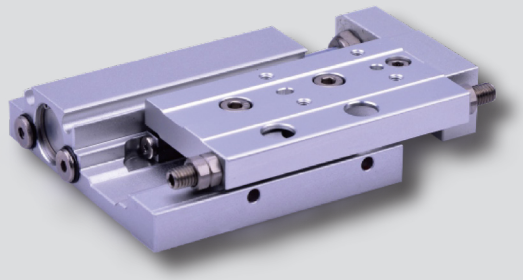
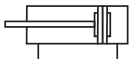
KTXF series



Symbol



Features

- Significantly lower height by integrated design of cross roller guide and cylinder
- Excellent straightness and anti-rotation for precise environments
- The cylinder can be mounted from two directions
- Piping can be connected from two directions

How to order

KTXF ① 20 ② - 30 ③ S ④

① Seires

KTXF	Low profile table cylinder

② Bore size

8	8mm	16	16mm
12	12mm	20	20mm

③ Stroke

Bore size	Standard stroke	Max. Stroke
8	10 20 30	30
12	10 20 30 40 50	50
16	10 20 30 40 50 75 100	100
20	10 20 30 40 50 75 100	100

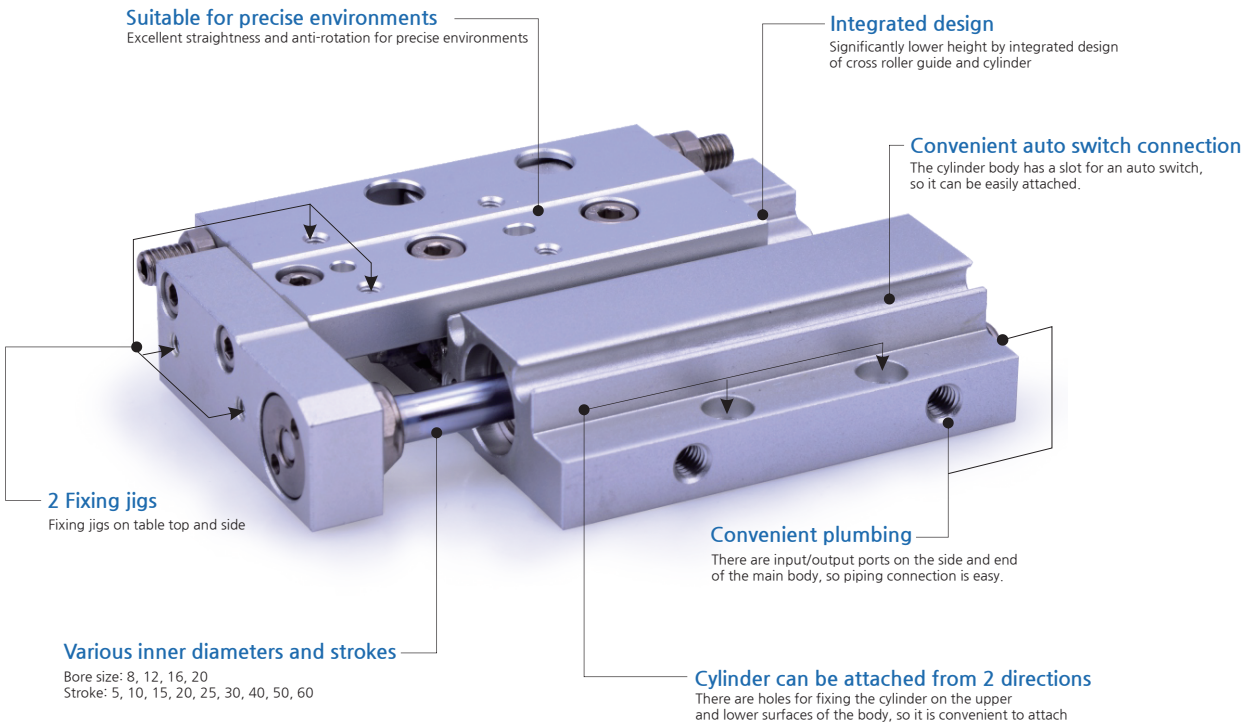
④ Magnet

S	Built-in magnet

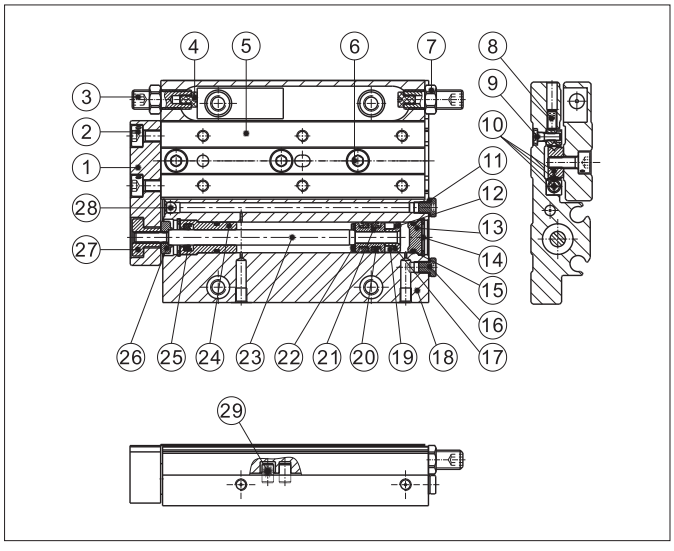
Specifications

Item / Bore size(㎜)	8	12	16	20
Acting type	Double acting type			
Fluid	Air			
Operation pressure	0.15~0.7MPa			
Proof pressure	1.2MPa			
Temperature	-20 ~ +70℃			
Operating piston speed	50~500mm/s			
Stroke length tolerance	$^{+1.0}_{0}$			
