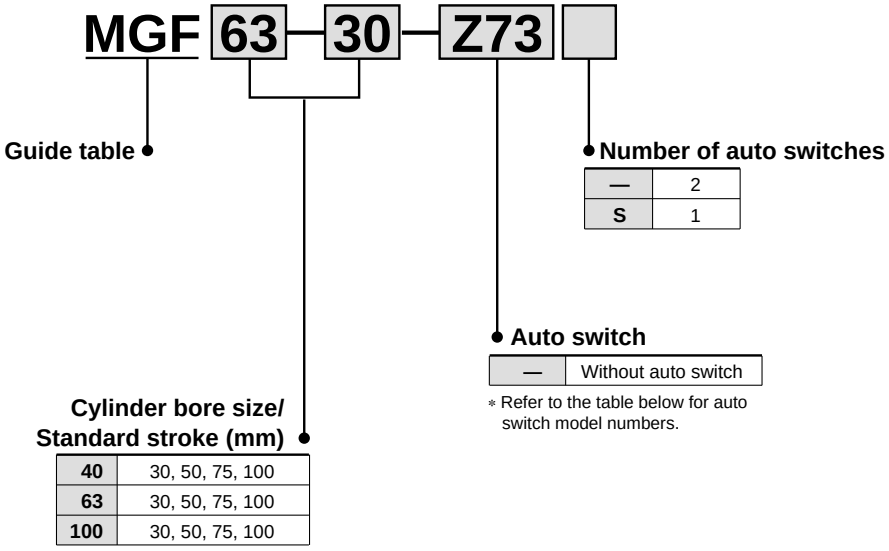
Guide Table

Series MGF

ø40, ø63, ø100

How to Order



Applicable Auto Switches/Refer to p.5.3-2 for further information on auto switch.

Style	Special function	Electrical entry	Indicator	Wiring (output)	Load voltage			Auto switch model		Lead wire (m)∗			Applicable load		Detailed specs.
					DC		AC	Electrical entry		0.5 (—)	3 (L)	5 (Z)			
								Perpendicular	In-line						
Reed switch	—	Grommet	Yes	3 wire	—	5V	—	—	**Z76**	●	●	—	IC circuit	Relay PLC	P.5.3-23
				2 wire	24V	12V	100V	—	**Z73**	●	●	●	—		
			No			5V 12V	≤100V	—	**Z80**	●	●	—	IC circuit		
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	5V 12V	—	**Y69A**	**Y59A**	●	●	●	IC circuit	Relay PLC	P.5.3-40
				3 wire (PNP)				**Y7PV**	**Y7P**	●	●	●			
				2 wire		12V		**Y69B**	**Y59B**	●	●	●	—		
	Diagnostic indication (2 color)			3 wire (NPN)		5V 12V		**Y7NWV**	**Y7NW**	●	●	●	IC circuit		P.5.3-48
				3 wire (PNP)				**Y7PWV**	**Y7PW**	●	●	●			
				2 wire		12V		**Y7BWV**	**Y7BW**	●	●	●	—		
	Water resistant (2 color)							—	**Y7BAL**	—	●	●			P.5.3-63

∗ Lead wire length 0.5m: – (Example) Y59A
3m: L Y59AL
5m: Z Y59AZ

PLC: Programmable Logic Controller

Specifications

Action	Double acting
Fluid	Air
Proof pressure	1.5MPa
Max. operating pressure	1.0MPa
Min. operating pressure	0.1MPa
Ambient and fluid temperature	–10 to 60°C
Operating piston speed	20 to 200mm/s
Cushion	Rubber bumper at both ends
Lubrication	Not required
Stroke allowable tolerance	$^{+1.0}_{0}$ mm

Standard Stroke

Model	Standard stroke (mm)	Intermediate stroke
MGF 40	30, 50, 75, 100	Intermediate strokes (increments of 5mm) other than standard strokes are available with a spacer of 5, 10, 15, 20, and 25mm. Example) MGF63-15 A spacer of 15mm is installed in the MGF63-30. Therefore, the total length is same as that of 30mm stroke.
MGF 63		
MGF100		

Theoretical Force

OUT(N) IN(N)

(N)

Bore (mm)	Rod dia. (mm)	Operating direction	Piston area (mm^2)	Operating pressure (MPa)								
				0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
40	25	OUT	1256	251	376	502	628	753	879	1004	1130	1256
		IN	765	153	229	306	382	459	535	612	688	765
63	36	OUT	3117	623	935	1246	1558	1870	2182	2493	2805	3117
		IN	2673	534	801	1069	1336	1603	1871	2138	2405	2673
100	36	OUT	7853	1570	2356	3141	3926	4711	5497	6282	7067	7853
		IN	6835	1367	2050	2734	3417	4101	4784	5468	6151	6835

