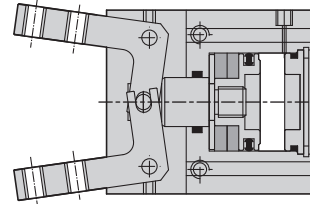


# HDS / HRS series - Angular gripper

Operation specification and Ordering expression

CHELIC PNEUMATIC

## Internal structure

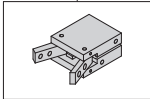
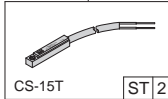
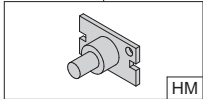
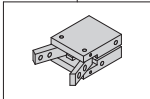
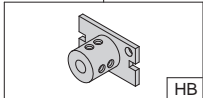


## Specification

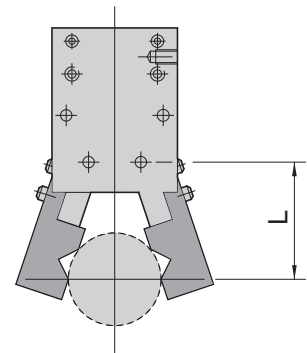
| Item                                  | Model               | HDS-10  | HDS-16 | HDS-20   | HDS-25 | HDS-32 |
|---------------------------------------|---------------------|---|--------|----------|--------|--------|
| Bore size                             |                     | 10  | 16     | 20       | 25     | 32     |
| Type of operation                     |                     | HDS : Double acting ; HRS : Single acting normally open |        |          |        |        |
| Fluid                                 |                     | Air   |        |          |        |        |
| Pressure range                        | kgf/cm <sup>2</sup> | 1.5 ~ 7 ( 150 ~ 700 )                                   |        |          |        |        |
| Range of service temperature          | °C                  | 0 ~ 60  |        |          |        |        |
| Max. operation frequency              | min                 | 80  |        |          |        |        |
| Lubrication                           | Cylinder            | Lubrication free  |        |          |        |        |
|                                       | Lever section       | Required ( Apply Lubricating oil )                      |        |          |        |        |
| Theoretical holding force<br>Kgf-cm   | Closed side         | 0.16XP  | 0.8XP  | 1.7XP    | 3.4XP  | 6.1XP  |
|                                       | Opened side         | 0.26XP  | 1.1XP  | 2.3XP    | 4.3XP  | 8.1XP  |
| Length of maximum gripping point (L)  | mm                  | 30  | 40     | 60       | 70     | 85     |
| Effective gripping force (F) (Note 1) | Kgf                 | F = M / L X 0.85  |        |          |        |        |
| Lever open/ close angles              | °C                  | -10° ~ +30°   |        |          |        |        |
| Port size                             |                     | M3 x 0.5P   |        | M5 x 0.8 |        |        |
| Magnet device                         |                     | With magnet   |        |          |        |        |

🔍 Note 1 F : Effective gripping force , L : Gripping point length , M : Theoretical holding force , P : Pressure Kgf/cm<sup>2</sup>

## How to order

|   |  |  |   |
|---|--|--|---|
| <b>HDS</b>  | <b>20</b>  | <b>ST 2</b>  | <b>HM</b>   |
| Model   | Bore size  | Sensor switch  | Mounting bracket  |
|  | 10 - 10 mm<br>16 - 16 mm<br>20 - 20 mm<br>25 - 25 mm<br>32 - 32 mm |  CS-15T <b>ST 2</b>   |  <b>HM</b>                                     |
| <b>HDS :</b><br>Angular gripper<br>(Double acting)                                  |  | None : without sensor switch<br><b>ST</b> : Sensor switch code (CS-15T)<br><b>SB</b> : Sensor switch code (CS-15B)<br><b>SG</b> : Sensor switch code (CS-5G)<br><b>SGN</b> : Sensor switch code (CS-5GN)<br><b>SGP</b> : Sensor switch code (CS-5GP) | None : Without Mounting bracket<br><b>HM</b> : HM type Mounting bracket<br>( please refer to P.3-12.7 )                           |
|  |  | <b>2</b> : Number of sensor switch<br>1 = 1 PCS<br>2 = 2 PCS   |  <b>HB</b>                                     |
| <b>HRS :</b><br>Angular gripper<br>(Single acting normally open)                    |  |  | None : Without Mounting bracket<br><b>HB</b> : HB type Mounting bracket<br>( please refer to P.3-12.7 )<br>※ Note : Ø10 ~ Ø32 use |

