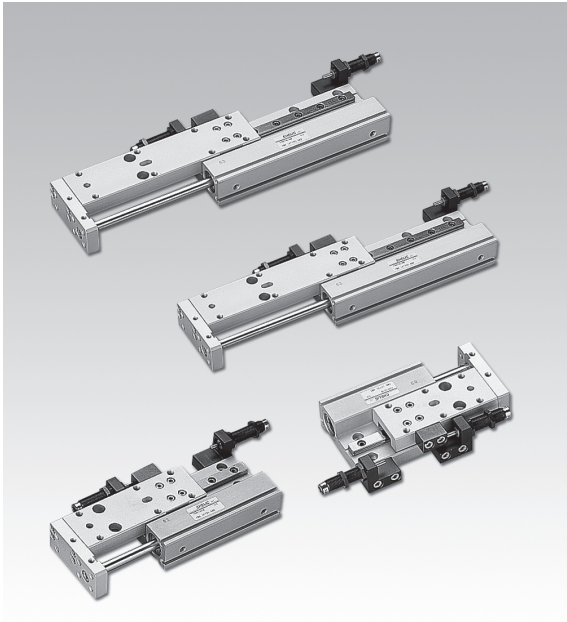


Actuator Unit – FMR(L) series

Slide table

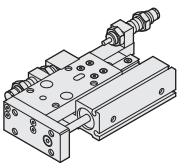
CHELIC



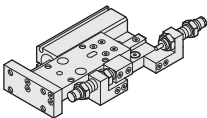
FMR(L) series
Provide CAD external dimension.

Feature:

1. It adopts a precise slide rail guide, low abrasion, fast and accurate driving.
2. It is available for right and left sliding types and adjustable screws device.
3. With cushion device.



FMR series ---- Air slide table ----- $\varnothing 10 \sim \varnothing 32$ ----- P.6-9.11



FML series ---- Air slide table ----- $\varnothing 10 \sim \varnothing 32$ ----- P.6-9.11

MSR(L)2

FMR(L)

MQX

MTX

MDQ2

MDQA

MDX

MDXL

MBX

MGX

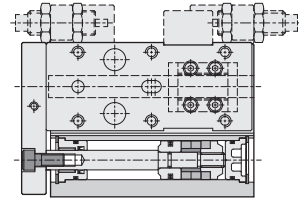
FMR(L) series Air Slide Table

Product features/ Code of order

CHELIC



Internal structure



Theoretical force

Unit: kgf

Bore size mm	Shaft dia. mm	Piston action	Piston area cm ²	Air pressure (kgf/cm ²)						
				1	2	3	4	5	6	7
10	6	Push	0.79	—	1.6	2.4	3.2	4.0	4.7	5.5
		Pull	0.32	—	0.6	1	1.3	1.6	1.9	2.2
16	8	Push	2.01	—	4	6	8	10.1	12.1	14.1
		Pull	1.51	—	3	4.5	6	7.6	9.1	10.6
20	10	Push	3.14	—	6	9	12	15	18	21
		Pull	2.35	—	4.7	7.1	9.4	11.8	14.1	16.5
25	12	Push	4.90	—	9	14	19	24	29	34
		Pull	3.77	—	7.5	11.3	15.1	18.9	22.6	26.3
32	16	Push	8.04	—	16	24	32	40	48	55
		Pull	6.03	—	12.1	18.1	24.2	30.2	36.2	42.2

※ Note: Above are theoretical data for reference. While applying the product, please do consider the frictional resistance and the mechanical efficiency of valve should be added calculation before using. (Above 70% ~ 80%)

Specification

Unit: mm

Item	Bore size	10	16	20	25	32
Action		Double acting				
Fluid		Air				
Pressure range	Kgf/cm ² (kPa)	1.5~9(150~900)			1~9(100~900)	
Max. operating pressure	Kgf/cm ² (kPa)	9.5 (950)				
Ambient and fluid temperature	°C	0 ~ 60				
Piston speed	mm/s	50 ~ 200				
Lubrication		Lubrication free type				
Port size		M5×0.8			Rc 1/8	
Sensing device		With magnet				

Bore size and Stroke

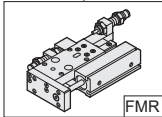
Unit: mm

Bore size	Stroke
Ø10	30, 50
Ø16	30, 50, 75, 100
Ø20	30, 50, 75, 100
Ø25	30, 50, 75, 100
Ø32	30, 50, 75, 100

Code of order

FMR **16** × **50** — **SD** **2** — **B.M** **2**

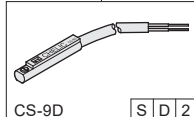
Model Bore size Stroke Sensor switch Shock absorber



