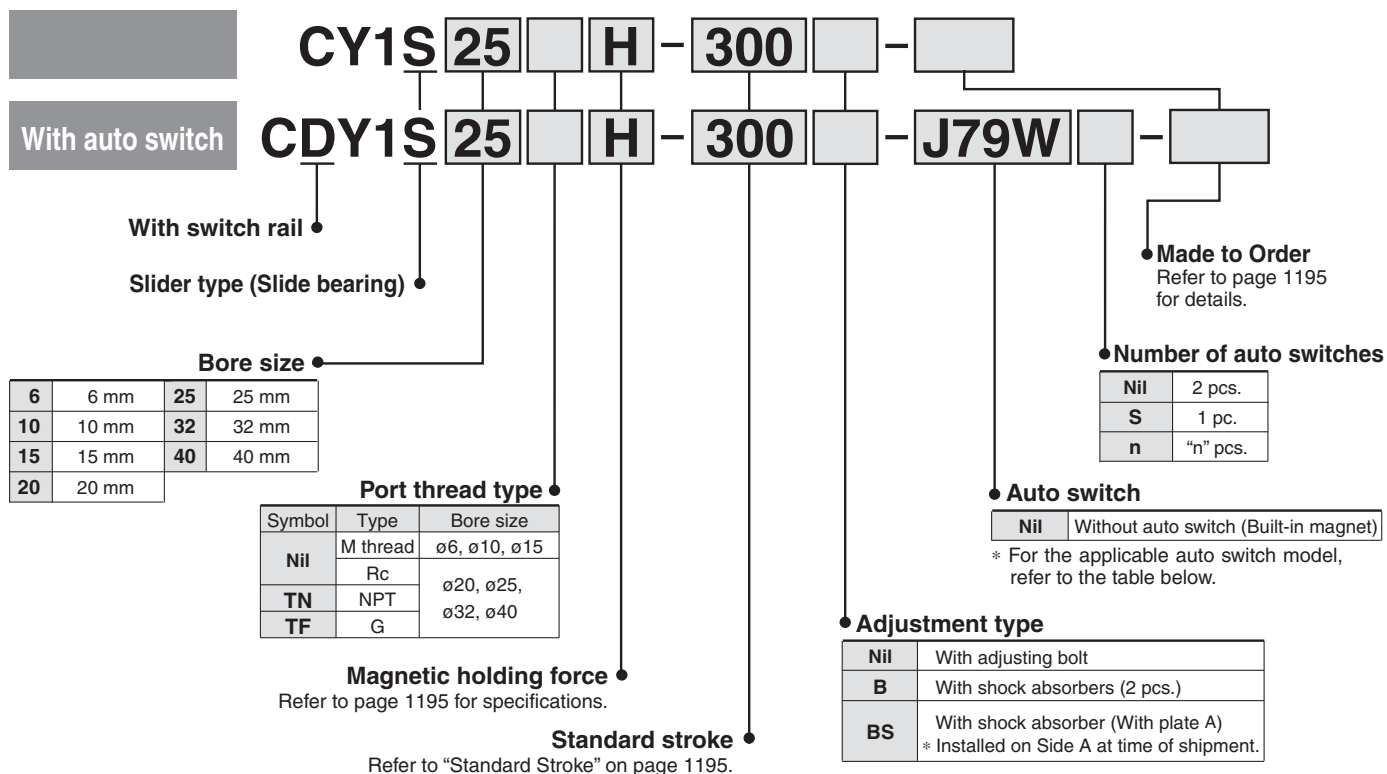


Magnetically Coupled Rodless Cylinder Slider Type: Slide Bearing

Series **CY1S**

ø6, ø10, ø15, ø20, ø25, ø32, ø40

How to Order



Applicable Auto Switch/Refer to pages 1263 to 1371 for further information on auto switches.