## Length of gripping point



**HDS**  
Angular  
Gripper

**HDM**  
180°Angular  
Gripper

**HDP**  
Parallel  
Gripper

**HDF**  
Parallel  
Gripper

**HDZ**  
Parallel  
Gripper

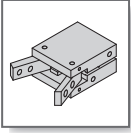
**HDZL**  
Parallel  
Gripper

**HDW**  
Parallel  
Gripper

**HDL**  
Gripper

**HDT**  
Gripper

**HDR**  
Gripper

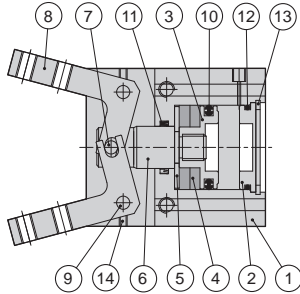


# HDS / HRS series - Angular gripper

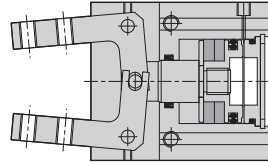
## Components and Material list

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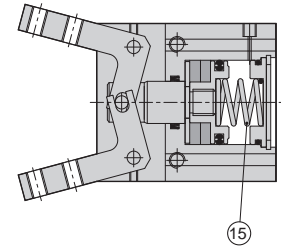
### Double acting type (fingers open)



### Double acting type (fingers close)



### Single acting



### Components and Material list

| No. | Item          | Material        | No. | Item             | Material        |
|-----|---------------|-----------------|-----|------------------|-----------------|
| 01  | Body          | Aluminum alloy  | 09  | Slide pin        | Bearing steel   |
| 02  | End cover     | Copper          | 10  | Piston packing   | NBR             |
| 03  | Piston        | Copper          | 11  | Rod packing      | NBR             |
| 04  | Magnet        | Rubber          | 12  | End cover o-ring | NBR             |
| 05  | Magnet holder | Copper          | 13  | Snap ring        | Spring steel    |
| 06  | Piston rod    | Stainless steel | 14  | Hexagon screw    | Alloy steel     |
| 07  | Rod pin       | Bearing steel   | 15  | Spring           | Stainless steel |
| 08  | Y type claw   | Alloy steel     |     |                  |                 |

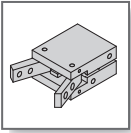
### Packing and O-Ring

| Item      | Piston packing | Rod packing | End cover o-ring |
|-----------|----------------|-------------|------------------|
| Number    | 1              | 1           | 1                |
| Bore size |                |             |                  |
| Ø10       | COP-10         | DYR-6       | Ø8 X Ø1.5        |
| Ø16       | COP-16         | DYR-8K      | Ø13.2 X Ø1.5     |
| Ø20       | COP-20         | DYR-10SK    | Ø17.5 X Ø1.5     |
| Ø25       | COP-25         | DYR-12      | Ø22 X Ø1.5       |
| Ø32       | COP-32         | DYR-16      | Ø28.5 X Ø2.0     |

### Weight

| Model     | Weight  |
|-----------|---------|
| HDS - 10S | 0.10 kg |
| HDS - 16S | 0.12    |
| HDS - 20S | 0.20    |
| HDS - 25S | 0.33    |
| HDS - 32S | 0.56    |

Note : Piston and rod packing adapt in Osaka and Mitsubishi imports.