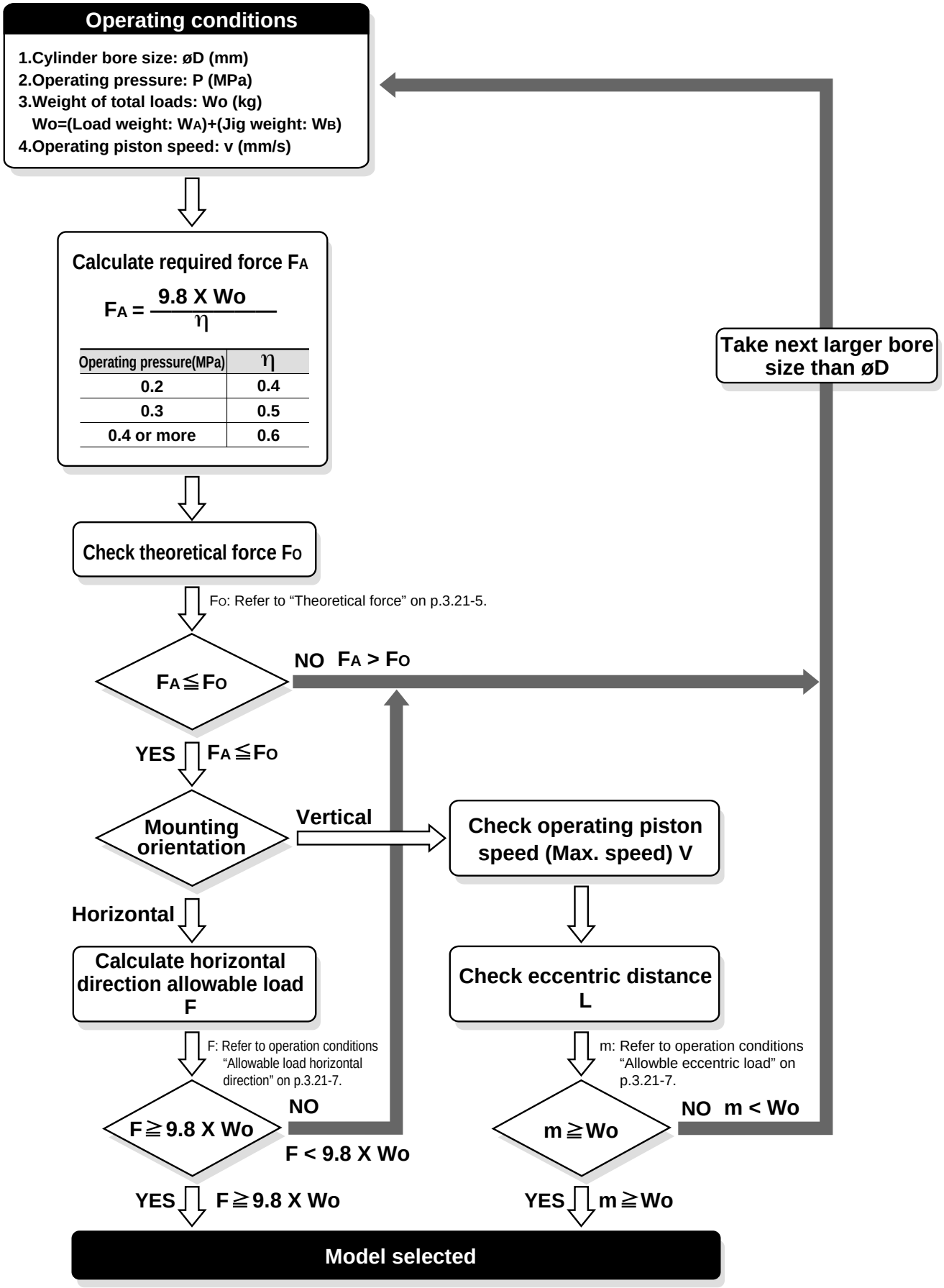
Note) Theoretical force=Pressure X Piston area

Weight

(kg)

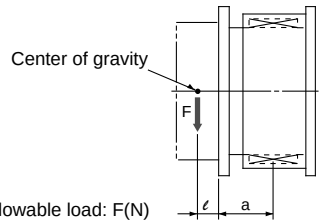
Model	Bore size (mm)	Standard stroke (mm)			
		30	50	75	100
MGF 40	40	2.1	2.6	3.2	3.8
MGF 63	63	4.2	5.0	6.0	7.0
MGF100	100	6.9	8.2	9.8	11.4

How to Select a Model



Operating Conditions

Allowable load horizontal direction



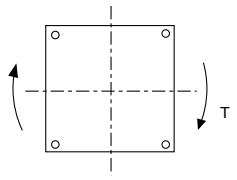
Allowable load: F(N)

$$F=\frac{1000M}{\ell+a+Stroke}$$

✻ ℓ, a, Stroke (mm)

Bore size (mm)	Allowable moment M (Nm)	a (mm)	Stroke (mm)
40	11	23	30, 50 75, 100
63	28	30	
100	49	32.5	

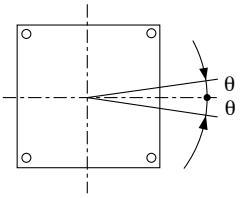
Allowable rotation torque



T(Nm)

