

# Linear Guide Parallel Type Air Gripper

**CHELIC**®

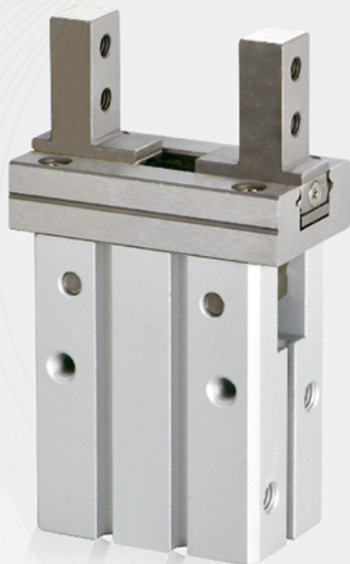
## HDZ/L Series

Specifications: HDZ/L 06/10/16/20/25/32/40

Applicable



Piston and shaft integrated. Built-in induction magnet.



Maximum gripping force  
**254 N**

Opening and Closing Accuracy  
**±0.01 mm**

Lightest weight  
**0.025 kg**

### Roller linear guide

High rigidity and strength support and structural device.

### Space-saving. Lightweight

### Space-saving and lightweight

The integrated claw structure maintains precision and stability.

### Model and features

**2 times**  
longer stroke  
than HDZ



HDZ-20-B



HDZL extended type



Standard



B-side tapping thread type



C-switch direction through-hole type

### Model and specifications

Double action (standard) type			Claw extended type			Dustproof type		
Type	Bore (mm)	Closing stroke	Type	Bore (mm)	Closing stroke	Type	Bore (mm)	Closing stroke
HDZ 06	6	4	—	—	—	HDZM 06	6	4
HDZ 10	10	4	HDZL 10	10	8	HDZM 10	10	4
HDZ 16	16	6	HDZL 16	16	12	HDZM 16	16	6
HDZ 20	20	10	HDZL 20	20	18	HDZM 20	20	10
HDZ 25	25	14	HDZL 25	25	22	HDZM 25	25	14
HDZ 32	32	22	—	—	—	HDZM 32	32	22
HDZ 40	40	30	—	—	—	HDZM 40	40	30

HDZM dustproof type

Protect against foreign matter and dust.

HRZ single-engine model

Single-acting constantly opening type

This product series is designed for applications in industrial IoT systems.



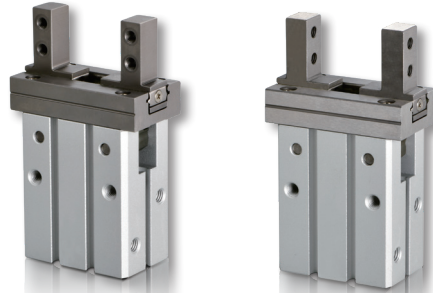
# HDZ series Linear Guide Parallel Type Air Gripper

Product features/ Code of order

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## Feature

- Piston and lever all-in-one
- Built-in magnet
- The roller type linear



## Specification

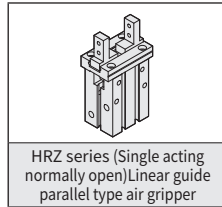
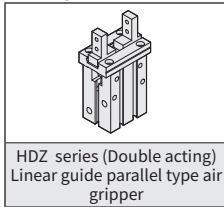
Item	Bore size (mm)	Ø06	Ø10	Ø16	Ø20	Ø25	Ø32	Ø40
Action		Double acting						
Fluid		Air						
Pressure range	kgf / cm <sup>2</sup> (kPa)	2 ~ 7 ( 200 ~ 700 )			1.5 ~ 7(150 ~ 700 )			
Ambient and fluid temperature	°C	0 ~ 60						
Max. operation frequency	time/min	100					60	
Lubrication		Not required						
Finger open/ close accuracy	mm	± 0.01					± 0.02	
Finger open/ close stroke	mm	4	6	10	14	22	30	
Sensing device		With magnet						

## Code of order **HDZ 16 - B - 15T 2**

1 — 2 — 3 — 4 — 5

1	Mark	Model
	HDZ	Double acting
	HRZ	Single acting normally open

### Image

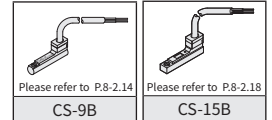
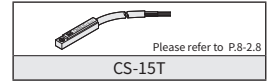
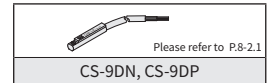
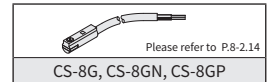
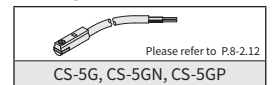


2	Mark	Bore size (mm)
	06	Ø6
	10	Ø10
	16	Ø16
	20	Ø20
	25	Ø25
	32	Ø32
	40	Ø40

3	Mark	Gripper Type
	None:	Standard
	B:	Side tapped mounting
	C:	Through-holes

4	Mark	Sensor switch	Applicable Type
	None	Without sensor switch	—
	5G	CS-5G	10, 16 20, 25 32, 40
	5GN	CS-5GN	
	5GP	CS-5GP	
	8G	CS-8G	06, 16 20, 25 32, 40
	8GN	CS-8GN	
	8GP	CS-8GP	
	9D	CS-9D	16, 20, 25 32, 40
	9B	CS-9B	
	9H	CS-9H	
	9DN	CS-9DN	
	9DP	CS-9DP	
	15T	CS-15T	
	15B	CS-15B	

