Limited Edition News

CKD

Grips and measures the diameter of cylindrical workpieces

High-precision length measurement with sensor integrated structure

A stroke detection sensor (LVDT method) is built into the chuck body and a dedicated amplifier is compactly mounted. The position of the gripping jaw is accurately output in analog form.

* LVDT is short for Linear Variable Differential Transformer, a sensor that converts mechanical displacement into electric signal for output.

High repeatability and linearity

Repeatability ±0.02 mm

Linearity F.S.±0.5%

A LVDT sensor with excellent vibration and shock resistance realizes high repeatability and linearity.

Environmental resistance

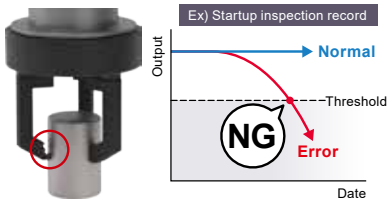
The IP65 equivalent amplifier and high-durability rubber cover prevent the ingress of cutting chips and water drops.

Momentary stops greatly reduced	Number of replacements greatly reduced
Predictive maintenance possible	Durability count 10 million cycles or higher

Subject to CKD prescribed conditions

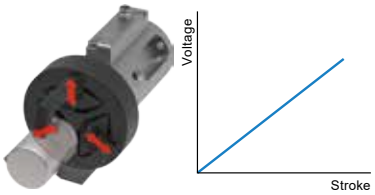
Predictive maintenance

Monitors attachments with abnormal wear and deformation of fingers and jigs through changes in output to prevent equipment and robot damage.



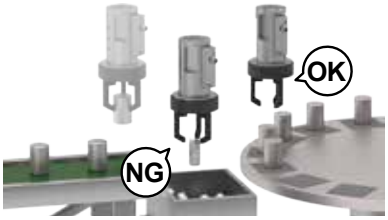
Elimination of human error

All strokes are output in detail, eliminating manual adjustment error as caused by conventional switches.



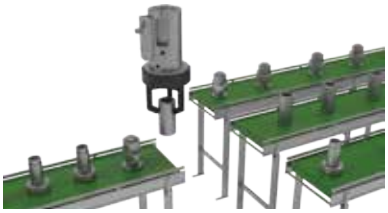
Workpiece foreign object judgment

Grips and measures simultaneously, reducing the number of inspection steps.



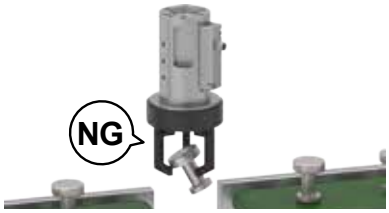
Workpiece model judgment

Capable of instantaneously judging minute differences in workpiece models.



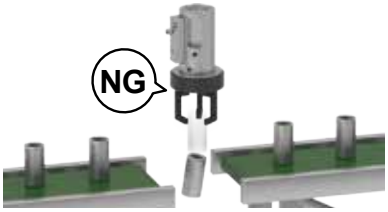
Gripping orientation judgment

Detecting postural misalignment at the time of grasping can prevent contact accidents at the transport destination.



Falling / Swiveling judgment during transport

Minute stroke differences can be measured, allowing accurate judgments as to whether a workpiece has dropped or swiveled during transport.



3-way jaw chuck with length measuring function CKWM-HP2 Series [Special-order product]

CKD Corporation
https://www.ckd.co.jp/en/

LN-021AA

●Contact a CKD Sales representative for special specifications of this product.

How to order

CKWM – A 16 D N – HP2 – S277

- Model No.
- ❶ Rubber cover
- ❷ Bore size (mm)
- Actuation
- ❸ High precision positioning hole

❶ Rubber cover

Code	Description
A	None
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

Code	Description
N	None
A	Available

Contact CKD for detailed dimensions. Refer to "3-Jaw Chucks CKW-HP Series" (No.CC-1581AA) for the Dimensions diagram.

