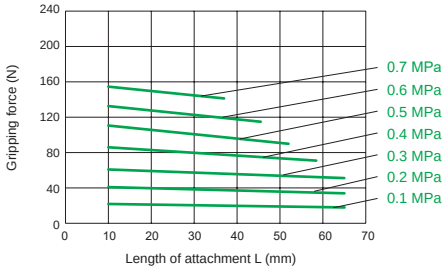
CKW-G/F25



CKW-G/F32

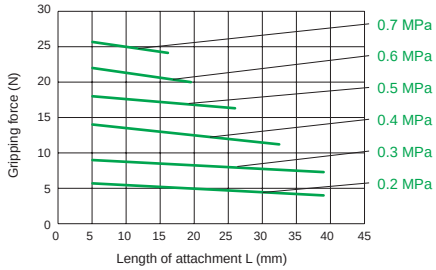


CKW-G/F40

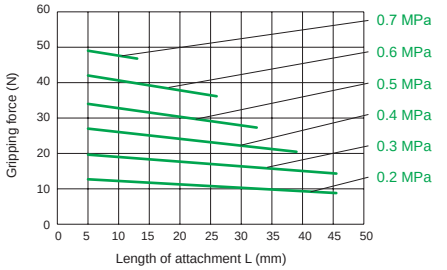


Inner diameter gripping force

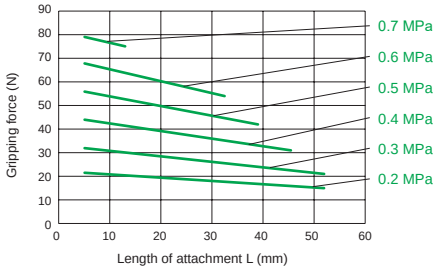
CKW-G/F16



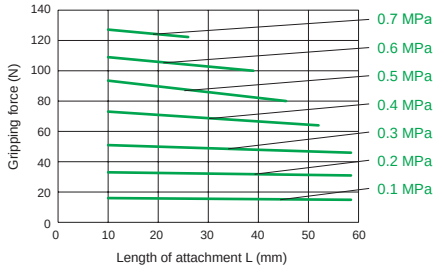
CKW-G/F20



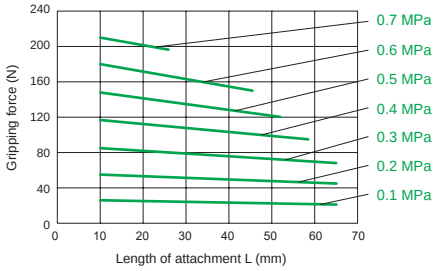
CKW-G/F25



CKW-G/F32



CKW-G/F40



Safety Precautions

Be sure to read this section before use. Refer to Pneumatic Cylinders II (CB-030SA) for general information of the cylinder and cylinder switches.

Product-specific cautions: 3-way jaw chuck CKW-HP1 Series

Design / Selection

WARNING

■ Implement safety measures, such as installing protective covers, when there is a risk of the moving workpiece causing harm to the human body or when there is a danger of fingers getting caught between the fingers or attachments.

■ If the circuit pressure drops due to power failure or air source trouble, the gripping force may decrease and the workpiece may fall. Provide position locking measures, etc., so that personnel are not injured or machines damaged.

CAUTION

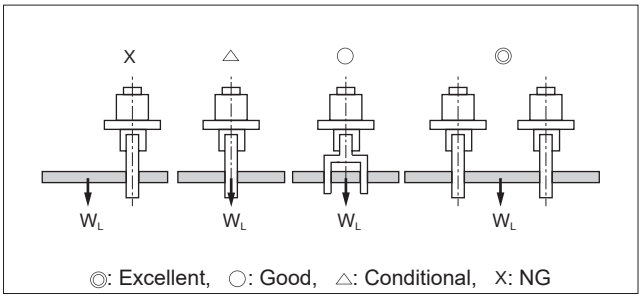
■ Working environment

At cutting, casting, or welding plants, there is a risk of foreign matter, such as cutting fluid, chips, powder and dust, entering the equipment. Use covers and such to prevent this as much as possible.

Do not use the equipment under the following environments.

- Cutting fluid is applied (because the sliding portion will be scraped by the abrasive or abrasive powder in the fluid)
- When the atmosphere contains organic solvents, chemicals, acids, alkalis, kerosene, etc.
- Exposed to water

■ When gripping long or large workpieces, stable gripping requires a grip on the center of gravity. Stability is a must when using larger or multiple workpieces as well.