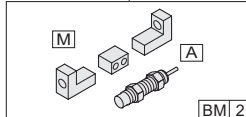
FMR: Air slide table

Ø10 - Ø10 mm
 Ø16 - Ø16 mm
 Ø20 - Ø20 mm
 Ø25 - Ø25 mm
 Ø32 - Ø32 mm

Ø10 - 30 ~ 50 mm
 Ø16 - 30 ~ 100 mm
 Ø20 - 30 ~ 100 mm
 Ø25 - 30 ~ 100 mm
 Ø32 - 30 ~ 100 mm



CS-9D S D 2



M A B BM 2

How to select Shock absorber

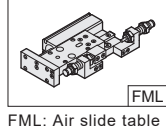
Bore size	Model	Max. absorber
10	SAC - 0806	0.2 kgf·m
16	SAC - 1008	0.4 kgf·m
20	SAC - 1008	0.4 kgf·m
25	SAC - 1210	0.5 kgf·m
32	SAC - 1210	0.5 kgf·m

Expression: Shock absorber is mounted on the side of body so as to absorb the impact force. (Please indicate AM mark number, cushion set M1,M2 is 2pcs for 1 set, impact block M2 is 1 pc).

SD : Sensor switch mark (CS-9D)
SB : Sensor switch mark (CS-9B)
2 : Quantity of sensor switch
 1 = 1 PCS
 2 = 2 PCS
 (option)

A : Shock absorber
B : Metal stopper
M : Shock absorber mounting sets
 1 = 1 PCS
 2 = 2 PCS
 (option)

M The shock absorbers are fixed assembly which includes middle impact block and adjusting screw fixed seat on each right and left side. (When you purchase, the fix seat assembly is whole set.)

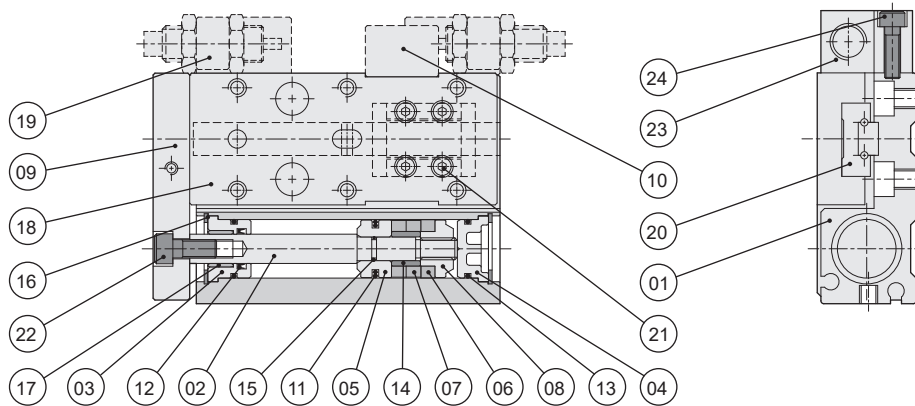


FMR(L) series Air Slide Table

Product features

CHELIC

Internal structure



Components and material list

No.	Item	Material	No.	Item	Material
01	Body	Aluminum alloy	13	Front/ Rear cover O-Ring	NBR
02	Shaft	Carbon steel	14	Magnet sleeve	Copper alloy
03	Front cover	Aluminum alloy	15	Piston O-Ring	NBR
04	Rear cover	Aluminum alloy	16	C clip	Spring steel
05	Piston	Copper alloy	17	Oiless bearing	Teflon
06	Wear ring	Teflon	18	Front slider	Aluminum alloy
07	Magnet	Rare earth metal	19	Shock absorber base	Aluminum alloy
08	Wear ring base	Copper alloy	20	Precision slider	Bearing steel
09	Slider	Aluminum alloy	21	Slider screw	Alloy steel
10	Stopper	Iron	22	Set screw	Alloy steel
11	Piston packing	NBR	23	Shock absorber screw	Alloy steel
12	Shaft packing	NBR	24	Base screw	Alloy steel

MSR(L)2

FMR(L)

MQX

MTX

MDQ2

MDQA

Packing and O-ring material list

Unit: mm

Item	Piston packing	Piston O-ring	Shaft packing	Shaft O-ring
Quantity	1	1	1	4
Bore size				
Ø10	DYP-10	Ø4 × Ø1.0	DYR-6	Ø8 × Ø1.0
Ø16	COP-16	Ø6.3 × Ø0.8	DYR-8K	Ø13.2 × Ø1.5
Ø20	COP-20	Ø8 × Ø1.0	DYR-10SK	Ø17.5 × Ø1.5
Ø25	COP-25	Ø10 × Ø1.0	DYR-12	Ø20.8 × Ø2.0
Ø32	COP-32	Ø13.5 × Ø1.5	DYR-16	Ø28.5 × Ø2.0