# HDS / HRS series - Angular gripper

## Gripping force characteristic

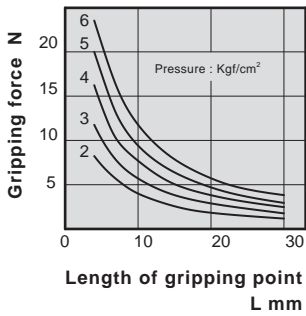
CHELIC PNEUMATIC

### ► Gripping force characteristic

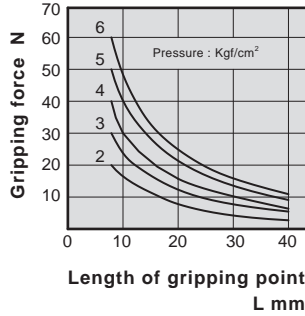


#### ● HDS / HRS External gripping force

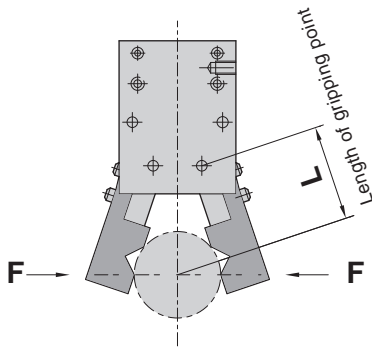
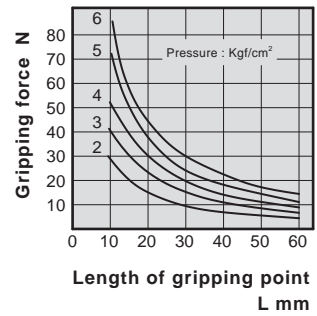
**HDS-10**



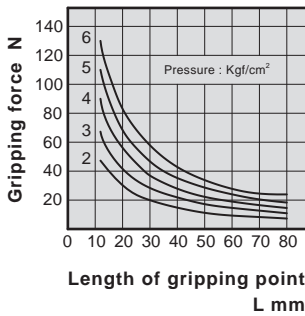
**HDS-16**



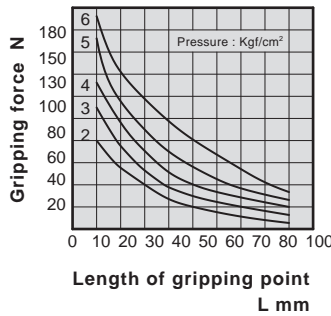
**HDS-20**



**HDS-25**



**HDS-32**



**HDS**  
Angular  
Gripper

**HDM**  
180° Angular  
Gripper

**HDP**  
Parallel  
Gripper

**HDF**  
Parallel  
Gripper

**HDZ**  
Parallel  
Gripper

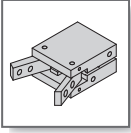
**HDZL**  
Parallel  
Gripper

**HDW**  
Parallel  
Gripper

**HDL**  
Gripper

**HDT**  
Gripper

**HDR**  
Gripper




# HDS / HRS series - Angular gripper

Operating type , Data , and Mounting type

CHELIC PNEUMATIC

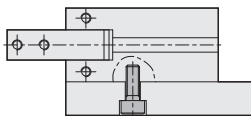
## Operating type and Data

| Operating type | Model    | Bore size<br>(mm) | The smallest operating pressure<br>(Mpa) | Thread port<br>(mm) | Effective gripping force |              |
|----------------|----------|-------------------|--|---------------------|--------------------------|--------------|
|                |          |                   |  |                     | Kgf(N)                   |              |
| Double acting  | HDS - 10 | 10                | 0.22                                     | 4 - M3x0.5P         | Open                     | 0.3 (3.6)    |
|                |          |                   |  |                     | Close                    | 0.2 (2.2)    |
|                | HDS - 16 | 16                | 0.1                                      | 4 - M3x0.5P         | Open                     | 1.5 (15.2)   |
|                |          |                   |  |                     | Close                    | 1.1 (11.1)   |
|                | HDS - 20 | 20                | 0.1                                      | 4 - M4x0.7P         | Open                     | 3.2 (31.9)   |
|                |          |                   |  |                     | Close                    | 2.4 (23.6)   |
|                | HDS - 25 | 25                | 0.1                                      | 4 - M5x0.8P         | Open                     | 6.0 (59.6)   |
|                |          |                   |  |                     | Close                    | 4.8 (47.2)   |
|                | HDS - 32 | 32                | 0.1                                      | 4 - M6x1.0P         | Open                     | 11.4 (112.4) |
|                |          |                   |  |                     | Close                    | 8.6 (84.6)   |
| Single acting  | HRS - 10 | 10                | 0.36                                     | 4 - M3x0.5P         | Close                    | 0.2 (2.2)    |
|                | HRS - 16 | 16                | 0.3                                      | 4 - M3x0.5P         | Close                    | 1.1 (11.1)   |
|                | HRS - 20 | 20                | 0.2                                      | 4 - M4x0.7P         | Close                    | 2.4 (23.6)   |
|                | HRS - 25 | 25                | 0.2                                      | 4 - M5x0.8P         | Close                    | 4.8 (47.2)   |
|                | HRS - 32 | 32                | 0.2                                      | 4 - M6x1.0P         | Close                    | 8.6 (84.6)   |