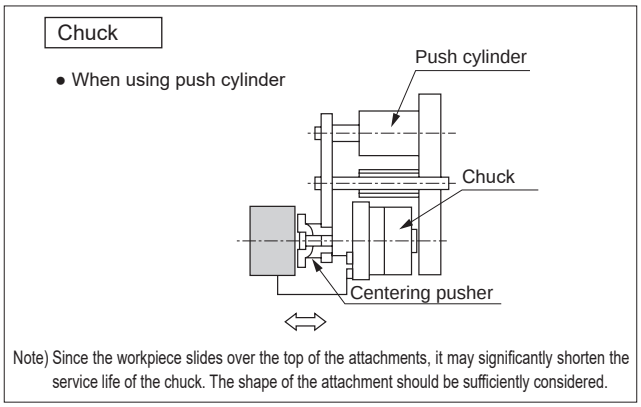
■ Select a model that has sufficient power to grip the workpiece weight.

■ Select a model that has sufficient opening/closing width for the workpiece size.

■ If the attachment is not rigid enough, the resulting sag could cause the finger to twist or adversely affect operation.

■ The rubber cover is a consumable part.
Replace if necessary.

■ If directly inserting the workpiece into the jig with chuck, consider clearance during design. Chucks could be damaged.



Note) Since the workpiece slides over the top of the attachments, it may significantly shorten the service life of the chuck. The shape of the attachment should be sufficiently considered.

■ Adjust the gripper opening/closing speed using the speed controller (sold separately). When used at high speeds, the development of play due to wear may occur earlier. In addition, the workpiece may vibrate due to shocks in opening/closing, which may lead to erroneous chucking, erroneous insertion of workpieces and poor repeatability.

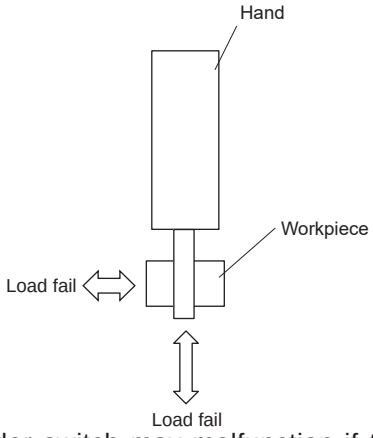
■ Condensation (water drops) may occur in the piping in certain conditions if an actuator with small bore size/short stroke is operated at high frequency. Take steps to prevent condensation such as by using a quick exhaust valve.

■ The rubber cover does not ensure reliable air tightness. Due to the structure, there may be a gap between the rubber cover, and the body/fingers. If this raises an issue, please contact us.

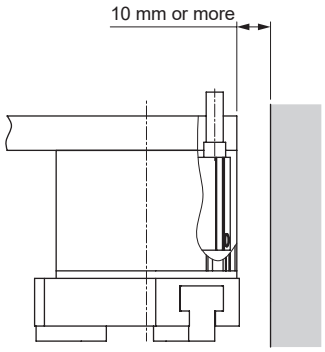
Mounting, Installation and Adjustment

⚠ CAUTION

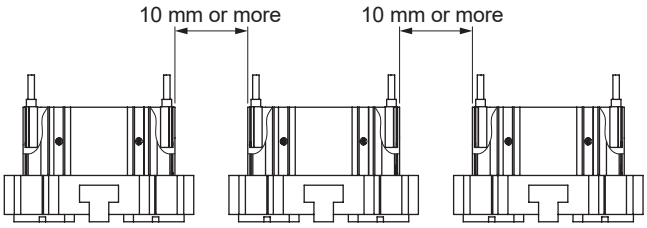
■ Be sure not to apply an excessive load to the fingers and attachment when attaching and detaching or conveying workpieces. The finger may be scratched or dented, which may lead to malfunction.



■ The cylinder switch may malfunction if there is a magnetic substance such as a metal plate installed adjacently. Check that a distance of 10 mm is provided from the surface of the cylinders.



■ The cylinder switch may malfunction if cylinders are installed adjacently. Check that the following distances are provided between cylinders.

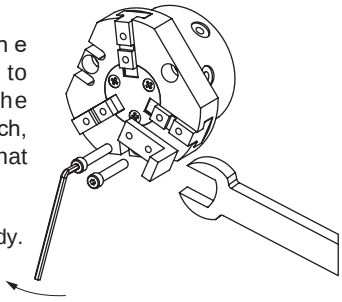


■ Clamping operation is accurate when performed as softly as possible at low speeds. Repeatability is also stable.

■ Installing the attachment

When mounting the attachment to the finger, to prevent any effect on the chuck, support with a wrench, etc., when tightening so that the finger is not twisted.