MDX

MDXL

MBX

MGX

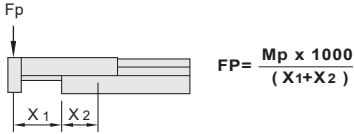
FMR(L) series Air Slide Table

Installation

CHELIC

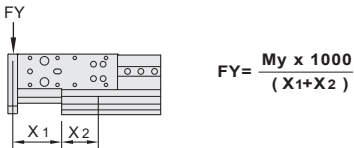
○ The calculation method and Allowed load

- Vertical moment of force



$$F_P = \frac{M_p \times 1000}{(X_1 + X_2)}$$

- Leaning sway moment of force



$$F_Y = \frac{M_y \times 1000}{(X_1 + X_2)}$$

- Roll moment force



$$F_r = \frac{M_r \times 1000}{X}$$

○ Motionless allowable torque

N · m (kgf · m)

Model	Item	Ø10	Ø16	Ø20	Ø25	Ø32
Mp	(Vertical direction)	9.40 [0.96]	9.40 [0.96]	9.40 [0.96]	13.7 [1.40]	29.7 [3.03]
My	(Leaning sway direction)	7.90 [0.81]	7.90 [0.81]	7.90 [0.81]	15.8 [1.61]	29.7 [3.03]
Mr	(Roll direction)	13.7 [1.40]	13.7 [1.40]	13.7 [1.40]	27.4 [2.80]	51.9 [5.30]

Note :

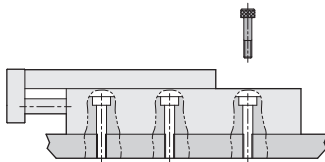
- Please do not exceed load limit. It will affect the precision of precise the slide rail, if it exceeds the limit.
- Avoid hitting with great force.
- Inertial load must be with in 1/10 of the allowable motionless load.

Expression :

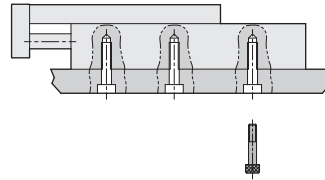
- X1 is the distance from body to point of load.
- X2 is the center distance from body to slide.
- X3 is the center distance from (Fr) point of load to slide rail base.

○ Mounting type

- Top mounting type



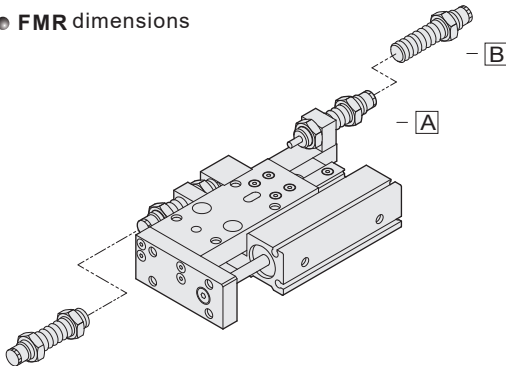
- Base mounting



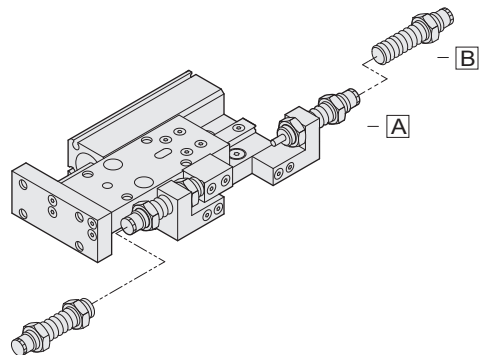
○ Adjustable stroke and with shock absorber