Bore size (mm)	Stroke (mm)			
	30	50	75	100
40	1.1	0.8	0.6	0.5
63	3.4	2.5	1.9	1.5
100	4.7	3.4	2.6	2.1

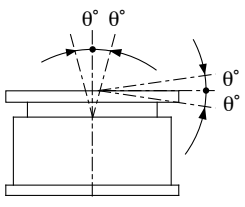
Non-rotating accuracy



Bore size (mm)	Non-rotating accuracy θ
40	±0.08°
63	±0.06°
100	±0.05°

Note) The value given for the non-rotating accuracy is applicable below the allowable rotational torque. If a greater rotational torque is applied, the non-rotating rod (p.3.21-8-⑧) bends, exceeding the value of the non-rotating accuracy.

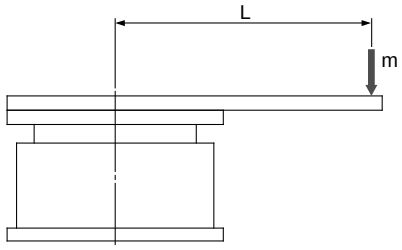
Deflection angle of plate at eccentric load



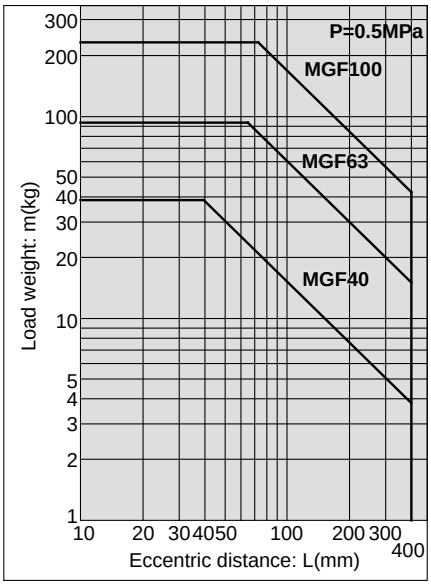
Bore size (mm)	Deflection angle θ°
40	±0.35° or less
63	±0.3° or less
100	

Allowable eccentric load

The maximum value of load which can be applied at an eccentric position at a distance of L (mm) from the cylinder center.