Do not apply load to the body.

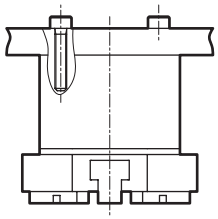


Item	Bolt used	Tightening torque (N·m)
CKW* - *16	M3 x 0.5	0.59
CKW* - *20	M3 x 0.5	0.59
CKW* - *25	M3 x 0.5	0.59
CKW* - *32	M4 x 0.7	1.4
CKW* - *40	M4 x 0.7	1.4
CKW* - *50	M5 x 0.8	2.8

■ Please do not make dents or scratches on the body mounting surface and fingers that may impair flatness and perpendicularity.

■ When mounting, tighten with the following tightening torque.

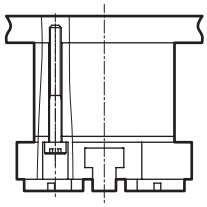
● Top mounting



Item	Bolt used	Tightening torque (N·m)	Max. screw insertion depth L (mm)
CKW* - *16	M3 x 0.5	0.59	4.5
CKW* - *20	M3 x 0.5	0.88	6
CKW* - *25	M4 x 0.7	2.1	6
CKW* - *32	M4 x 0.7	2.1	6
CKW* - *40	M5 x 0.8	3.6	7.5
CKW* - *50	M5 x 0.8	3.6	10

Item	Bolt used	Tightening torque (N·m)	Max. screw insertion depth L (mm)
CKW-G16	M4 x 0.7	2.1	8
CKW-G20	M4 x 0.7	2.1	8
CKW-G25	M4 x 0.7	2.1	8
CKW-G32	M4 x 0.7	2.1	8
	M5 x 0.8	4.3	10
CKW-G40	M4 x 0.7	2.1	8
	M5 x 0.8	4.3	10

● Use of through hole



Item	Bolt used	Tightening torque (N·m)
CKW* - *16	M3 x 0.5	0.88
CKW* - *20	M3 x 0.5	0.88
CKW* - *25	M4 x 0.7	2.1
CKW* - *32	M4 x 0.7	2.1
CKW* - *40	M5 x 0.8	4.3
CKW* - *50	M5 x 0.8	4.3
Item	**Bolt used**	**Tightening torque (N·m)**
CKW-G16	M3 x 0.5	0.88
CKW-G20	M3 x 0.5	0.88
CKW-G25	M3 x 0.5	0.88
CKW-G32	M4 x 0.7	2.1
CKW-G40	M4 x 0.7	2.1

■ Please do not tighten or disassemble any screws other than those used for fixing the body and attaching the attachments. This could lead to malfunction.

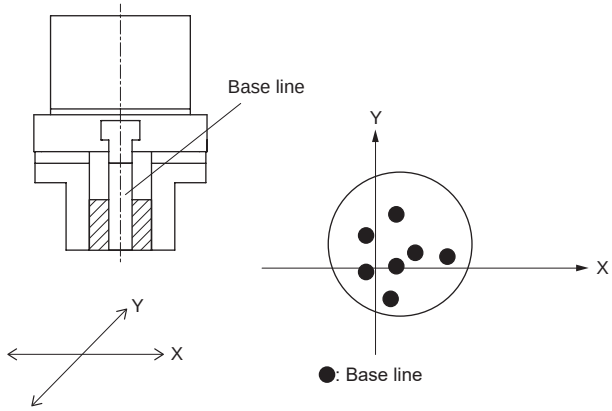
Use / Maintenance

⚠ CAUTION

■ Repeatability

The repeatability here indicates the displacement of the finger in the case of repeated clamping and unclamping in the same conditions (chuck fixed, same attachment used: see below). Shock during opening and closing may lead to position misalignment of the workpiece and deterioration of repeatability. Note as well that attachment wear or insufficient rigidity may lead to deterioration of accuracy.

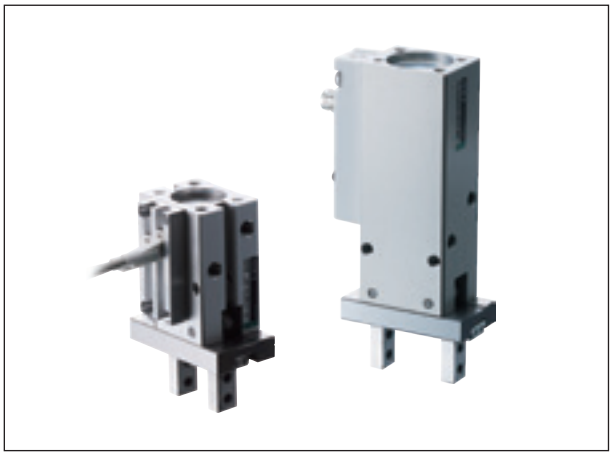
Conditions
· Attachment dimensions, shape, weight
· Attachment workpiece gripping position
· Clamp system, length
· Attachment and workpiece contact area resistance
· Shock-free opening and closing with speed controller
· Fluctuation of gripping force (air pressure), etc.



