




### Features

- Compact design and lightweight construction.
- High gripping forces achieved via internal cams.
- Reference points on gripping fingers are standard.
- Sensors can be mounted in any one of four positions
- Dust seals protect all internal parts from ingress of dirt.

### Specification

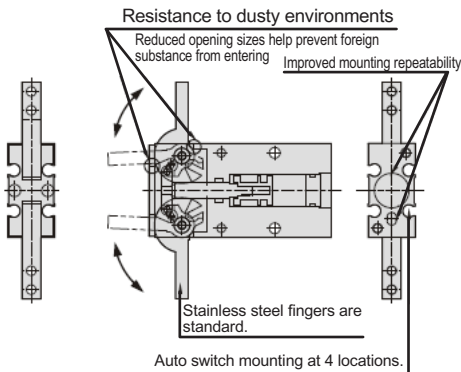
Type	DSHY (double acting type)			
Bore	Φ 10、16、20、25			
Power fluid	Filtered air with or without lubrication			
The range of pressure	1 ~ 6 kgf/cm <sup>2</sup>			
The range of temperature	-10 ~ +60 °C (No freezing)			
Max. operating frequency	60 c.p.m			
Effective force N.m at (5kgf/cm <sup>2</sup> )	Φ 10 : 0.16	Φ 16 : 0.54	Φ 20 : 1.10	Φ 25 : 2.28
Operating angle (both sides)	Opened side	180°		
	Closed side	-3°		
Repeatability	±0.2			

### How to order

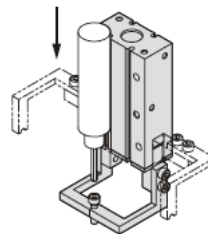
<b>DSHY</b>	-	<b>16</b>	-	<b>1</b>	-	<b>RT</b>	-	<b>1</b>												
Type		Bore		Finger option		Sensor switch		Quantity												
 DSHY		10 : Φ 10 16 : Φ 16 20 : Φ 20 25 : Φ 25		No code : Standard tap mounting 1 : Opening / closing direction though hole		<table border="1"> <tr> <th>Prependicular</th> <th>In-line</th> <th>Style</th> </tr> <tr> <td>RTV</td> <td>RT</td> <td>Reed switch</td> </tr> <tr> <td>RTNV</td> <td>RTN</td> <td>NPN</td> </tr> <tr> <td>RTPV</td> <td>RTP</td> <td>PNP</td> </tr> </table>	Prependicular	In-line	Style	RTV	RT	Reed switch	RTNV	RTN	NPN	RTPV	RTP	PNP		1 : 1pc 2 : 2pcs
Prependicular	In-line	Style																		
RTV	RT	Reed switch																		
RTNV	RTN	NPN																		
RTPV	RTP	PNP																		

### Weight table

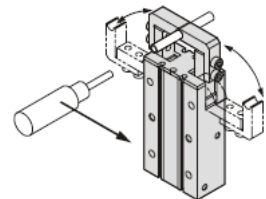
Bore	Φ 10	Φ 16	Φ 20	Φ 25
Weight (g)	80	150	320	600



### Assembly



### Clamping of work



**Effective holding force**

● Indication of effective holding force

1. Although the condition differs according to the coefficient of friction between the attachment and work, select a model that can produce a holding force of 10 to 20 times the work.
2. Further allowance should be provided when great acceleration or impact is expected during work transfer.

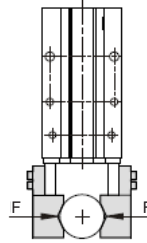
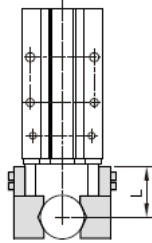
Ex : For setting the holding force to be at least 20 times the work weight;  
 Required holding force =  $0.05\text{kg} \times 20 \times 9.8\text{m/s}^2 = 10\text{ N min.}$   
 When DSHY-16 is selected, the holding force is determined to be 17N according to the holding point distance ( $L = 30\text{mm}$ ) and the pressure ( $5\text{kgf/cm}^2$ )

3. The holding force shown in the tables represents the holding force of one finger when all fingers and attachments are in contact with the work.

