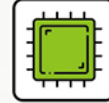


# Mechanically Jointed Rodless Cylinder

## PRE Series

**CHELIC**<sup>®</sup>

Applicable



ELECTRONICS



PACKING



TESTING

Specs: PRE 12/16/20/25/32/40

## Oval Piston Structure Reduces Height and Saves Space

Moving speed  
**700**  
mm/s

Reduced weight  
**20**  
%

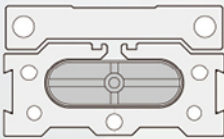
Saved space  
**56**  
%



Customizable for any stroke arrangement

### Oval piston structure

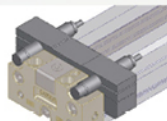
Internal oval piston eliminates shaking.



### Significant space saving

Flat design allows significant height reduction

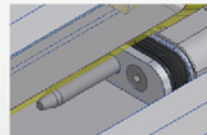
### External device capable of additional cushioning installation



### Interior structure traits



Multi-directional air intake and output piping

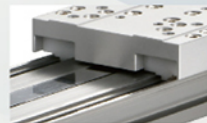


Internal air pressure cushioning device

### Compound models for choice



PRET - High-precision guideway model



PREP - Plastic & steel slider block model

### High-speed movement stability

Oval piston structure for better loading capacity and movement



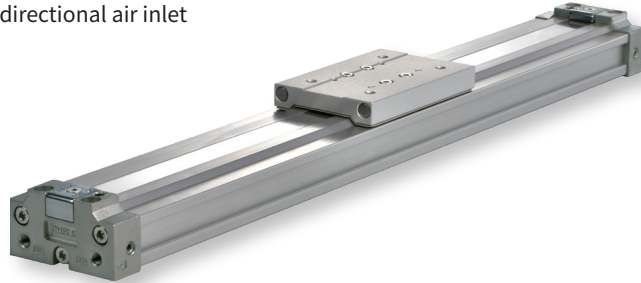
# PRE series Mechanically Jointed Rodless Cylinder

## Product features

CHELIC

### Feature

- With pneumatic buffer function, multi-directional air inlet
- Reduce height (56% lower than PRU)
- Fast actuation speed (700 mm/s)



### Specification

Item	Bore size (mm)	Ø12	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)		
Max. operating pressure	kgf/cm <sup>2</sup> (kPa)	8 (800)					
Ambient and fluid temperature	°C	0 ~ 60					
Piston speed	mm/s	50 ~ 500					
Lubrication		Lubrication free type					
Cushion		Air cushion					
Port size		M5		PT1/8		PT1/4	
Sensing device		With magnet					

### Standard stroke

Unit: mm

Bore size	Standard stroke
Ø12	50 ~ 1000
Ø16	50 ~ 1000
Ø20	50 ~ 1000
Ø25	50 ~ 1500
Ø32	50 ~ 1500
Ø40	50 ~ 1500

### Theoretical output

Unit: kgf

Bore size (mm)	Operating	Piston area (cm <sup>2</sup> )	Air pressure (kgf / cm <sup>2</sup> )						
			1	2	3	4	5	6	7
Ø12	Push	1.13	—	2.26	3.39	4.52	5.65	6.78	7.91
Ø16	Push	2.10	—	4.2	6.3	8.4	10.5	12.6	14.7
Ø20	Push	3.15	—	6.3	9.45	12.6	15.75	18.9	22.05
Ø25	Push	5.03	—	10.06	15.09	20.12	25.15	30.18	35.21
Ø32	Push	8.04	—	16.8	24.12	32.16	40.2	48.24	56.28
Ø40	Push	12.7	—	25.4	38.1	50.8	63.5	76.2	88.9



Note: All of above are theoretical data. Before actual adoption, the frictional resistance and mechanical efficiency shall be taken into consideration (about 70% ~ 80%)

PRE

PRET(P)