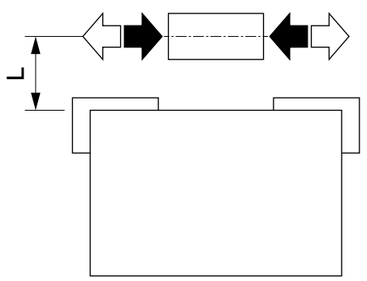
Specifications

Item		CKWM-HP2				
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	
Power supply voltage		24 VDC ±10%				
Current consumption		25 mA or less				
Indicator lamp		Green LED ON when power applied				
Analog output		1 V - 4.5V *1, connected load 100kΩ or more				
Analog output linearity		±0.5% F.S. or less (ambient temperature 25°C)				
Repeatability of analog output		±0.02mm or less (ambient temperature 25°C, no deformation or wear of actuator/jig)				
Effective measured range length	mm	4	4	6	8	8
Shock resistance (sensor/amplifier section)		294m/s²				
Vibration resistance (sensor / amplifier section)		10 to 55Hz double amplitude 1.5mm, 2 hours in each X, Y, Z direction				
Degree of protection (sensor/amplifier section)		IEC Standard IP65				
Ambient temperature, humidity		10 to 60°C, 85%RH or less (no freezing)				
Weight kg	Without rubber cover	0.19	0.24	0.32	0.5	0.68
	With rubber cover	0.23	0.3	0.4	0.67	0.92

* 1: Refer to "■Analog output characteristics" on the next page for the relationship with the finger. There is output fluctuation of 1mV/°C.

Gripping force

- Gripping force represents the thrust (per one finger) in the arrow direction shown in the figure.
  - Open direction (⇦)
  - Close direction (⇨)

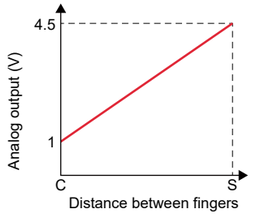


Unit: N

Bore size (mm)	Double acting	
	Open side	Closed side
ø16	16	14
ø20	28	25
ø25	47	42
ø32	82	74
ø40	130	118

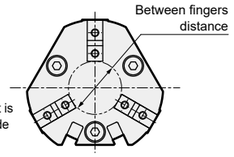
*Supply pressure 0.5 MPa, L=20 mm (ø16 to ø25), 30mm (ø32 to ø40), value at the stroke center

■Analog output characteristics

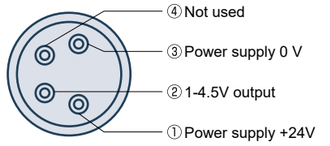


*The analog output voltage at shipment is 1 V on the C side and 4.5V on the S side with the port closed and pressurized

	CKWM-A		CKWM-G/F	
	C	S	C	S
ø16	10	14	15	19
ø20	12	16	16	20
ø25	14	20	19	25
ø32	16	24	23	31
ø40	20	28	30	38



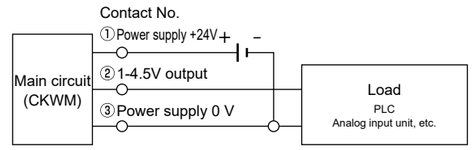
■Plug contact array diagram



■Connecting the cable

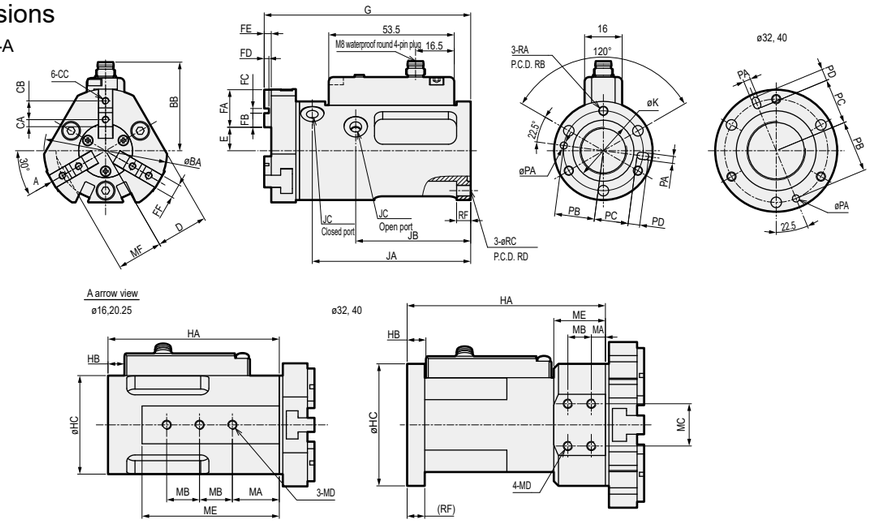
1. Turn power OFF before wiring this product.
2. Do not touch the mating surface of the connector with wet hands. In addition, water may adhere to connectors and peripheral parts when wiring. If so, wipe off thoroughly. Failure to do so may result in insulation failure.
3. Make sure that metal chips or powder do not enter the mating part of the connector.
4. Be sure to tighten the connector fixture (M8) by hand (Proper tightening torque 0.2 N·m). Using a tool such as pliers may cause damage due to excessive load. If the tightening force is insufficient, the degree of protection may not be maintained, and loosening may occur due to vibration.