- A with shock absorber
- B with metal stopper

- FMR dimensions



- FML dimensions



FMR(L) series Air Slide Table

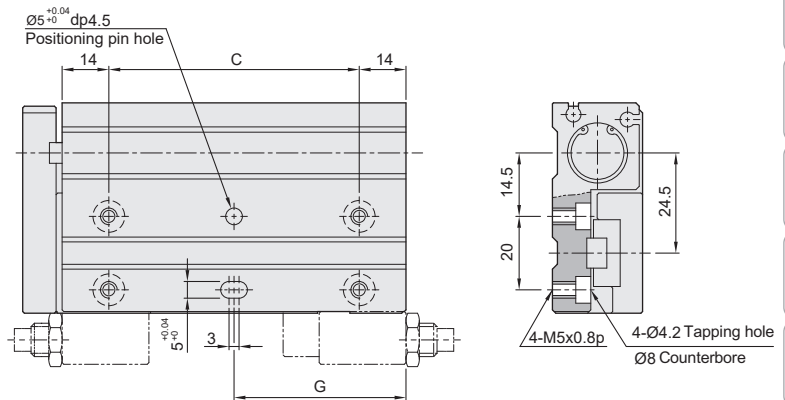
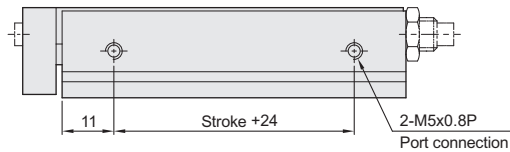
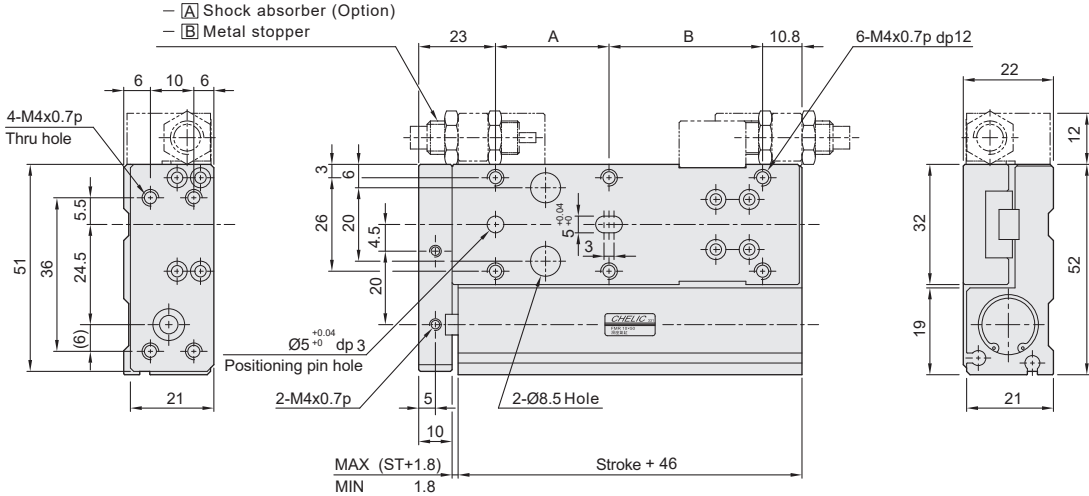
Dimensions - Ø10

CHELIC

☉ FMR(L) 10 ×



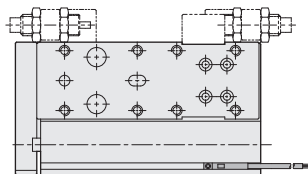
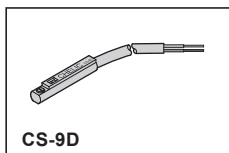
FMR(L) 10 × ST



☉ Dimension

Mark Stroke	A	B	C	G
30	22	32	48	38
50	32	42	68	48

☉ Sensor switch



MSR(L)2

FMR(L)