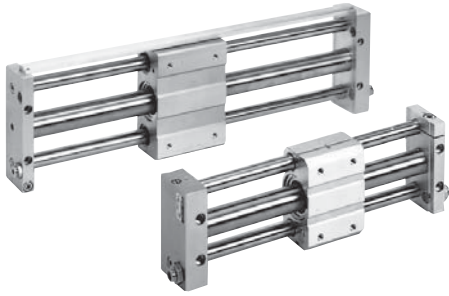
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)*				Pre-wired connector	Applicable load							
					DC	AC	Electrical entry direction		0.5 (Nil)	3 (L)	5 (Z)	None (N)									
							Perpendicular	In-line													
Solid state switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	F7NV	F79	●	●	○	—	○	IC circuit	Relay, PLC						
				3-wire (PNP)					●	●	○	—	○								
		Connector		2-wire	12 V		—	—	—	—	—	—	—			—	—				
				3-wire (NPN)	24 V		5 V, 12 V	F7NWV	F79W	●	●	○	—			○	IC circuit				
	3-wire (PNP)	—		F7PW				●	●	○	—	○	—								
	Diagnostic indication (2-color indication)	Grommet		2-wire	12 V		F7BWV	J79W	●	●	○	—	○			—					
				4-wire (NPN)	5 V, 12 V		—	F79F	●	●	○	—	○			IC circuit					
Water resistant (2-color indication)	Grommet	No	Yes	2-wire	24 V	100 V or less	A72	A72H	●	●	—	—	—	IC circuit	Relay, PLC						
With diagnostic output (2-color indication)							Connector	No	Yes	2-wire	24 V	100 V or less	A73			A73H	●	●	—	—	—
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	100 V or less							A80	A80H	●	●	—	—	—	IC circuit	Relay, PLC
							Connector	No	Yes	2-wire	24 V	100 V or less	A73C	—	●	●	●	●	—		
													No	Yes	2-wire	24 V	100 V or less	A80C	—		

* Lead wire length symbols: 0.5 m..... Nil (Example) J79W
 3 m..... L (Example) J79WL
 5 m..... Z (Example) J79WZ
 None..... N (Example) J79CN

* Solid state auto switches marked with "○" are produced upon receipt of order.

- Since there are other applicable auto switches than listed, refer to page 1199 for details.
- For details about auto switches with pre-wired connector, refer to pages 1328 and 1329.
- * Auto switches are shipped together, (but not assembled).

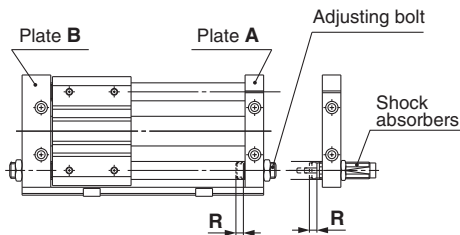
Magnetically Coupled Rodless Cylinder Slider Type: Slide Bearing **Series CY1S**



Made to Order Specifications
(For details, refer to pages 1395 to 1565.)

Symbol	Specifications
—XB9	Low speed cylinder (15 to 50 mm/s)
—XB13	Low speed cylinder (7 to 50 mm/s)
—X116	Hydro specifications rodless cylinder
—X168	Helical insert thread specifications
—X210	Non-lubricated exterior specifications
—X322	Outside of cylinder tube with hard chrome plated
—X324	Non-lubricated exterior specifications (With dust seal)
—X431	Auto switch rails on both side faces (with 2 pcs.)

Amount of Adjustment for Adjusting Bolt and Shock Absorber



Bore size (mm)	R	Amount of adjustment by adjusting bolt (both ends: R x 2) (mm)
6	0 to 6	12
10	0 to 5.5	11
15	0 to 3.5	7
20	0 to 5.5	11
25	0 to 5	10
32	0 to 5.5	11
40	0 to 4.5	9

Bore size (mm)	Amount of adjustment by shock absorber: R (mm)	
	Plate A side	Plate B side
6	17	11
10	14	6
15	14	4
20	16	7
25	32	23
32	33	23
40	32	17

* Since the cylinder is in an intermediate stop condition when stroke adjustment is performed, use caution regarding the operating pressure and the kinetic energy of the load.

* The amount of adjustment for adjustment bolts is the total amount when adjusted on both plate ends. For the adjustment on a single plate end, the amount of adjustment is half of the figures in the table above.

* The Plate A: Piping port side

Specifications

Bore size (mm)	6	10	15	20	25	32	40	
Fluid	Air							
Proof pressure	1.05 MPa							
Maximum operating pressure	0.7 MPa							
Minimum operating pressure	0.18 MPa							
Ambient and fluid temperature	-10 to 60°C							
Piston speed *	50 to 400 mm/s							
Cushion	Rubber bumper / Shock absorbers							
Lubrication	Non-lube							
Stroke length tolerance	0 to 250 st: $^{+1.0}_0$, 251 to 1000 st: $^{+1.4}_0$, 1001 st and up: $^{+1.8}_0$							
Holding force	Type H	19.6	53.9	137	231	363	588	922
	Type L	—	—	81.4	154	221	358	569

* In the case of setting an auto switch (CDY1S) at the intermediate position, the maximum piston speed is subject to restrict for detection upon the response time of a load (Relays, Sequence controller, etc.)

