

# ESW Series Rodless Cylinder



## ESW

### Rodless Cylinder



#### Specifications

Bore(mm)	16	20	25	32
Acting Type	Double Acting			
Working Medium	Clean Air(40 μ m filtration )			
Pressure Range	0.15~0.7			
Guaranteed Pressure ( Mpa)	1.0			
Working Temperature(℃ )	-20~70 ( No freezing)			
Piston Speed(mm/s)	50~400			
Stroke tolerance	0~250 <sup>+1.0</sup> <sub>0</sub>	251~1000 <sup>+1.4</sup> <sub>0</sub>	1001~ <sup>+1.8</sup> <sub>0</sub>	
Cushion Type	Rubber cushion on both ends			
Port Size	M5x0.8	G1/8 ①		

① PT、NPT port size is optional.

Note: Max working pressure of cylinder should not exceed 0.7Mpa, otherwise the magnetic coupling is in risk of disengagement

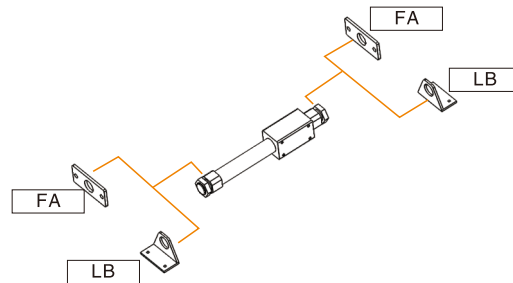
#### How to Order?

Series	Type	Bore	X Stroke	Mounting Type	Thread Type
ESW	Blank:Basic type	16 20 25 32 ...	100 150 200 250 ...	Blank:No LB FA	Blank:G P:PT T:NPT
			800		

#### Order Example

ESW series, basic type, bore 32mm, stroke 50mm, G thread, ERP code is ESW32 x 50

#### Optional Accessories



#### Stroke

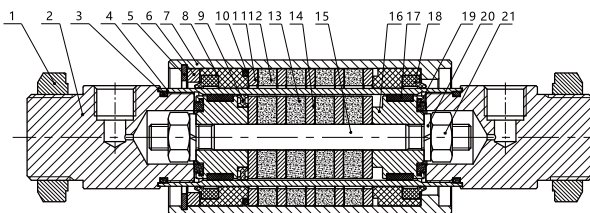
Bore (mm)	Standard Stroke (mm)	Max. Stroke (mm)
16	50 100 150 200 250 300 350 400 450 500	1000
20	50 100 150 200 250 300 350 400 450 500 600 700 800	2000
25	50 100 150 200 250 300 350 400 450 500 600 700 800	2000
32	50 100 150 200 250 300 350 400 450 500 600 700 800	2000

#### Magnetic Retention

Bore(mm)	Magnetic Retention(N)
16	140
20	200
25	360
32	550

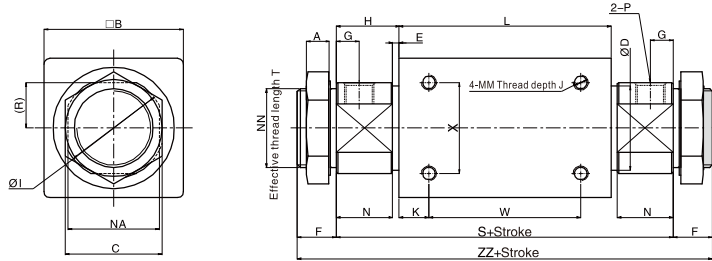
Notes: ESW series basic rodless cylinder, cylinder diameter 32, stroke 50, end cap tooth type G tooth, ERP code: ESW32X50

#### Internal Structure

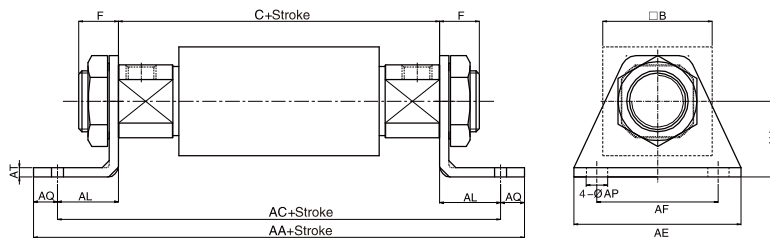


No.	Part Name	Material	No.	Part Name	Material
1	Hex Nut	Carbon Steel	12	Magnet	Sintered NdFeB
2	Cover	Aluminum Alloy	13	Magnet	Sintered NdFeB
3	O Ring	NBR	14	Blocking Plate for Barrel	Carbon Steel
4	Barrel	Stainless Steel	15	Connecting Rod	Stainless Steel
5	Retaining ring	Spring Steel	16	Piston	Aluminum Alloy
6	Slider baffle	Aluminum Alloy	17	Wear Ring	PTFE
7	Slider	Aluminum Alloy	18	Soft Dust Removing Seal	TPU
8	Wear Ring	PTFE	19	Bumper	TPU
9	Piston Seal	NBR	20	Spring Bumper	Carbon Steel
10	O Ring	NBR	21	Hex Nut	Carbon Steel
11	Blocking Plate for Slider	Carbon Steel			