PRU(F)2

PRUT2

MRD

MRB

MRBT

MRX

MRU

MRH

MRY

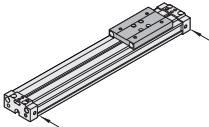
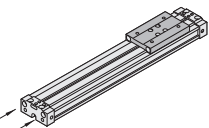
# PRE series Mechanically Jointed Rodless Cylinder

Code of order

**CHELIC**

## Code of order **PRE - F 16 x 200 - M - AM4 - S - 9B 2**

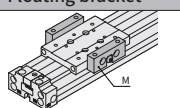
1 2 3 4 5 6 7 8

1	Mark	Port position
	F	
	L	

2	Mark	Bore size (mm)
	12	Ø12
	16	Ø16
	20	Ø20
	25	Ø25
	32	Ø32
	40	Ø40

3	Bore size	Stroke (mm)
	12	50~1000
	16	
	20	
	25	
	32	50~1500
	40	

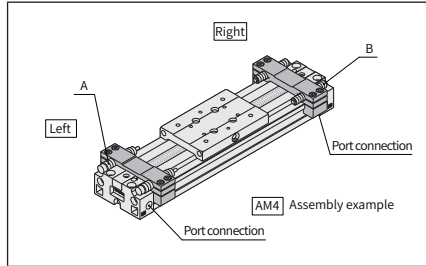
Any stroke available within above length with 1 mm as minimum.

4	Mark	Floating bracket
	M	

Floating bracket must mounted side positions

5	Mark	Cushion option	Cushion
	None	Without cushion	A: Shock absorber B: Adjusting bolt M: Shock absorber base
	AM1	Left side with shock absorber	
	BM1	Left side with adjusting bolt	
	AM2	Both sides with shock absorber	
	BM2	Both sides with adjusting bolt	● 1 base apply with 2 absorbers
	AM3	Right side with shock absorber	
	BM3	Right side with adjusting bolt	
	AM4	Left A*2pcs + Right B*2pcs	
	BM4	Left B*2pcs + Right A*2pcs	

### Assembly example and direction




### How to select Shock absorber

Bore size (mm)	Shock absorber model	Maximum absorption (N · m)
20	SAT-0806N	3
25	SAT-1007N	6
32	SAT-1007N	6
40	SAT-1412N	20

### Adjusting bolt

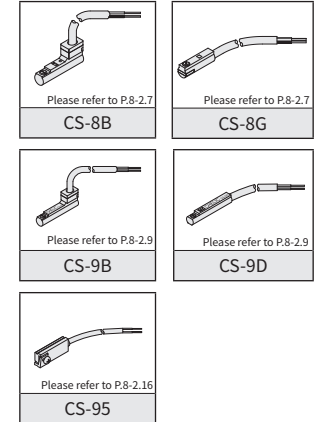
Bore size (mm)	Specification	Stroke adjustment(mm)
20	M8x1.0P	0 ~ 15
25	M10x1.0P	0 ~ 15
32	M10x1.0P	0 ~ 15
40	M14x1.5P	0 ~ 15

6	Mark	Sensor switch bracket
	None	Without sensor switch bracket
	S	Sensor switch bracket 

For bore 16 mm ● Order mark: JM01

7	Mark	Sensor switch	Bore size
	None	Without sensor switch	—
	8B	CS-8B	16
	8G	CS-8G	
	9B	CS-9B	
	9D	CS-9D	
	95	CS-95	20 ~ 40

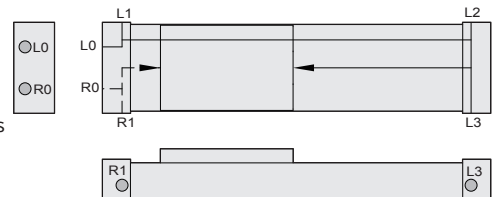
### Image



8	Mark	Sensor quantity
	1	1 pc
	2	2 pcs

## Port position

- When Port R (R0, R1) are used for air supply, Port L (L0, L1, L2, L3) are used as air exhaust. And when Port L (L0, L1, L2, L3) are used for air supply, Port R (R0, R1) are used as air exhaust.
- Standard type: air supply ports are at the front (code F), and other ports will be blocked by plugs. Please select code L for supply port at short side.