Standard Stroke

Bore size (mm)	Standard stroke (mm)	Maximum manufacturable stroke (mm)
6	50, 100, 150, 200	300
10	50, 100, 150, 200, 250, 300	500
15	50, 100, 150, 200, 250, 300, 350 400, 450, 500	750
20	100, 150, 200, 250, 300, 350 400, 450, 500, 600, 700, 800	1000
25		1500
32		1500
40	100, 150, 200, 250, 300, 350 400, 450, 500, 600, 700, 800 900, 1000	1500

Note) Intermediate stroke is available by the 1 mm interval.

Mass

Number of magnets	Bore size (mm)	(kg)						
		6	10	15	20	25	32	40
Basic mass	CY1S□H	0.27	0.48	0.91	1.48	1.84	3.63	4.02
	CY1S□L	—	—	0.85	1.37	1.75	3.48	3.84
Additional mass per each 50 mm of stroke		0.044	0.074	0.104	0.138	0.172	0.267	0.406

Calculation

(Example) **CY1S32H-500**

• Basic mass 3.63 kg • Additional mass 0.267/50 st
• Cylinder stroke 500 st $3.63 + 0.267 \times 500 \div 50 = 6.3$ kg

Shock Absorber Specifications

Refer to the Series RB in Best Pneumatics No. 3 for the details on shock absorbers.

Applicable rodless cylinder	6 CY1S10 15	CY1S20	CY1S25	CY1S32 40	
Shock absorber model	RB0805	RB1006	RB1411	RB2015	
Maximum energy absorption: (J)	0.98	3.92	14.7	58.8	
Stroke absorption: (mm)	5	6	11	15	
Collision speed: (m/s)	0.05 to 5				
Max. operating frequency: (cycle/min) *	80	70	45	25	
Ambient temperature range	-10 to 80 °C				
Spring force: (N)	Extended	1.96	4.22	6.86	8.34
	Retracted	3.83	6.18	15.3	20.50

* It denotes the values at the maximum energy absorption per one cycle. Therefore, the operating frequency can be increased according to the energy absorption.