Cushion type	Bumper			
Auto switch applied model	D-A93K, D-F9NK, D-F9PK, D-F9BK			
Port size	M3x0.8	M5x0.8		

Compendium

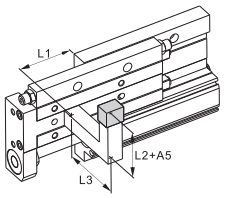


Structure

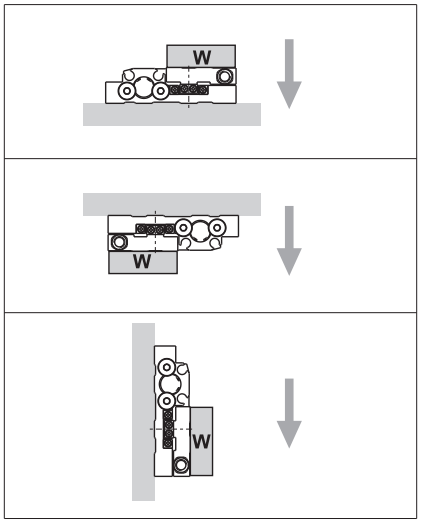


No.	Parts	Material	No.	Parts	Material
1	Fixing plate	Aluminum alloy	16	Plug screw	Carbon steel
2	Hex head screw	Alloy steel	17	Magnetic pad	NBR
3	Adjustment screw	Alloy steel	18	Body	Aluminum alloy
4	bumper	TPU	19	Magnet	Sintered neodymium magnet
5	Slide table	Aluminum alloy	20	Piston packing	NBR
6	Hex head screw	Alloy steel	21	Piston	Brass
7	Hex nut	Carbon steel	22	bumper	TPU
8	Socket set screw	Alloy steel	23	Rod	Stainless steel
9	Hex head screw	Alloy steel	24	Front cover	Aluminum alloy
10	Roller assembly		25	Spool o-ring	NBR
11	Seal	Wear-resistant material	26	Floating joint2	Free cutting steel
12	Magnet holder	Brass	27	Floating joint1	Free cutting steel
13	Back cover	Aluminum alloy	28	Ø3 Metal ball	Stainless steel
14	C Clip	Spring steel	29	Pin	Stainless steel
15	O-ring	NBR			

