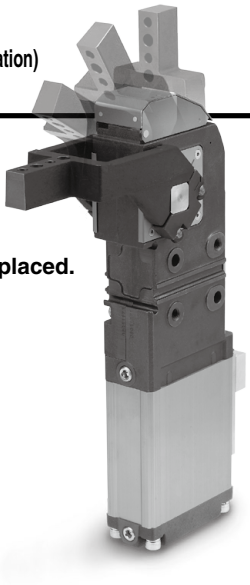
Information

Slim-line Power Clamp Cylinder

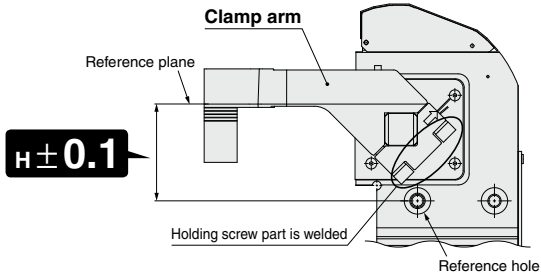
CKZ2N-X2346 (Clamp arm accuracy adjustment specification)

ø50, ø63, ø80



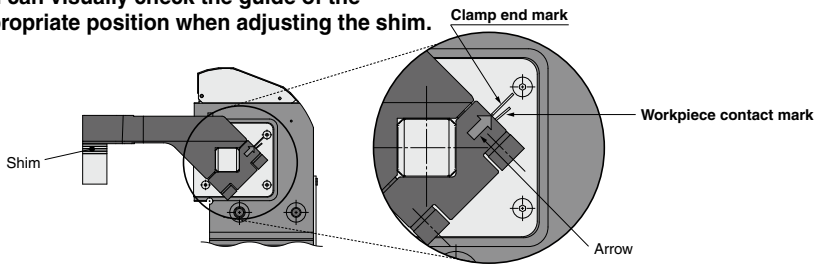
●Distance accuracy from the reference hole to the lower surface of the clamp arm is ±0.1 mm.

A hard stop is not required for the clamping.
Mounting conditions are reproducible when the cylinder is replaced.



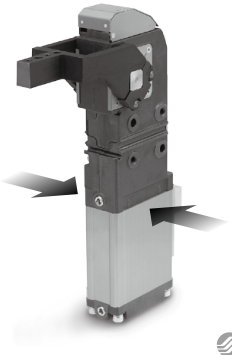
●Easy setup with a scale

You can visually check the guide of the appropriate position when adjusting the shim.

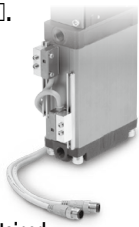


●Reduced width

The torch of the spot welding or arc welding can enter easily.



●Compatible with the magnetic field resistant auto switch D-P4DW□.



●A high clamping force is obtained through the toggle mechanism.

Slim-line Power Clamp Cylinder

CKZ2N-X2346

ø50, ø63, ø80

How to Order

CKZ2N [63] – [120] – [P4DWSC] [ ] – [X2346]

Bore size

50	50 mm equivalent
63	63 mm equivalent
80	80 mm equivalent

Arm opening angle

30	30°
45	45°
60	60°
75	75°
90	90°
105	105°
120	120°
135	135°

Applicable auto switch

Nil	Without auto switch (Without switch mounting bracket)
P4DWL	D-P4DWL
P4DWZ	D-P4DWZ
P4DWSC	D-P4DWSC
P4DWSE	D-P4DWSE

Number of auto switches

Nil	2 pcs.
S	1 pc.

X part no.

X2346	• Clamp arm (fixed on the product) accuracy adjustment spec. • Compatible with magnetic field resistant auto switch • Toggle angle: 2° short of the dead point • With metal cover

Maximum Clamping Moment

Unit: N·m

Equivalent bore size (mm)	Max. clamping moment					
	0.3 MPa	0.4 MPa	0.5 MPa	0.6 MPa	0.7 MPa	0.8 MPa
50	100	130	160	190	220	250
63	300	350	400	450	500	550
80	560	720	880	1040	1200	1360

Cylinder Specifications

Equivalent bore size	**50**	**63**	**80**
Arm opening angle	30°, 45°, 60°, 75°, 90°, 105°, 120°, 135°		
Cushion	Unclamping side rubber bumper		
Max. operating pressure	0.8 MPa		
Operating temperature range	–10 to 60°C		
Min. operating time	1 sec. to clamp, 1 sec. to unclamp		

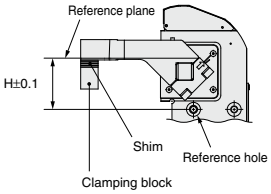
Solid State Auto Switch Specifications

Switch model	**D-P4DW□**
Load voltage	24 VDC
Load current	6 to 40 mA or less
Internal voltage drop	5 V or less
Leakage current	1 mA or less
Operating time	40 ms
Impact resistance	Switch: 1000 m/s² Connector: 300 m/s² Note)
Indicator light	Operating position: Red LED lights up Optimum operating position: Green LED lights up

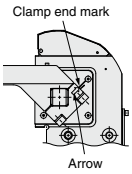
Note) The above specifications are those when the D-P4DWSC or D-P4DWSE is selected.