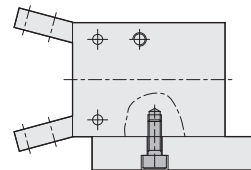
 Note : The gripping force is the force of open and close gripper which is in the length of gripping point is 30mm and acting pressure is 0.5Mpa.

## Mounting type

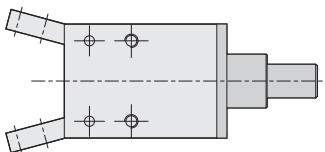
1. Use the thread in the bottom



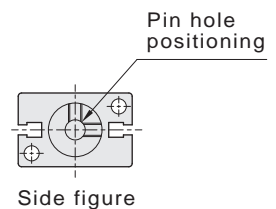
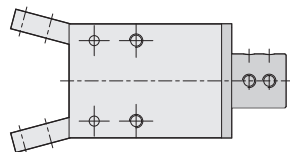
2. Use the thread in the side of body

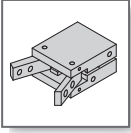


3. Use HM type Mounting bracket in the bottom



4. Use HB type Mounting bracket in the bottom



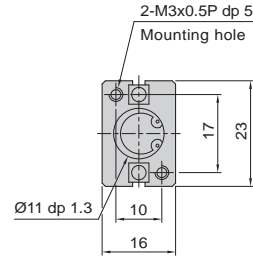
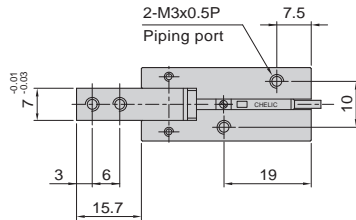
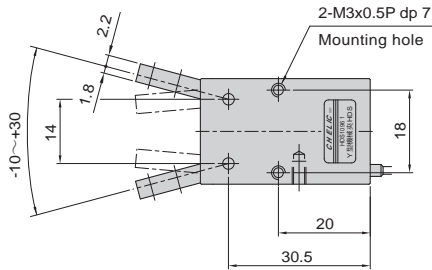
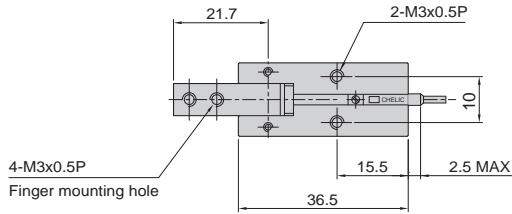


# HDS / HRS series - Angular gripper

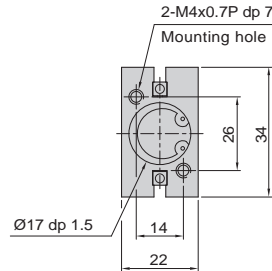
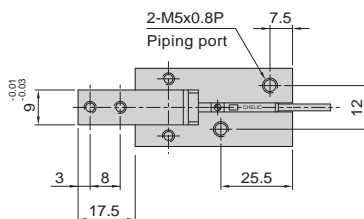
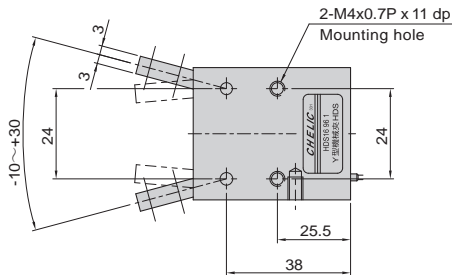
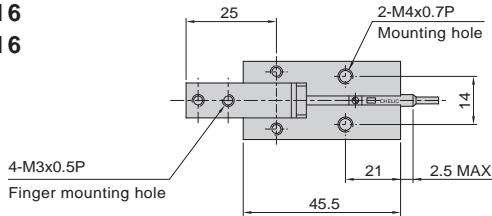
External dimension - Ø10、Ø16