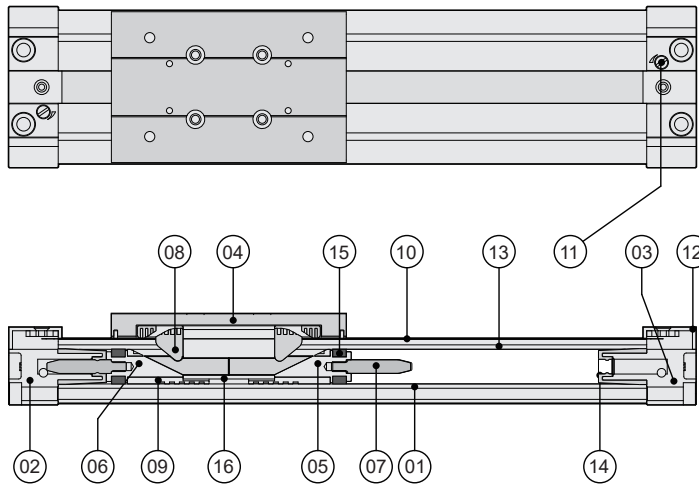


# PRE series Mechanically Jointed Rodless Cylinder

Product features

CHELIC

## Internal structure



## Components and material list

NO.	Item	Material	Quantity	NO.	Item	Material	Quantity
01	Body	Aluminum alloy	1	09	Wear ring	POM	2
02	Left end cap	Aluminum alloy	1	10	Outer belt	Stainless steel	1
03	Right end cap	Aluminum alloy	1	11	Air cushion pin screw	Stainless steel	2
04	Slider	Aluminum alloy	1	12	Cover	Stainless steel	2
05	Piston	Aluminum alloy	1	13	Inner belt	TPU	1
06	Sub-piston	Aluminum alloy	1	14	End cap sleeve	NBR	2
07	Air cushion lever	Aluminum alloy	2	15	Piston packing	NBR	2
08	Belt guide block	POM	2	16	Piston bracket	Alloy steel	1

## Product weight

Unit: kg

Bore size (mm)	Stroke = 0mm	Additional weight (Note)
Ø12	0.2	0.07
Ø16	0.2	0.11
Ø20	0.3	0.16
Ø25	0.6	0.23
Ø32	1.3	0.37
Ø40	1.9	0.49

Note: Additional weight per each 100 mm in ± 5% difference

PRE

PRET(P)

PRU(F)2

PRUT2

MRD

MRB

MRBT

MRX

MRU

MRH

MRY

# PRE series Mechanically Jointed Rodless Cylinder

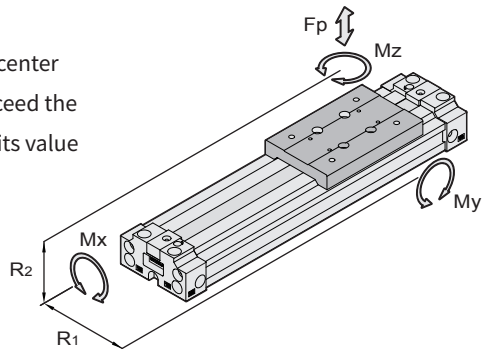
## Installation

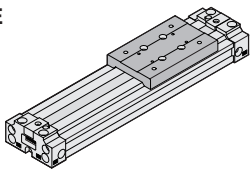
CHELIC

### Load and moment allowable

The maximum allowable moment is to calculate the piston of center of gravity. In general situation, the moment of load can not exceed the allowable range. If the moment of load is not single direction, its value can not bigger than 1.

