

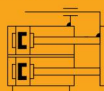
ELS/ELSL Series Slide Cylinder



ELS/ELSL

Slide Cylinder

ELS/ELSL Series Slide Cylinder(with magnet,rubber cushion)



Specifications

Bore(mm)	6	8	12	16	20	25
Acting Type	Double Acting					
Working Medium	Clean Air(after 40 μm filtration)					
Working Pressure(MPa)	0.15~0.7					
Guaranteed Pressure(MPa)	1.05					
Working Temperature(°C)	-20~70(No freezing)					
Piston Speed(mm/s)	50~500					
Stroke tolerance	Stroke ≤ 100 $^{+1.0}_{0}$ Stroke > 100 $^{+1.5}_{0}$					
Cushion	Rubber cushion on both ends、Shock absorber cushion					
Port Size	M5x0.8			G1/8		

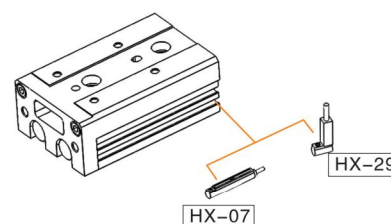
How to order?

Series No.	Bore X	Stroke	Magnet No.	Adjuster	Thread Type
ELS:Standard Type 6	6				
ELSL:Symmetric Type 8	8				
	12				
	16				
	20				
	25				
		Details in stroke chart	S: With magnet	Blank: None adjuster A: Adjusters on both ends AS: Forward adjuster AF: Backward adjuster B: Shock absorber on both ends BS: Forward shock absorber BF: Backward shock absorber (Note: Shock absorber is not available for φ6)	Blank: G

Order Example:

ELS Series Basic type cylinder, bore size 20, stroke 50, with Magnet, without adjuster, thread type G.The ERP code is: ELS20X50-S

Optional Accessories



Note:Short stroke please use HX-29 series due to limited space.

Stroke

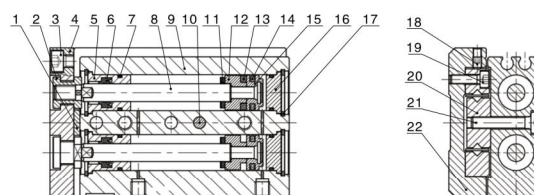
Bore(mm)	Standard Stroke(mm)										Max.Stroke(mm)
Double Acting	6	10	20	30	40	50					50
	8	10	20	30	40	50	75				75
	12	10	20	30	40	50	75	100			100
	16	10	20	30	40	50	75	100	125		125
	20	10	20	30	40	50	75	100	125	150	150
	25	10	20	30	40	50	75	100	125	150	150

Weight(g)

Bore(mm)	Stroke(mm)							
	10	20	30	40	50	75	100	125
6	73	90	103	146	163	—	—	—
8	143	156	178	225	269	—	—	—
12	345	350	355	403	470	651	—	—
16	542	551	560	623	708	973	1245	1523
20	988	995	1002	1111	1226	1617	2081	2482
25	1462	1480	1498	1638	1785	2314	2845	3437

Note: The weight in the above table is the standard product weight without adjuster.

Internal Structure



No.	Part Name	Material
1	Cushion Pad	TPU
2	Fixing Screw	Stainless Steel
3	Hexagon Socket Cap Head Screw	Carbon Steel
4	Fixing Plate	Aluminum Alloy
5	Front Cover	Aluminum Alloy
6	Front Scraper Seal	NBR
7	O-ring	NBR
8	Piston Rod	Stainless Steel
9	Barrel	Aluminum Alloy
10	Positioning pin	Stainless Steel
11	Anti-Crash Gasket	TPU
12	Magnet Seat	Aluminum Alloy
13	Integrated Magnet	RbFeB
14	Piston Seal	NBR
15	Piston	Aluminum Alloy
16	Rear Cover	Aluminum Alloy
17	C-Type Retainer Ring	Spring Steel
18	Hexagon Socket Set Screw	Carbon Steel
19	Hexagon Socket Cap Head Screw	Carbon Steel
20	Linear Roller Sliding Guide Rail	Assembly
21	Hexagon Socket Cap Head Screw	Carbon Steel
22	Slide Table	Aluminum Alloy

Model Selection Method

Please select compact cylinder's type according to following procedure, and cross reference with data sheets.

1. Operating conditions (According to mounting position and work form)

- 1.1 Model used (Bore size, Stroke)
- 1.2 Type of cushion (Bumper, Shock absorber)
- 1.3 Mounting position of work (Top, front)
- 1.4 Mounting direction (Axial, Vertical)
- 1.5 Average speed V_a (mm/s)
- 1.6 Applied load W (N) **Fig. 1**
- 1.7 Overhang $L1$, $L2$, $L3$ (mm)

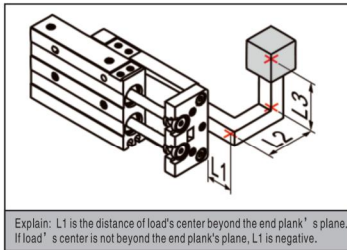
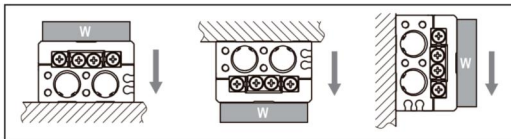


Fig. 1 Applied load



3. Load Check

Detailed procedures

- 3.1 Calculate allowable applied load W_a (N)

$$W_a = K \times \beta \times W_{max}$$

K : Mounting work coefficient (Fig 2) W_{max} : Maximum allowable applied load (Table 1)

β : Applied load coefficient (Fig 3)

- 3.2 Check that load (W) doesn't exceed allowable applied load (W_a)

$$W \leq W_a$$

Fig. 2 Mounting work coefficient (K)

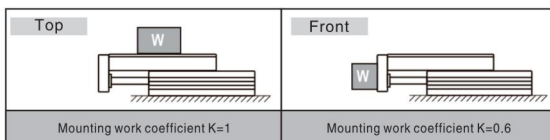
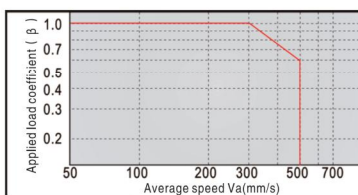


Fig. 3 Applied load coefficient (β)



2. Kinetic energy check

Detailed procedures

- 2.1 Calculate kinetic energy of load E (J)

$$E = \frac{1}{2} \times \frac{W}{g} \times \left(\frac{1.4 \times V_a}{1000} \right)^2$$

- 2.2 Calculate allowable kinetic energy E_a (J)

$$E_a = K \times E_{max}$$

K : Mounting work coefficient (Fig 2) E_{max} : Maximum allowable kinetic energy (Table 1)

- 2.3 Check that kinetic energy of load doesn't exceed allowable kinetic energy

$$E \leq E_a$$

4. Moment check

Detailed procedures

Horizontal

- * Calculate actual moment: M_p , M_{po} , M_y , M_{yo} , M_r , M_{ro} (Nm)

	Dynamic moment: $M_p = W \times (L1 + A) / 1000$
	Static moment: $M_{po} = \frac{W \times (L1 + A)}{1000} + \frac{W \times a \times (L2 + B)}{1000 \times g}$
	Dynamic moment: $M_r = W \times (C + L3) / 1000$
	Static moment: $M_{ro} = \frac{W \times (L1 + A)}{1000} + \frac{W \times a \times (L2 + B)}{1000 \times g}$
	Dynamic moment: $M_y = 0$
	Static moment: $M_{yo} = (W \times a \times (C + L3)) / 1000g$

- * Check

Dynamic moment:	$\frac{M_p}{M_{pmax}} + \frac{M_y}{M_{ymax}} + \frac{M_r}{M_{rmax}} \leq 1$
Static moment:	$\frac{M_{po}}{M_{pomax}} + \frac{M_{yo}}{M_{yomax}} + \frac{M_{ro}}{M_{romax}} \leq 1$

Vertical

- * Calculate actual moment: M_p , M_{po} , M_y , M_{yo} , M_r , M_{ro} (Nm)

	Dynamic moment: $M_p = W \times (L2 + B) / 1000$
	Static moment: $M_{po} = \frac{W \times (L2 + B)}{1000} + \frac{W \times a \times (L2 + B)}{1000 \times g}$
	Dynamic moment: $M_y = W \times (C + L3) / 1000$
	Static moment: $M_{yo} = \frac{W \times a \times (C + L3)}{1000g} + \frac{W \times (C + L3)}{1000}$

* Check

Dynamic moment:	$\frac{M_p}{M_{pmax}} + \frac{M_y}{M_{ymax}} \leq 1$
Static moment:	$\frac{M_{po}}{M_{pomax}} + \frac{M_{yo}}{M_{yomax}} \leq 1$

Explain:
The distance of load center to mount plane (Determined by actuality).
A, B, C: Correction value for center position distance of moment (Refer to table 2).
 M_{pmax} , M_{ymax} , M_{rmax} , M_{pomax} , M_{yomax} , M_{romax} : Maximum allowable moment (Refer to table 2).
g: Acceleration of gravity ($g = 9.81 \text{ m/s}^2$).
a: Acceleration of inertia
 $a = 1600 \times (V_a / 1000)^2$: Shock absorber
 $a = 400 \times (V_a / 1000)^2$
W: Load weight (Determined by actuality).

ELS/ELSL Series Slide Cylinder



Model Selection Method

Please select compact cylinder's type according to following procedure, and cross reference with data sheets.