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▶ HDS - 10  
HRS - 10



▶ HDS - 16  
HRS - 16



**HDS**  
Angular  
Gripper

**HDH**  
180° Angular  
Gripper

**HDP**  
Parallel  
Gripper

**HDF**  
Parallel  
Gripper

**HDZ**  
Parallel  
Gripper

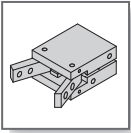
**HDZL**  
Parallel  
Gripper

**HDW**  
Parallel  
Gripper

**HDL**  
Gripper

**HDT**  
Gripper

**HDR**  
Gripper

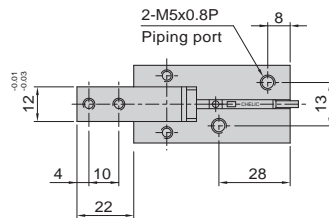
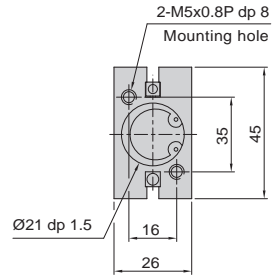
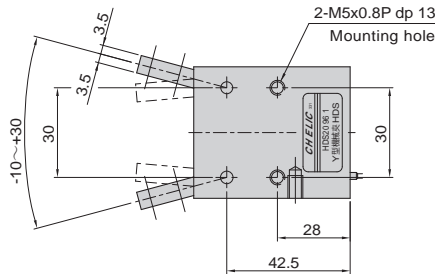
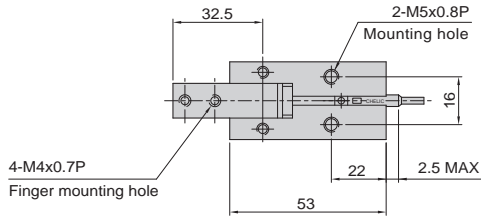


# HDS / HRS series - Angular gripper

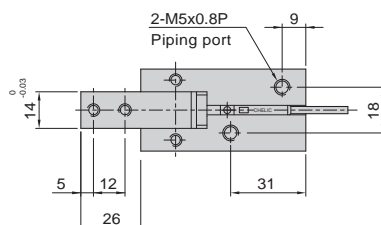
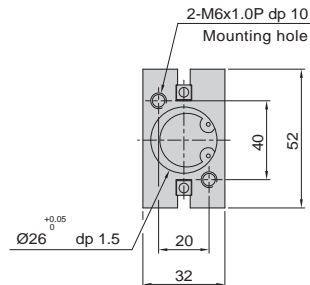
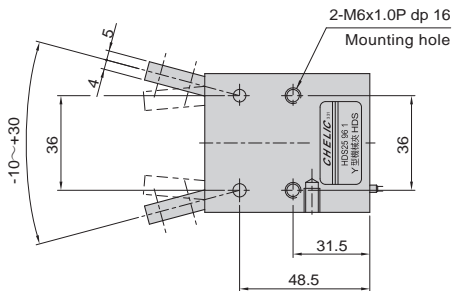
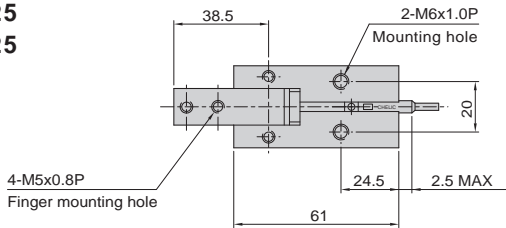
External dimension - Ø20、Ø25

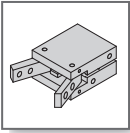
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● HDS - 20  
HRS - 20