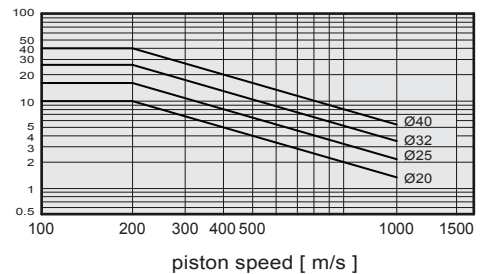
$$\begin{aligned} M_x &= F_p \times R_1 \\ M_y &= F_p \times R_2 \\ M_z &= F_p \times R_1 \end{aligned}$$



Model	Bore size (mm)	Stroke (mm)	Max. Moment allowable (Nm)			
			Max. load (N)	$M_z$	$M_x$	$M_y$
	12	50-1000	30	0.3	1	0.1
	16	50-1000	60	0.7	1.8	0.3
	20	50-1000	160	1.2	3	0.7
	25	50-1500	400	2	6	1.2
	32	50-1500	650	5	12	2.5
	40	50-1500	980	10	24	4.8

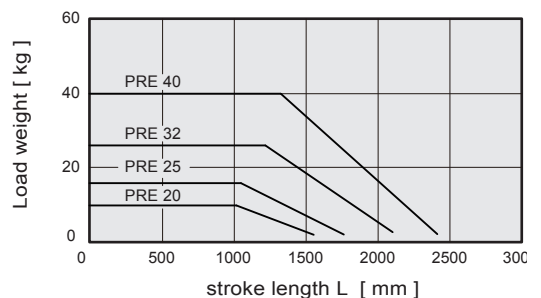
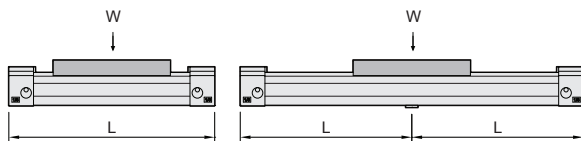
### Load weight and piston speed

The shock absorbing device at end of cylinder is adjustable for preventing damage from huge impact. The shock absorber shall be applied before the cylinder produce high movements.



### Load weight and stroke length

The long stroke cylinder may curve when load weight increased. The support bracket shall be considered to apply at the middle of stroke for preventing deforming.