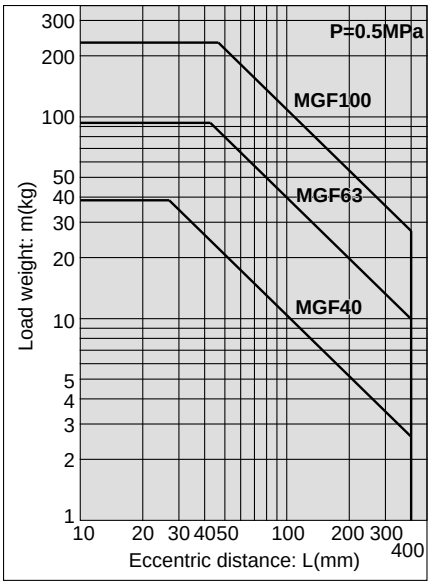


Eccentric load at speed of v=50mm/s



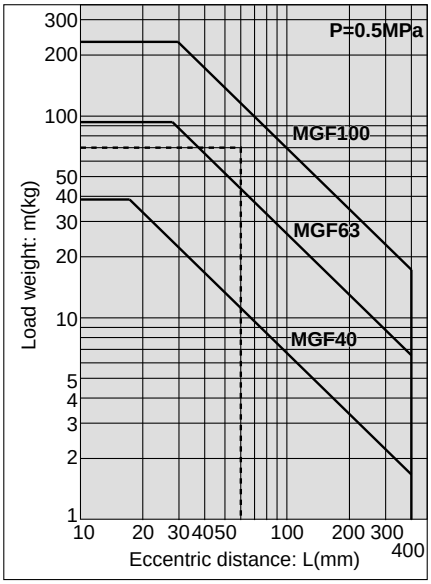
Graph 1

Eccentric load at speed of v=100mm/s



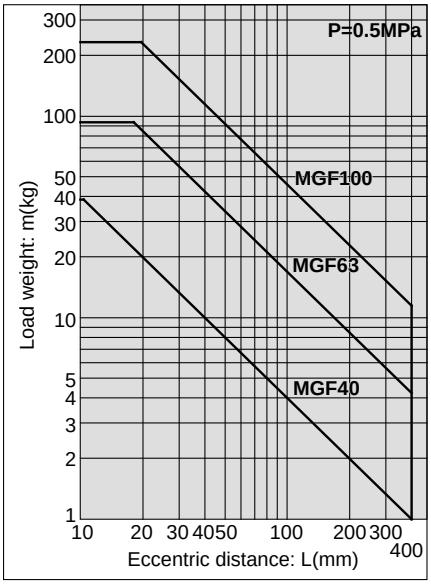
Graph 2

Eccentric load at speed of v=150mm/s



Graph 3

Eccentric load at speed of v=200mm/s

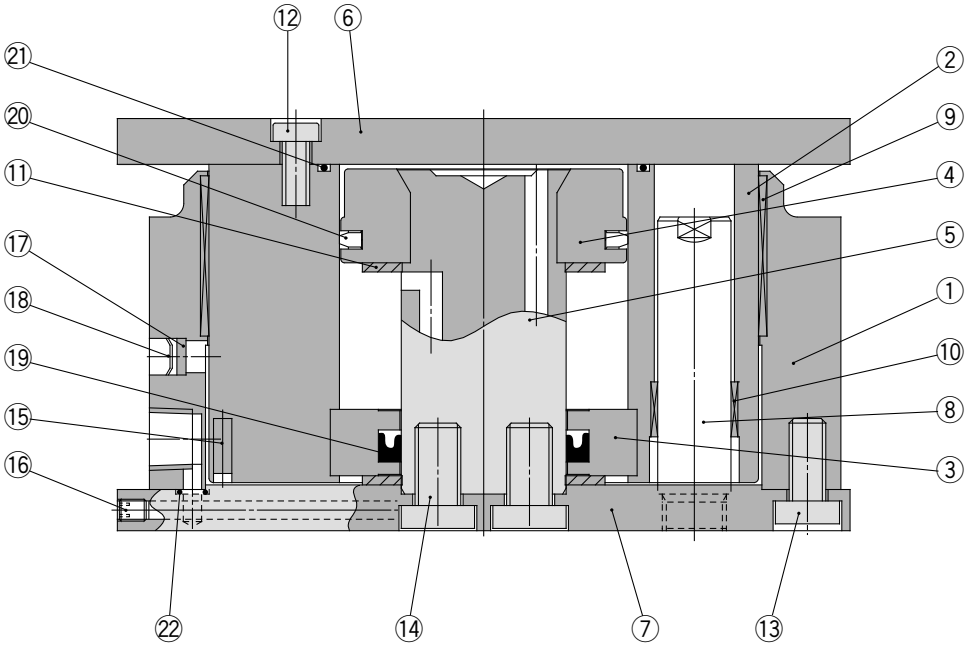


Graph 4

How to read the graph

1) When load weight is 70kg, eccentric distance is 60mm, and max. speed is 150mm/s,
→From the Graph 3, MGF100 is selected.
2) When MGF63 is operated with load of 30kg weight and 100mm eccentric distance,
→From the Graph 2, the cylinder can be used at a speed of 100mm/s or less.

Construction



Component Parts

No.	Description	Material	Note
①	**Body**	Aluminum alloy	White anodized
②	**Tube**	Aluminum alloy	Hard anodized
③	**Rod cover**	Aluminum alloy	White anodized
④	**Piston**	Aluminum alloy	Chromated
⑤	**Piston rod**	Carbon steel	Hard chromated
⑥	**Plate**	Aluminum alloy	Anodized
⑦	**End plate**	Aluminum alloy	Anodized
⑧	**Non-rotating rod**	Stainless steel	Hard chromated
⑨	**Bushing**	Resin	
⑩	**Bushing (for non-rotating)**	Lead bronze casting	
⑪	**Bumper**	Urethane	

Component Parts

No.	Description	Material	Note
⑫	**Hex. bolt A**	Carbon steel	Nickel plated
⑬	**Hex. bolt B**	Carbon steel	Nickel plated
⑭	**Hex. bolt C**	Carbon steel	Nickel plated
⑮	**Magnet**	Magnetic material	
⑯	**Steel ball**	Bushing steel	
⑰	**Element**	Resin	
⑱	**Snap ring**	Spring steel	
⑲*	**Rod seal**	NBR	
⑳*	**Piston seal**	NBR	
㉑*	**Tube gasket**	NBR	
㉒*	**Gasket**	NBR	