MQX

MTX

MDQ2

MDQA

MDX

MDXL

MBX

MGX

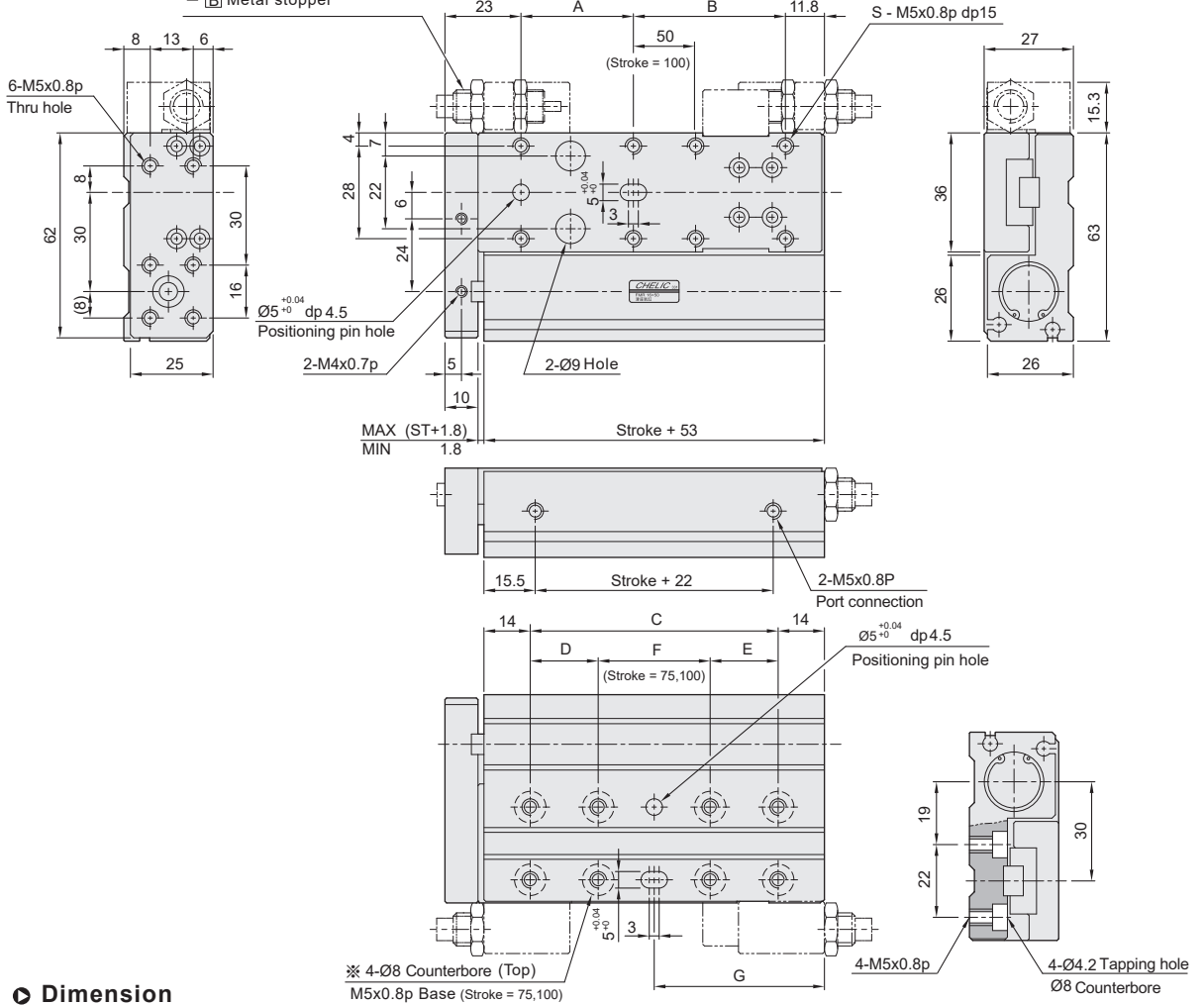
FMR(L) series Air Slide Table

Dimensions - Ø16

CHELIC

◉ FMR(L) 16 ×

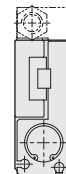
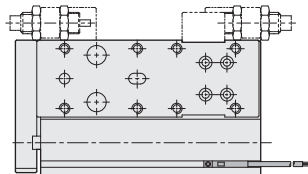
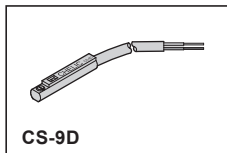
- Shock absorber (Option)
- Metal stopper



◉ Dimension

Mark Stroke	A	B	C	D	E	F	G	S
30	30	30	55	-	-	-	41.5	6
50	50	30	75	-	-	-	51.5	6
75	50	55	100	32	32	36	64	6
100	50	80	125	40	40	45	76.5	8