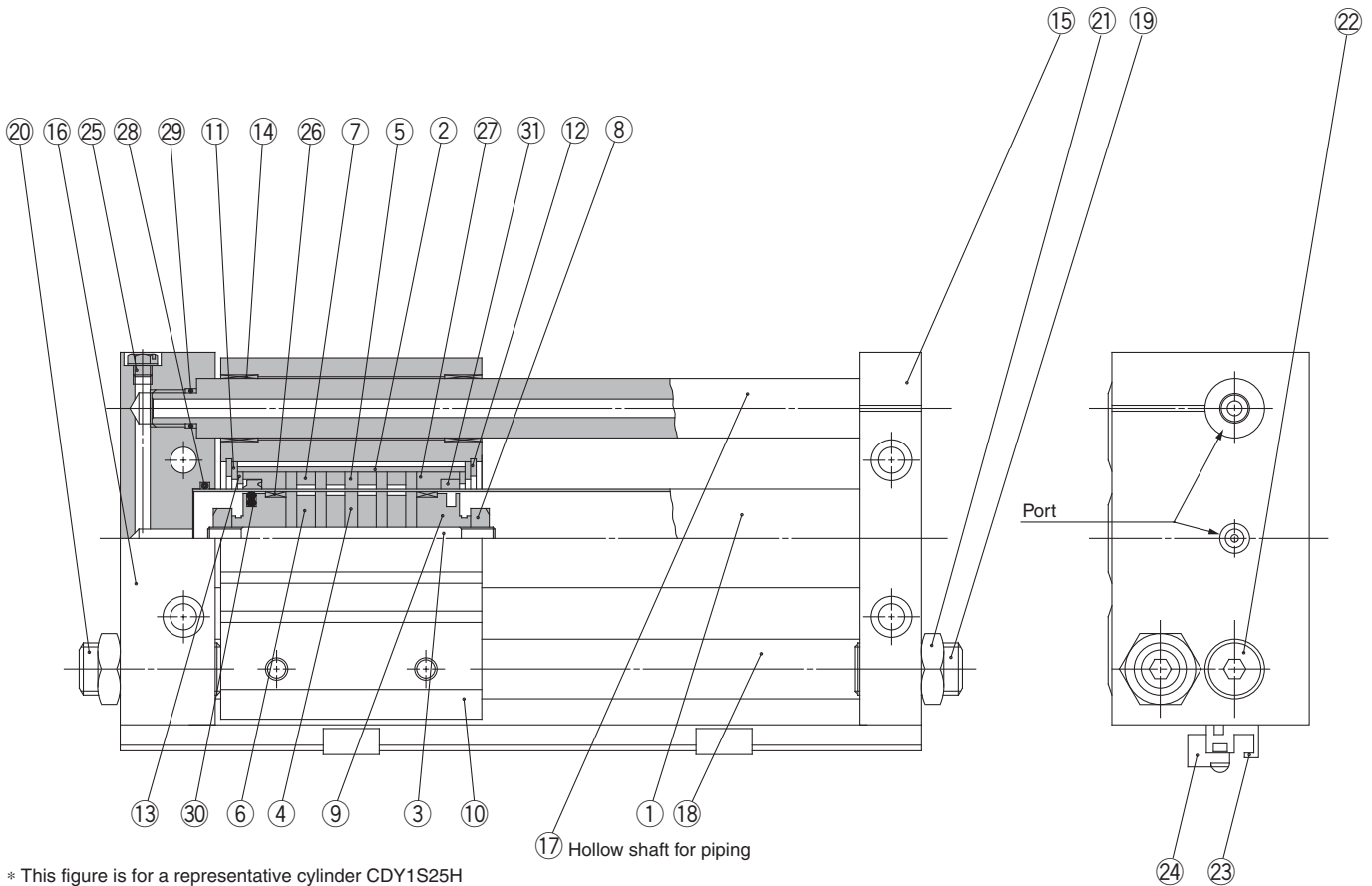
The shock absorber service life is different from that of the CY1S cylinder. Refer to the Specific Product Precautions for the replacement period.

Series CY1S

Construction

Slider type/Slide bearing

CY1S6 to 40



* This figure is for a representative cylinder CDY1S25H

Component Parts

No.	Description	Material	Note
1	Cylinder tube	Stainless steel	
2	External slider tube	Aluminum alloy	
3	Shaft	Stainless steel	
4	Piston side yoke	Rolled steel	Zinc chromated
5	External slider side yoke	Rolled steel	Zinc chromated
6	Magnet A	—	
7	Magnet B	—	
8	Piston nut	Carbon steel	Zinc chromated
9	Piston	Aluminum alloy ^{Note 1)}	Chromated
10	Slide block	Aluminum alloy	Anodized
11	Slider spacer	Rolled steel	Nickel plated
12	Retaining ring	Carbon tool steel	Nickel plated
13	Spacer	Rolled steel	Nickel plated
14	Bushing	Oil retaining bearing material	
15	Plate A	Aluminum alloy	Anodized
16	Plate B	Aluminum alloy	Anodized
17	Guide shaft A	Carbon steel	Hard chrome plated
18	Guide shaft B	Carbon steel	Hard chrome plated
19	Adjusting bolt A	Chromium molybdenum steel	
20	Adjusting bolt B	Chromium molybdenum steel	
21	Hexagon nut	Carbon steel	Nickel plated
22	Hexagon socket head cap screw	Chromium molybdenum steel	
23	Switch mounting rail	Aluminum alloy	

Note 1) Brass for $\phi 6$, $\phi 10$ and $\phi 15$.

Note 2) Piston nuts are not included for $\phi 6$, $\phi 10$ and $\phi 15$.

No.	Description	Material	Note
24	Auto switch	—	
25	Plug	Brass	
26*	Wear ring A	Special resin	
27*	Wear ring B	Special resin	
28*	Cylinder tube gasket	NBR	
29*	Guide shaft gasket	NBR	
30*	Piston seal	NBR	
31*	Scraper	NBR	

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
6	CY1S6-PS-N	Set of nos. above 27, 28, 29, 30
10	CY1S10-PS-N	Nos. above 26, 27, 28, 29, 30, 31
15	CY1S15-PS-N	
20	CY1S20-PS-N	
25	CY1S25-PS-N	
32	CY1S32-PS-N	
40	CY1S40-PS-N	

* Seal kit includes 27 to 30 for $\phi 6$. 26 to 31 are for $\phi 10$ to $\phi 40$. Order the seal kit, based on each bore size.