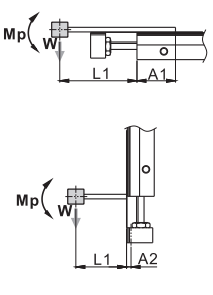
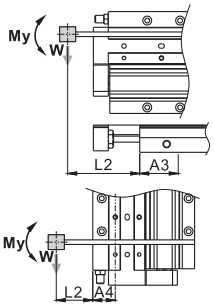
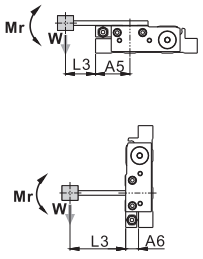
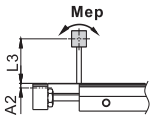
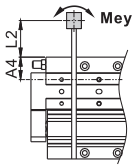
How to select a model

Selection order	Calculations and data	Selection example
1. Terms of use		
Installation environment Consider the shape of the workpiece and the conditions of use.	1. Usage model (inner diameter, stroke) 2. Type of cushion (bumper, shock absorber) 3. Mounting position of workpiece (top, bottom) 4. Mounting direction (vertical, horizontal) 5. Average speed Va (mm m/s) 6. Load mass W(kg) Pic1 7. Overhang Ln(mm) Pic2	 1. Use model: KTXF20-50 2. Cushion type: Bumper 3. Workpiece attachment location: Attached to the table top 4. Mounting Direction: Horizontal 5. Average speed Va=300(mm/s) 6. Load mass W=0.5(kg) 7. Overhang L1=10mm L2=30mm L3=30mm
2. Kinetic energy		
1.Calculate the kinetic energy E(J) of the load. 2.Find the allowable kinetic energy Ea (J). 3.Check that the kinetic energy of the load does not exceed the allowable kinetic energy: E≤Ea	$E=W\times(V/1000)^2/2$ collision speed V=1.4(correction factor (reference value))xVa Ea=K×Emax Work installation coefficient K: Pic3 Max. allowable kinetic energy Emax: Tab1 kinetic energy (E)≦ allowable kinetic energy(Ea)	$E=0.5\times(420/1000)^2/2=0.044$ V=1.4×300=420 Ea=1×0.16=0.16 Available with E=0.044≦0.16
3. Load factor		
3-1 Load factor of load mass Find the allowable load mass Wa (kg). Note) In the case of vertical work, it is not necessary to review this load factor. (Set α1=0) Find the load factor α1 of the load mass.	Wa=K×β×Wmax Work installation coefficient K: Pic3 Allowable load mass factor β: Graph1 Max. allowable load mass Wmax: Tab2 α1=W/Wa	Wa=1×1×4=4 K=1 β=1 Wmax=4 α1=0.5/4=0.125
3-2 Load factor of static moment Find the static moment M (N·m). Find the allowable static moment Ma (N m). Find the static moment load factor α2.	M=W×9.8(Ln+An)/1000 Moment center position distance correction value An: Tab3 Ma=K×χ×Mmax Work installation coefficient K: Pic3 Allowable moment factor χ: Graph2 Max. allowable moment Mmax: Tab4 α2=M/Ma	**Yawing moment My** My=0.5x9.8(10+11)/1000=0.11 A3=11 May=1×1×9.14=9.14 Mymax=9.14 K=1 χ=1 α2=0.11/9.14=0.012
		Rolling moment Mr Mr=0.5x9.8(30+17)/1000=0.23 A6=17 Mar=9.14(Same number as May) α'2=0.23/9.14=0.025
3-3 Load factor of dynamic moment Find the dynamic moment Me(N·m). Find the allowable dynamic moment Mea (N m). Find the dynamic moment load factor α3.	Me=(We×9.8(Ln+An)/1000)/3 Impact equivalent mass We=δ×W×V δ: buffer coefficient Polyurethane bumper (standard)= 4/100 Moment center position distance correction value An: Tab3 Mea=K·χ·Mmax Work installation coefficient K: Pic3 Allowable moment factor χ: Graph2 Max. allowable moment Mmax: Tab4 α3=Me/Mea	**Pitching moment Mep** Mep=(8.4×9.8(30+17)/1000)/3 =1.3 We=4/100×0.5×420=8.4 A2=17 Meap=1×0.7×9.14=6.40 K=1 χ=0.7 Mpmax=9.14 α3=1.3/6.40=0.20
		Yawing moment Mey Mey=(8.4×9.8(30+34)/1000)/3 =1.3 We=8.4 A4=34 Meap=6.4(Same number as Meap) α'3=1.8/6.4=0.28
3-4 Total load factor Available as long as the total load factor does not exceed 1.	Σ αn=α1 + α2 + α3≦1	Σ αn=α1 + α2 + α3 + α'1 + α'2 + α'3 =0.125+0.012+0.025+0.20+0.28=0.642≦1 can be used.