● HDS - 25  
HRS - 25



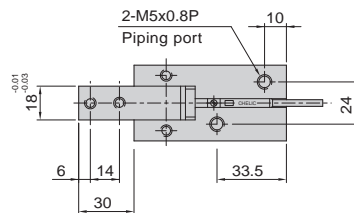
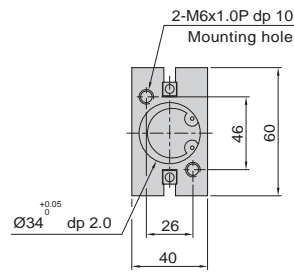
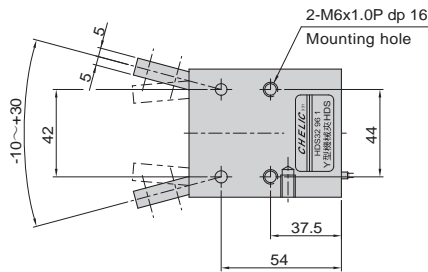
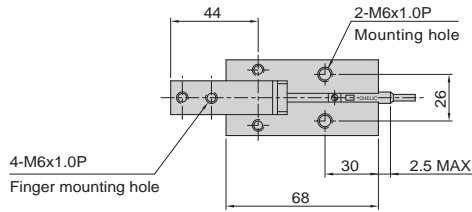


# HDS / HRS series - Angular gripper

External dimension - Ø32 , Mounting bracket

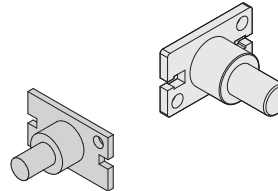
CHELIC PNEUMATIC

▶ **HDS - 32**  
**HRS - 32**



▶ **Mounting bracket**

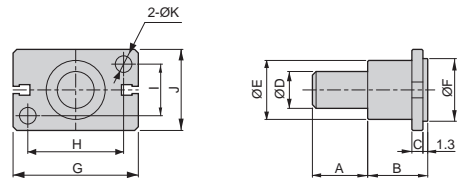
( Suitable for HDS 、 HRS 、 HDP 、 HDK series )



▶ **HM type Mounting bracket**

( Suitable for internal mounting )

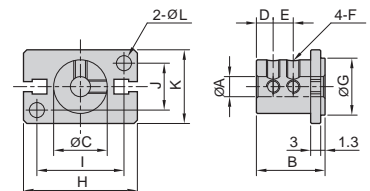
| Symbol Model | A  | B  | C | D  | E  | F  | G  | H  | I  | J  | K   |
|--------------|----|----|---|----|----|----|----|----|----|----|-----|
| HM10         | 10 | 10 | 2 | 8  | 12 | 11 | 23 | 17 | 10 | 16 | 3.5 |
| HM16         | 15 | 15 | 3 | 10 | 16 | 17 | 34 | 26 | 14 | 22 | 4.5 |
| HM20         | 15 | 15 | 3 | 10 | 18 | 21 | 45 | 35 | 16 | 26 | 5.5 |
| HM25         | 25 | 17 | 5 | 14 | 26 | 26 | 52 | 40 | 20 | 32 | 6.6 |
| HM32         | 25 | 20 | 6 | 16 | 30 | 34 | 60 | 46 | 26 | 40 | 6.6 |



▶ **HB type Mounting bracket**

( Suitable for external mounting )

| Symbol Model | A  | B    | C  | D  | E  | F         | G  | H  | I  | J  | K  | L   |
|--------------|----|------|----|----|----|-----------|----|----|----|----|----|-----|
| HB10         | 4  | 15   | 10 | 5  | -  | M3 x 0.5p | 11 | 23 | 17 | 10 | 16 | 3.5 |
| HB16         | 6  | 20.5 | 16 | 5  | 6  | M4 x 0.7p | 17 | 34 | 26 | 14 | 22 | 4.5 |
| HB20         | 8  | 20.5 | 20 | 7  | 7  | M4 x 0.7p | 21 | 45 | 35 | 16 | 26 | 5.5 |
| HB25         | 10 | 30.5 | 25 | 8  | 10 | M4 x 0.7p | 26 | 52 | 40 | 20 | 32 | 6.5 |
| HB32         | 12 | 40.5 | 32 | 10 | 15 | M4 x 0.7p | 34 | 60 | 46 | 26 | 40 | 6.5 |