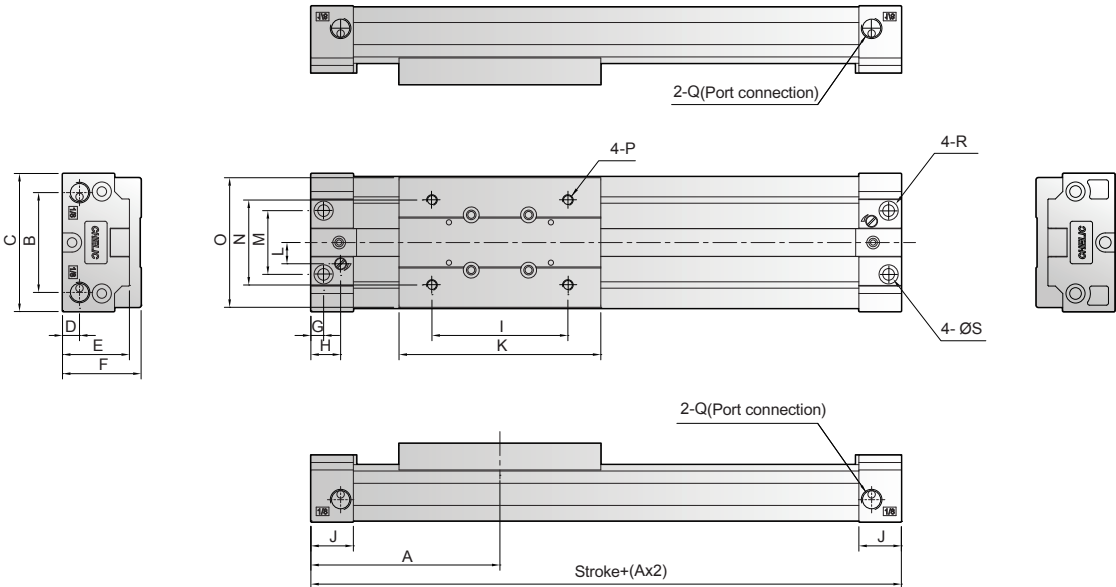


# PRE series Mechanically Jointed Rodless Cylinder

## Dimensions

CHELIC

PRE Ø12 ~ Ø40



Unit: mm

Mark Bore size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Ø12	51	24.6	37	7.4	20.6	23	4	9.5	33	13.5	50	6.5	15	26	35	M4x0.7Px6dp	M5x0.8P	Ø6x3.5dp	3.3
Ø16	61	29	43	5.8	23.5	27	4	9.5	44	13.5	65	8.5	19	26	41	M4x0.7Px6dp	M5x0.8P	Ø6.5x3.5dp	3.3
Ø20	74	35	53	7	28	32	4.5	11	54	15.5	80	10	23	30	50	M4x0.7Px8dp	M5x0.8P	Ø7.5x4.5dp	4.2
Ø25	89	47	65	8	31.5	37	6	14	64	20	95	10	30	40	61	M5x0.8Px7dp	PT1/8	Ø9x6dp	5.2
Ø32	112.5	52	79	9	39	45	7	15.5	92	22.5	128	12	33	44	76	M5x0.8Px9dp	PT1/8	Ø11x6.5dp	6.8
Ø40	138	66	94	12	44.5	54	8.5	19	112	27	160	16	40	60	90	M6x1Px12dp	PT1/4	Ø14x8.5dp	8.6

PRE

PRET(P)