Note: Symbol and unit

Symbol	Item	Unit
A,B,C	Correction value for center position distance of moment	mm
a	Acceleration of inertia	—
E	Kinetic energy	J
Ea	Allowable kinetic energy	J
E _{max}	Maximum allowable kinetic energy	J
g	Acceleration of gravity g=9.81	m/s
K	Mounting work coefficient	—
L1,L2,L3	Overhang	mm
Mp,My,Mr	Dynamic moment(Pitch Yaw Roll)	Nm
Mp _{max} ,My _{max} ,Mr _{max}	Maximum allowable dynamic moment(Pitch Yaw Roll)	Nm
Mpo,Myo,Mro	Static moment(Pitch Yaw Roll)	Nm
Mpo _{max} ,Myo _{max} ,Mro _{max}	Maximum allowable static moment(Pitch Yaw Roll)	Nm
Va	Average speed	m/s
W	Applied load	N
W _{max}	Maximum allowable applied load	N
β	Applied load coefficient	—

Table 1: Maximum allowable kinetic energy(E_{max})Maximum allowable applied load(W_{max})

Model	Maximum allowable kinetic energy E _{max} (J)			Maximum allowable applied load W _{max} (N)
	Basic type	Rubber stopper type	Shock absorber type	
ELS6	0.01	0.01	—	4
ELS8	0.024	0.024	0.048	8
ELS12	0.05	0.05	0.1	15
ELS16	0.1	0.1	0.2	30
ELS20	0.13	0.13	0.26	40
ELS25	0.22	0.22	0.44	70

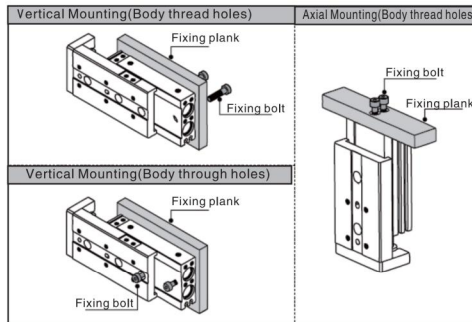
Table 2: Maximum allowable moment(Nm), Correction value for center position distance of moment(mm)

Bore size	Stroke	Static moment			Dynamic moment			Correction value		
		Mpo _{max}	Myo _{max}	Mro _{max}	Mp _{max}	My _{max}	Mr _{max}	A	B	C
ELS6	10	3.3	3.8	2.6	0.7	0.7	0.6	27	7.3	15
	20	3.3	3.8	2.6	0.7	0.8	0.6	42		
	30	3.3	3.8	2.6	0.7	0.8	0.6	52		
	40	7.2	7.9	3.6	1.3	1.3	0.6	72		
	50	12.4	12.7	4.7	1.8	1.8	0.6	87		
ELS8	10	10.1	9.1	8.8	2.5	2.5	2.0	32	8.5	20
	20	10.1	9.1	8.8	2.6	2.6	2.0	42		
	30	10.1	9.1	8.8	2.8	2.8	2.0	57		
	40	12.4	10.8	10.1	3.4	3.4	2.3	72		
	50	23.6	24.8	13.9	4.4	4.4	2.1	92		
ELS12	75	32.8	35.3	16.4	4.6	4.6	1.8	132	10	25
	10	33	34.3	30.9	7.3	7.3	5.8	48		
	20	33	34.3	30.9	7.6	7.6	5.8	58		
	30	33	34.3	30.9	7.8	7.8	5.8	68		
	40	33	34.3	30.9	8.0	8.0	5.8	78		
ELS16	50	53.4	49.6	39.7	9.8	9.8	5.8	88	11	31
	75	78.8	71.9	48.6	14.2	14.2	6.8	125		
	100	78.8	71.9	48.6	14.7	14.7	6.8	160		
	10	33	34.3	30.9	8.8	8.8	7.6	43		
	20	33	34.3	30.9	9.2	9.2	7.6	53		
ELS20	30	33	34.3	30.9	9.5	9.5	7.6	63	16.5	38
	40	33	34.3	30.9	10.0	10.0	7.6	78		
	50	53.4	49.6	39.7	12.2	12.2	7.6	93		
	75	78.8	71.9	48.6	17.6	17.6	8.9	130		
	100	78.8	71.9	48.6	18.2	18.2	8.9	165		
ELS25	125	169.3	154.3	114.4	42.8	42.8	22.0	176	20.3	43
	150	267.5	286.6	145.6	49.0	49.0	20.5	249		
	10	60.1	50.5	72.8	16.3	16.3	17.6	52		
	20	60.1	50.5	72.8	17.0	17.0	17.6	62		
	30	60.1	50.5	72.8	17.4	17.4	17.6	72		
ELS25	40	60.1	50.5	72.8	17.8	17.8	17.6	82		
	50	60.1	50.5	72.8	18.2	18.2	17.6	96		
	75	169.3	154.3	114.4	45.2	45.2	25.3	141		
	100	169.3	154.3	114.4	46.2	46.2	25.3	165		
	125	169.3	154.3	114.4	48.0	48.0	25.3	210		
ELS25	150	267.5	286.6	145.6	65.0	65.0	28.3	254		

Installation and Operation

1. How to mount cylinder:

1.1 Cylinder can be mounted from 3 directions.

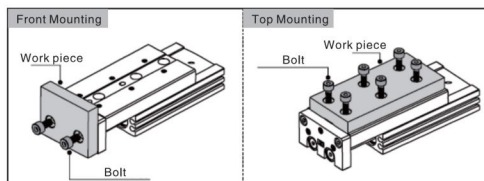


1.2 When mounting an compact slide cylinder, screws of appropriate length should be used and tightened properly within the maximum tightening torque. If screws are tightened beyond designed limits, malfunction may occur. If they are tightened insufficiently, it may result in sliding of falling off from its position.

Vertical Mounting (Body thread holes)	Model	Bolt used	Max. tightening torque (Nm)	Max. screw-in depth (mm)
	ELS6	M4X0.7	2.1	8
	ELS8	M4X0.7	2.1	8
	ELS12	M5X0.8	4.4	10
	ELS16	M6X1.0	7.4	12
	ELS20	M6X1.0	7.4	12
	ELS25	M8X1.25	18	16
Vertical Mounting (Body through holes)	Model	Bolt used	Max. tightening torque (Nm)	Max. screw-in depth (mm)
	ELS6	M3X0.5	1.2	10.8
	ELS8	M3X0.5	1.2	12.5
	ELS12	M4X0.7	2.8	18
	ELS16	M5X0.8	5.7	23.5
	ELS20	M5X0.8	5.7	28.5
	ELS25	M6X1.0	10	34.5
Axial Mounting (Body tapped holes)	Model	Bolt used	Max. tightening torque (Nm)	Max. screw-in depth (mm)
	ELS6	M2.5X0.45	0.5	3.5
	ELS8	M3X0.5	0.9	4.0
	ELS12	M4X0.7	2.1	6.0
	ELS16	M5X0.8	4.4	7.0
	ELS20	M5X0.8	4.4	8.0
	ELS25	M6X1.0	7.4	10.0

2. Work Piece Mounting:

2.1 Work pieces can be mounted on 2 surfaces of the compact slide.

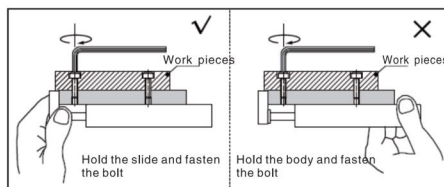


2.2 When mounting a work piece, tighten the bolts properly at a torque value within the limiting range. Use bolts at least 0.5mm shorter than maximum thread depth to prevent bolts from contacting the guide block. If the bolts are too long, they hit the guide block and cause damage.

Front Mounting	Model	Bolt used	Max. tightening torque (Nm)	Max. screw-in depth (mm)
	ELS6	M3X0.5	0.9	5
	ELS8	M4X0.7	2.1	6
	ELS12	M5X0.8	4.4	8
	ELS16	M6X1.0	7.4	10
	ELS20	M6X1.0	7.4	13
	ELS25	M8X1.25	18	15
Top Mounting	Model	Bolt used	Max. tightening torque (Nm)	Max. screw-in depth (mm)
	ELS6	M3X0.5	0.9	4
	ELS8	M3X0.5	0.9	4.5
	ELS12	M4X0.7	2.1	5.5
	ELS16	M5X0.8	4.4	7.5
	ELS20	M5X0.8	4.4	9.5
	ELS25	M6X1.0	7.4	13

2.3 Since the table is supported by the linear guide, take care not to apply strong impact or large moment to the guide section.

2.4 Hold the slide when fastening work pieces to it with bolts, if the body is held while tightening bolts, excessive moment may damage guide section.

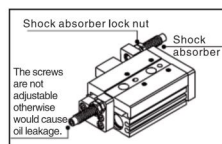


3. About shock absorber:

3.1 Shock absorbers are expendable parts. Promptly replace them when energy absorbing capacity decreases.

3.2 Never turn or adjust the screws on bottom of the shock absorber body. The screws are not for adjusting. Otherwise would cause oil leakage.

3.3 Follow the table for tightening torque of shock absorber to lock nuts.

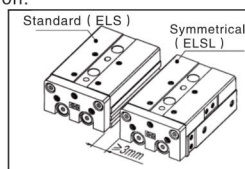


Model	Shock absorber	Tightening torque (Nm)
ELS8	AC0806-WY	1.67
ELS12	AC0806-WY	1.67
ELS16	AC1008-WY	3.14
ELS20	AC1416-WY	10.8
ELS25	AC1416-WY	10.8

4. How to mount sensor switch:

4.1 ELS Series are all with magnet.

4.2 Maintain a minimum spacing of at least 3mm if two compact cylinders are used side by side in order to avoid malfunction.