Pic1 Load mass: W(kg)



Pic2 Overhang: Ln(㎜), Moment center position distance correction value: An(㎜)

	Pitch moment	Yaw moment	Roll moment
Static moment			
Dynamic moment			-

※Static Moment: Moment caused by gravity
Dynamic moment: The moment generated by the impact when the stopper collides.

Pic3 Load mass: W(kg)

Slide table installation

K=1

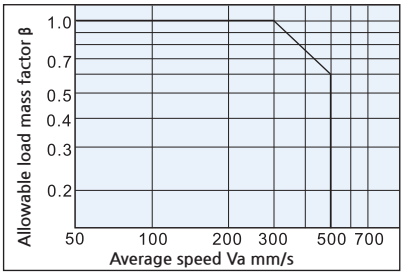
End plate installation

K=0.6

Tab1 Max. allowable kinetic energy:Emax(J)

Model	Emax(Bumper)
KTXF8	0.027
KTXF12	0.055
KTXF16	0.11
KTXF20	0.16

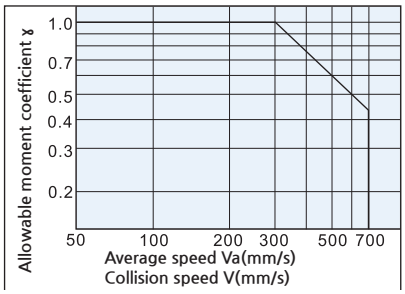
Graph1 Allowable loading mass factor: β



Tab2 Max. allowable loading mass:Wmax(kg)

Model	Wmax
KTXF8	0.6
KTXF12	1
KTXF16	2
KTXF20	4

Graph2 allowable moment coefficient: ɣ



※When calculating the static moment, use the average speed
When calculating the dynamic moment, the average speed is used

Tab3 Moment center position distance correction value: An(mm)

Model	An					
	A_1	A_2	A_3	A_4	A_5	A_6
KTXF8	*6	10	*6	21	21	10
KTXF12	10	11	10	23	23	11
KTXF16	10	12	10	28	28	12
KTXF20	11	17	11	34	34	17

※ Only the KTXF8,10 is 16mm.

Tab4 Max. allowable moment:Mmax(N.m)

Model	Stroke(mm)					
	10	20	30	50	70	100
KTXF8	0.56	0.78	0.98	-	-	-
KTXF12	-	1.65	2.22	3.34	-	-
KTXF16	-	-	3.41	5.69	7.96	-
KTXF20	-	-	6.66	9.14	13.70	18.27

