

### Stroke

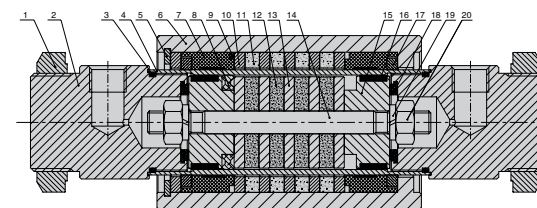
Bore(mm)	Standard Stroke(mm)	Max. Stroke(mm)
16	50 100 150 200 250 300 350 400 450 500	1000
20	50 100 150 200 250 300 350 400 450 500 600 700 800	2000
25	50 100 150 200 250 300 350 400 450 500 600 700 800	2000
32	50 100 150 200 250 300 350 400 450 500 600 700 800	2000

Notes: With the increase of stroke, cylinder barrel increase bending degree, pls note the gap size between connecting part and cylinder.

### Magnetic Retention

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

### Internal Structure



### How to Order?

Series	Type	Bore	X Stroke	Thread Type
ESW	Blank:Basic type	16 20 25 32	100 150 200 250 ... 800	Blank:G P:PT T:NPT

#### Order Example

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

### Specification

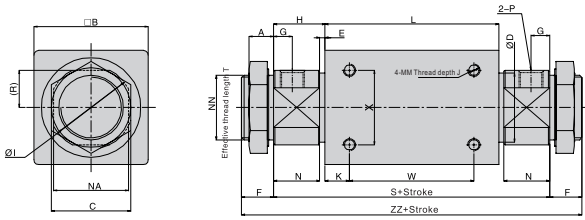
Bore(mm)	16	20	25	32
Acting Type	Double Acting			
Working Medium	Clean Air(40 μ m filtration )			
Pressure Range	0.15~0.7			
Guaranteed Pressure ( Mpa)	1.0			
Working Temperature(°C )	-20~80 ( no freezing)			
Piston Speed(mm/s)	50~400			
Stroke tolerance	0~250 <sup>+1.0</sup> <sub>0</sub>	251~1000 <sup>+1.4</sup> <sub>0</sub>	1001~ <sup>+1.8</sup> <sub>0</sub>	
Cushion Type	Rubber Cushion Both Ends			
Port Size	M5x0.8		G1/8①	

① PT, NPT port size is optional.

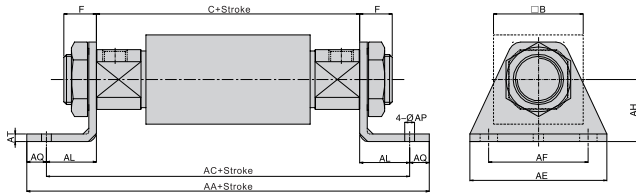
Note: Max working pressure of cylinder should not exceed 0.7Mpa, otherwise the magnetic coupling is in risk of disengagement

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

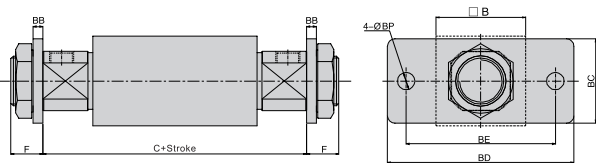
Dimensions



Model	A	B	C	D	E	F	G	H	I	J	K	L	MM	N	NA	NN	R	S	T	W	X	ZZ	P
ESW16	6	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	8	36	26	22.8	2	13	7.5	20	28	6	8	66	M4X0.7	18	24	M20X1.5	12	106	10.5	50	25	132	1/8"
ESW25	10	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	10	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"



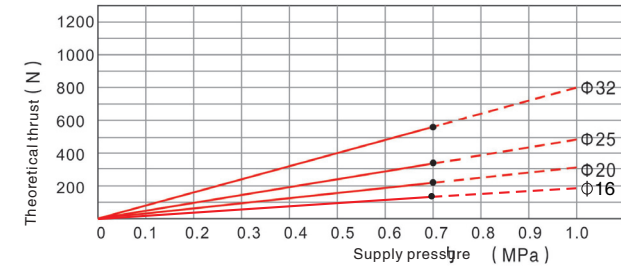
Bore/Sign	AA	AC	C	F	AE	AF	AH	AL	AP	AO	AT	B
20	162	146	106	13	55	40	25	20	4	8	3	36
25	167	151	111	13	55	40	28	20	4	8	3	46
32	180	164	124	16	55	40	28	20	4	8	3	60