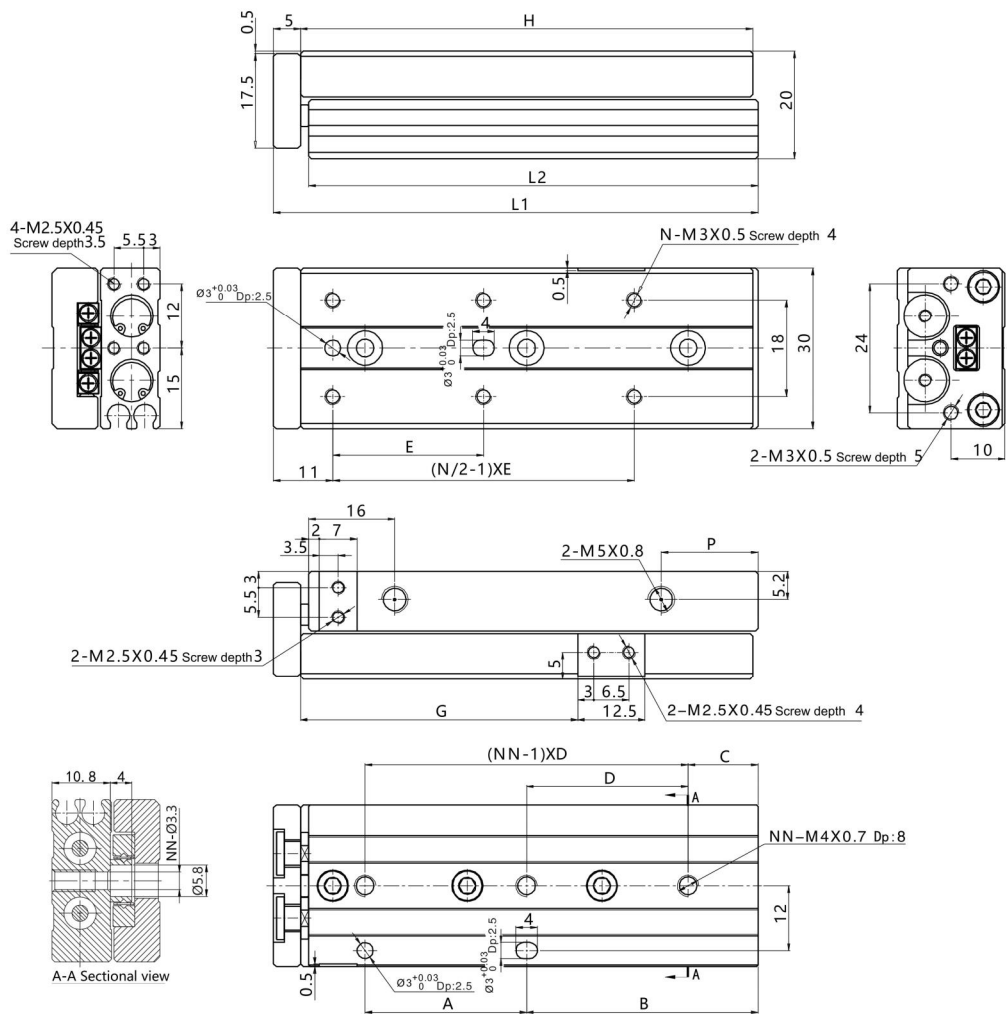
5. Make sure to connect the compact cylinder to speed controller at the meter-out side, and the speed of compact cylinder must below 500mm/s.

ELS/ELSL Series Slide Cylinder



Main Dimension

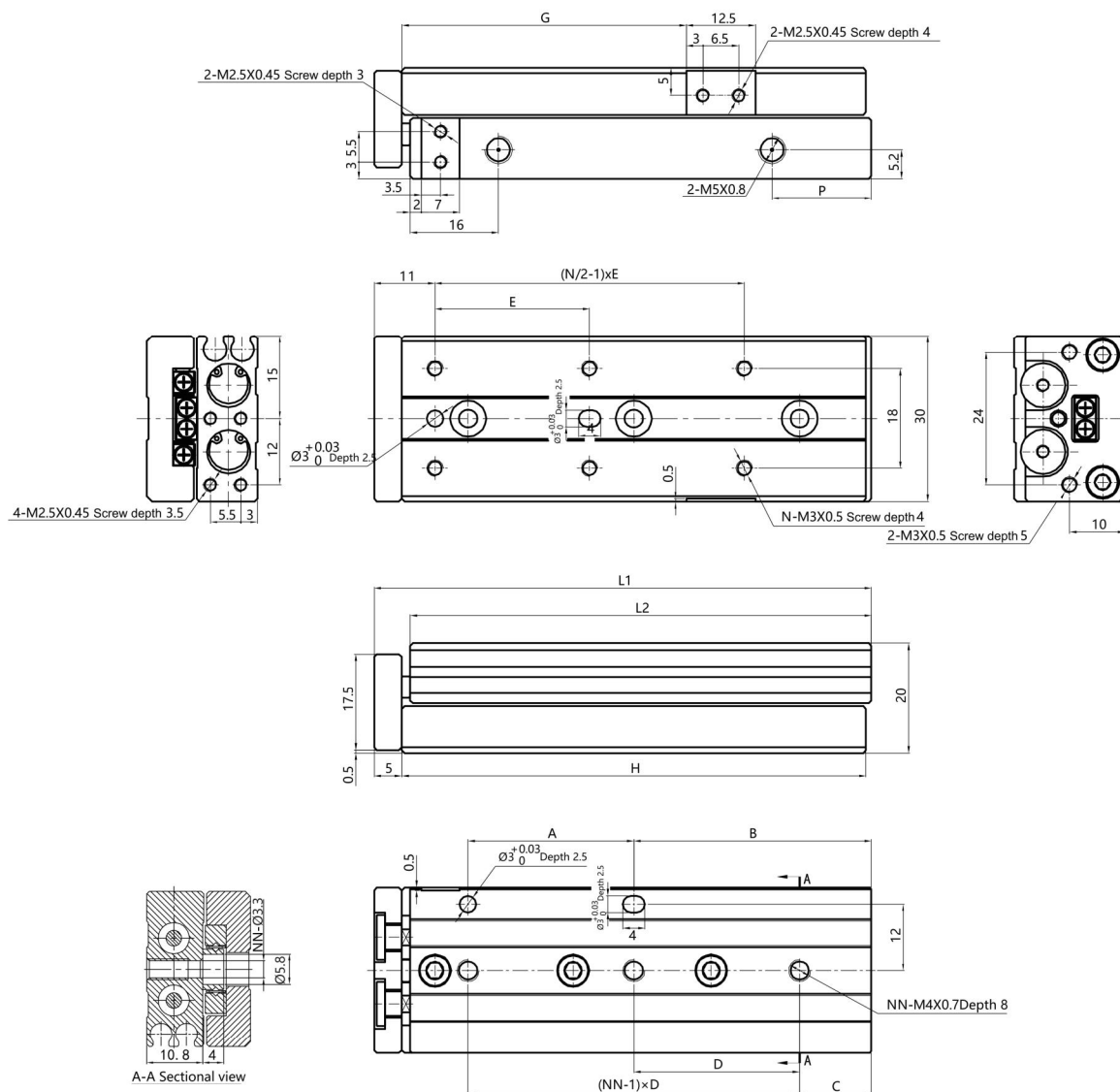
ELS 6



Stroke/Sign	A	B	C	D	E	G	H	P	L1	L2	N	NN
10	20	11	6	25	20	21.5	42	9.5	48	41.5	4	2
20	20	21	6	35	30	31.5	52	9.5	58	51.5	4	2
30	20	31	11	20	20	41.5	62	8	68	61.5	6	3
40	30	43	13	30	28	51.5	84	18	90	83.5	6	3
50	48	41	17	24	38	61.5	100	24	106	99.5	6	4