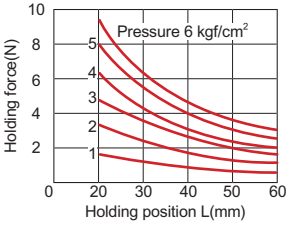
**External hold**

L : Holding point distance

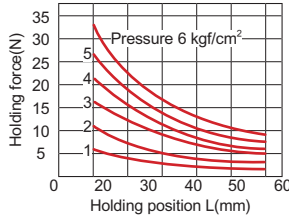
F : Thrust of one finger



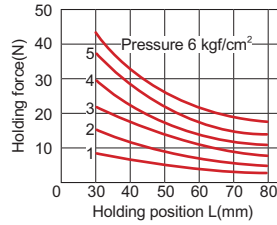
● Bore  $\Phi 10$



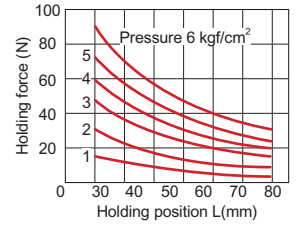
● Bore  $\Phi 16$



● Bore  $\Phi 20$

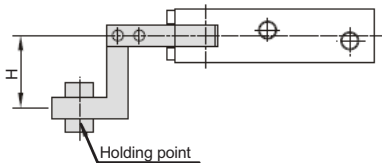


● Bore  $\Phi 25$

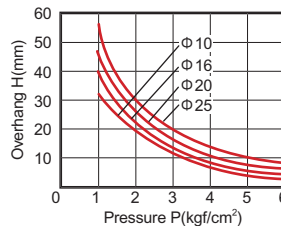


**Confirmation of holding point**

- Work should be held at a point within the range of overhanging distance (H) for a given pressure indicated in the tables.
- When the work is held at a point outside of the recommended range for a given pressure, it may cause an adverse effect on the product life.

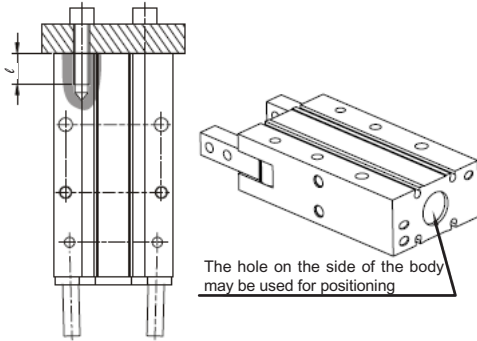


**DSHY**



DSHT1

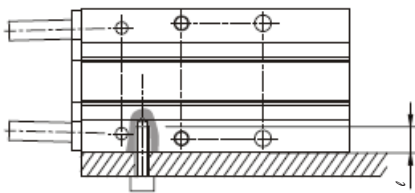
**Effective holding force** Axisl mounting (body tapped)



Bore	Bolt	Max. torque N.m	Max. screw depth L(mm)
Φ 10	M3x0.5	0.88	6
Φ 16	M4x0.7	2.1	8
Φ 20	M5x0.8	4.3	10
Φ 25	M6x1.0	7.3	12

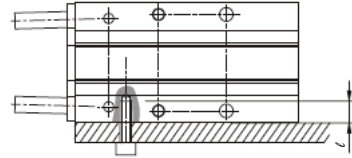
Bore	Hole diameter (mm)	Height (mm)
Φ 10	Φ 11H9 <sup>+0.043</sup> <sub>0</sub>	1.5
Φ 16	Φ 17H9 <sup>+0.043</sup> <sub>0</sub>	1.5
Φ 20	Φ 21H9 <sup>+0.052</sup> <sub>0</sub>	1.5
Φ 25	Φ 26H9 <sup>+0.062</sup> <sub>0</sub>	1.5