Setup Procedure

Precautions ∗ In this cylinder, the shim is pulled out to increase the power.



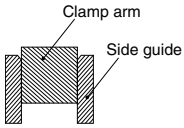
1. Since the distance accuracy from the reference hole to the lower surface of the clamp arm is ±0.1 mm at the stroke end as shown in the figure on the left side, a hard stop is not required for the clamping. When a clamp arm deflection lock is required, install the side guides.
2. Even when the arm operates to the clamp end, the internal toggle mechanism does not enter the dead point (2° short of the dead point). Therefore, clamping cannot be held during air exhaust.
3. For normal clamping with clamping force only and for mounting adjustment, be sure to insert a shim around 3 mm in size by referring to the clamping force characteristics graph, "Distance h from the reference plane".



When using the side guide

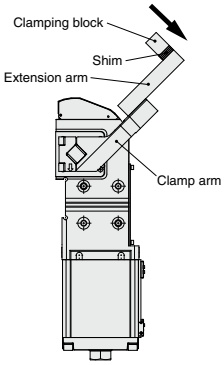
Precaution

When using the side guide to the clamp arm to prevent lateral motion, make sure not to apply a lateral load or galling to the clamp arm.

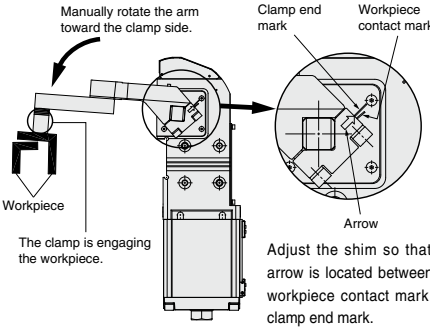


Mounting

Step 1 Exhaust the air to switch to the unclamped state.

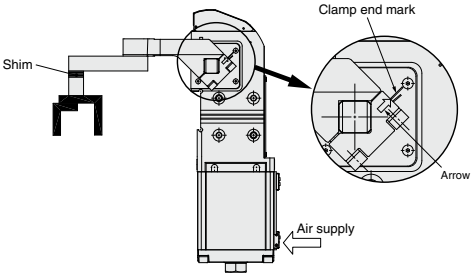


Step 2 Manually place the arm on workpieces.



Adjust the shim so that the arrow is located between the workpiece contact mark and clamp end mark.

Step 3 Supply air to the clamp side and adjust with the shim so that the arrow mark is located at a position close to the clamp end mark. (For the shim amount, refer to the clamping force characteristics graph, "Distance h from the reference plane" on page 1343.)

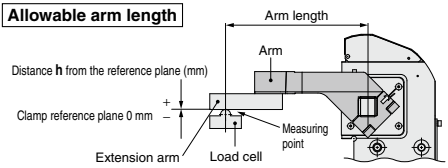


Step 4 Use a speed controller and adjust it so that it takes at least 1 second when changing from clamping to unclamping (or vice versa).

Clamping force characteristics

Clamping force characteristics by arm length, bore size, and operating pressure (0.5 MPa)

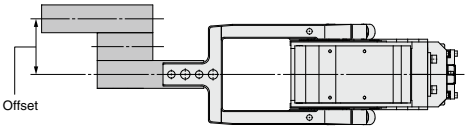
Allowable arm length



(mm)

Bore size	Arm length
50	250
63	300
80	400

Allowable offset



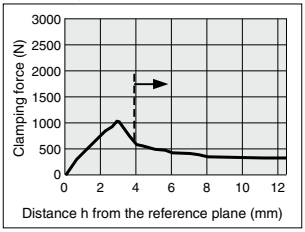
(mm)

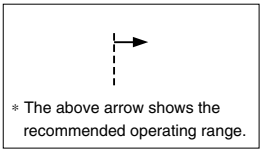
Bore size	Offset
50	50
63	50
80	55

∗ The clamping force does not change within the allowable offset.