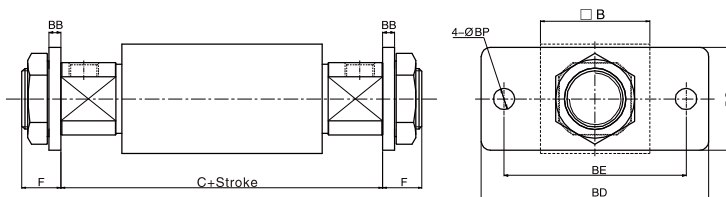
## Main Dimension



Model/Sign	A	B	C	D	E	F	G	H	I	J	K	L	MM	N	NA	NN	R	S	T	W	X	ZZ	P
ESW16	4	35	14	18	2	10	5.5	13	22	5	11	57	M4X0.7	11	20	M10X1.0	10	83	8	35	19	103	M5X0.8
ESW20	7	36	26	22.8	2	13	7.5	20	29	6	8	66	M4X0.7	18	25	M20X1.5	12	106	10.5	50	25	132	1/8"
ESW25	8	46	32	27.8	2	13	7.5	20.5	33.5	7.5	10	70	M5X0.8	18.5	30	M26X1.5	15	111	10.5	50	30	137	1/8"
ESW32	8	60	32	35	2	16	8	22	40	8	15	80	M6X1.0	20	36	M26X1.5	18	124	13.5	50	40	156	1/8"



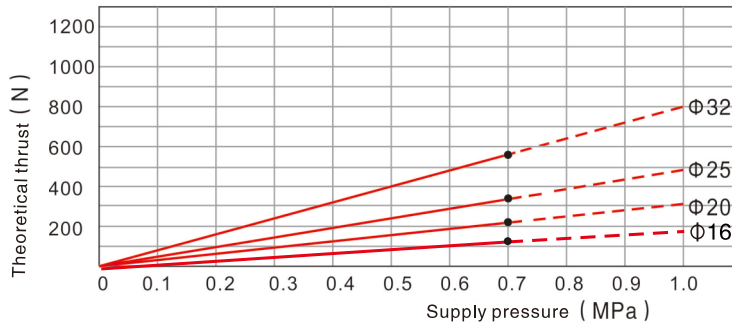
Model/Sign	AA	AC	C	F	AE	AF	AH	AL	AP	AQ	AT	B	LB Ordering Code
16	111	101	83	10	42	33	20	9	5.4	5	2.5	35	FJ-ESW16LB
20	158	142	106	13	43	30	23	18	6.5	8	3	36	FJ-ESW20LB
25	167	151	111	13	54	40	26	20	6.5	8	4	46	FJ-ESW25LB
32	184	170	124	16	62	46	33	23	7	7	4	60	FJ-ESW32LB



Model/Sign	B	BB	BC	BD	BE	BP	C	F	FA Ordering Code
20	36	4	34	75	60	7	106	13	FJ-SM20FA
25	46	4	40	75	60	7	111	13	FJ-SM25FA
32	60	4	40	75	60	7	124	16	FJ-SM25FA

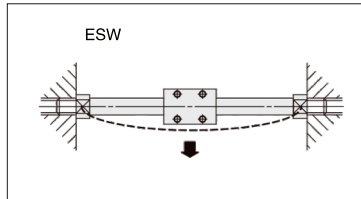
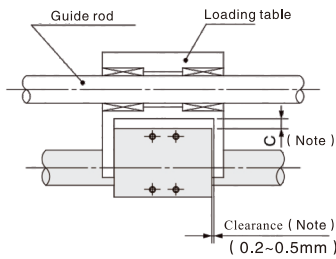
## Installation and Operation

1. Load capacity of the ESW rodless cylinder series is determined by the theoretical holding force (theoretical thrust). The weight of the load cannot exceed the theoretical holding force, as stated at below chart.