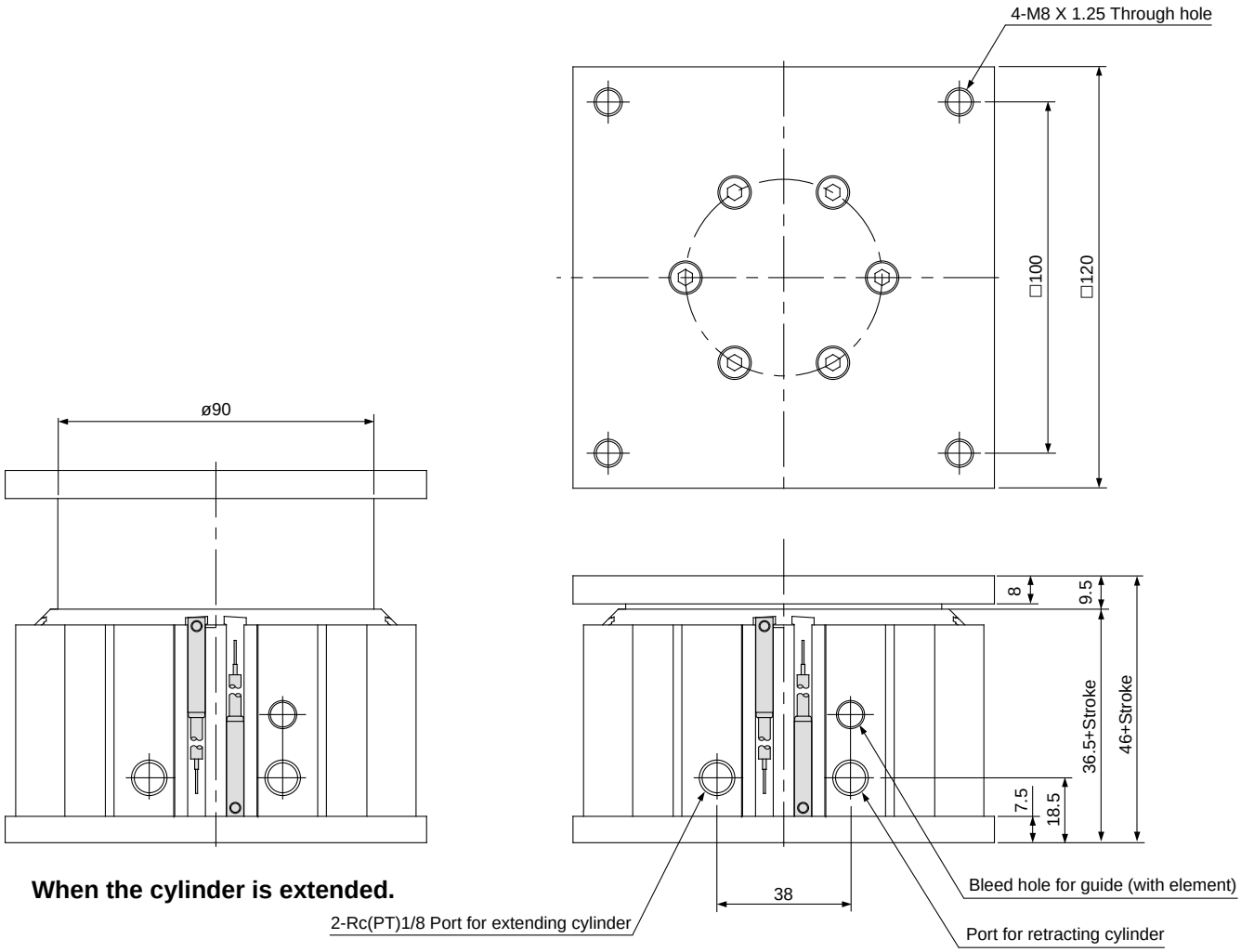
Replacement Parts: Seal Kits

Bore size (mm)	Kit No.	Contents
40	MGF 40-PS	Set of the above seals ⑲, ⑳, ㉑, and ㉒.
63	MGF 63-PS	
100	MGF100-PS	

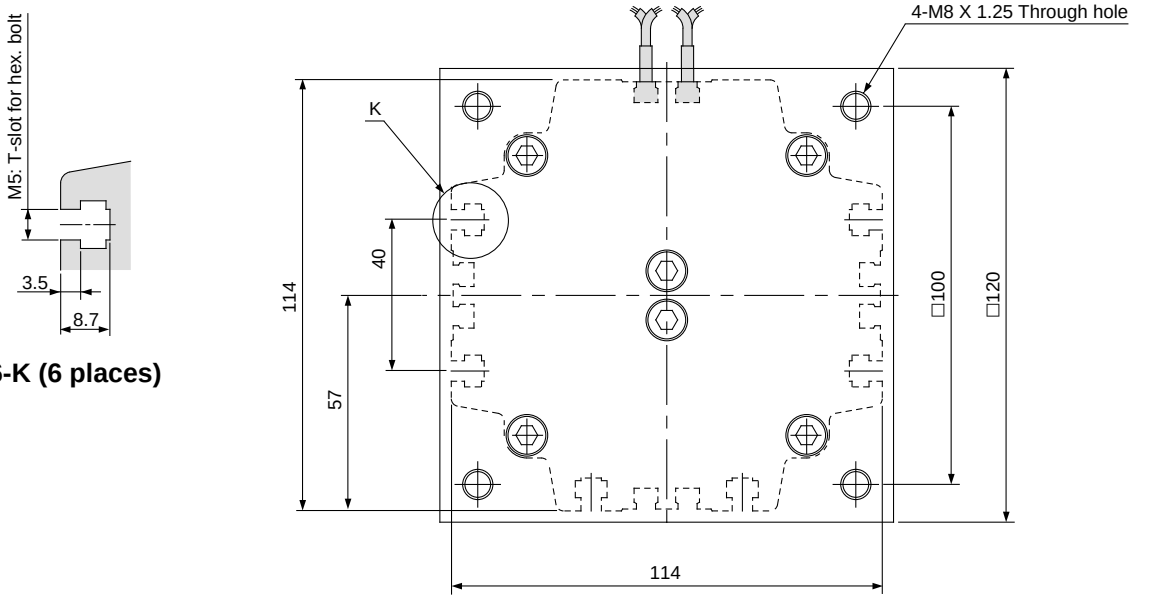
* Seal kit includes 1 rod seal ⑲, 1 piston seal ⑳, 1 tube gasket ㉑, 4 gaskets ㉒. Order a seal kit according to the applicable bore size.