### Image



5	Mark	Sensor quantity
	1	With 1 sensor switch
	2	With 2 sensor switches



HDD

HDS

HDM

HDP

HDPM

HDZ

HDZL

HDZM

HDW

HDWM

HMW

HMG

HMY

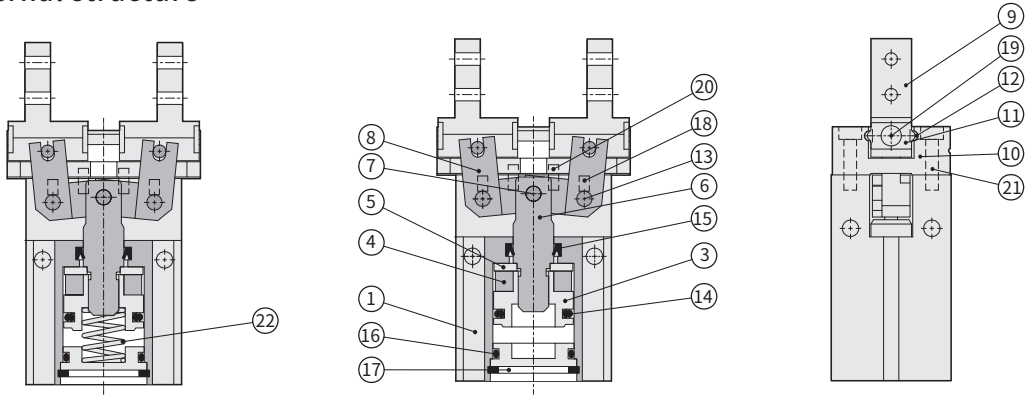
HDU

# HDZ series Linear Guide Parallel Type Air Gripper

## Product features

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### Internal structure



● HRZ Single acting normally open

### Components and material list

No.	Item	Material	No.	Item	Material
01	Body	Aluminum alloy	12	Ball bearing	Bearing steel
02	Rear cover	Aluminum alloy	13	Action lever pin	Bearing steel
03	Piston	Copper alloy	14	Piston packing	NBR
04	Magnet	Magnet	15	Shaft packing	NBR
05	Magnet cap	Copper alloy	16	Rear cover O-ring	NBR
06	Shaft	Stainless steel	17	Clip	Alloy steel
07	Shaft pin	Bearing steel	18	Plug	Alloy steel
08	Action lever	Stainless steel(SUS440)	19	Counter sunk screw	Alloy steel
09	Gripper fingers	Stainless steel(SUS440)	20	Pin	Bearing steel
10	Finger base	Stainless steel(SUS440)	21	Screw	Alloy steel
11	Roller block	Stainless steel	22	Spring	Stainless steel

### Packing and O-ring material list

Unit: mm

Item	Rear cover O-ring	Piston packing	Shaft packing
Model \ Quantity	1	1	1
HDZ 06	Ø4 x Ø1(1PC per front & rear cover)	COP - 6	DYR - 3K
HDZ 10	Ø10 x Ø1	COP - 10	DYR - 6
HDZ 16	Ø13.2 x Ø1.5	COP - 16	DYR - 8K
HDZ 20	Ø17.5 x Ø1.5	COP - 20	DYR - 10
HDZ 25	Ø22.5 x Ø1.5	COP - 25	DYR - 12
HDZ 32	Ø28.5 x Ø2	COP - 32	DYR - 16
HDZ 40	Ø38.5 x Ø2	COP - 40	DYR - 20

### Product weight

Model	HDZ 06	HDZ 10	HDZ 16	HDZ 20
Weight (kg)	0.025	0.06	0.14	0.27
Model	HDZ 25	HDZ 32	HDZ 40	
Weight (kg)	0.49	0.81	1.37	

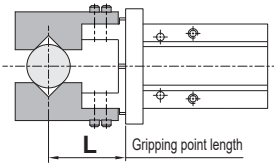
Note: All of above are theoretical data. Weight tolerance about ±5%

# HDZ series Linear Guide Parallel Type Air Gripper

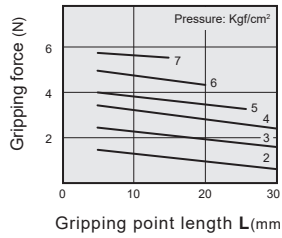
## Characteristics graph

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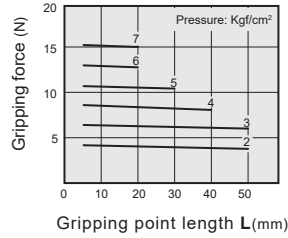
### External grip force characteristic