**DSHY** Lateral mounting (body tapped)



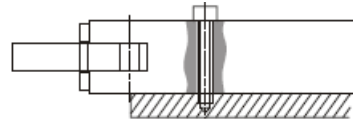
Bore	Bolt	Max. torque N.m	Max. screw depth L(mm)
Φ 10	M3x0.5	0.59	4
Φ 16	M4x0.7	1.3	5
Φ 20	M5x0.8	3.3	8
Φ 25	M6x1.0	5.9	10

**DSHY** Vertical mounting (body tapped)



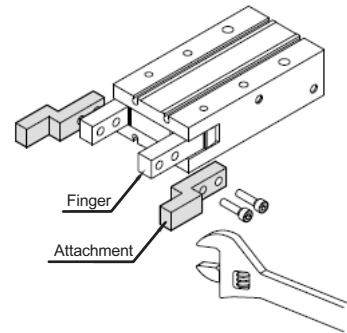
Bore	Bolt	Max. torque N.m	Max.screw depth L(mm)
Φ 10	M3x0.5	0.88	6
Φ 16	M4x0.7	2.1	8
Φ 20	M5x0.8	4.3	10
Φ 25	M6x1.0	7.3	12

**DSHY** Lateral mounting (body through hole)



Bore	Bolt	Max. torque N.m
Φ 10	M3x0.5	0.88
Φ 16	M4x0.7	2.1
Φ 20	M5x0.8	4.3
Φ 25	M6x1.0	7.3

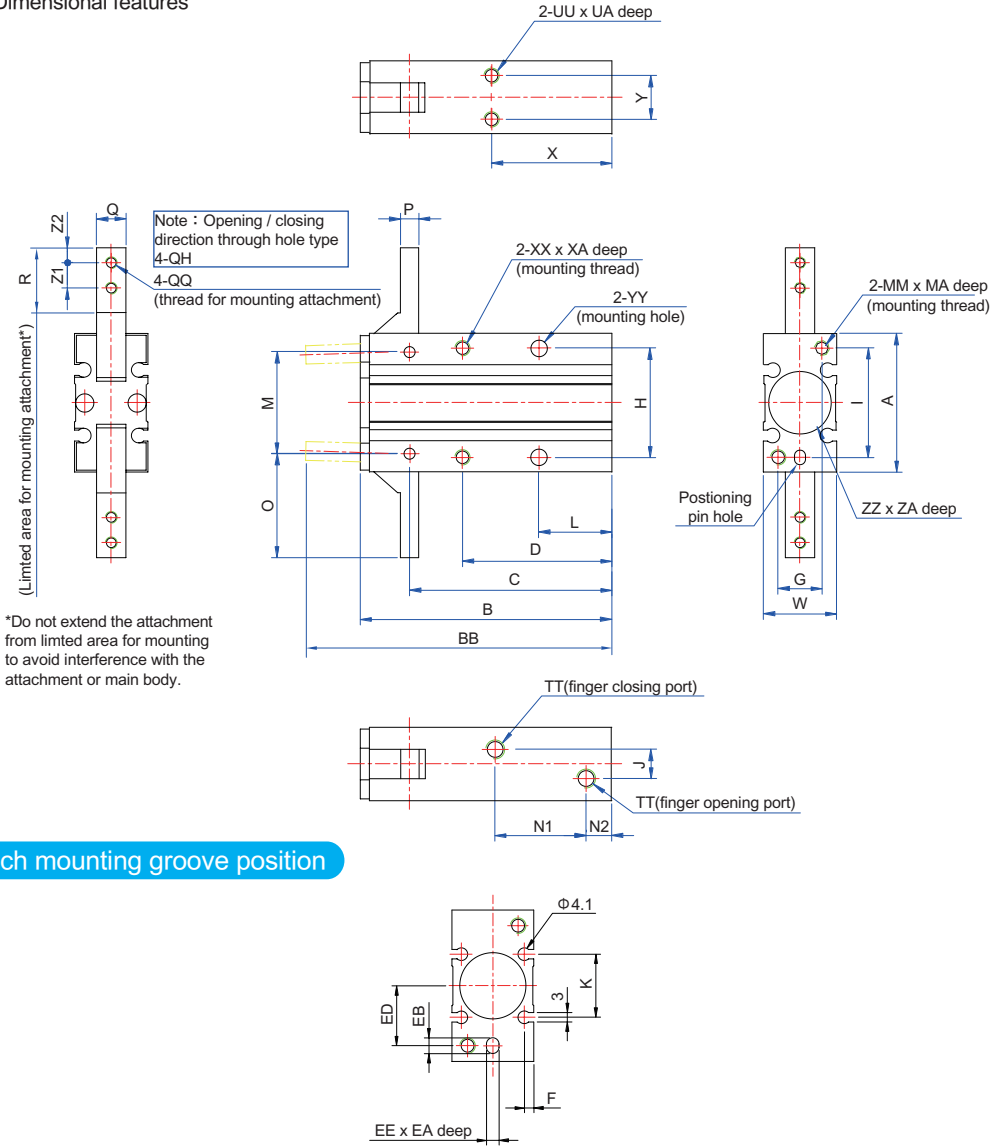
**DSHY** How to mount attachment on fingers