Dimensions ø 40

MGF40



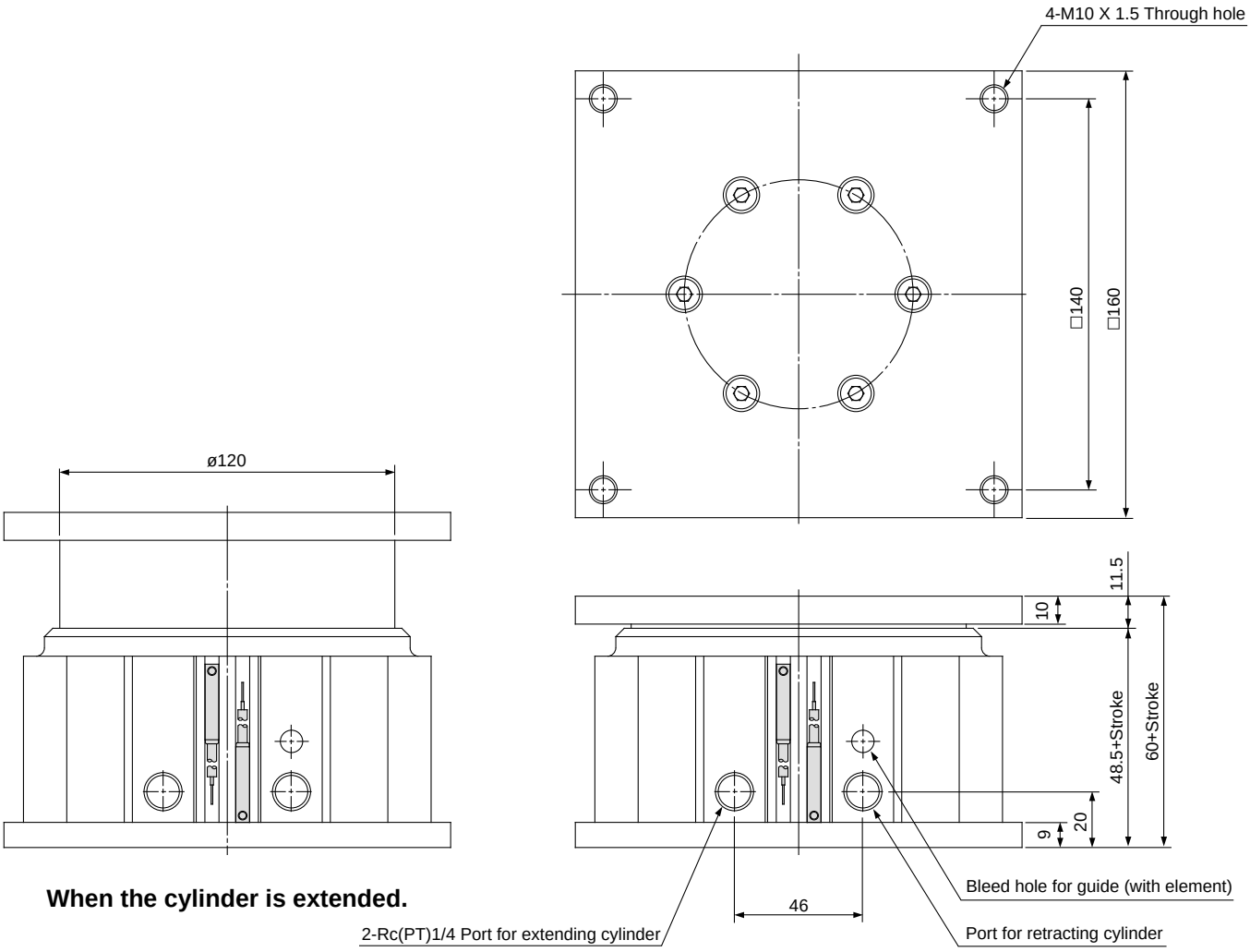
When the cylinder is extended.



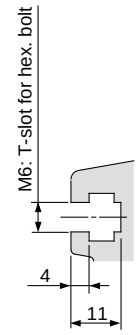
6-K (6 places)