Related products

Linear Slide Hand LSH-HP Series

Catalog No.CC-1419A



LSH-HP1 Series

- Increased linear guide performance
- Increased flexibility in design
- Long service life
- Reduced processes on site

LSH-HP2 Series

- High repeatability ±0.02 mm, linearity FS±0.5%
- A high structure is realized by an integrated structure with a displacement sensor built into the body
- Environment-resistant IP65 equivalent amplifier and rubber cover

Low-profile long stroke hand LST-HP Series

Catalog No.CC-1529A

LST-HP1 Series

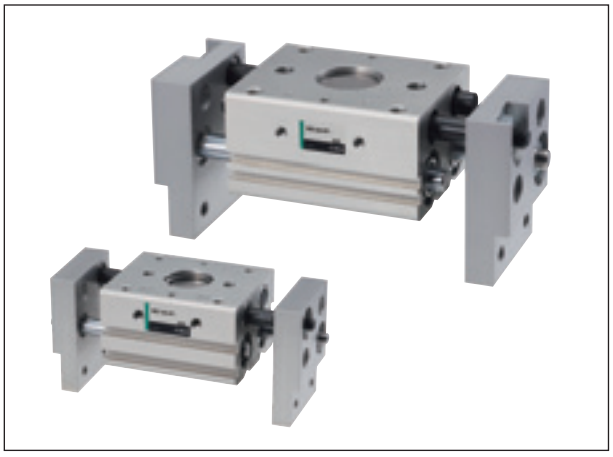
- Thin design from double piston system
- Increased linear guide performance
- Long service life
- Reduced processes on site
- Switch with bending resistant lead wire can be selected

LSTM-HP2 Series

- High repeatability ±0.04 mm, linearity F.S.±0.5%
- A displacement sensor is built into the body, achieving a high-precision integrated structure

Wide parallel hand HMC-HP1 Series

Catalog No.CC-1580A

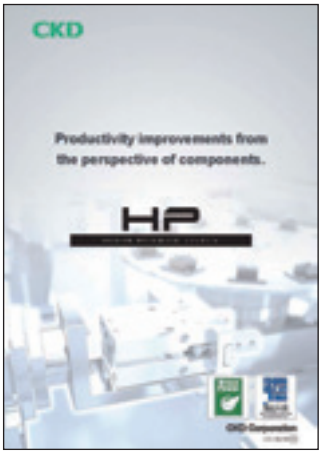


- Long service life cylinder sliding technology employed (more than 2x compared with conventional models)
- Design revision of high rigidity guide part (more than 1.3x compared with conventional models)
- High gripping force: Double piston system

Related products

HP Series General Catalog

Catalog No.CC-1421A



- Actuator for high frequency use (HP1)
  Optimized sliding technology for longer service life with the same dimensions as conventional products (more than 4x compared to conventional products)
- For dusty environments Downward actuator (G-HP1)
  Rubber scraper and lube keeping structure improves durability in dusty environments (more than 4x compared to conventional models)
- Actuator with length measuring function (HP2)
  Integrated high-precision position detection sensor for predictive maintenance
- Long service life cylinder Compatible with rechargeable batteries manufacturing (P4-HP1)
  Extended service life of P4 Series, which has track records in the rechargeable battery manufacturing process (durability count of 10 million cycles or more)
- Environment-resistant cylinder For food manufacturing processes (FP1-G-HP1)
  Long service life in dusty environments in food manufacturing processes (durability count of 5 million cycles or more)

Auto hand changer CHC Series

Catalog No. CB-030SA

- High connection strength between body and adapter, ensuring high rigidity
- Position locking mechanism is equipped to prevent tools from falling even when the drive source is shut off.
- DA wide range of options including sub-connector are available

Quick exhaust valve QEL Series

Catalog No. CB-024SA

- Compact / Space saving inline
  Ozone-proof materials for degradation prevention are used as standard for the valve
- Reducer that can be connected to piping (made-to-order product)
  Quick exhaust can be performed near the actuator
  Helps reduce adiabatic expansion