50

Arm length 250 mm

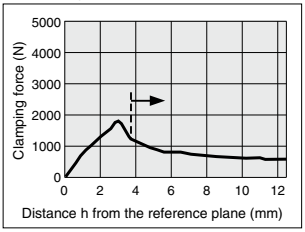




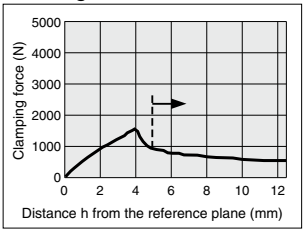
∗ The above arrow shows the recommended operating range.

63

Arm length 250 mm

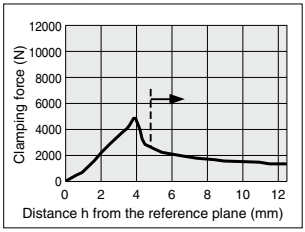


Arm length 300 mm

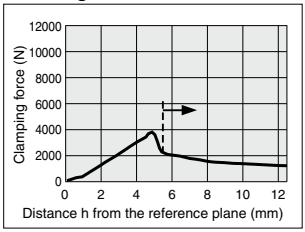


80

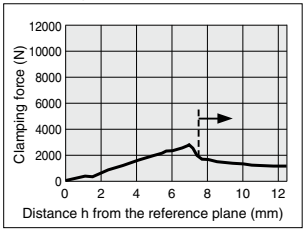
Arm length 250 mm



Arm length 300 mm



Arm length 400 mm



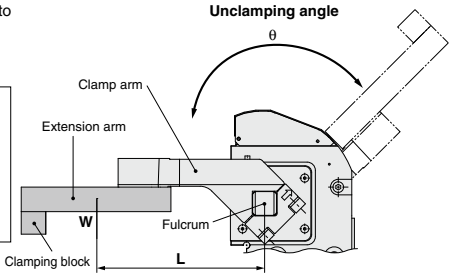
Arm end load capacity

The weight of the extension arm and clamping block to be mounted on the clamp arm may vary depending on the unclamping angle. Be sure to use the product within the allowable values in the graphs shown below.

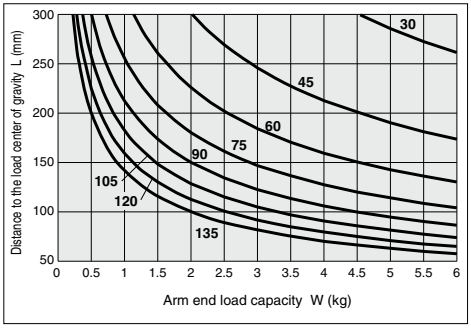
* The load indicates the total weight of the extension arm and clamping block.

Selection procedure of arm end load capacity

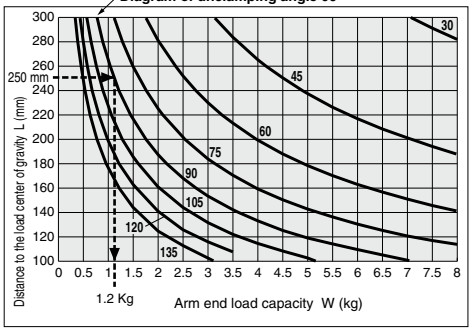
1. Calculate the distance **L** from the fulcrum to the center of gravity of the extension arm + clamping block.
2. Check the unclamping angle of the product.
3. Obtain the load capacity from the graph, and use the product within the allowable range.