Main Dimension

ELSL 6



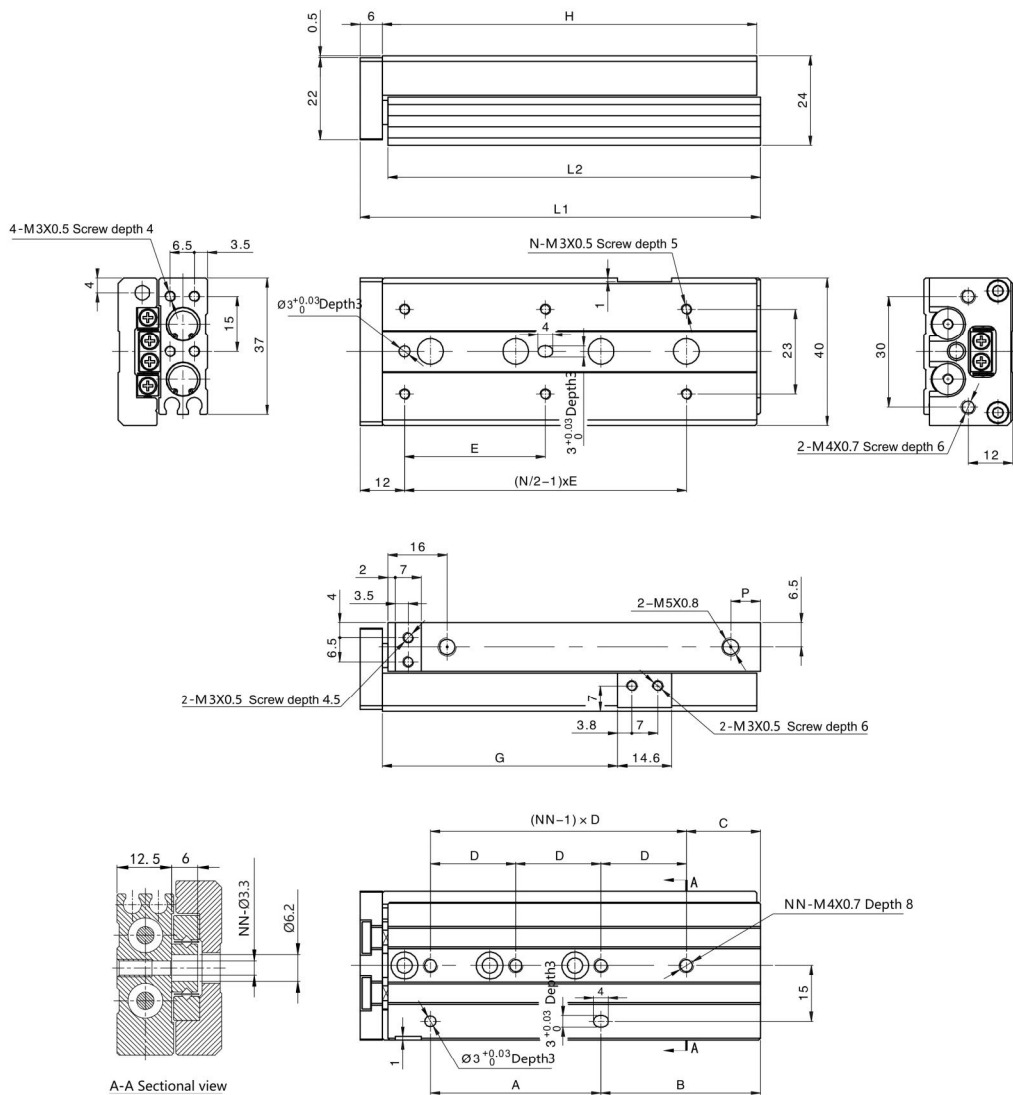
Storke/Sign	A	B	C	D	E	G	H	P	L1	L2	N	NN
10	20	11	6	25	20	21.5	42	9.5	48	41.5	4	2
20	20	21	6	35	30	31.5	52	9.5	58	51.5	4	2
30	20	31	11	20	20	41.5	62	8	68	61.5	6	3
40	30	43	13	30	28	51.5	84	18	90	83.5	6	3
50	48	41	17	24	38	61.5	100	24	106	99.5	6	4

ELS/ELSL Series Slide Cylinder



Main Dimension

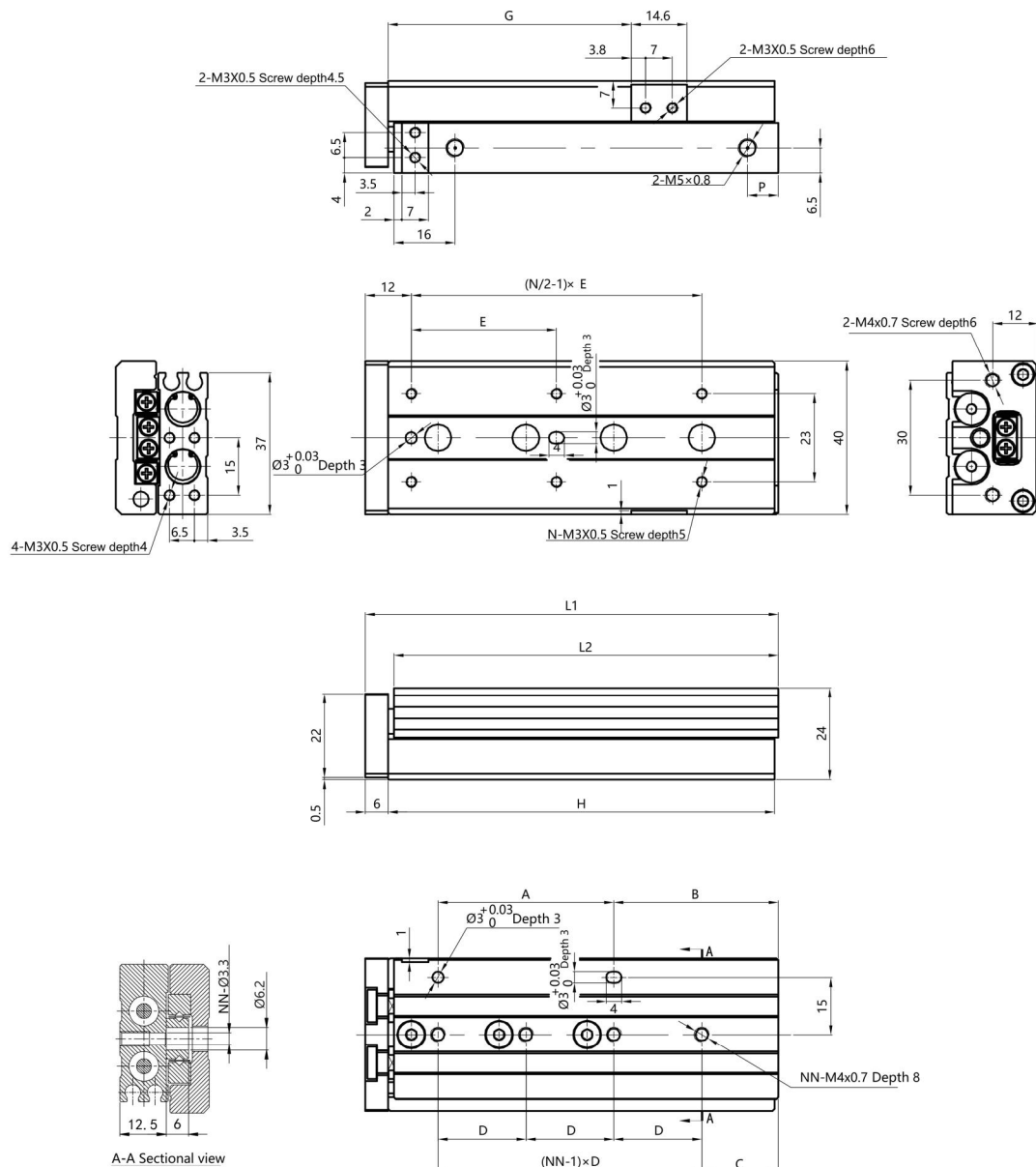
ELS 8



Stroke/Sign	A	B	C	D	E	G	H	P	L1	L2	N	NN
10	20	17	9	28	25	23.5	49	13	56	48.5	4	2
20	30	12	12	30	25	33.5	54	8	61	53.5	4	2
30	20	33	13	20	40	43.5	65	8	72	64.5	4	3
40	28	43	15	28	50	53.5	83	8	90	82.5	4	3
50	46	43	20	23	38	63.5	101	8	108	100.5	6	4
75	56	83	27	28	50	88.5	151	8	158	150.5	6	5