Dimensions ø 63

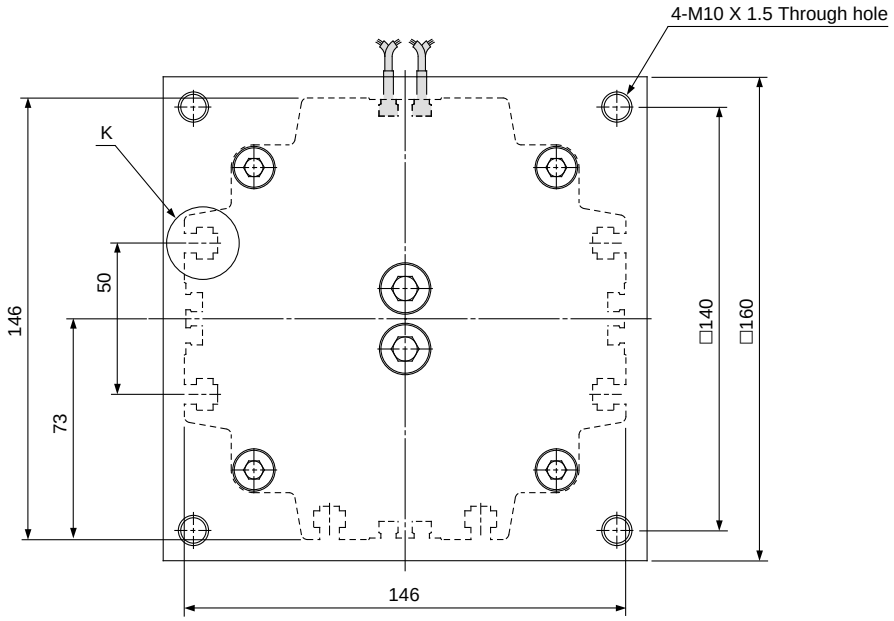
MGF63



When the cylinder is extended.

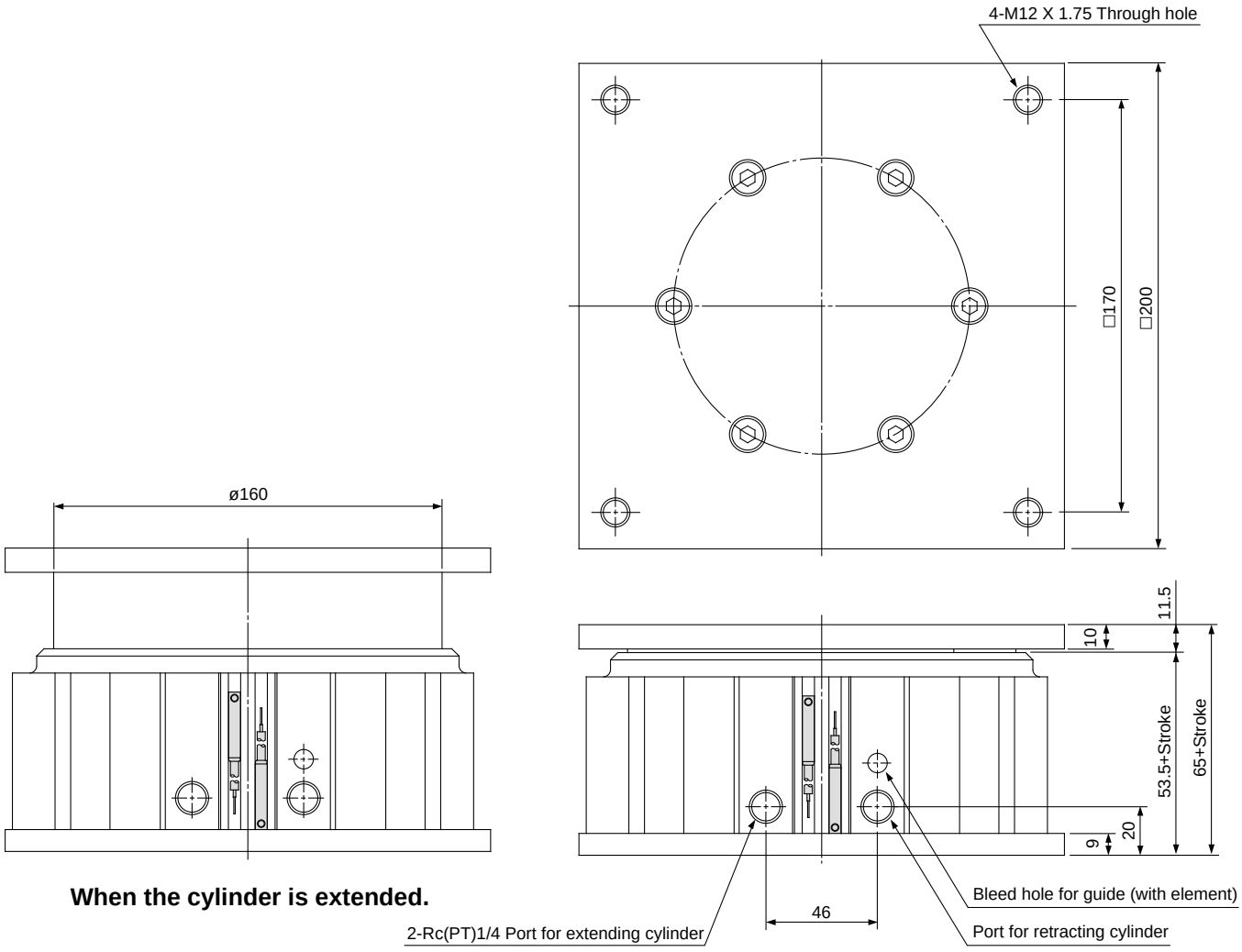


6-K (6 places)