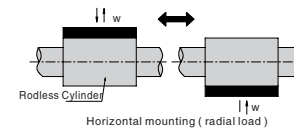
Bore/Sign	B	BB	BC	BD	BE	BP	C	F
20	36	4	34	75	60	7	106	13
25	46	4	40	75	60	7	111	13
32	60	4	40	75	60	7	124	16

Installation and Operation

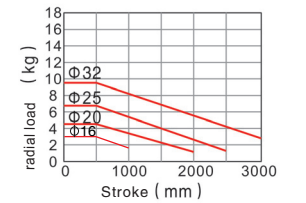
1、 Load capacity of ESW is determined by theoretical holding force(theoretical thrust). To make sure cylinder work, weight of load can not exceed theoretical holding force (theoretical thrust) as stated at below chart



2. ( 1 ) When cylinder is horizontal installed, radial load can not exceed value as stated below.

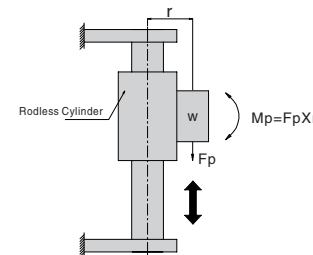


Model	Maximum load(W)
ESW16	2.8Kg
ESW20	4.7Kg
ESW25	6.8Kg
ESW32	9.7Kg



2.(2)Radial load is inversely proportional to stroke,as above chart stated, if radial load increase, cylinder life decrease, pls install external guiding device as third point required.

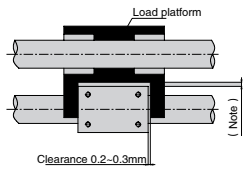
3、 When cylinder is vertical installed, allowable moment cannot exceed rated value, pls get the data from Load–Stroke chart.



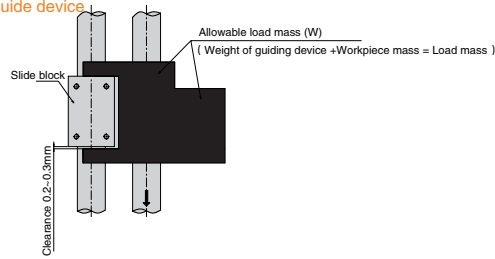
Model	Allowable torque(Mp)
ESW16	1.20kgf.m
ESW20	2.45kgf.m
ESW25	3.92kgf.m
ESW32	8.83kgf.m

Suggestion: Using Load and external guiding device combinedly ,pls see example below:

Horizontal guiding device



Vertical guiding device



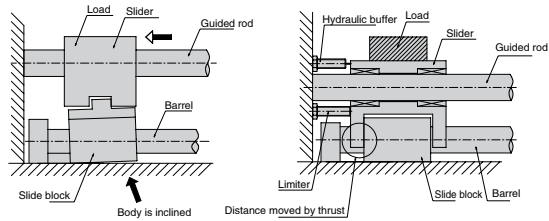
- 4、 Before connecting cylinder to tube, pls clean up inside of tube, making sure foreign matter will not enter cylinder and affect operation.
- 5、 Working medium should be filtered by a filter element with a precision more than  $40 \mu m$ .
- 6、 When a cylinder is not being used, pls protect the surface from being rusted, especially for inlet and outlet hole
- 7、 If cylinder requires stop during working, pls check below chart.
- 7.(1)If cylinder requires stop during working, pls check below chart.  
If a external limiter is used to stop cylinder, working pressure cannot exceed rated value at below chart.

Model	Threshold value while stop ( MPa )
ESW16	0.65
ESW20	0.65
ESW25	0.65
ESW32	0.65

- 7.(2)If a pneumatic circuit is used to stop cylinder, kinetic energy cannot exceed rated value at below chart.  
If pressure exceed allowable value, magnet may detach from cylinder.

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

7. ( 3 ) When piston move to the end of stroke, load is stopped with a high inertia, cylinder may be inclined,bearing and barrel may be damaged(as left picture below). As showed on the right picture below,use limiter and hydraulic buffer combinedly,pass thrust from the central of cylinder, inclination is avoidable.



7. ( 4 ) In a vertical installation situation, pneumatic circuit cannot be used to stop cylinder.  
When piston stop,slider may detach from cylinder due to weight and inertia of load