Main Dimension

ELSL 8



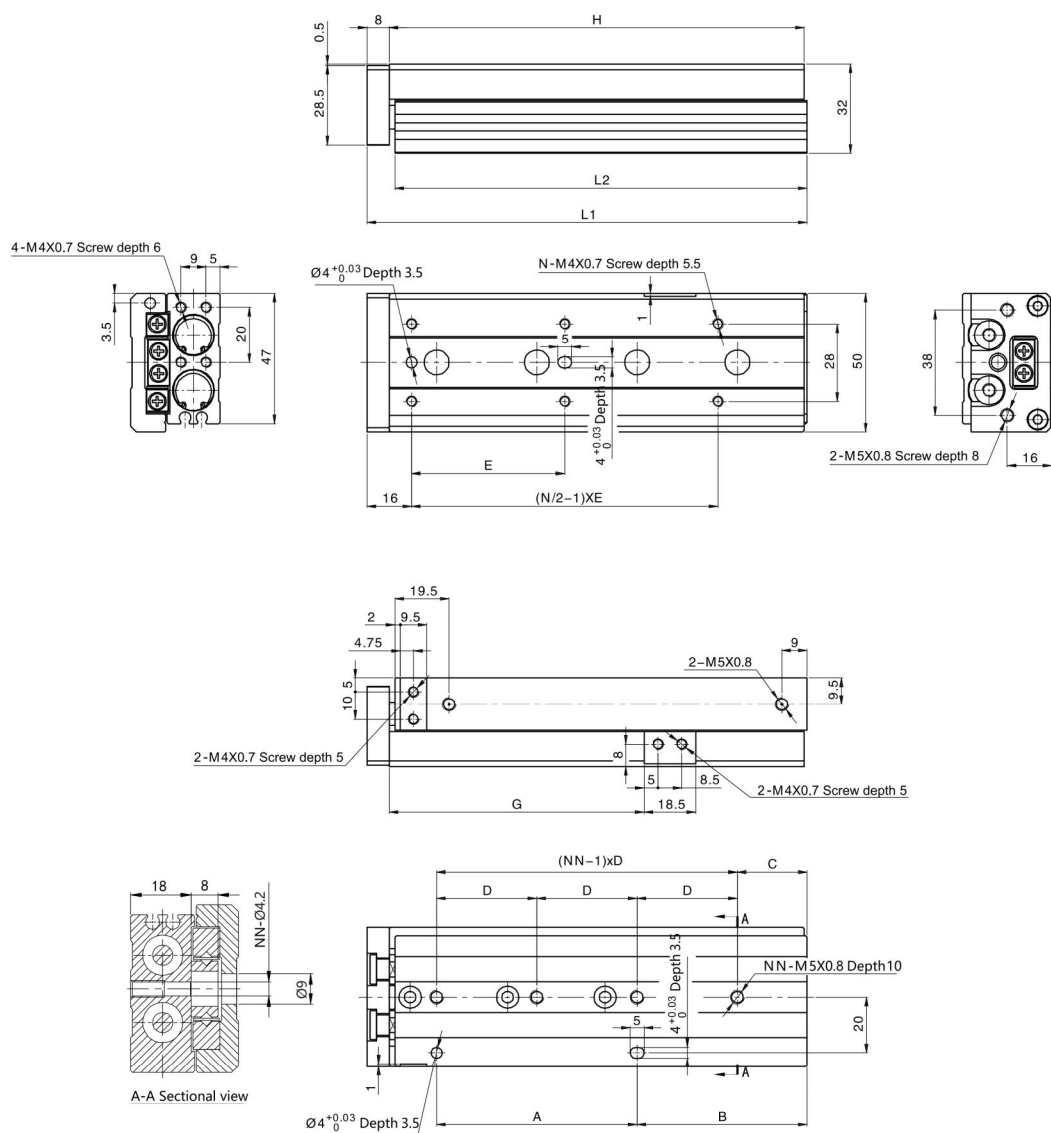
Storke/Sign	A	B	C	D	E	G	H	P	L1	L2	N	NN
10	20	17	9	28	25	23.5	49	13	56	48.5	4	2
20	30	12	12	30	25	33.5	54	8	61	53.5	4	2
30	20	33	13	20	40	43.5	65	8	72	64.5	4	3
40	28	43	15	28	50	53.5	83	8	90	82.5	4	3
50	46	43	20	23	38	63.5	101	8	108	100.5	6	4
75	56	83	27	28	50	88.5	151	8	158	150.5	6	5

ELS/ELSL Series Slide Cylinder



Main Dimension

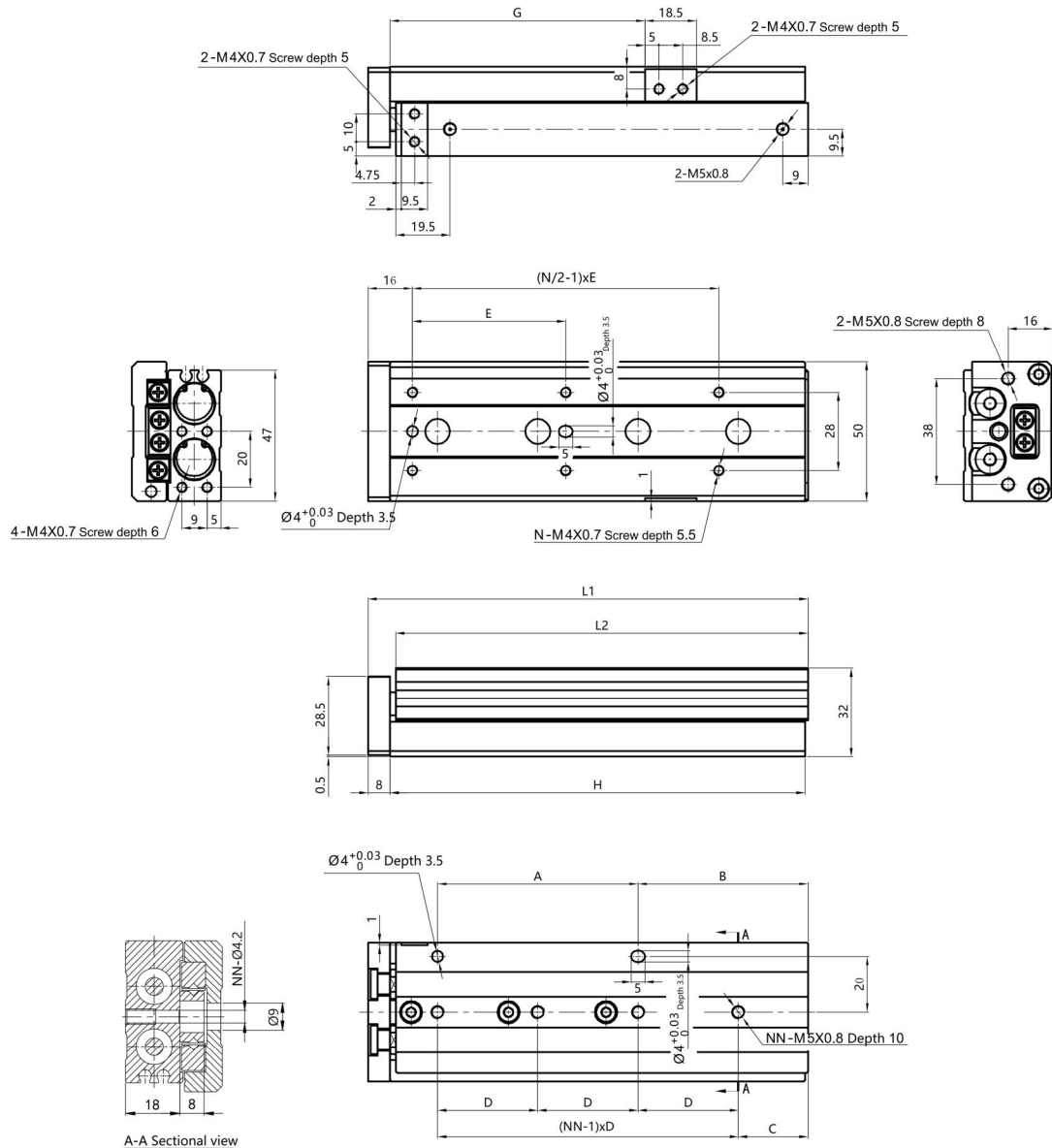
ELS 12



Stroke/Sign	A	B	C	D	E	G	H	L1	L2	N	NN
10	40	15	15	40	35	26.5	71	80	70	4	2
20	40	15	15	40	35	36.5	71	80	70	4	2
30	40	15	15	40	35	46.5	71	80	70	4	2
40	25	42	17	25	50	56.5	83	92	82	4	3
50	36	51	15	36	35	66.5	103	112	102	6	3
75	72	61	25	36	55	91.5	149	158	148	6	4
100	76	111	35	38	65	116.5	203	212	202	6	5

○ Main Dimension

ELSL 12



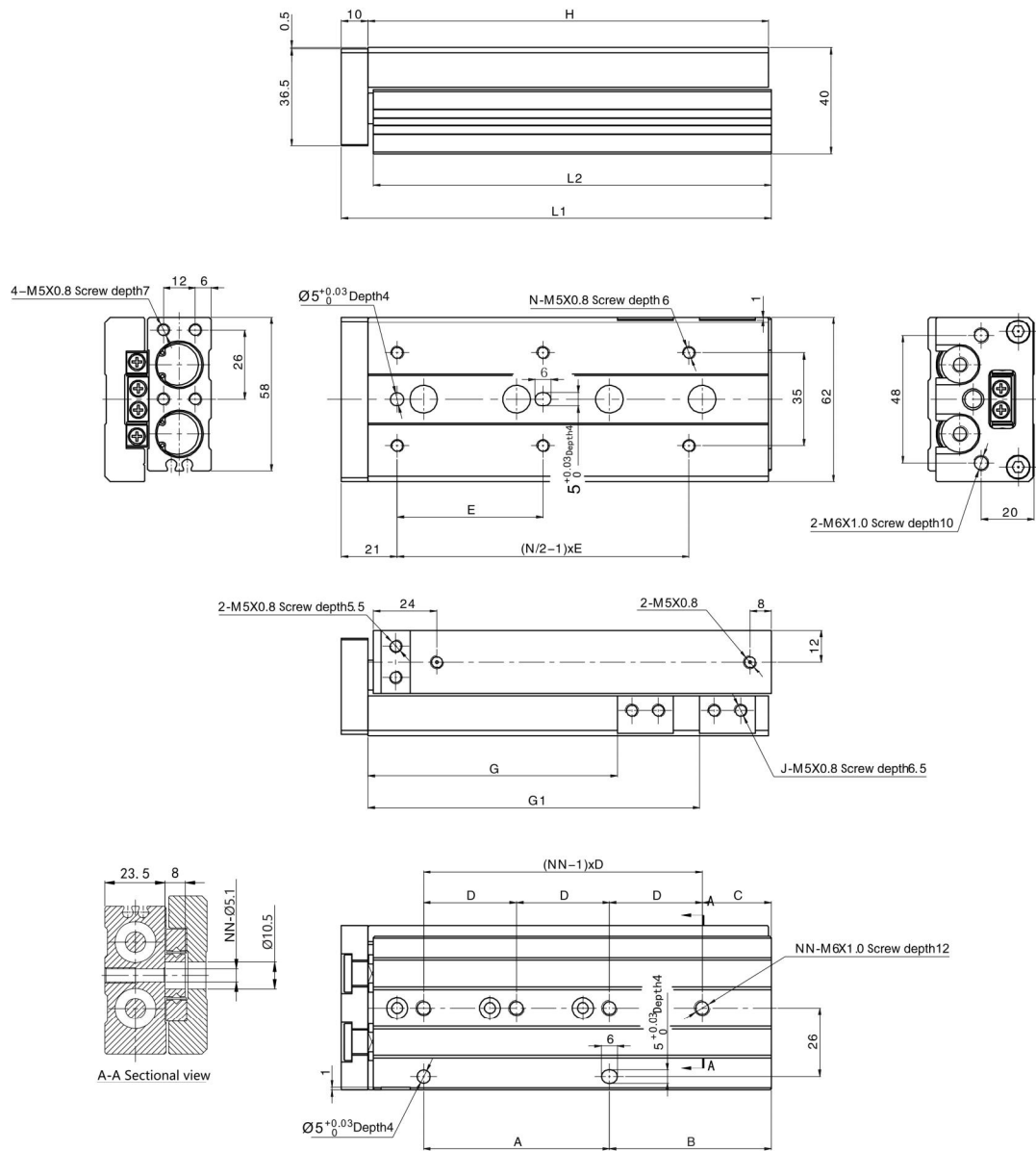
Storke/Sign	A	B	C	D	E	G	H	L1	L2	N	NN
10	40	15	15	40	35	26.5	71	80	70	4	2
20	40	15	15	40	35	36.5	71	80	70	4	2
30	40	15	15	40	35	46.5	71	80	70	4	2
40	25	42	17	25	50	56.5	83	92	82	4	3
50	36	51	15	36	35	66.5	103	112	102	6	3
75	72	61	25	36	55	91.5	149	158	148	6	4
100	76	111	35	36	65	116.5	203	212	202	6	5