PRU(F)2

PRUT2

MRD

MRB

MRBT

MRX

MRU

MRH

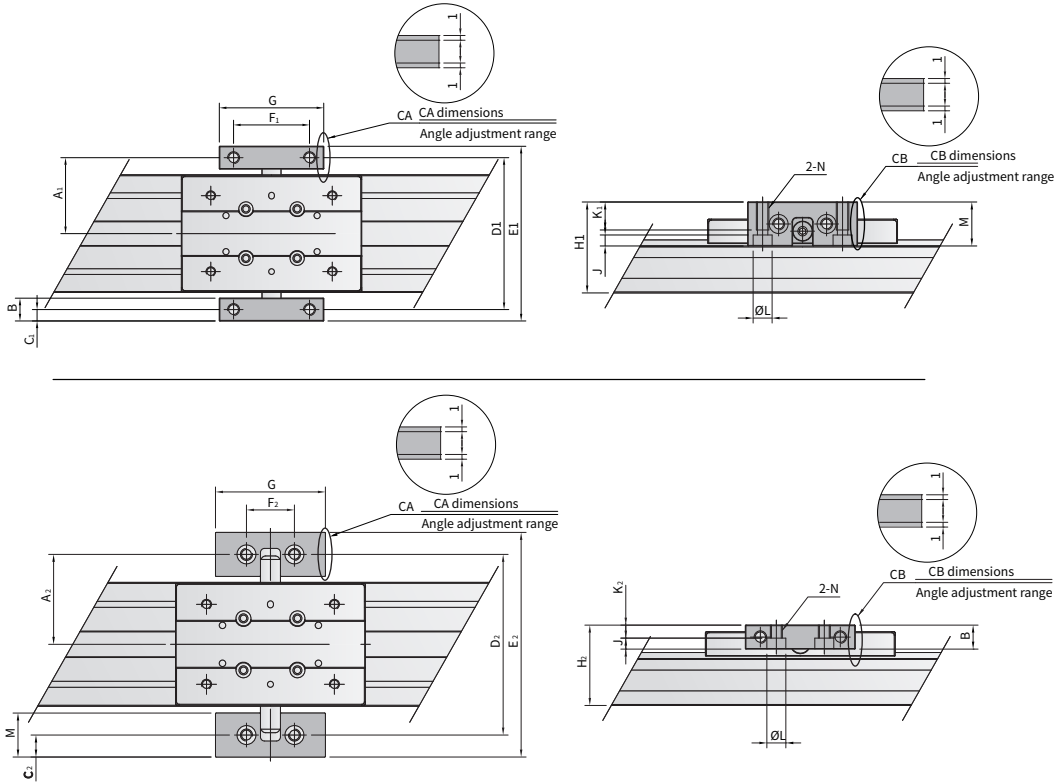
MRY

# PRE series Mechanically Jointed Rodless Cylinder

Accessory

CHELIC

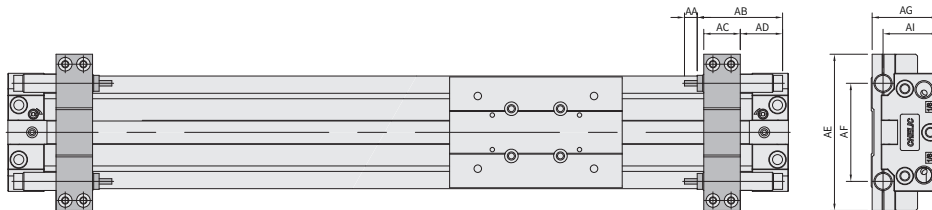
## Floating bracket assembly and dimension



Unit : mm

Mark	B	G	J	L	N	M	A <sub>1</sub>	C <sub>1</sub>	D <sub>1</sub>	E <sub>1</sub>	F <sub>1</sub>	H <sub>1</sub>	K <sub>1</sub>	A <sub>2</sub>	C <sub>2</sub>	D <sub>2</sub>	E <sub>2</sub>	F <sub>2</sub>	H <sub>2</sub>	K <sub>2</sub>
Ø16	10	38	4.5	6	M4x0.7P	20	29	5	58	68	30	36	10	34	10	68	88	18	29	5.5
Ø20	10	50	4	6.5	M4x0.7P	21	35	5	70	80	35	41	10	40.5	10.5	81	102	20	34	6
Ø25	16	55	5.5	9.5	M6x1.0P	22	40	6	80	92	40	46	14	45	11	90	112	24	38.5	6.5
Ø32	16	60	5.5	9.5	M6x1.0P	22	48	6	96	108	46	54	14	53	11	106	128	30	47	6.5
Ø40	19	72	6.5	11	M8x1.25P	32	57	5	114	130	55	68	19	65	16	130	162	32	56	9.5

## Shock absorber assembly and dimension



Unit: mm

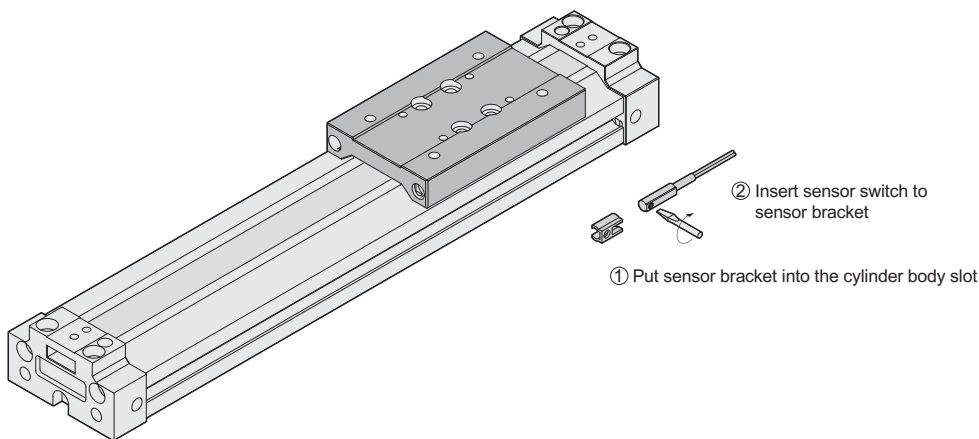
Mark	AA	AB	AC	AD	AE	AF	AG	AI	Shock absorber model
Ø20	6	40.6	14.1	19.5	72	42	31.5	26.5	SAT-0806N
Ø25	7	47	20.1	18.9	86	54	36.5	30.5	SAT-1007N
Ø32	7	47	20.1	18.9	105	62	44.5	38.5	SAT-1007N
Ø40	12	67	20.1	27.9	128	72.5	53.5	45	SAT-1412N