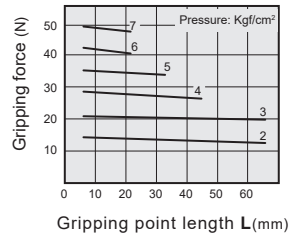
HDZ 06



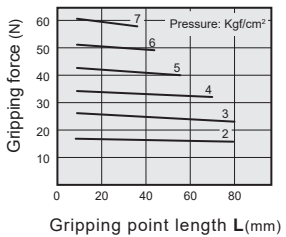
HDZ 10



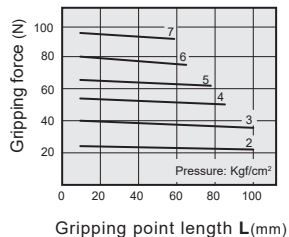
HDZ 16



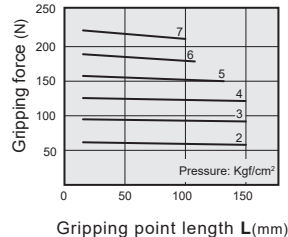
HDZ 20



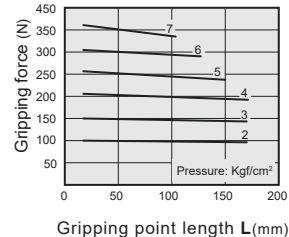
HDZ 25



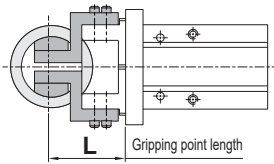
HDZ 32



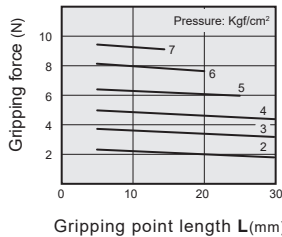
HDZ 40



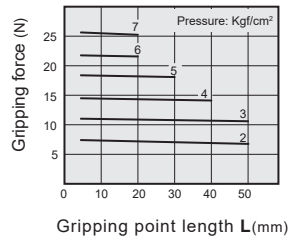
### Internal grip force characteristic



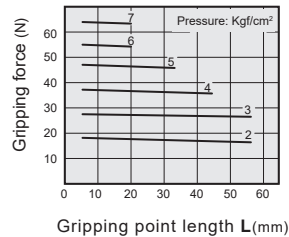
HDZ 06



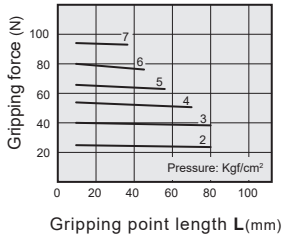
HDZ 10



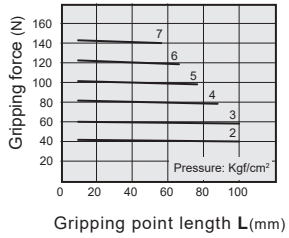
HDZ 16



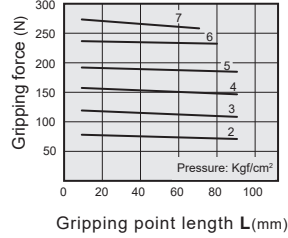
HDZ 20



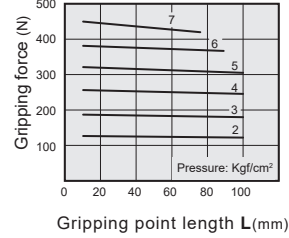
HDZ 25



HDZ 32



HDZ 40



HDD

HDS

HDM

HDP

HDPM

HDZ

HDZL

HDZM

HDW

HDWM

HMW

HMG

HMY

HDU

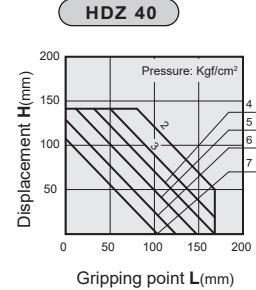
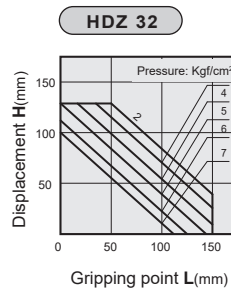
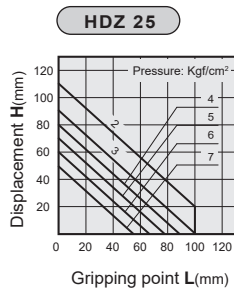
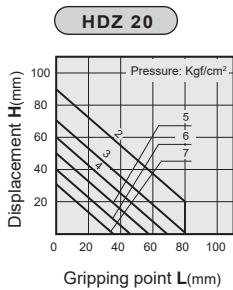
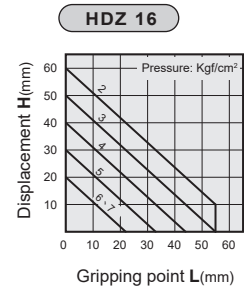
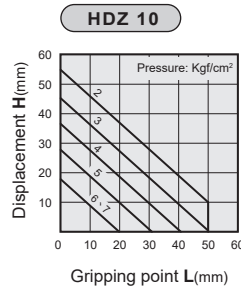
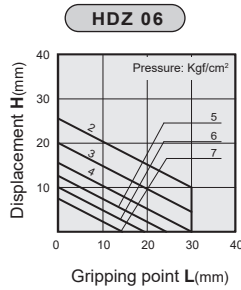
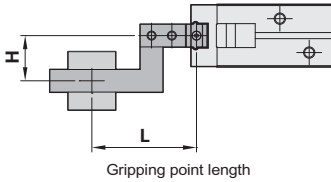
# HDZ series Linear Guide Parallel Type Air Gripper

## Characteristics graph

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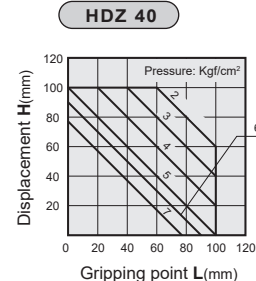
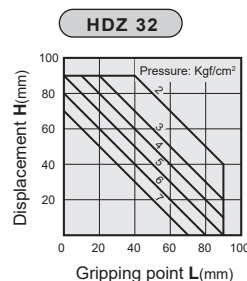
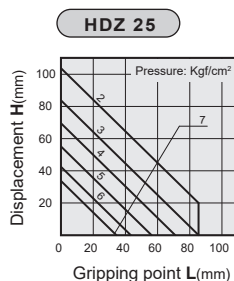
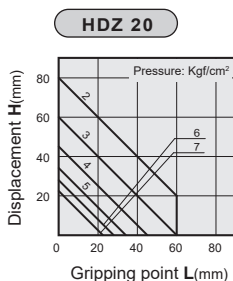
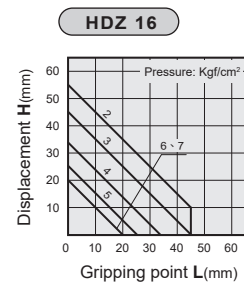
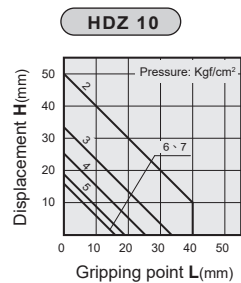
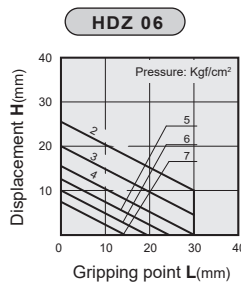
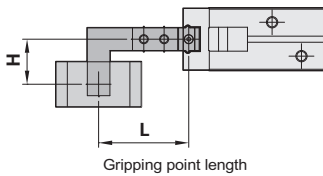
### Gripper maximum allowable displacement - External gripping force

The working piece shall be used within the requirement. If the workingpiece exceed below offset, it will shorter gripper lifespan.