ELS/ELSL Series Slide Cylinder



Main Dimension

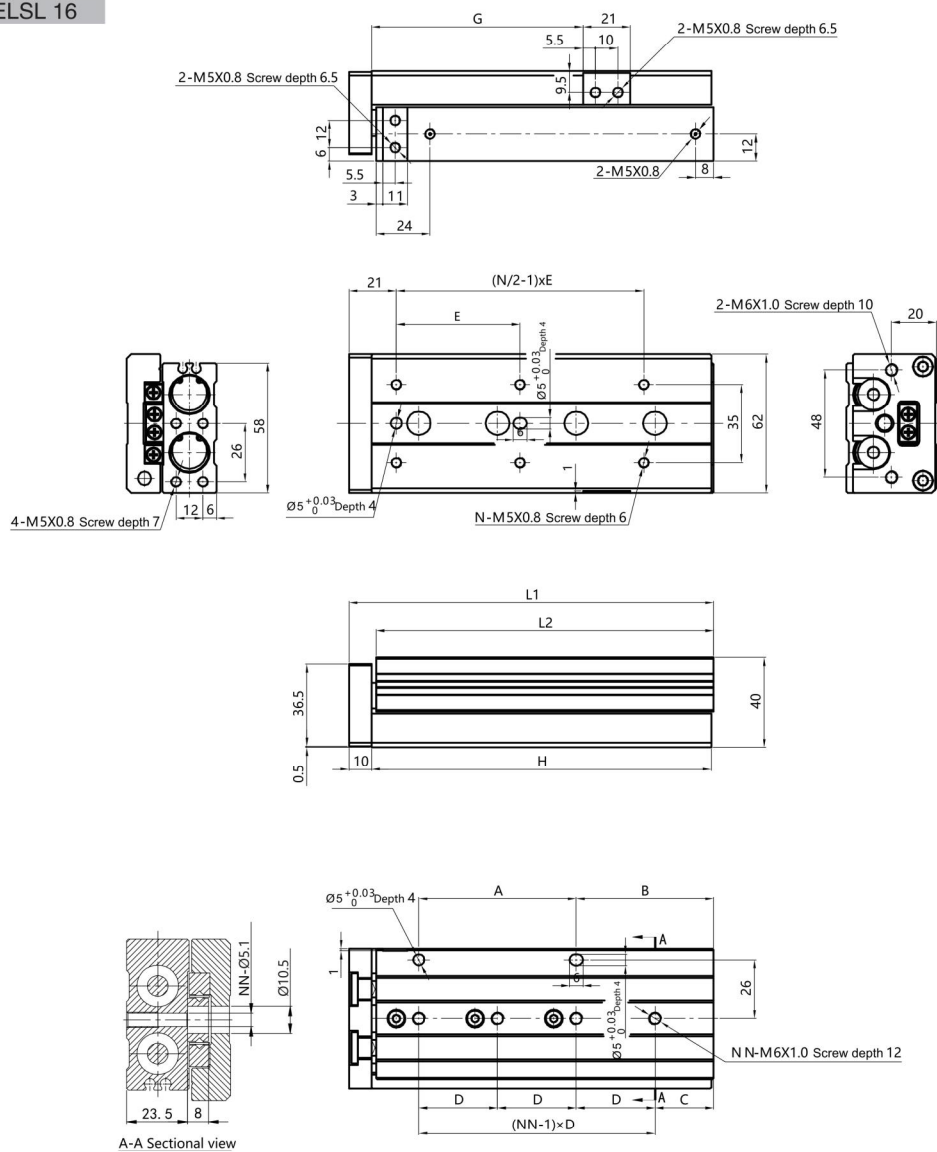
ELS 16



Stroke/Sign	A	B	C	D	E	G	H	L1	L2	N	NN
10	40	16	16	40	35	29	76	87	75	4	2
20	40	16	16	40	35	39	76	87	75	4	2
30	40	16	16	40	35	49	76	87	75	4	2
40	50	16	16	50	40	59	86	97	85	4	2
50	30	51	21	30	30	69	101	112	100	6	3
75	70	61	26	35	55	94	151	162	150	6	4
100	70	109	39	35	65	119	199	210	198	6	5
125	70	159	19	35	70	144	249	260	248	8	7

Main Dimension

ELSL 16



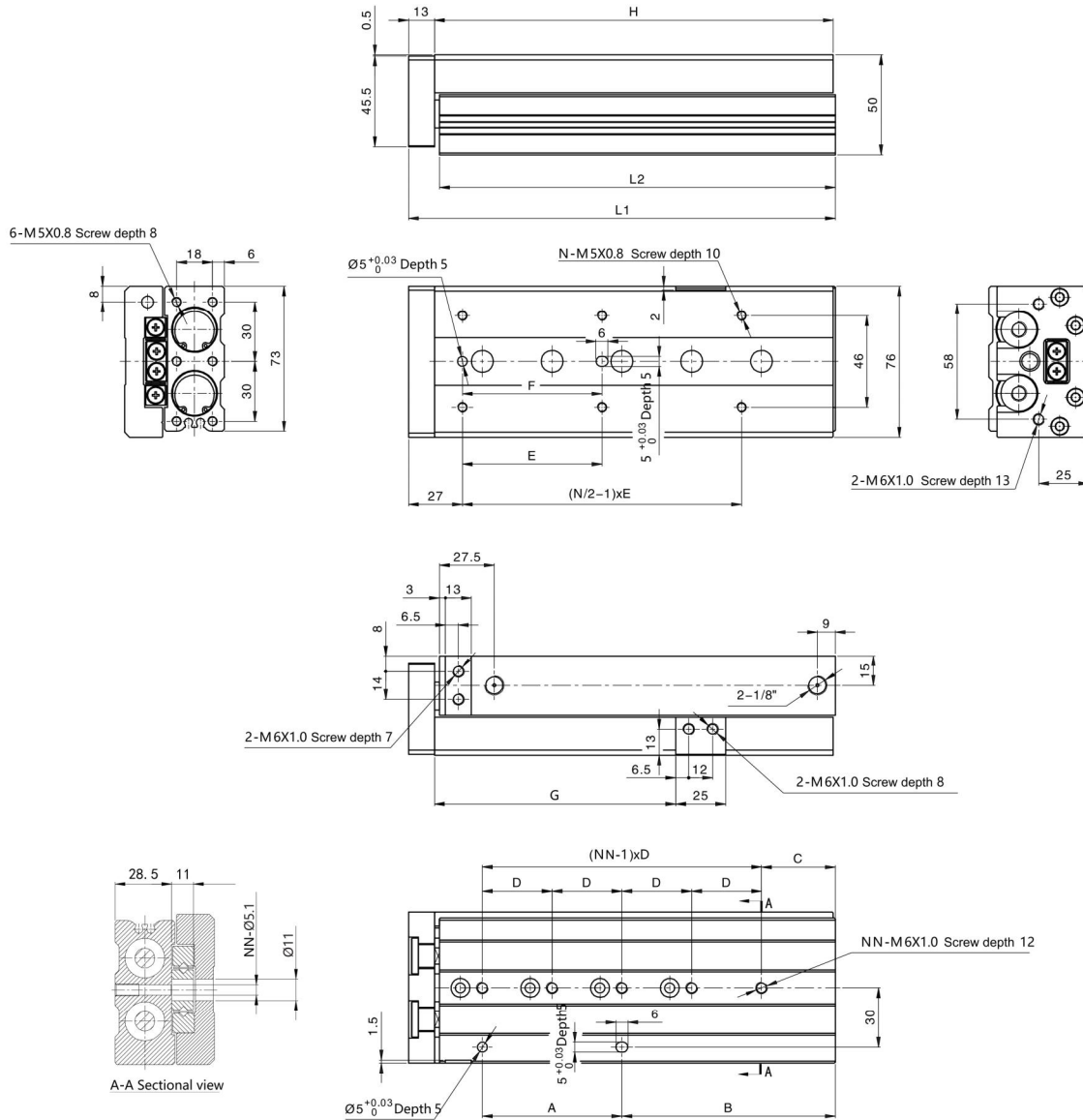
Storke/Sign	A	B	C	D	E	G	H	L1	L2	N	NN
10	40	16	16	40	35	29	76	87	75	4	2
20	40	16	16	40	35	39	76	87	75	4	2
30	40	16	16	40	35	49	76	87	75	4	2
40	50	16	16	50	40	59	86	97	85	4	2
50	30	51	21	30	30	69	101	112	100	6	3
75	70	61	26	35	55	94	151	162	150	6	4
100	70	109	39	35	65	119	199	210	198	6	5
125	70	159	19	35	70	144	249	260	248	8	7