* Seal kit includes a grease pack ($\phi 6$, $\phi 10$: 5 and 10 g, $\phi 15$ to $\phi 40$: 10 g).

Order with the following part number when only the grease pack is needed.

Grease pack part no. for $\phi 6$, $\phi 10$: GR-F-005 (5 g) for external sliding parts,

GR-S-010 (10 g) for tube interior

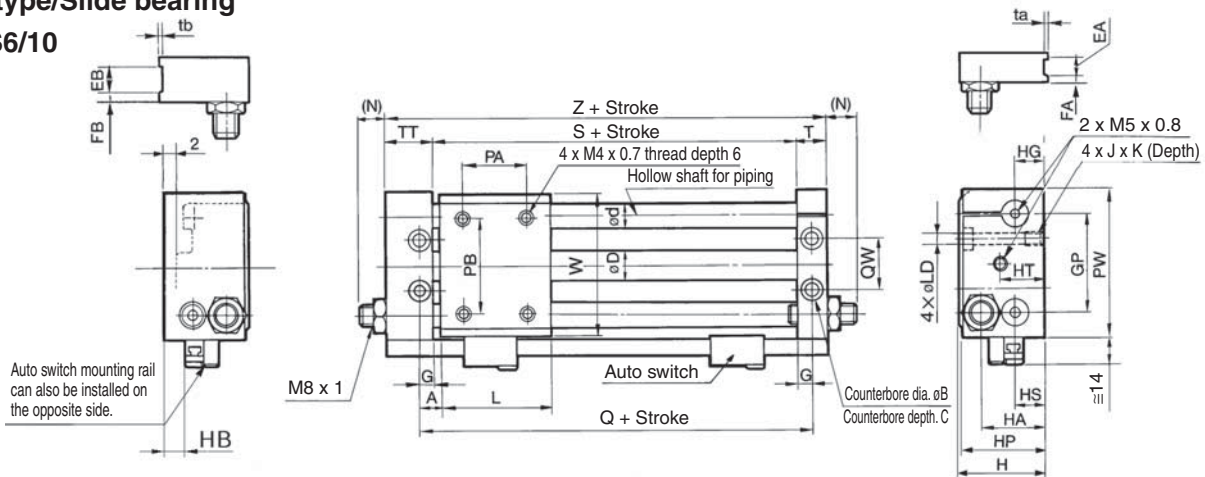
Grease pack part no. for $\phi 15$ to $\phi 40$: GR-S-010 (10 g)