◉ Sensor switch



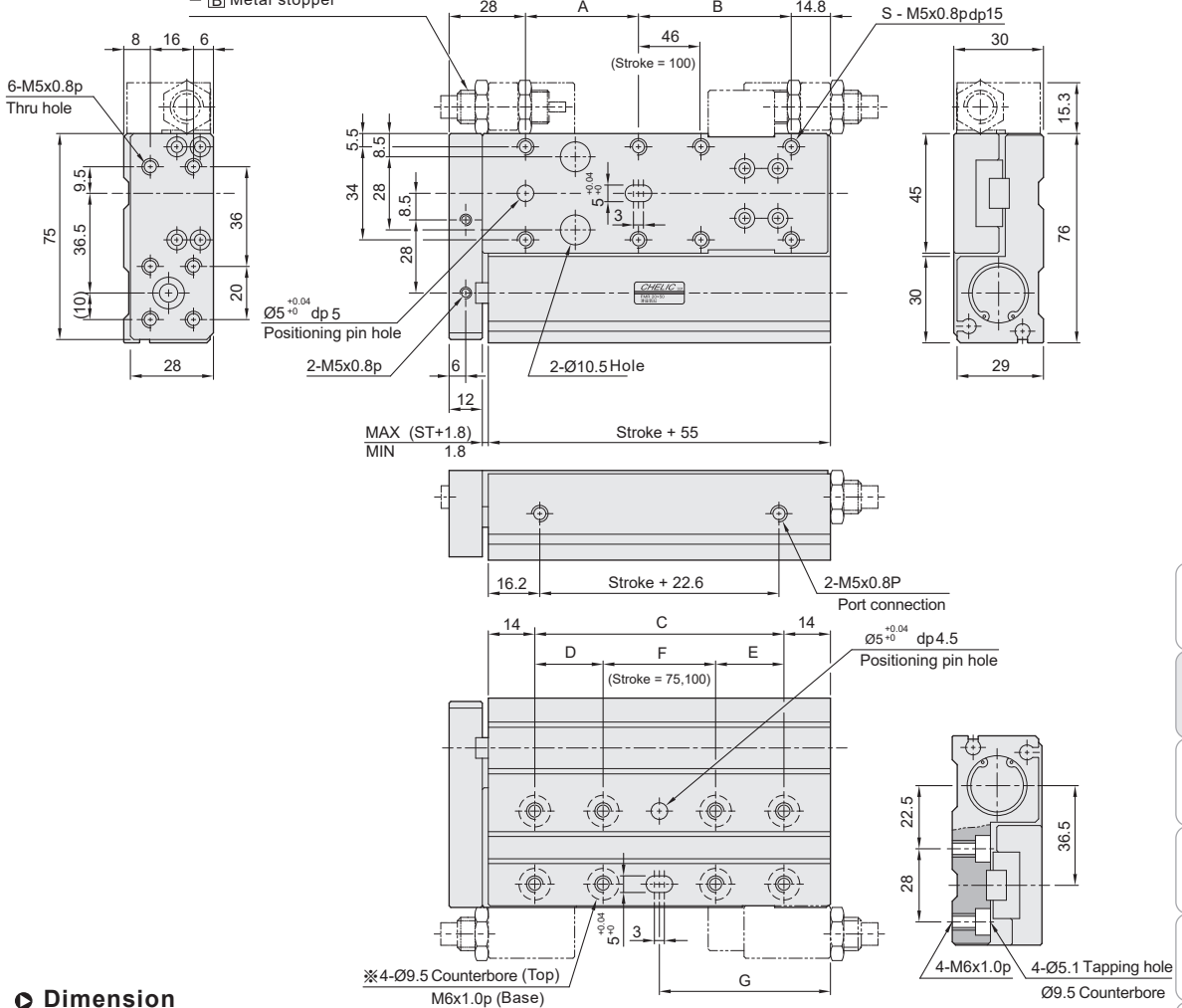
FMR(L) series Air Slide Table

Dimensions - Ø20

CHELIC

◉ FMR(L) 20 ×

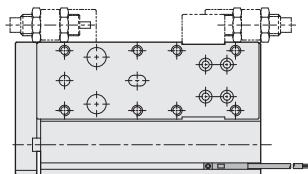
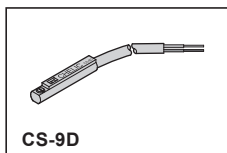
- Shock absorber (Option)
- Metal stopper



◉ Dimension

Mark Stroke	A	B	C	D	E	F	G	S
30	26	30	57	-	-	-	42.5	6
50	50	26	77	-	-	-	52.5	6
75	50	51	102	32	32	38	65	6
100	50	76	127	36	36	55	77.5	8

◉ Sensor switch



MSR(L)2

FMR(L)