ELS/ELSL Series Slide Cylinder



Main Dimension

ELS 20



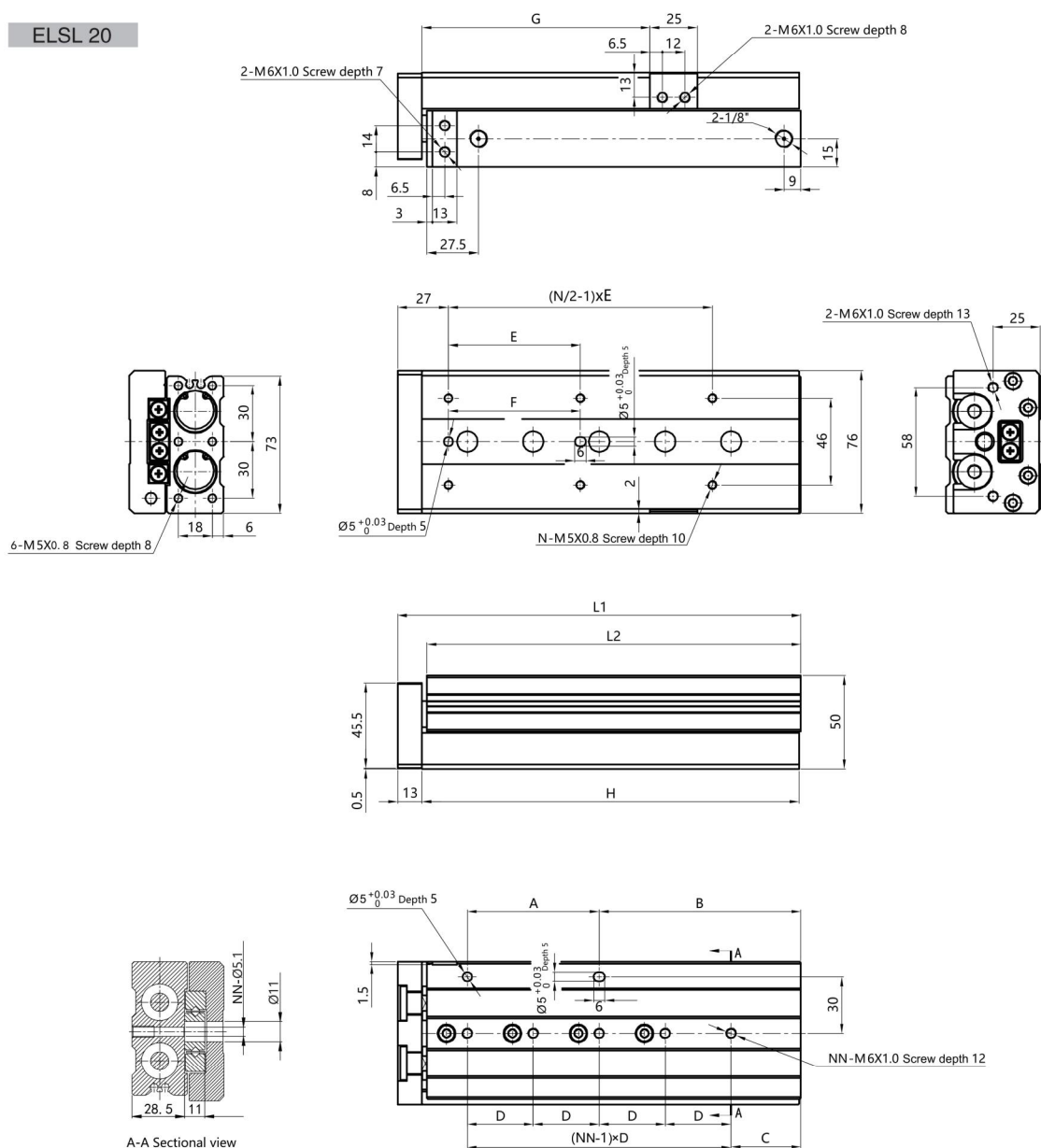
Storke/Sign	A	B	C	D	E	F	G	H	L1	L2	N	NN
10	35	25	15	45	50	40	31	83	97	81.5	4	2
20	35	25	15	45	50	40	41	83	97	81.5	4	2
30	35	25	15	45	50	40	51	83	97	81.5	4	2
40	35	35	15	55	60	50	61	93	107	91.5	4	2
50	35	50	15	35	35	35	71	108	122	106.5	6	3
75	70	54	19	35	60	60	96	147	161	145.5	6	4
100	70	107	37	35	70	70	121	200	214	198.5	6	5
125	76	155	41	38	70	70	146	254	268	252.5	8	6
150	88	195	19	44	80	80	171	306	320	304.5	8	7

ELS/ELSL Series Slide Cylinder



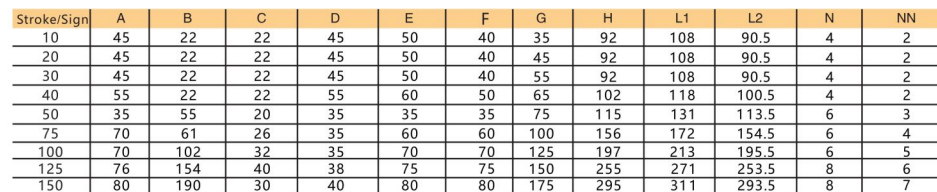
Main Dimension

ELSL 20



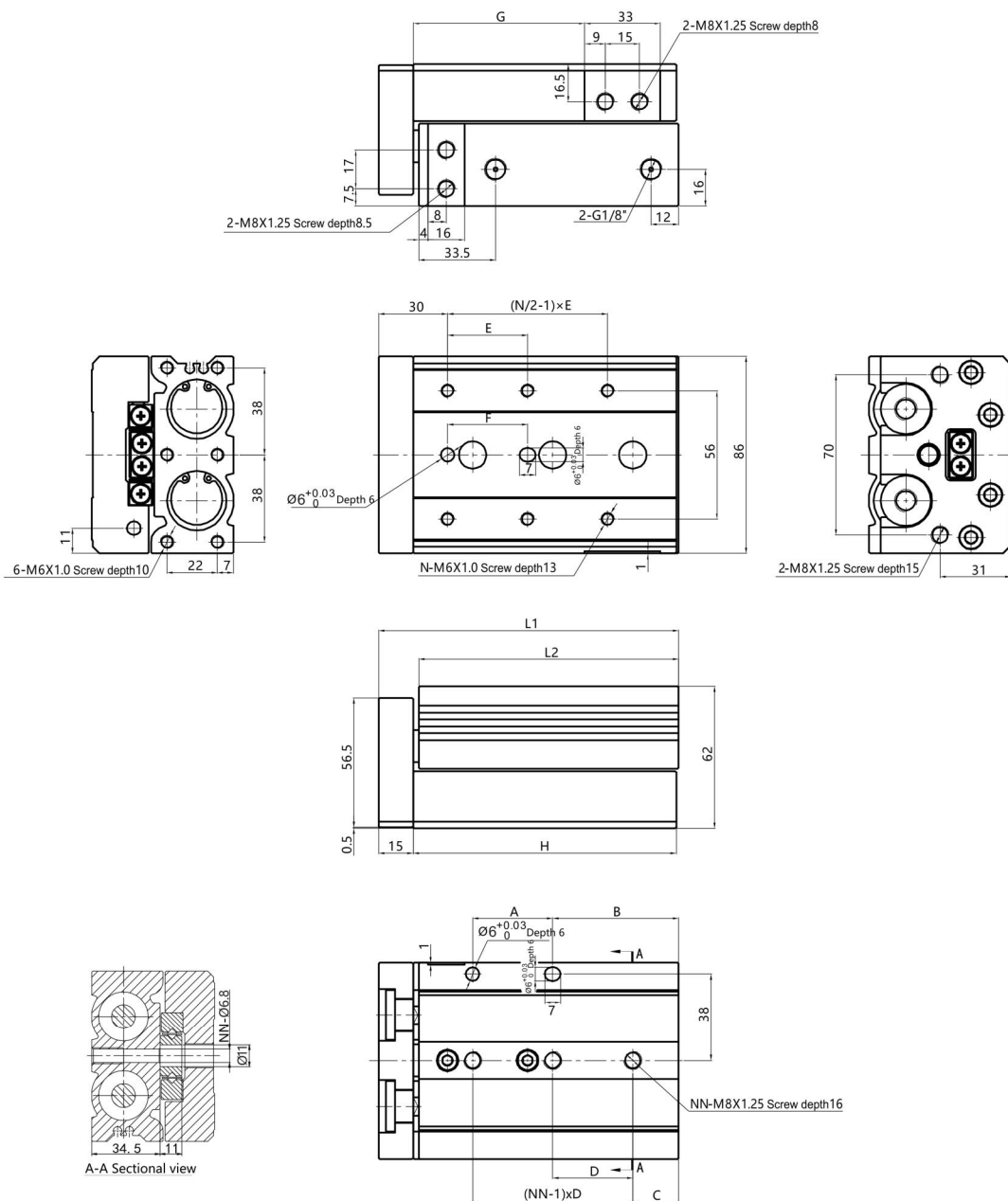
Storke/Sign	A	B	C	D	E	F	G	H	L1	L2	N	NN
10	35	25	15	45	50	40	31	83	97	81.5	4	2
20	35	25	15	45	50	40	41	83	97	81.5	4	2
30	35	25	15	45	50	40	51	83	97	81.5	4	2
40	35	35	15	55	60	50	61	93	107	91.5	4	2
50	35	50	15	35	35	35	71	108	122	106.5	6	3
75	70	54	19	35	60	60	96	147	161	145.5	6	4
100	70	107	37	35	70	70	121	200	214	198.5	6	5
125	76	155	41	38	70	70	146	254	268	252.5	8	6
150	88	195	19	44	80	80	171	306	320	304.5	8	7