### Gripper maximum allowable displacement - Internal gripping force

The working piece shall be used within the requirement. If the workingpiece exceed below offset, it will shorter gripper lifespan.

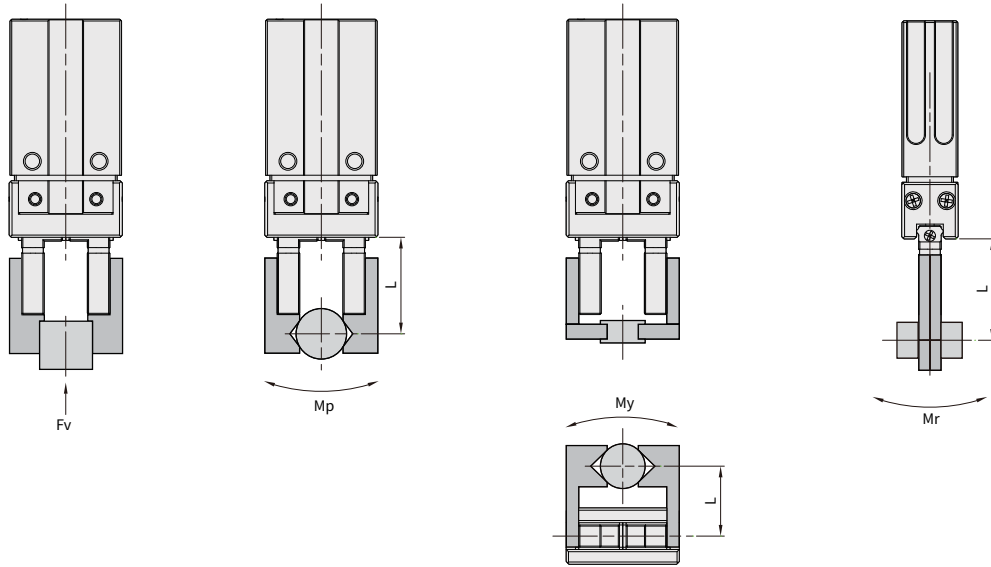


# HDZ series Linear Guide Parallel Type Air Gripper

External force on fingers

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## External force on fingers



HDD

HDS

HDM

HDP

HDPM

HDZ

HDZL

HDZM

HDW

HDWM

HMW

HMG

HMY

HDU

Model	Allowable vertical load Fv(N)	Maximum allowable moment		
		Pitch moment Mp(N·m)	Yaw moment My(N·m)	Roll moment Mr(N·m)
HDZ 06	10	0.04	0.04	0.08
HDZ 10	58	0.26	0.26	0.53
HDZ 16	98	0.68	0.68	1.36
HDZ 20	147	1.32	1.32	2.65
HDZ 25	255	1.94	1.94	3.88
HDZ 32	343	3	3	6
HDZ 40	490	4.5	4.5	9

注：表中的負載和力矩值為靜態值。 L：到施加負載點的距離(mm)

Calculation of allowable external force	Calculation example
<p>Allowable load <math>F(N) = \frac{M \text{ (Maximum allowable moment)(N} \cdot \text{m)}}{L \times 10^{-3}}</math></p> <p style="text-align: center;">↑ Unit conversion constant</p>	<p>When a static load of <math>f=10\text{N}</math> is operating, which applies pitch moment to point <math>L=30\text{mm}</math> from the HDZ 16 guide.</p> $\text{Allowable load } F = \frac{0.68}{30 \times 10^{-3}}$ $= 22.7(\text{N})$ <p>Load <math>f = 10(\text{N}) &lt; 22.7(\text{N})</math></p>

# HDZ series Linear Guide Parallel Type Air Gripper

Operating type and data, Mounting type

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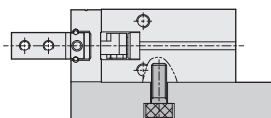
## Operating type and data

Action	Model	Bore size (mm)	The smallest operating pressure (kgf/cm <sup>2</sup> )	Thread port (mm)	Effective gripping force (N)	
Double acting	HDZ 06	6	2	4-M2x0.4P	Open	6.1
					Close	3.3
	HDZ 10	10	2.2	4-M2.5x0.45P	Open	17
					Close	11
	HDZ 16	16	1.5	4-M3x0.5P	Open	45
					Close	34
	HDZ 20	20	1.5	4-M4x0.7P	Open	66
					Close	42
	HDZ 25	25	1.5	4-M5x0.8P	Open	104
					Close	65
	HDZ 32	32	1.5	4-M6x1.0P	Open	193
					Close	158
	HDZ 40	40	1.5	4-M8x1.25	Open	318
					Close	254
Normally open	HRZ 06	6	3.5	4-M2x0.4P	Close	1.9
	HRZ 10	10	3.6	4-M2.5x0.45P	Close	7.1
	HRZ 16	16	3	4-M3x0.5P	Close	27
	HRZ 20	20	2	4-M4x0.7P	Close	33
	HRZ 25	25	2	4-M5x0.8P	Close	45
	HRZ 32	32	2	4-M6x1.0P	Close	131
	HRZ 40	40	1.5	4-M8x1.25P	Close	217

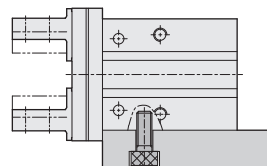
Note: The gripping force is the force of open and close gripper which in the length of gripping point is 30mm and acting pressure is 5kgf/cm<sup>2</sup>.