Magnetically Coupled Rodless Cylinder Slider Type: Slide Bearing **Series CY1S**

Dimensions

Slider type/Slide bearing

C□Y1S6/10

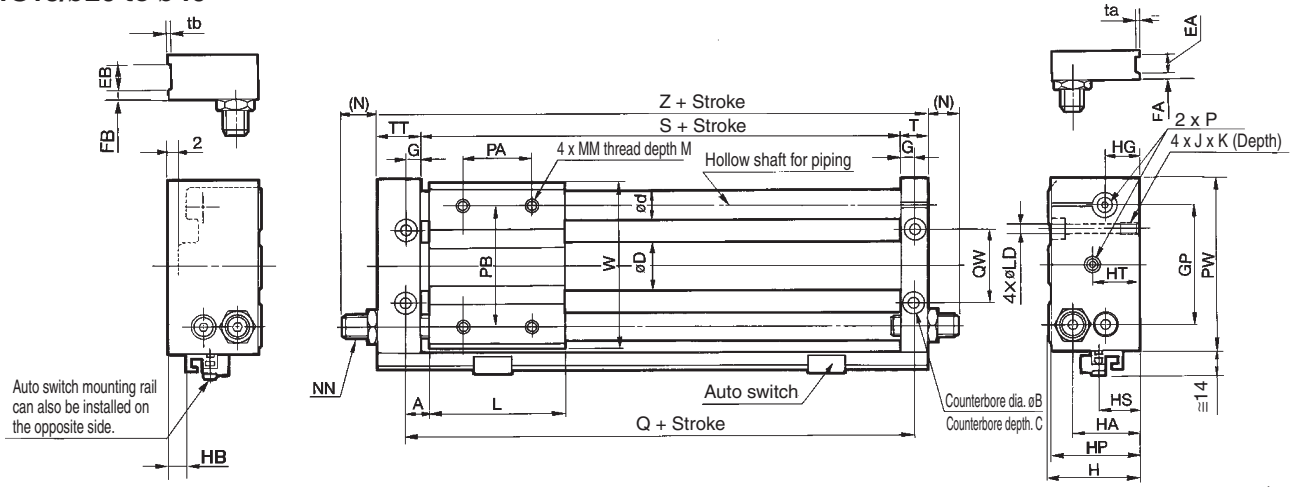


Model	A	B	C	D	d	EA	EB	FA	FB	G	GP	H	HA	HB*	HG	HP	HS	HT
CY1S6 CDY1S6	6	6.5	3	7.6	8	-	-	-	-	5	32	27	19	4	8	26	8	17
CY1S10 CDY1S10	7.5	8	4	12	10	6	12	3	5	6.5	40	34	25.5	10	12	33	14	18

Model	J x K	L	LD	(N)	PA*	PB	PW	Q	QW	S	T	TT	ta	tb	W	Z
CY1S6 CDY1S6	M4 x 0.7 x 6.5	40	3.5	11	25	25	50	52	16	42	10	16	-	-	46	68
CY1S10 CDY1S10	M5 x 0.8 x 9.5	45	4.3	10.5	25	38	60	60	24	47	12.5	20.5	0.5	1.0	58	80

* PA dimensions are for split from center. HB dimensions are for CDY1S.

C□Y1S15/ø20 to ø40



Model	A	B	C	D	d	EA	EB	FA	FB	G	GP	H	HA	HB*	HG	HP	HS	HT	J x K	L
CY1S15 CDY1S15	7.5	9.5	5	16.6	12	6	13	3	6	6.5	52	40	29	1	13	39	15	21	M6 x 1.0 x 9.5	60
CY1S20 CDY1S20	10	9.5	5.2	21.6	16	-	-	-	-	8.5	62	46	36	4.5	17	45	25.5	20	M6 x 1.0 x 9.5	70
CY1S25 CDY1S25	10	11	6.5	26.4	16	8	14	4	7	8.5	70	54	40	9	20	53	23	20	M8 x 1.25 x 10	70
CY1S32 CDY1S32	12.5	14	8	33.6	20	8	16	5	7	9.5	86	66	46	13	24	64	27	24	M10 x 1.5 x 15	85
CY1S40 CDY1S40	12.5	14	8	41.6	25	10	20	5	10	10.5	104	76	57	17	25	74	31	25	M10 x 1.5 x 15	95

Model	LD	M	MM	(N)	NN	P	PA*	PB	PW	Q	QW	S	T	TT	ta	tb	W	Z
CY1S15 CDY1S15	5.6	8	M5 x 0.8	8.5	M8 x 1.0	M5 x 0.8	30	50	75	75	30	62	12.5	22.5	0.5	1	72	97
CY1S20 CDY1S20	5.6	10	M6 x 1.0	10	M10 x 1.0	Rc1/8	40	70	90	90	38	73	16.5	25.5	-	-	87	115
CY1S25 CDY1S25	7	10	M6 x 1.0	12	M14 x 1.5	Rc1/8	40	70	100	90	42	73	16.5	25.5	0.5	1	97	115
CY1S32 CDY1S32	8.7	12	M8 x 1.25	11.5	M20 x 1.5	Rc1/8	40	75	122	110	50	91	18.5	28.5	0.5	1	119	138
CY1S40 CDY1S40	8.7	12	M8 x 1.25	11.5	M20 x 1.5	Rc1/4	65	105	145	120	64	99	20.5	35.5	1	1	142	155

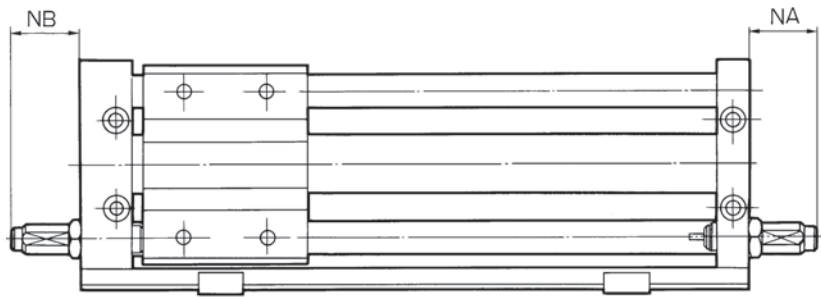
* PA dimensions are for split from center. HB dimensions are for CDY1S.