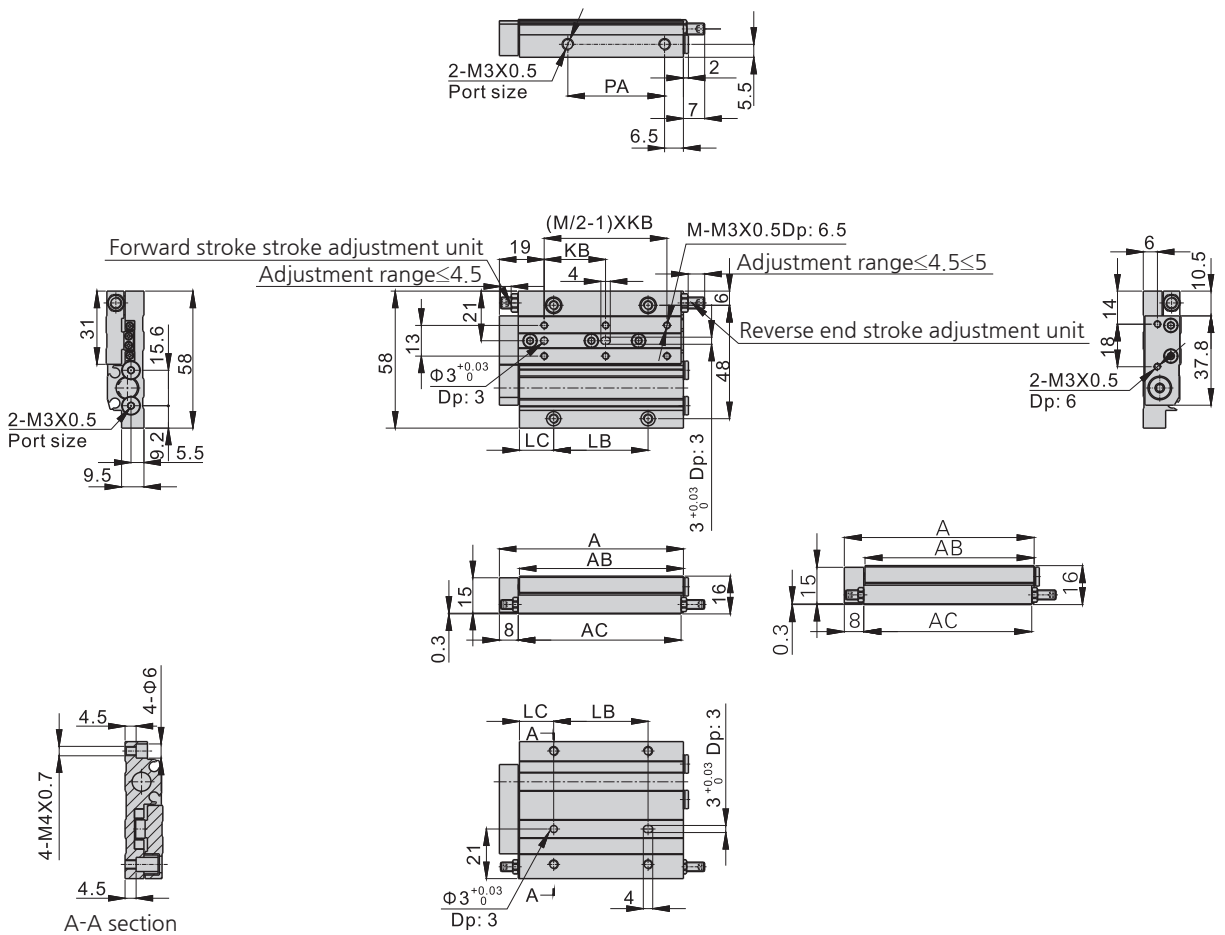
Symbol table

Symbol	Definition	Unit
An(n=1~6)	Moment center position distance correction value	mm
E	Kinetic energy	J
Ea	Allowable kinetic energy	J
Emax	Max. allowable kinetic energy	J
Ln(n=1~3)	Overhang	mm
M(Mp,My,Mr)	Static moment(Pitch, Yaw, Roll)	N.m
Ma(Map,May,Mar)	Allowable static moment(Pitch, Yaw, Roll)	N.m
Me(Mep,Mey)	Dynamic moment(Pitch, Yaw)	N.m
Mea(Meap,Meay)	Allowable dynamic moment(Pitch, Roll)	N.m
Mmax(Mpmax,Mymax,Mrmax)	Max. allowable moment(Pitch, Yaw, Roll)	N.m
V	Collision speed	mm/s

Symbol	Definition	Unit
Va	Average speed	mm/s
W	Load mass	kg
Wa	Allowable load mass	kg
We	Impact equivalent mass	kg
Wmax	Max. allowable load mass	kg
α	Load factor	-
β	Allowable load mass factor	-
ɣ	Allowable moment factor	-
δ	Buffer coefficient	-
K	Work installation coefficient	-