●Connecting the lead wire



Dimensions

● CKWM-A



Bore size	BA	BB	CA	CB	CC	D	E When open	E Closed	FA	FB	FC	FD	FE	FF	G	HA	HB	HC
ø16	37	33.8	2	6	M3×0.5 depth 5	17	7	5	11.5	4	2 H9	2	3	5 h9	83.5	70.5	0.5	34
ø20	45	35.5	2.5	7	M3×0.5 depth 6	18.5	8	6	14	5	2 H9	2	3	6 h9	85	71	5.5	37
ø25	52.5	38.2	3	8	M3×0.5 depth 6	22	10	7	16	6	2 H9	2	3	6 h9	88	73	7	42
ø32	72	36.8	4.5	11	M4×0.7 depth 8	27	12	8	23.5	9	2 H9	2	3	8 h9	101	84.5	8	52
ø40	80	38.3	4.5	12	M4×0.7 depth 8	32	14	10	24	9	3 H9	2	3	8 h9	104	85	8	62

Bore size	JA	JB	JC	K	MA	MB	MC	MD	ME	MF	PA	PB	PC	PD
ø16	65.5	50.5	M3	17 H9 depth 1.5	17	10	-	M3×0.5 depth 5	42	15.5	2 H9 depth 2	12.5	11	3
ø20	65.5	50	M5	21 H9 depth 1.5	20	10	-	M3×0.5 depth 5	45	17	2 H9 depth 2	14.5	13	3
ø25	67.5	49	M5	26 H9 depth 1.5	20	14	-	M4×0.7 depth 6	58.5	19.5	3 H9 depth 3	17	14.5	5
ø32	79	54.5	M5	34 H9 depth 2	6	10	18	M4×0.7 depth 5	22	22.5	3 H9 depth 3	22	19.5	5
ø40	79.5	55	M5	42 H9 depth 2	6	10	19	M5×0.8 depth 5.5	22.5	28	4 H9 depth 4	26.5	23.5	6

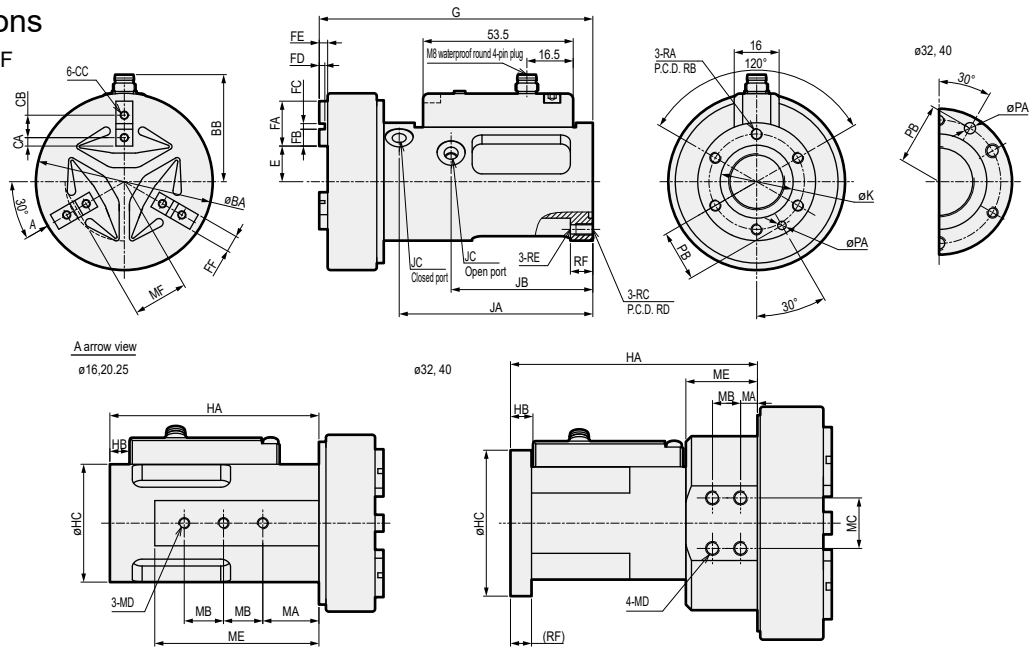
Bore size	RA	RB	RC	RD	RF
ø16	M3×0.5 depth 4.5	25	ø3.4	25	10
ø20	M3×0.5 depth 6	29	ø3.4	29	8
ø25	M4×0.7 depth 6	34	ø4.5	34	6
ø32	M4×0.7 depth 6	44	ø4.5	44	7.5
ø40	M5×0.8 depth 7.5	53	ø5.5	53	7.5