## Mounting type

1. Apply the screw from bottom thread hole.



2. Thread in the side of body

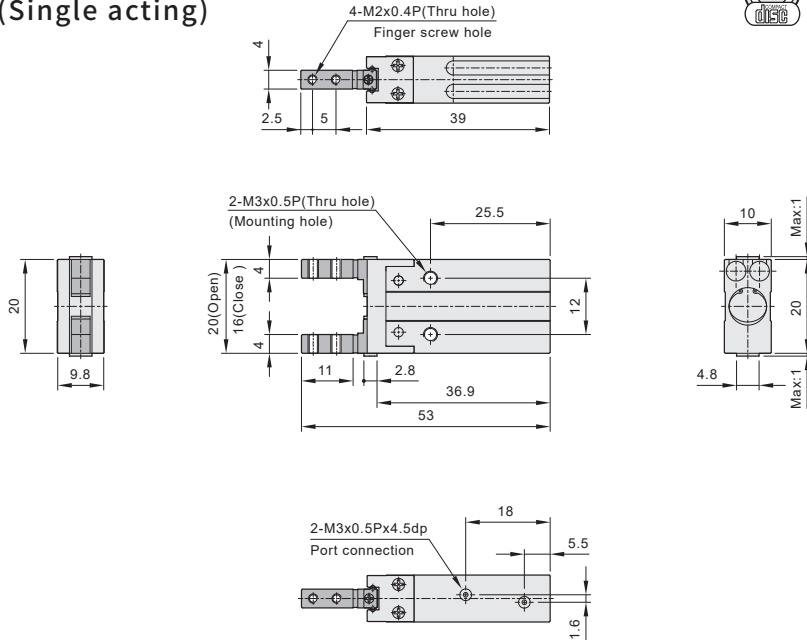


# HDZ series Linear Guide Parallel Type Air Gripper

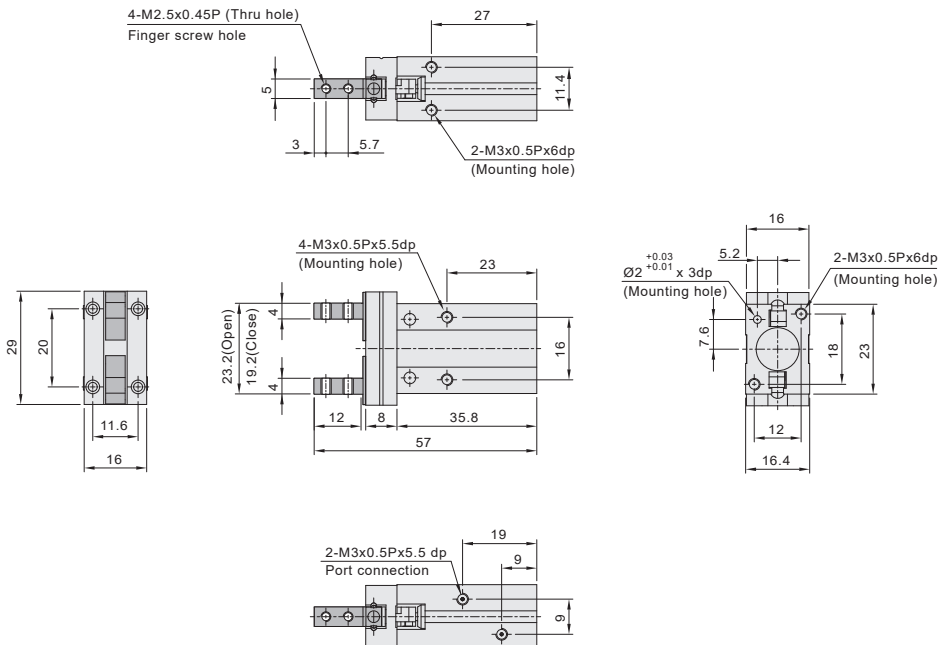
## Dimensions

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- HDZ 06 (Double acting)
- HRZ 06 (Single acting)



- HDZ 10 (Double acting)
- HRZ 10 (Single acting)



HDD

HDS

HDM

HDP

HDPM

HDZ

HDZL

HDZM

HDW

HDWM

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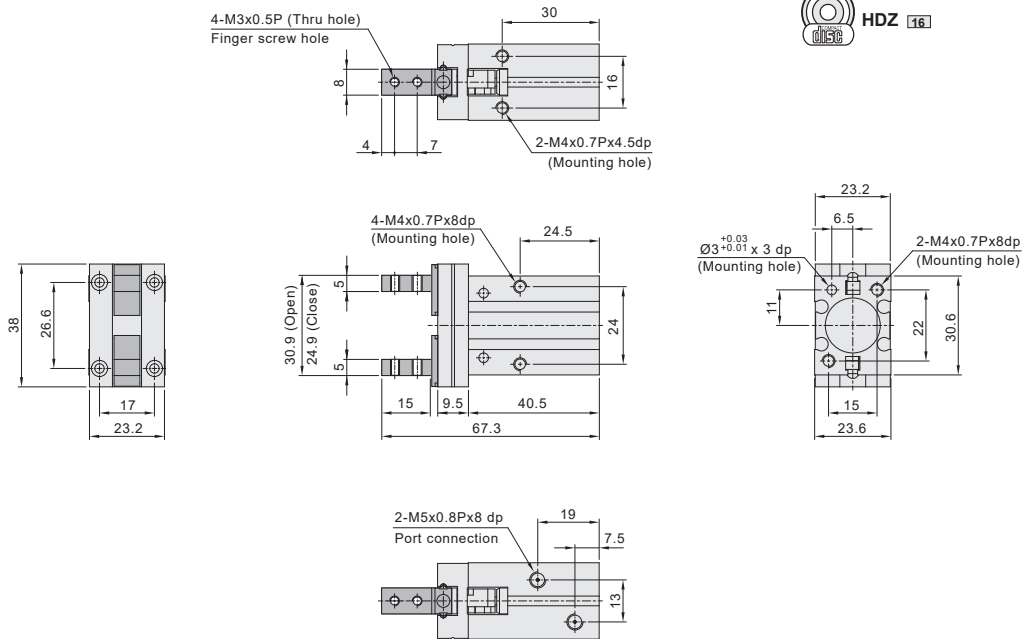
HDU