MQX

MTX

MDQ2

MDQA

MDX

MDXL

MBX

MGX

FMR(L) series Air Slide Table

Dimensions - Ø25

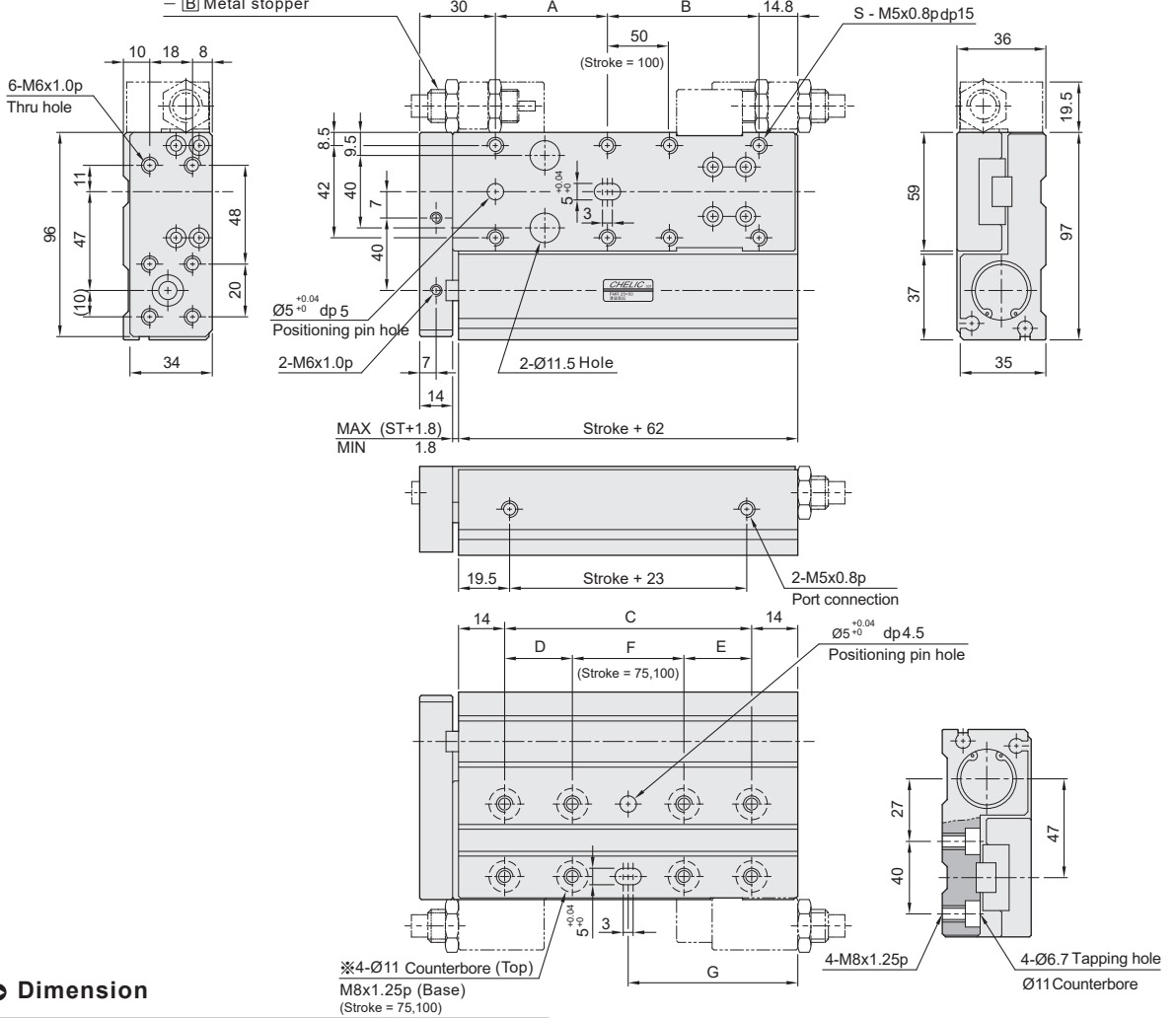
CHELIC

◉ FMR(L) 25 ×



FMR(L) 25 × ST

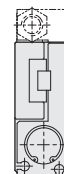
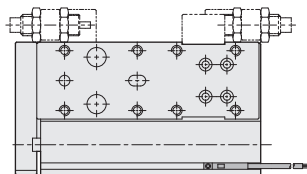
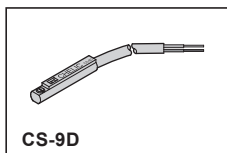
- [A] Shock absorber (Option)
- [B] Metal stopper



◉ Dimension

Mark Stroke	A	B	C	D	E	F	G	S
30	32	31	64	-	-	-	46	6
50	50	33	84	-	-	-	56	6
75	50	58	109	32	32	45	68.5	6
100	50	83	134	32	32	70	81	8