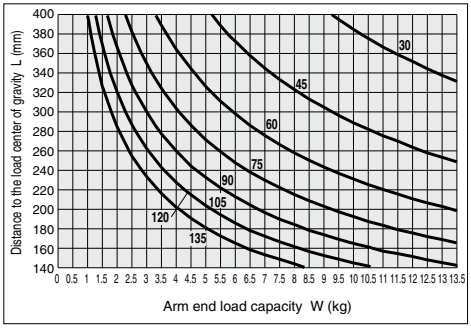
50



63



80

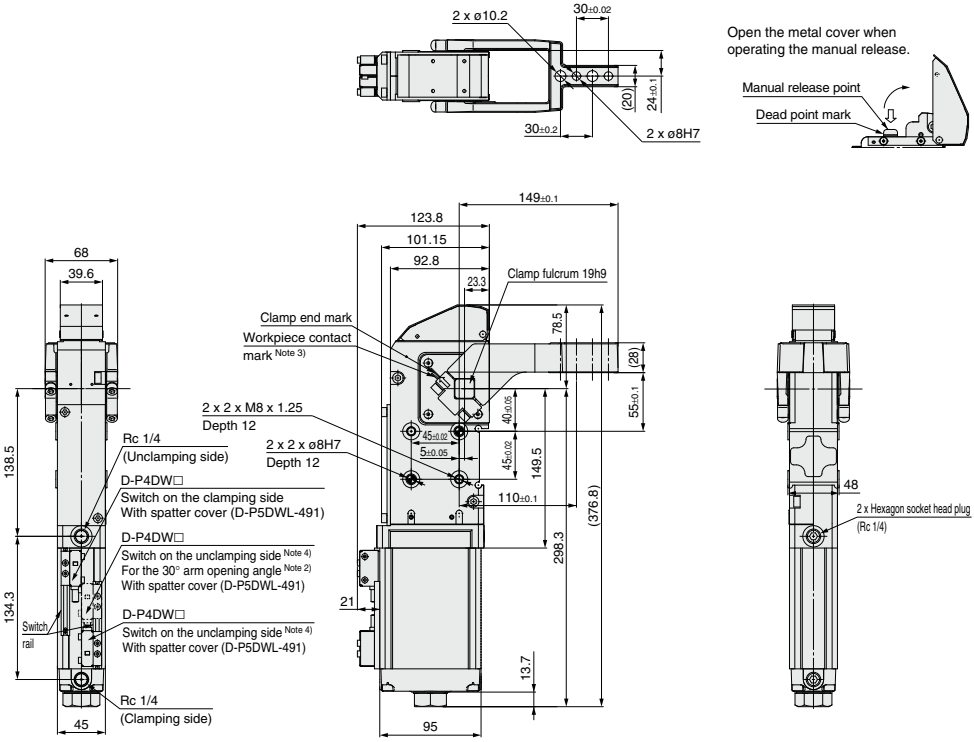


Selection example For graph size 63, when the unclamping angle is 90° and the extension arm + clamping block center of gravity position is 250 mm.

When the center of gravity position of the load capacity of the extension arm + clamping block is 250 mm on the diagram at an unclamping angle of 90° in the size 63 graph, the total load capacity of the extension arm + clamping block is to 1.2 kg.

Dimensions

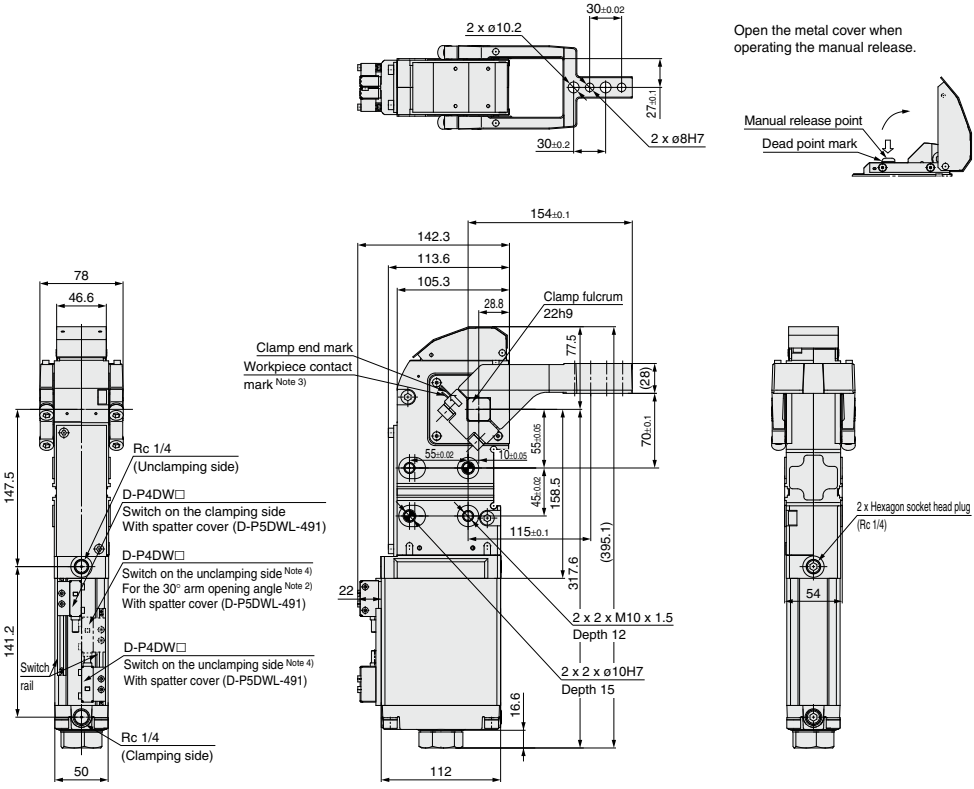
CKZ2N50-□-□□-X2346



Note 1) Since this product is set so that the toggle angle is 2° short of the dead point at the clamp end, it does not lock when the air is exhausted.
Note 2) For the 30° arm opening angle, the electrical entry direction of the auto switch is different.
Note 3) When setting up the product, set the position of where the clamp arm is in contact with the workpiece on the clamping side so that the arrow mark is located between the workpiece contact mark and clamp end mark.
Note 4) When only one switch is provided, it is mounted on the unclamping side.