Dimensions

KTXF8

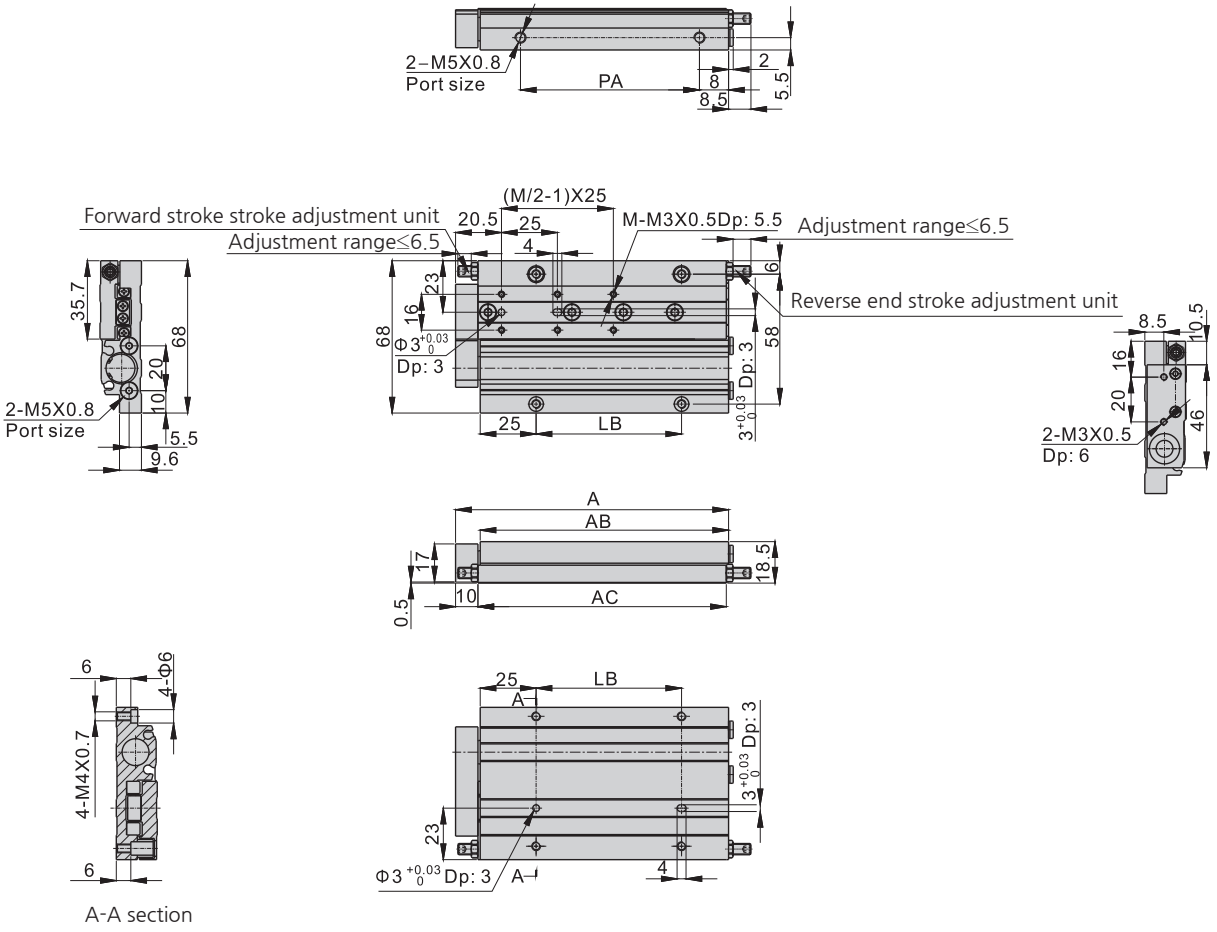


Unit:mm

Stroke	A	AB	AC	KB	LB	LC	M	PA
10	58	49.5	49	20	20	13.5	4	23
20	68	59.5	59	26	26	14.5	4	33
30	78	69.5	69	26	40	14.5	6	43