◉ Sensor switch



FMR(L) series Air Slide Table

Dimensions - Ø32

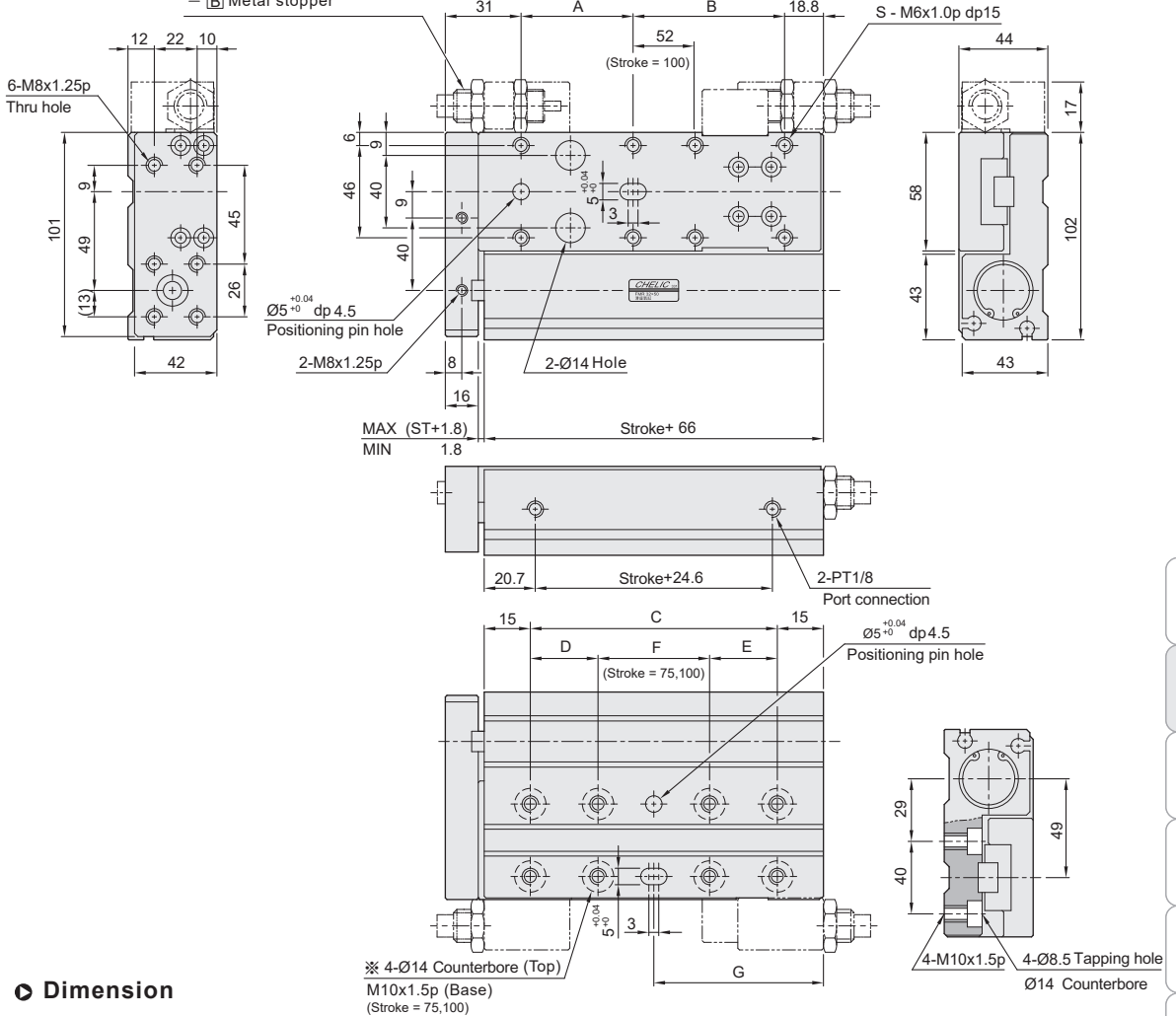
CHELIC

◉ FMR(L) 32 ×

- Shock absorber (Option)
- Metal stopper



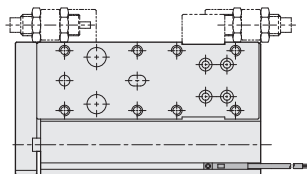
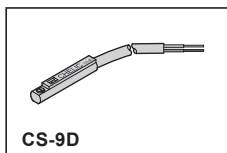
FMR(L) 32 × ST



◉ Dimension

Mark	A	B	C	D	E	F	G	S
30	32	32	66	-	-	-	48	6
50	52	32	86	-	-	-	58	6
75	52	57	111	26	26	59	70.5	6
100	52	82	136	36	36	64	83	8

◉ Sensor switch



MSR(L)2

FMR(L)

MQX

MTX

MDQ2

MDQA

MDX

MDXL

MBX

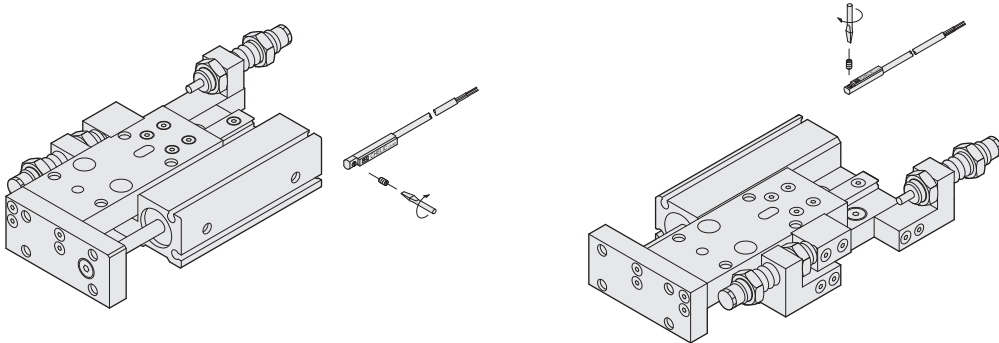
MGX

FMR(L) series Air Slide Table

Sensor switch operating range and the setting

CHELIC

◉ Sensor switch mounting type



◉ Sensing 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.

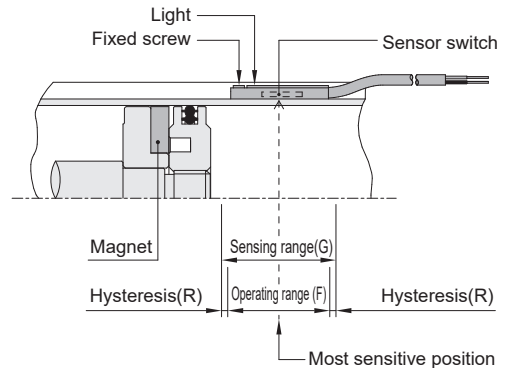
◉ Operating range

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)

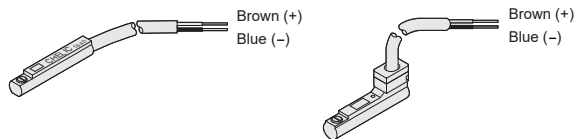
Unit: mm

Model	CS-9D(B)	
Bore size	Operating range (F)	Hysteresis(R)
10	7 (3)	1
16	10 (7)	1
20	12 (9)	1
25	14 (12)	1
32	17 (14)	1.2

◉ Sensor switch setting and operating range



◉ Sensor switch introduction



CS-9D

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

CS-9B

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