*Refer to "3-Jaw Chucks Dimensions diagram CKW-HP Series" (No.CC-1581AA) for dimensions of the high precision positioning hole.

CKWM-HP2 Series

Dimensions

● CKWM-G/F



Bore size	BA	BB	CA	CB	CC	E When open	E Closed	FA	FB	FC	FD	FE	FF	G	HA	HB	HC
ø16	48	33.8	2	6	M3×0.5 depth 5	9.5	7.5	11.5	4	2 H9	2	3	5 h9	91.5	73	0.5	34
ø20	54	35.5	2.5	7	M3×0.5 depth 6	10	8	14	5	2 H9	2	3	6 h9	95	74	5.5	37
ø25	63	38.2	3	8	M3×0.5 depth 6	12.5	9.5	16	6	2 H9	2	3	6 h9	97.5	74.5	7	42
ø32	84	36.8	4.5	11	M4×0.7 depth 8	15.5	11.5	23.5	9	2 H9	2	3	8 h9	113	86	8	52
ø40	93	38.3	4.5	12	M4×0.7 depth 8	19	15	24	9	3 H9	2	3	8 h9	115	88	8	62

Bore size	JA	JB	JC	K	MA	MB	MC	MD	ME	MF	PA	PB
ø16	66.7	53	M3	17 H9 depth 1.5	17	10	-	M3×0.5 depth 5	42	15.5	3 H9 depth 3	12
ø20	68	51	M5	21 H9 depth 1.5	20	10	-	M3×0.5 depth 5	45	17	3 H9 depth 3	15
ø25	69	50.5	M5	26 H9 depth 1.5	20	14	-	M4×0.7 depth 6	58.5	19.5	3 H9 depth 3	18
ø32	80	56	M5	34 H9 depth 2	6	10	18	M4×0.7 depth 5	23.5	22.5	4 H9 depth 4	22
ø40	81	55	M5	42 H9 depth 2	6	10	19	M5×0.8 depth 5.5	25.5	28	4 H9 depth 4	26

Bore size	RA	RB	RC	RD	RE	RF
ø16	M3×0.5 depth 4.5	25	M4×0.7 depth 8	24	ø3.3	10
ø20	M3×0.5 depth 6	29	M4×0.7 depth 8	29	ø3.3	8
ø25	M4×0.7 depth 6	34	M4×0.7 depth 8	34	ø3.3	8
ø32	M4×0.7 depth 7.5	44	M5×0.8 depth 7.5	44	ø4.2	7.5
ø40	M4×0.7 depth 7.5	52	M5×0.8 depth 7.5	52	ø4.2	7.5

*Refer to "3-Jaw Chucks Dimensions diagram CKW-HP Series" (No.CC-1581AA) for dimensions of the high precision positioning hole.diagram

Please read carefully before use.
Please also read the precautions for the “3-Jaw Chuck CKW-HP Series” (No. CC-1581AA).

- Refer to the CKW catalog (CC-1581A) for selection guide, gripping force performance data, and precautions for design/ selection, mounting, installation, and adjustment.
- Use only a DC safety power supply. Do not connect motors, valves, etc., that generate noise to the power supply used in this device.
- While wiring, ensure that inductive noise is not applied to the sensor and amplifier and that power lines such as motors do not use the same piping and wiring (through multi-core cables, etc.). Use caution with the inverter power supply and its wiring section as well. (Check that the inverter power frame ground is correctly grounded and noise is released.)
- Rubber plugs are attached to the external zero point adjusting trimmers to maintain water resistance. Fit these plugs in after adjusting.
- The M8 screw of the cable should be securely tightened to maintain water resistance.

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