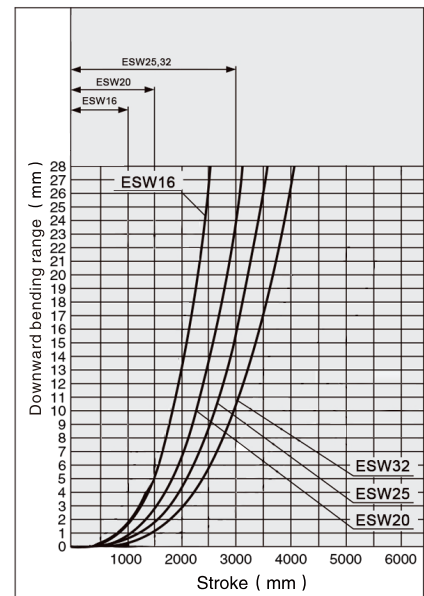


## 2. The downward bending deflection of the cylinder self-weight

Horizontal installation: the downward bending deflection of self-weight is shown in the figure below. As the stroke becomes longer, variations in the center axis become larger. Consider using a connection method that is able to absorb these bending deflection.



Note: Please reserve clearance according to the self-weight downward bending range shown in the right figure to prevent the cylinder from touching the installation surface or the load, so that the cylinder can slide smoothly within the minimum pressure range.



Note: the data of downward bending range is measured when the external slider moves to the middle of the stroke.

## 3. Maximum load including the adapting piece

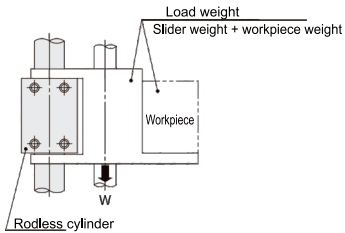
Load cannot be installed on the ESW series cylinders directly, please use other axis (linear guide rail, etc.) as oriented device. Maximum load including the adapting piece must be lower than the figures in the chart below.

Model	Maximum Load(KG)
ESW16	1.0
ESW20	1.1
ESW25	1.2
ESW32	1.5

## Installation and Operation

### 4. Vertical movements

- 4.1 Please use rolling bearing (linear guide rail, etc.) as oriented device.  
If the sliding bearing was used, the sliding resistance will increase due to the load and the torque generated by the load, resulting in poor movement.



Model	Allowable load weight(KG)	Maximum working pressure(MPa)
ESW16	7.0	0.65
ESW20	11.0	0.65
ESW25	18.5	0.65
ESW32	30.0	0.65

Note: If the actual pressure exceeds the maximum working pressure, the magnetic coupling is at risk of demagnetizing, attention please.

### 5. In case of stopping the slider halfway, please refer to the specific parameters in below chart

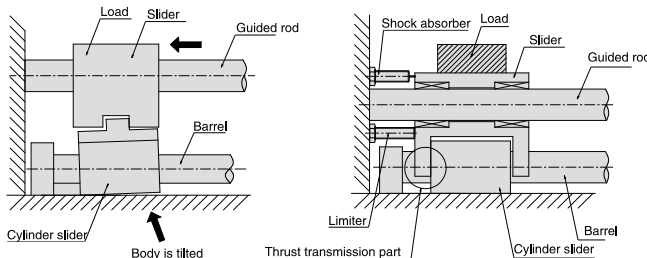
- 5.(1) If using an external stopper is used to stop the cylinder, working pressure cannot exceed the specified values listed in the chart below. Once the applied pressure exceeds the threshold limited, the magnetic coupling is at risk of demagnetizing, attention please..

Model	Maximum threshold value while stop halfway (MPa)
ESW16	0.65
ESW20	0.65
ESW25	0.65
ESW32	0.65

- 5.(2) If using a pneumatic circuit to stop the cylinder, the kinetic energy cannot exceed the specified values listed in the chart below. Once the applied pressure exceeds the threshold limited, the magnetic coupling is at risk of demagnetizing, attention please.

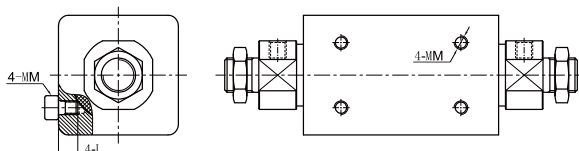
Model	Allowable kinetic energy while stop halfway(Es)(J)
ESW16	0.13
ESW20	0.24
ESW25	0.45
ESW32	0.88

5. (3) If the load is stopped at the end of stroke, cylinder may be tilted due to the big inertia and both the bearing and cylinder barrel will be damaged. (as shown in the left picture below).  
By using a stopper and a shock absorber together, the thrust will be passed through the cylinder body to avoid cylinder tilting. (as shown in the right picture below).



5. (4) In a vertical installation situation, a pneumatic circuit cannot be used to stop the cylinder. Piston stopped because of pressure increase, but the magnetic coupling is at risk of demagnetizing due to the weight and inertia of the load.

### 6. Cautions of the mounting thread length:



Model	MM	Length of thread≤L
ESW16	M4X0.7	5
ESW20	M4X0.7	5
ESW25	M5X0.8	6.5
ESW32	M6X1.0	7