# PRE series Mechanically Jointed Rodless Cylinder

## Mounting type and operation of sensor switch

CHELIC

### PRE12~16 Sensor switch mounting type



### Setting 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

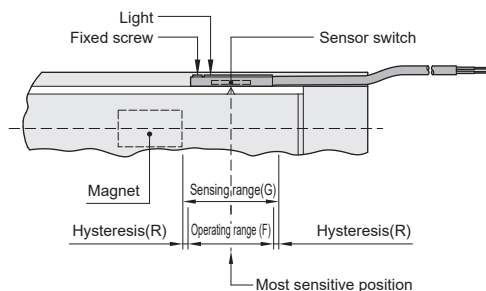
Model	CS-9D(B)	
Bore size	Operating range (F)	Hysteresis(R)
Ø12	8	1
Ø16	8	1

Unit: mm

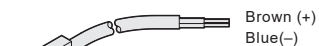
Model	CS-8G(B)	
Bore size	Operating range(F)	Hysteresis(R)
Ø12	10	1
Ø16	10	1

### Sensor switch setting and operating range

#### ● CS - 9D(B)



### Sensor switch introduction



Voltage: DC 5~30V

CS-8G



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

CS-9D

PRE

PRET(P)

PRU(F)2

PRUT2

MRD

MRB

MRBT

MRX

MRU

MRH

MRY

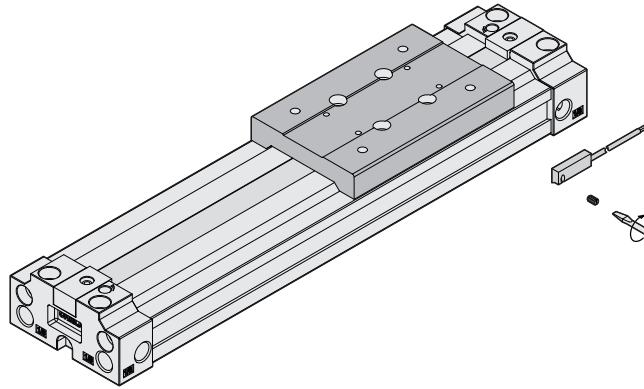


# PRE series Mechanically Jointed Rodless Cylinder

## Mounting type and operation of sensor switch

CHELIC

### PRE 20~40 Sensor switch mounting type



### Setting 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

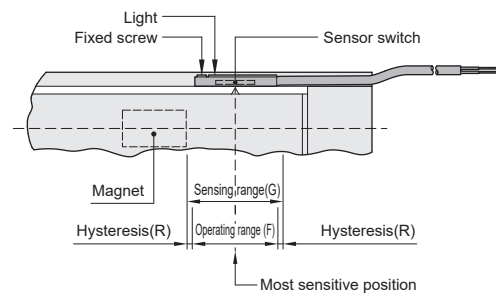
When piston head moves the switch setting and adjustment will be based on the responding range generated by the magnetic field and the switch. (Please refer to the below table)

Unit: mm

Model	CS - 95	
Bore size	Operating range(F)	Hysteresis(R)
Ø20	9.7	1.5
Ø25	6.5	2
Ø32	19.5	2.5
Ø40	22.5	2.5

### Sensor switch setting and operating range

#### CS - 95



### Sensor switch introduction