**HDS**  
Angular Gripper

**HDM**  
180° Angular Gripper

**HDP**  
Parallel Gripper

**HDF**  
Parallel Gripper

**HDZ**  
Parallel Gripper

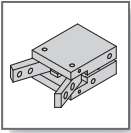
**HDZL**  
Parallel Gripper

**HDW**  
Parallel Gripper

**HDL**  
Gripper

**HDT**  
Gripper

**HDR**  
Gripper



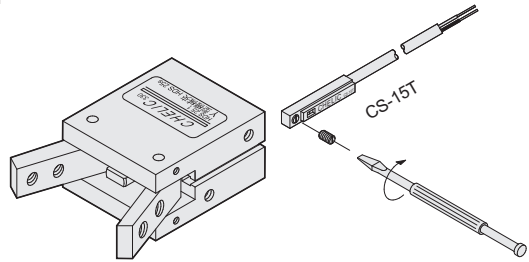
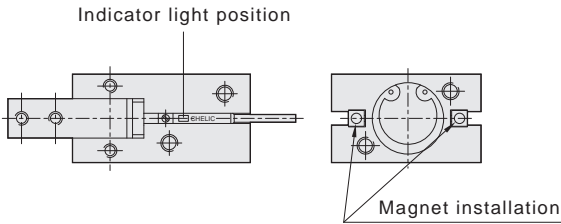
# HDS / HRS series - Angular gripper

How to use and Sensor switch installation

CHELIC PNEUMATIC

## ▶ HDS / HRS Sensor switch installation example

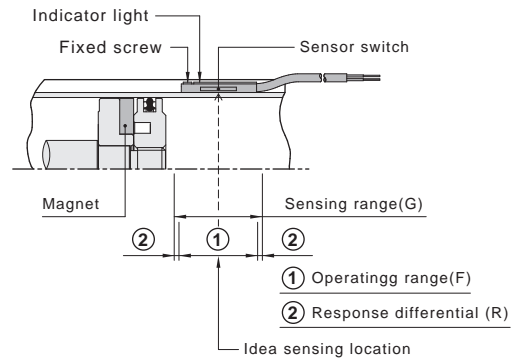
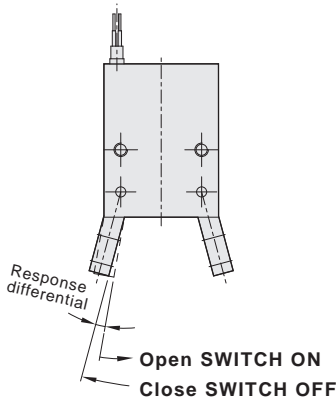
- Sensor switch installing and Position



CS-15T  
( Please refer to P.6-2.18 Sensor switch standard )

- Response differential and Position adjustable

- Response differential and Position adjustable



## ▶ 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

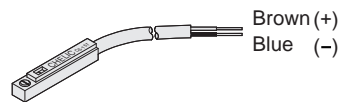
When piston head moves the switch setting and adjustment will be based on the responding range generated by the magnetic field and the switch. (Please refer to the below table)

Unit : mm

| Model     | CS-15T(B)           |                          |
|-----------|---------------------|--------------------------|
| Bore size | Operating range (F) | Response differential(R) |
| 10        | 3                   | 1                        |
| 16        | 5                   | 1                        |
| 20        | 8.5                 | 1                        |
| 25        | 10                  | 1.8                      |
| 32        | 10                  | 2                        |

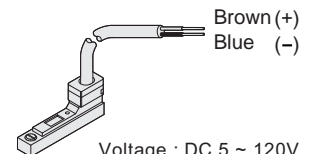
## ▶ Connection type

### CS-15T



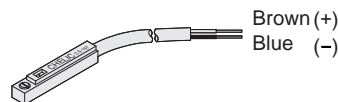
Voltage : DC 5 ~ 120V  
AC 5 ~ 120V

### CS-15B



Voltage : DC 5 ~ 120V  
AC 5 ~ 120V

### CS-5G



Voltage : DC 10 ~ 28V