Dimensions

KTXF12

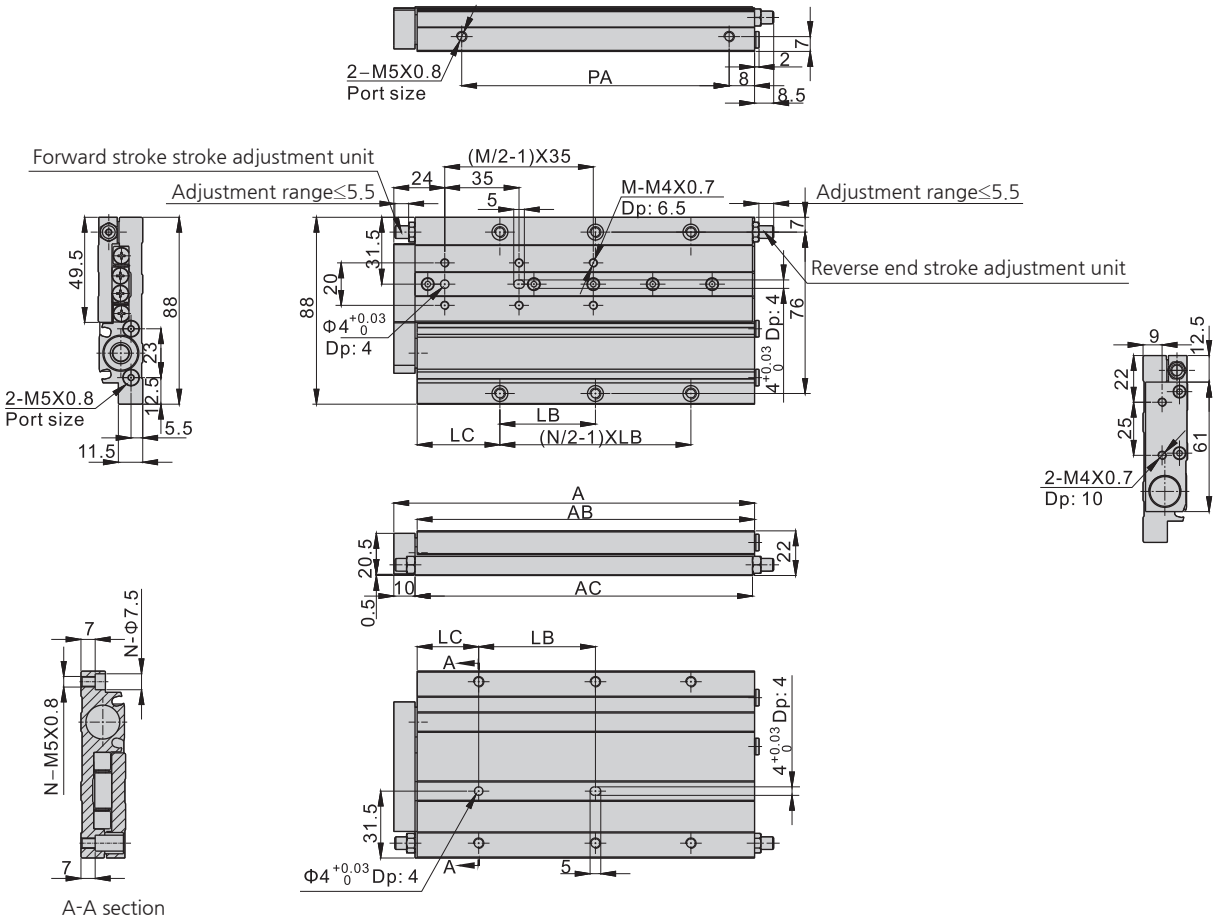


Unit:mm

Stroke	A	AB	AC	LB	M	PA
10	66	55	55	15	4	29
20	76	65	65	22	4	39
30	86	75	75	30	4	49
40	106	95	95	45	6	69
50	116	105	105	65	6	79