# HDZ series Linear Guide Parallel Type Air Gripper

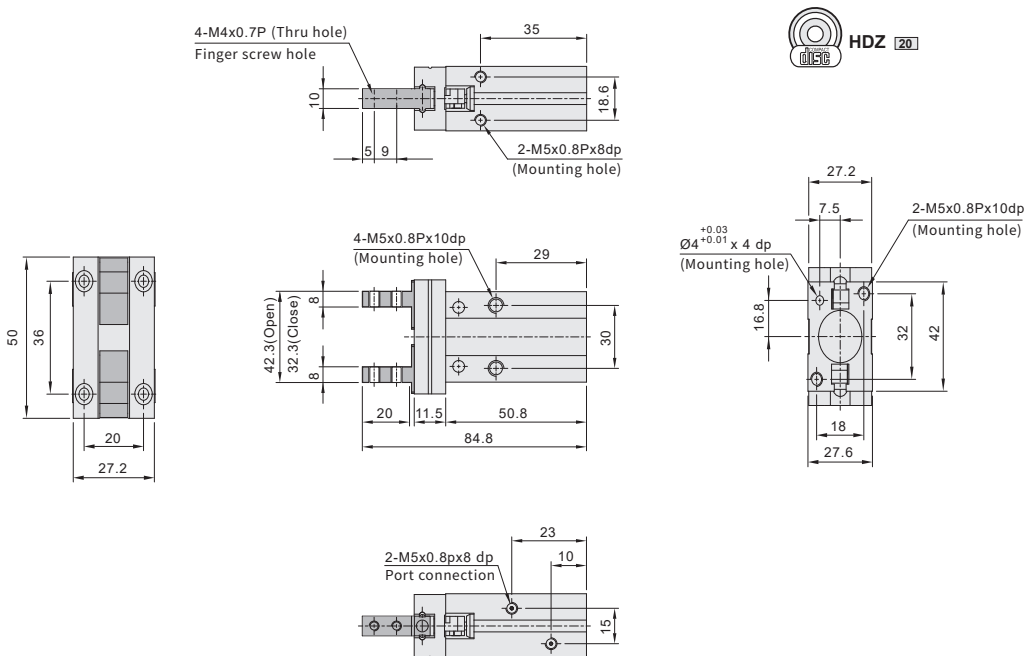
## Dimensions

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- HDZ 16 (Double acting)
- HRZ 16 (Single acting)



- HDZ 20 (Double acting)
- HRZ 20 (Single acting)