- To mount an attachment to a finger, make sure to use a wrench to support the attachment so as not to apply undue strain on the finger.
- Refer to the table below for the proper tightening torque on the bolt used for securing the attachment to the finger.

Bore	Bolt	Max. torque N.m
Φ 10	M3x0.5	0.59
Φ 16	M4x0.7	0.59
Φ 20	M5x0.8	1.4
Φ 25	M6x1.0	2.8

**DSHY** Dimensional features



**Auto switch mounting groove position**

**Dimensional table**

Mark Bore	A	B	BB	C	D	EE	EA	EB	ED	F	G	H	I	J	K	L	M	MA	MM	N1	N2	O
Φ 10	30	58	71	47.5	35	3H9 <sup>+0.025</sup> <sub>-0</sub>	3	4	9	2	9	24	24	3	13	18	22	6	M3x0.5	23	7	23.5
Φ 16	38	69	84	55.5	41	3H9 <sup>+0.025</sup> <sub>-0</sub>	3	4	15	2.5	12	30	30	8	18	20	28	8	M4x0.7	25	7	28.5
Φ 20	48	86	106	69	50	4H9 <sup>+0.030</sup> <sub>-0</sub>	4	5	19	3	16	36	36	12	20	25	36	10	M5x0.8	32	8	37
Φ 25	58	107	131	86	60	4H9 <sup>+0.030</sup> <sub>-0</sub>	4	5	23	3	18	42	42	14	24	30	45	12	M6x1.0	42	8	45

Mark Bore	P	Q	QH	QQ	R	TT	UA	UU	W	X	XA	XX	Y	YY	ZA	ZZ	Z1	Z2
Φ 10	4	6 <sup>+0.025</sup> <sub>-0.025</sub>	φ 3.4	M3x0.5	12	M5x0.8	4	M3x0.5	15	30	6	M3x0.5	9	φ 3.4	1.5	φ 11H9 <sup>+0.043</sup> <sub>-0</sub>	6	3
Φ 16	5	8 <sup>+0.025</sup> <sub>-0.025</sub>	φ 3.4	M3x0.5	14	M5x0.8	5	M4x0.7	20	33	8	M4x0.7	12	φ 4.5	1.5	φ 17H9 <sup>+0.043</sup> <sub>-0</sub>	7	4
Φ 20	8	10 <sup>+0.025</sup> <sub>-0.025</sub>	φ 4.5	M4x0.7	18	M5x0.8	8	M5x0.8	26	42	10	M5x0.8	14	φ 5.5	1.5	φ 21H9 <sup>+0.042</sup> <sub>-0</sub>	9	5
Φ 25	10	12 <sup>+0.025</sup> <sub>-0.025</sub>	φ 5.5	M5x0.8	22.5	M5x0.8	10	M6x1.0	30	50	12	M6x1.0	16	φ 6.6	1.5	φ 26H9 <sup>+0.042</sup> <sub>-0</sub>	12	6