- CY3B
- CY3R
- CY1S**
- CY1L
- CY1H
- CY1F
- CYP

- D-□
- X□
- Individual
- X□
- Technical data

Series CY1S

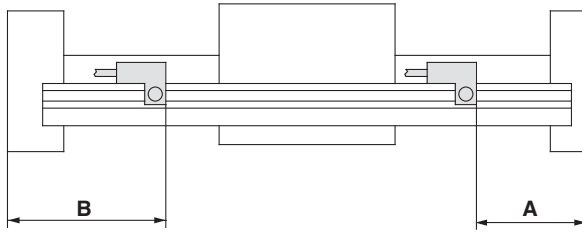
Dimensions: With Shock Absorber



(mm)

Model	Applicable shock absorber	NA	NB
C□Y1S 6	RB0805	30	24
C□Y1S10		27	19
C□Y1S15		27	17
C□Y1S20	RB1006	29	20
C□Y1S25	RB1411	49.5	40.5
C□Y1S32	RB2015	52	42
C□Y1S40		51	36

Proper Auto Switch Mounting Position (Detection at stroke end)



(mm)

Bore size (mm)	Applicable auto switch					
	D-A73, A80		D-A72/ A7□H/ A80H/ A73C/ D-A80C/ F7□/ J79/ F7□V/ J79C D-F7□W/ J79W/ F7□WV D-F7BAL/ F7BAVL/ D-F79F		D-F7NTL	
	A	B	A	B	A	B
6	27.5	40.5	28	40	33	35
10	35	45	35.5	44.5	40.5	39.5
15	34.5	62.5	35	62	40	57
20	64	50	64.5	49.5	69.5	44.5
25	44	71	44.5	70.5	49.5	65.5
32	55	83	55.5	82.5	60.5	77.5
40	61	94	61.5	93.5	66.5	88.5

Note 1) 50 mm is the minimum stroke available with 2 auto switches mounted. In the case of a stroke less than this, please contact SMC.

Note 2) Adjust the auto switch after confirming the operating conditions in the actual setting.

Operating Range

(mm)

Auto switch model	Bore size (mm)						
	6	10	15	20	25	32	40
D-A7□/ A8□	6	6	6	6	6	6	6
D-F7□/ J7□	3	3	4	3	3	3	3.5
D-F79F	4.5	4.5	4.5	4.5	4.5	4.5	4.5

* Since this is a guideline including hysteresis, not meant to be guaranteed.

(Assuming approximately ±30% dispersion)

There may be the case it will vary substantially depending on an ambient environment.

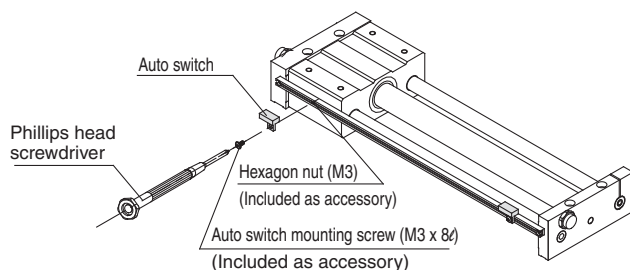
Other than the models listed in "How to Order", the following auto switches are applicable. For detailed specifications, refer to page 1314.

Type	Model	Electrical entry (Fetching direction)	Features
Solid state auto switch	D-F7NTL	Grommet (In-line)	With timer

* With pre-wired connector is available for D-F7NTL type, too. For details, refer to pages 1328 and 1329.

Mounting of Auto Switch

When mounting an auto switch, the auto switch mounting screw should be screwed into a hexagon nut (M3 x 0.5) which has been inserted into the groove of the switch mounting rail. (Tightening torque: Approx. 0.5 to 0.7 N·m.)



CY3B
CY3R

CY1S

CY1L

CY1H

CY1F

CYP

D-□

-X□

Individual
-X□

Technical
data