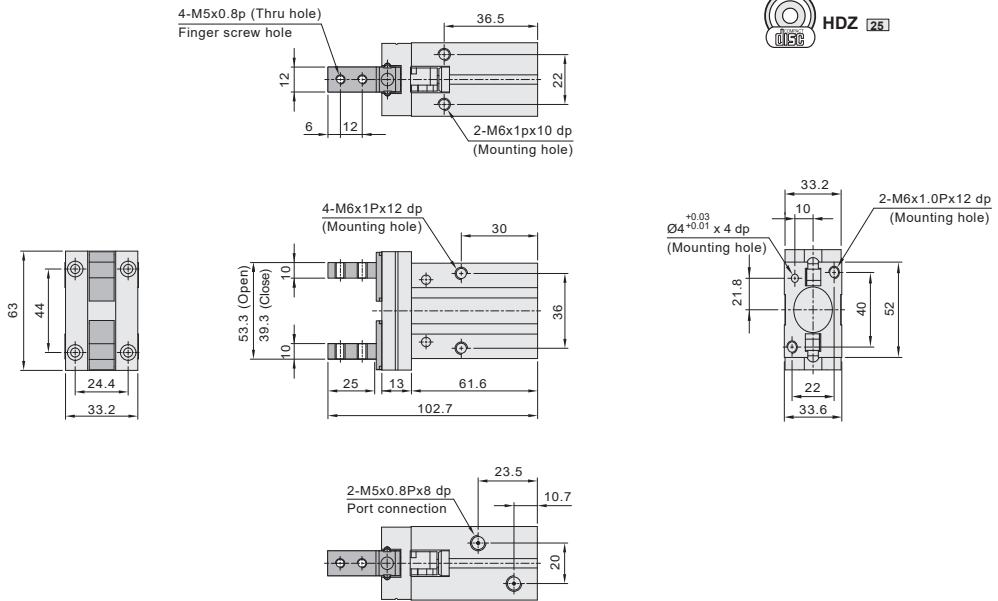


# HDZ series Linear Guide Parallel Type Air Gripper

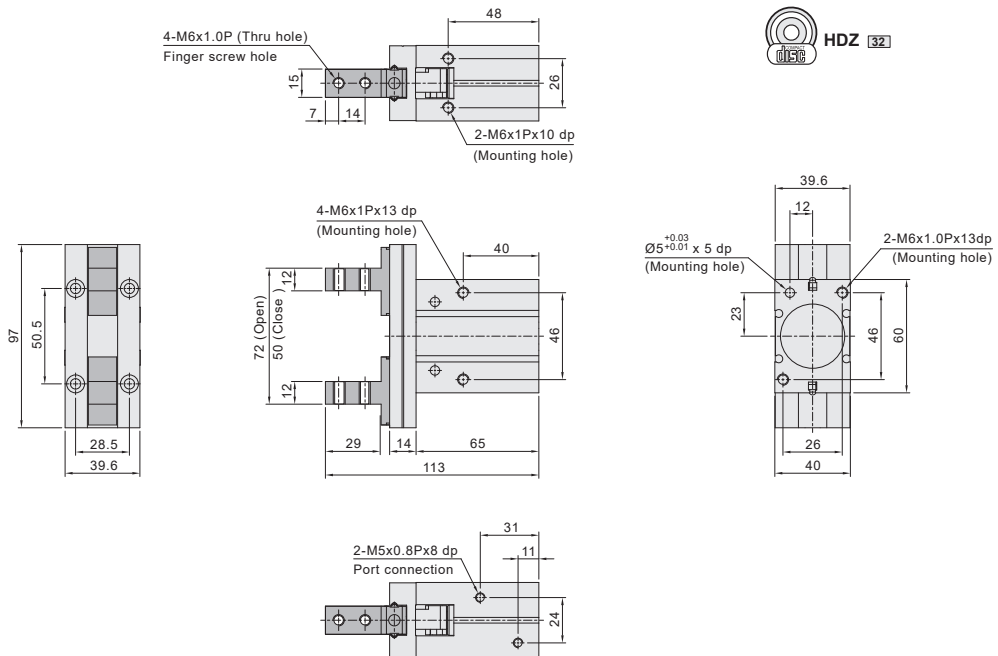
## Dimensions

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- HDZ 25 (Double acting)
- HRZ 25 (Single acting)



- HDZ 32 (Double acting)
- HRZ 32 (Single acting)



HDD

HDS

HDM

HDP

HDPM

HDZ

HDZL

HDZM

HDW

HDWM

HMW

HMG

HMY

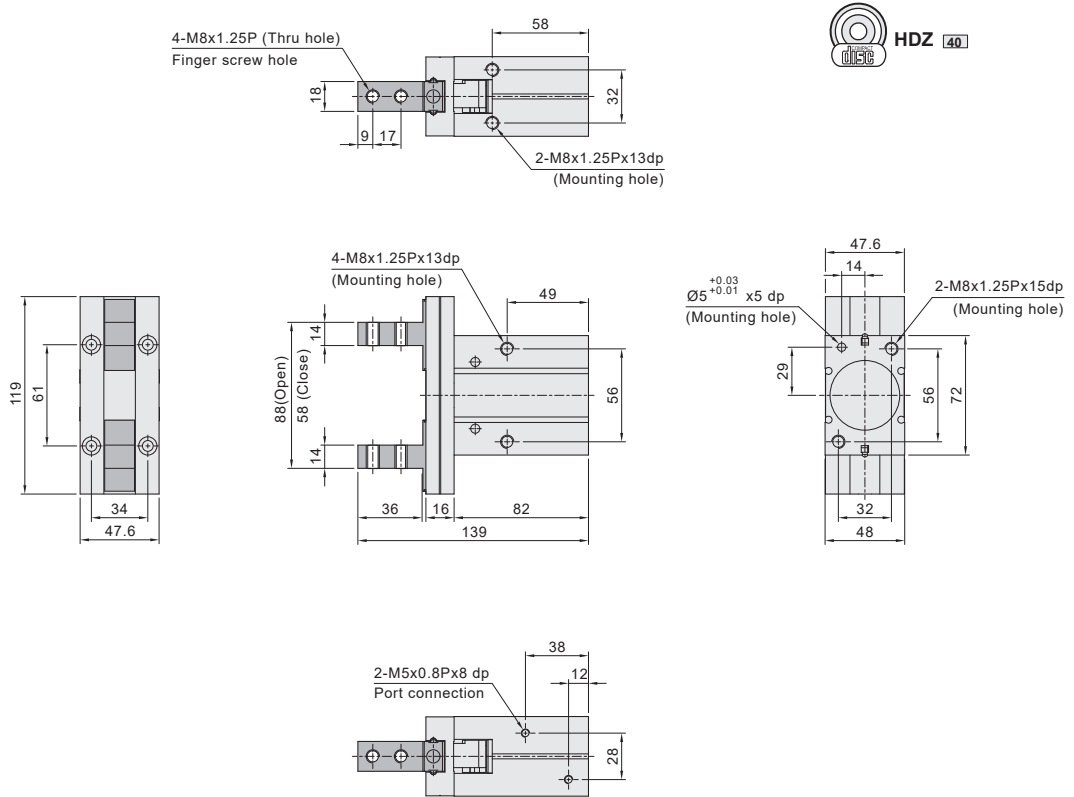
HDU

# HDZ series Linear Guide Parallel Type Air Gripper

## Dimensions

CHELIC

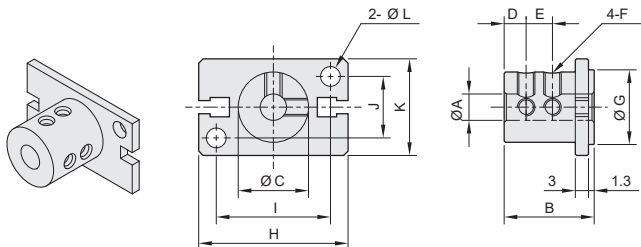
- HDZ 40 (Double acting)
- HRZ 40 (Single acting)