Dimensions

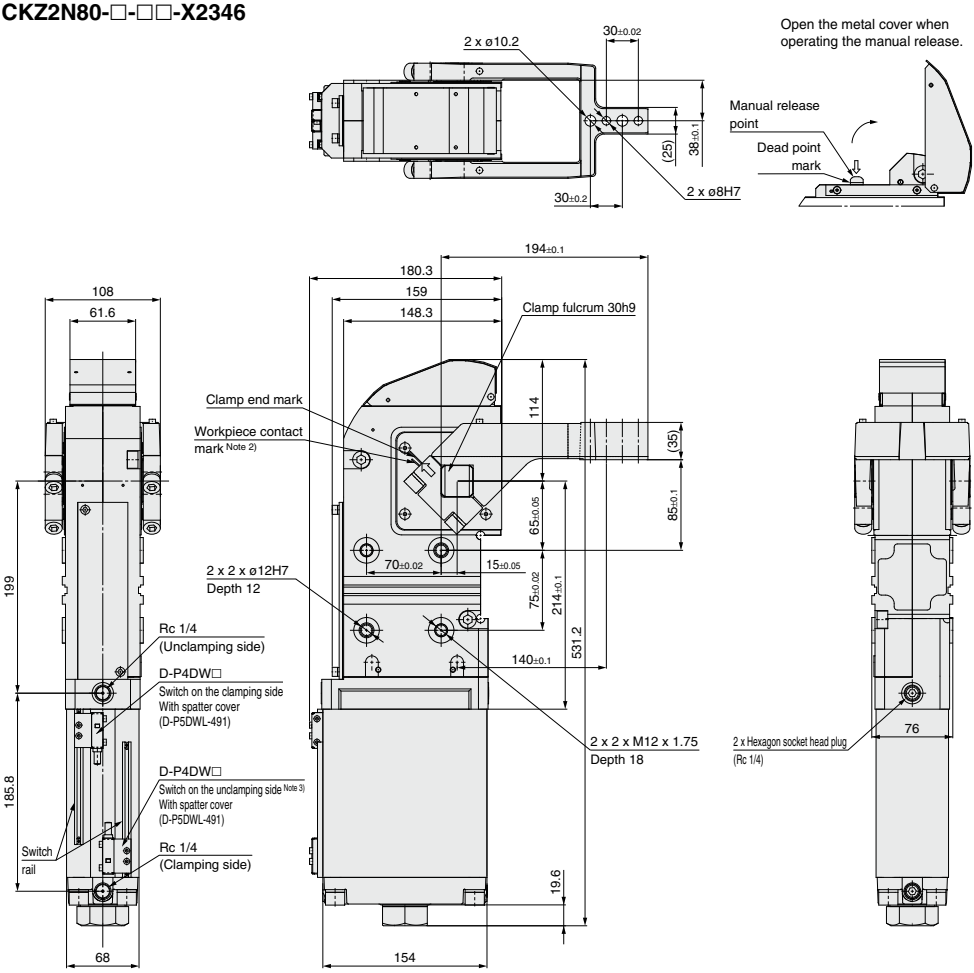
CKZ2N63-□-□□-X2346



Note 1) Since this product is set so that the toggle angle is 2° short of the dead point at the clamp end, it does not lock when the air is exhausted.
Note 2) For the 30° arm opening angle, the electrical entry direction of the auto switch is different.
Note 3) When setting up the product, set the position of where the clamp arm is in contact with the workpiece on the clamping side so that the arrow mark is located between the workpiece contact mark and clamp end mark.
Note 4) When only one switch is provided, it is mounted on the unclamping side.

Dimensions

CKZ2N80-□-□□-X2346



Note 1) Since this product is set so that the toggle angle is 2° short of the dead point at the clamp end, it does not lock when the air is exhausted.
Note 2) When setting up the product, set the position of where the clamp arm is in contact with the workpiece on the clamping side so that the arrow mark is located between the workpiece contact mark and clamp end mark.
Note 3) When only one switch is provided, it is mounted on the unclamping side.