ELS 25



○ Main Dimension

ELSL 25



Stroke/Sign	A	B	C	D	E	F	G	H	L1	L2	N	NN
10	45	22	22	45	50	40	35	92	108	90.5	4	2
20	45	22	22	45	50	40	45	92	108	90.5	4	2
30	45	22	22	45	50	40	55	92	108	90.5	4	2
40	55	22	22	55	60	50	65	102	118	100.5	4	2
50	35	55	20	35	35	35	75	115	131	113.5	6	3
75	70	61	26	35	60	60	100	156	172	154.5	6	4
100	70	102	32	35	70	70	125	197	213	195.5	6	5
125	76	154	40	38	75	75	150	255	271	253.5	8	6
150	80	190	30	40	80	80	175	295	311	293.5	8	7

ELS/ELSL Series Slide Cylinder



How to Order(for accessories)

Series No.	Type	Bore	Accessory Type
FJ	ELS: Standard type ELSL: Symmetric type	6 8 12 16 20 25	A: With stroke adjusting screws at both ends AS: With stroke adjusting screws at extension end AF: With stroke adjusting screws at retraction end B: With shock absorbers both end BS: With shock absorber at extension end BF: With shock absorber at retraction end

Optional Accessories

		Accessory type/Bore	6	8	12	16	20	25
ELS	Both end	A (stroke adjusting screw)	FJ-ELS6A	FJ-ELS8A	FJ-ELS12A	FJ-ELS16A	FJ-ELS20A	FJ-ELS25A
		B (shock absorber)		FJ-ELS8B	FJ-ELS12B	FJ-ELS16B	FJ-ELS20B	FJ-ELS25B
	Extension end	AS (stroke adjusting screw)	FJ-ELS6AS	FJ-ELS8AS	FJ-ELS12AS	FJ-ELS16AS	FJ-ELS20AS	FJ-ELS25AS
		BS (shock absorber)		FJ-ELS8BS	FJ-ELS12BS	FJ-ELS16BS	FJ-ELS20BS	FJ-ELS25BS
	Retraction end	AF (stroke adjusting screw)	FJ-ELS6AF	FJ-ELS8AF	FJ-ELS12AF	FJ-ELS16AF	FJ-ELS20AF	FJ-ELS25AF
		BF (shock absorber)		FJ-ELS8BF	FJ-ELS12BF	FJ-ELS16BF	FJ-ELS20BF	FJ-ELS25BF

		Accessory type/Bore	6	8	12	16	20	25
ELSL	Both end	A (stroke adjusting screw)	FJ-ELSL6A	FJ-ELSL8A	FJ-ELSL12A	FJ-ELSL16A	FJ-ELSL20A	FJ-ELSL25A
		B (shock absorber)		FJ-ELSL8B	FJ-ELSL12B	FJ-ELSL16B	FJ-ELSL20B	FJ-ELSL25B
	Extension end	AS (stroke adjusting screw)	FJ-ELS6AS	FJ-ELS8AS	FJ-ELS12AS	FJ-ELS16AS	FJ-ELS20AS	FJ-ELS25AS
		BS (shock absorber)		FJ-ELS8BS	FJ-ELS12BS	FJ-ELS16BS	FJ-ELS20BS	FJ-ELS25BS
	Retraction end	AF (stroke adjusting screw)	FJ-ELSL6AF	FJ-ELSL8AF	FJ-ELSL12AF	FJ-ELSL16AF	FJ-ELSL20AF	FJ-ELSL25AF
		BF (shock absorber)		FJ-ELSL8BF	FJ-ELSL12BF	FJ-ELSL16BF	FJ-ELSL20BF	FJ-ELSL25BF

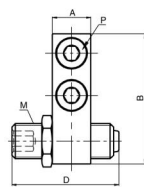
Note: A=AS+AF; B=BS+BF

BS(backward shock absorber) is different for Standard type and Symmetric type

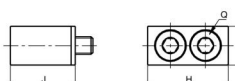
Dimension for Accessories

AS (With stroke adjusting screws at extension end)

Accessory on the body



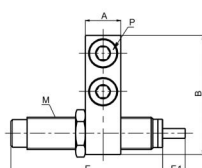
Accessory on the slide



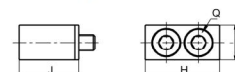
Bore/Sign	Adjustable stroke range	A	B	C	D	E	F	M	P	H	I	J	Q
6	10	7	19	10.5	22.5	8	3	M6X1.0	M2.5 Length 10	12.5	6.5	10.5	M2.5 Length 10
8	10	7	23	15.5	27.5	11	4	M8X1.0	M3 Length 16	16.6	7	15.5	M3 Length 16
12	10	9.5	31	16	27.5	11	4	M8X1.0	M4 Length 14	20.5	9	15	M4 Length 14
16	10	11	37	19	30.5	12.7	5	M10X1.0	M5 Length 18	23	11	18.5	M5 Length 18
20	10	13	47	26	34	19	6	M14X1.5	M6 Length 25	27	12	25.5	M6 Length 25
25	10	16	54	24	34	19	6	M14X1.5	M8 Length 20	33	17	23	M8 Length 20

BS (With shock absorber at extension end)

Accessory on the body



Accessory on the slide

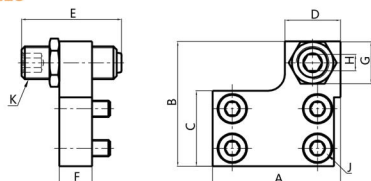


Bore/Sign	A	B	C	D	E	E1	F	M	P	H	I	J	Q
8	7	23	14	15.5	38	6	11	M8X1.0	M3 Length 16	16.6	7	15.5	M3 Length 16
12	9.5	31	14.5	16	38	6	11	M8X1.0	M4 Length 14	20.5	9	15	M4 Length 14
16	11	37	17.5	19	43	7	12.7	M10X1.0	M5 Length 18	23	11	18.5	M5 Length 18
20	13	47	23.5	26	76	12	19	M14X1.5	M6 Length 25	27	12	25.5	M6 Length 25
25	16	54	22	24	76	12	19	M14X1.5	M8 Length 20	33	17	23	M8 Length 20

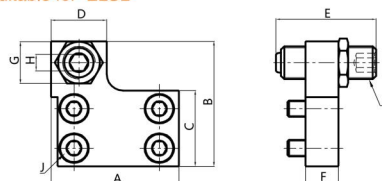
◎ Main Dimension

AF (With stroke adjusting screws at retraction end)

Suitable for ELS



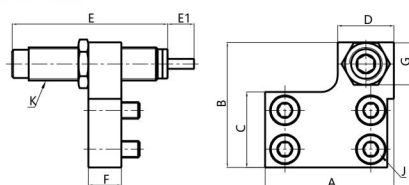
Suitable for ELSL



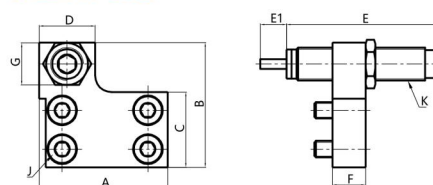
Bore/Sign	Adjustable stroke range	A	B	C	D	E	F	G	H	J	K
6	10	18	19	11.2	8	22.5	6	8	3	M2.5 Length 6	M6X1.0
8	10	25	23.2	13.2	15	27.5	8	11	4	M3 Length 8	M8X1.0
12	10	32	31	18.5	13	27.5	8	11	4	M4 Length 8	M8X1.0
16	10	39	38	23	17	30.5	10	12.7	5	M5 Length 10	M10X1.0
20	10	48	48	29	20.5	34	12	19	6	M5 Length 12	M14X1.5
25	10	51	53.5	34	25	34	15	19	6	M6 Length 16	M14X1.5

BF (With shock absorber at retraction end)

Suitable for ELS



Suitable for ELSL



Bore/Sign	A	B	C	D	E	E1	F	G	J	K
8	25	23.2	13.2	15	38	6	8	11	M3 Length 8	M8X1.0
12	32	31	18.5	13	38	6	8	11	M4 Length 8	M8X1.0
16	39	38	23	17	43	8	10	12.7	M5 Length 10	M10X1.0
20	48	48	29	20.5	76	12	12	19	M5 Length 12	M14X1.5
25	51	53.5	34	25	76	12	15	19	M6 Length 16	M14X1.5