- HB type mounting bracket (Available to external mounting)

Unit: mm

Model	Mark	A	B	C	D	E	F	G	H	I	J	K	L
HB10Z		4	15	10	5	-	M3 x 0.5P	11	23	18	10	16	3.5



# HDZ series Linear Guide Parallel Type Air Gripper

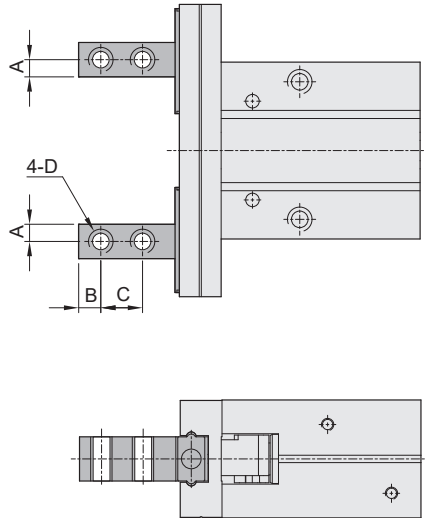
## Dimensions

CHELIC

### HDZ 06 ~ 40 Side tapped mounting

Unit: mm

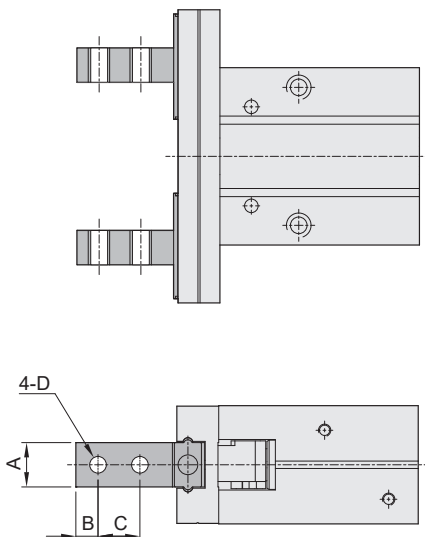
Mark Model	A	B	C	D
HDZ 06	2	2.5	5	M2x0.4P
HDZ 10	2	3	5.7	M2.5x0.45P
HDZ 16	2.5	4	7	M3x0.5P
HDZ 20	4	5	9	M4x0.7P
HDZ 25	5	6	12	M5x0.8P
HDZ 32	6	7	14	M6x1.0P
HDZ 40	7	9	17	M8x1.25P



### HDZ 06 ~ 40 Through-hole in opening/ Closing direction

Unit: mm

Mark Model	A	B	C	D
HDZ 06	4	2.5	5	Ø2.4
HDZ 10	5	3	5.7	Ø3
HDZ 16	8	4	7	Ø3.5
HDZ 20	10	5	9	Ø4.5
HDZ 25	12	6	12	Ø5.5
HDZ 32	15	7	14	Ø6.5
HDZ 40	18	9	17	Ø8.5



HDD

HDS

HDM

HDP

HDPM

HDZ

HDZL

HDZM

HDW

HDWM

HMW

HMG

HMY

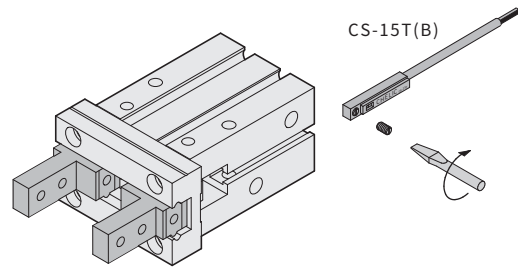
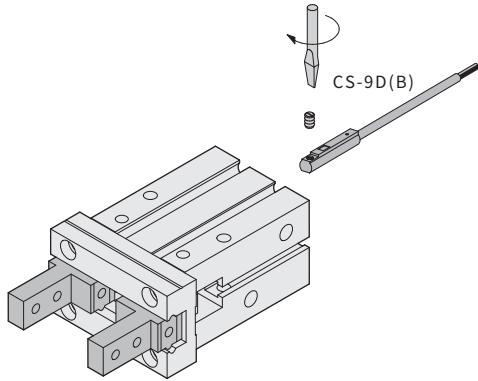
HDU

# HDZ series Linear Guide Parallel Type Air Gripper

## Mounting type and operation of sensor switch

CHELIC

### Sensor switch installation



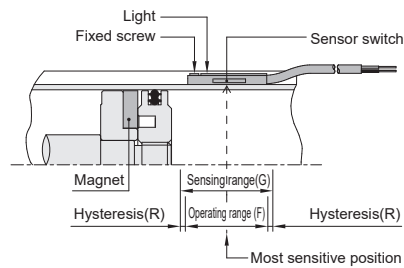
### Sensing range

Sensor switch is fixed on the cylinder body. The magnetic piston head will activate the sensor switch when it enters the operating range. It has 0.5mm differential.

### Operating range

When piston head moves the switch setting and adjustment will be based on the responding range generated by the magnetic field and the switch. (Please refer to the below table)

### Sensor switch setting and operating range



Unit: mm

Model	CS-9D(B)	
Bore size	Operating range (F)	Hysteresis(R)
16	5	1
20	8	1
25	8	1
32	10	1
40	13	1.2

※ CS 9D (B) shall be inserted on the front slot (the wide side of gripper)

Unit: mm

Model	CS-15T(B)	
Bore size	Operating range (F)	Hysteresis(R)
16	11.5	1
20	10	1
25	12	1
32	10	1.2
40	12	1.2

※ CS 15T (B) shall be inserted on the side slot (the short side of gripper)

Unit: mm

Model	Bore size	Operating range (F)	Hysteresis(R)
CS-8G	6	3.5	0.5
CS-5G	10	3.5	0.5

### Sensor switch introduction