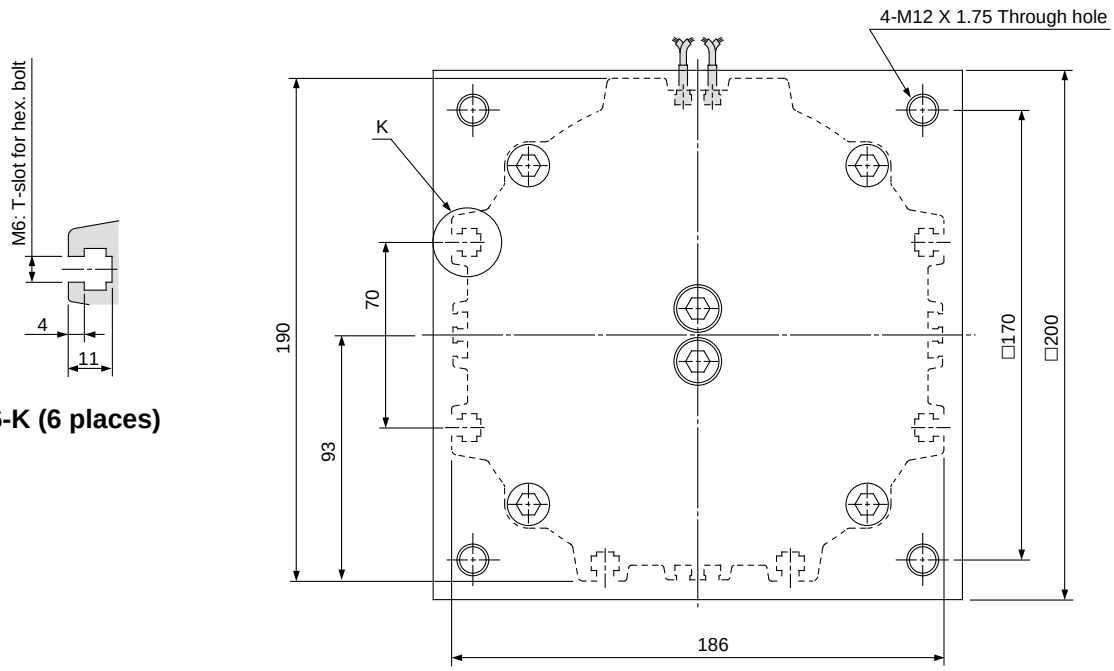


ø100

MGF100

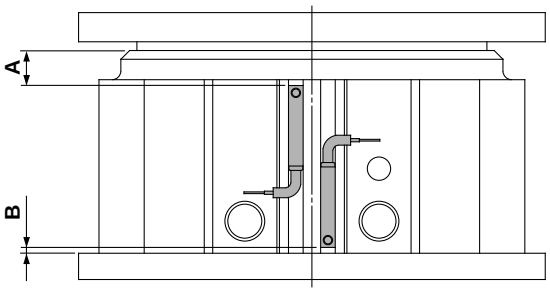


When the cylinder is extended.



6-K (6 places)

Auto Switch/Suitable Mounting Position at Stroke End Detection



Setting position (mm)

Bore size (mm)	A	B
40	4	0
63	14.5	0
100	19.5	0

How to Install Auto Switch

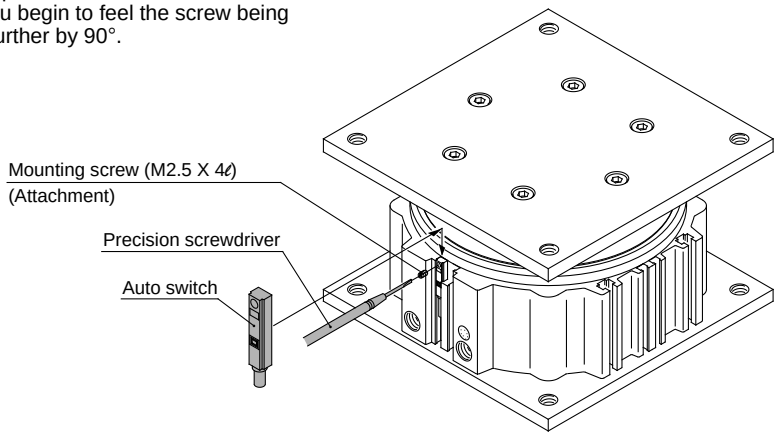
⚠ Caution

Auto switch mounting tool

Use a screwdriver with a grip diameter of 5 to 6mm to tighten the auto switch mounting screw.

Tightening torque

The tightening torque should be about 0.10 to 0.20Nm. When you begin to feel the screw being tightened, turn it further by 90°.



Auto switch mounting surface

Magnetic substance such as an iron plate should be separated at least 15mm away from auto switch mounting surface.
Magnetic substances may cause unstable operation of the auto switch.
There is no problem if a magnetic substance is close to any side where an auto switch is not mounted.