Dimensions

KTXF16

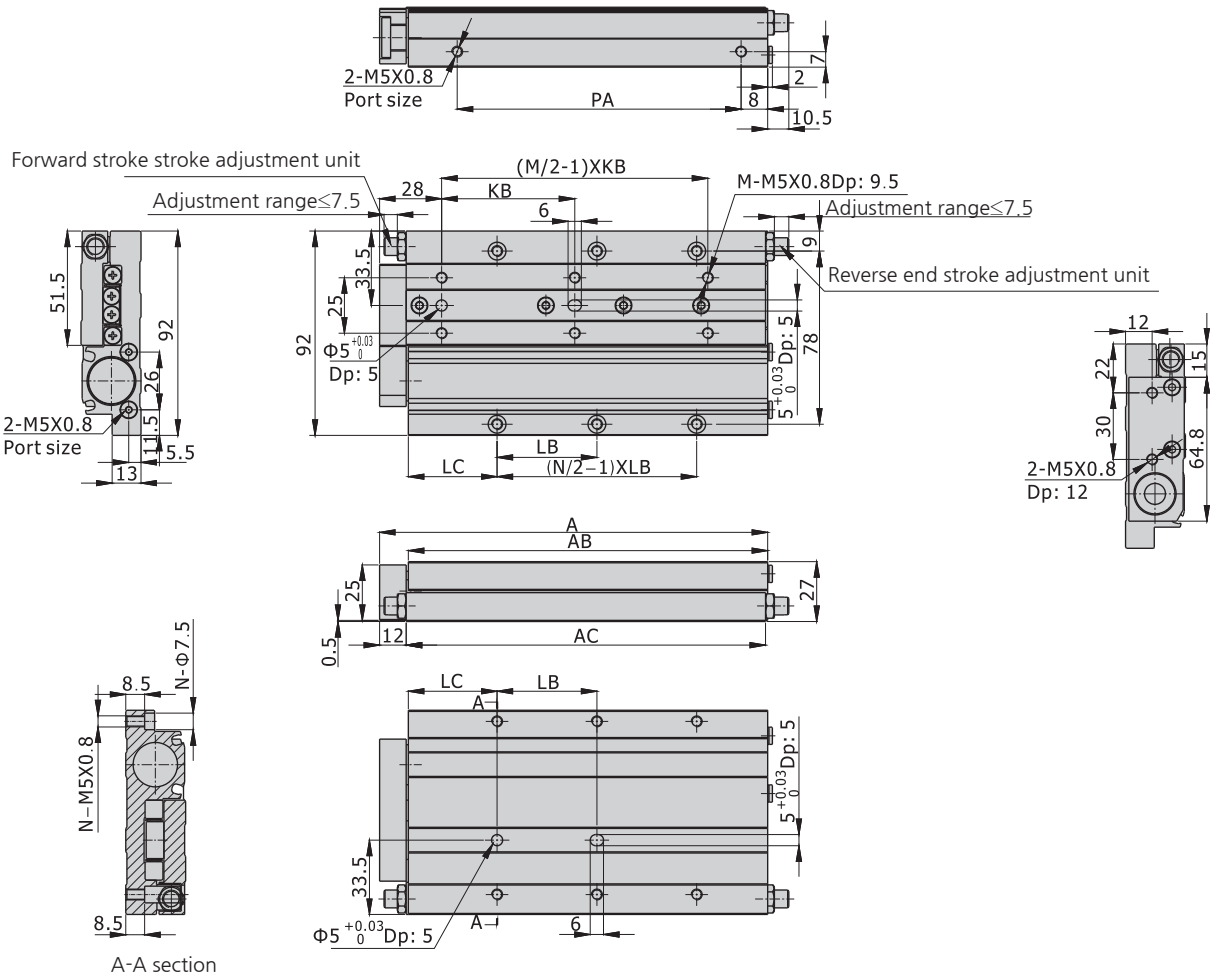


Unit:mm

Stroke	A	AB	AC	LB	LC	M	N	PA
10	74	63	63	25	20	4	4	27
20	84	73	73	25	29	4	4	44
30	94	83	83	25	29	4	4	54
40	114	103	103	45	29	6	4	74
50	124	113	113	45	29	6	4	84
75	159	148	148	45	39	6	6	119
100	184	173	173	45	39	6	6	144

Dimensions

KTXF20



Unit:mm

Stroke	A	AB	AC	LB	LC	M	N	PA
10	74	63	63	25	20	4	4	27
20	84	73	73	25	29	4	4	44
30	94	83	83	25	29	4	4	54
40	114	103	103	45	29	6	4	74
50	124	113	113	45	29	6	4	84
75	159	148	148	45	39	6	6	119
100	184	173	173	45	39	6	6	144