

Guide Table

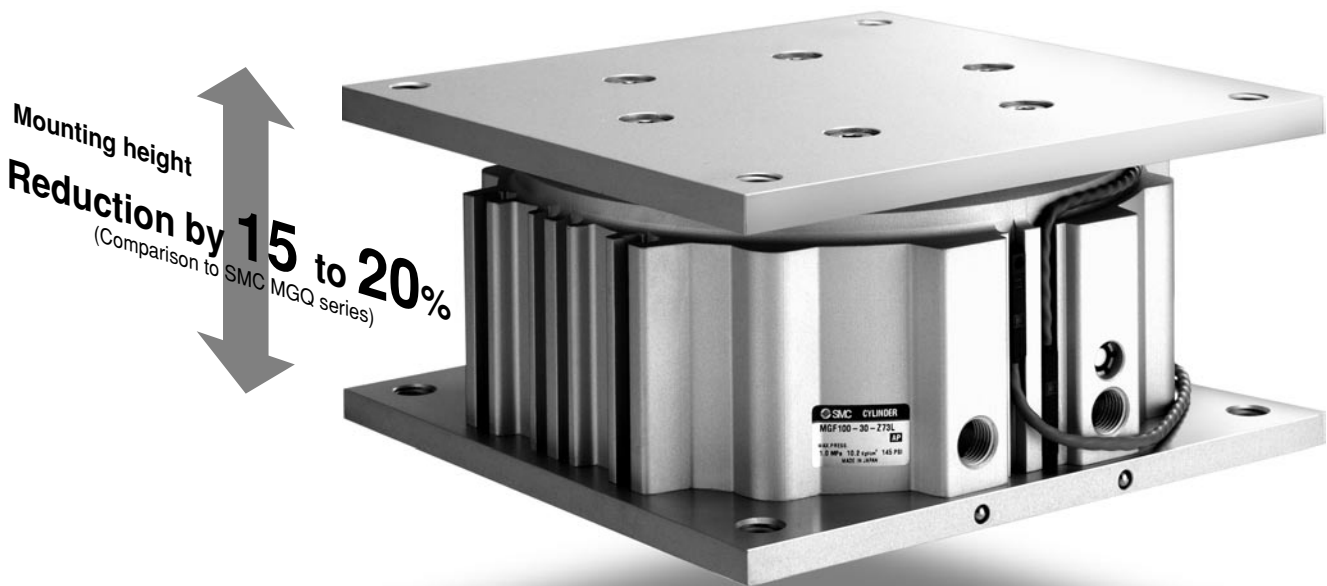
Series MGF

ø40, ø63, ø100

Low profile compact cylinder utilizes a large concentric guiding sleeve to provide excellent eccentric load resistance.

■ Mounting height greatly reduced

Low profile cylinder enables compact machine design.



Guide Table

Series MGF

ø40, ø63, ø100

■ Built-in non-rotating mechanism

Rotation of top table is prevented by non-rotating pin located inside the cylinder.

Non-rotating accuracy

Bore size (mm)	Non-rotating accuracy θ
40	$\pm 0.08^\circ$
63	$\pm 0.06^\circ$
100	$\pm 0.05^\circ$

■ With T-slot

T-slots are provided on 3 faces of the body (except port face), allowing mounting for various brackets. (Not suitable for mounting the cylinder.)

■ Product range

Model	Bore size (mm)	Standard stroke (mm)				Applicable auto switch
		30	50	75	100	
MGF 40	40	●	●	●	●	Reed: D-Z7, Z8 Solid state: D-Y5, Y6, Y7 Two colour indicator solid state: D-Y7 Water resistant two colour indicator solid state: D-Y7BA
MGF 63	63	●	●	●	●	
MGF100	100	●	●	●	●	

Low profile compact cylinder utilizes a large concentric guiding sleeve to provide excellent eccentric load resistance

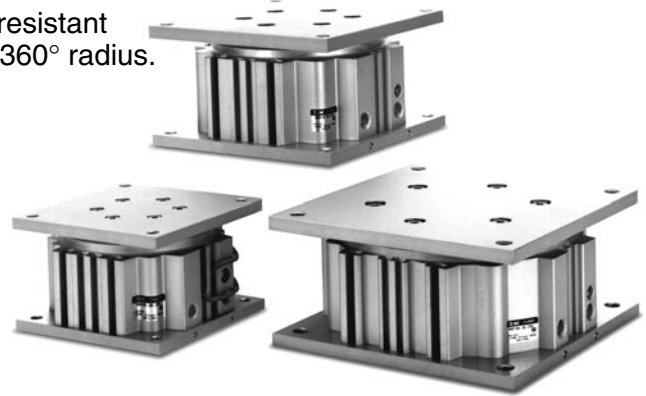
■ Large concentric guiding sleeve (Eccentric load resistant)

Thick guide sleeve rod enables the cylinder to be resistant against eccentric loads from any direction within a 360° radius.

Allowable moment

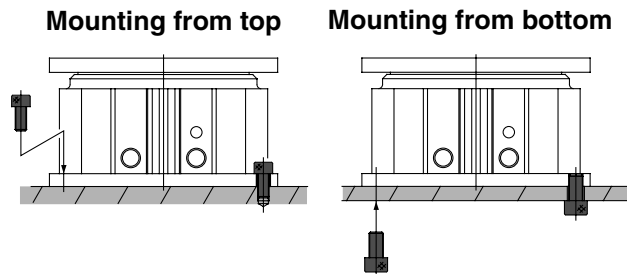
Bore size (mm)	Allowable moment (Nm)
40	10
63	40
100	110

*Value at a cylinder speed of 100mm/s

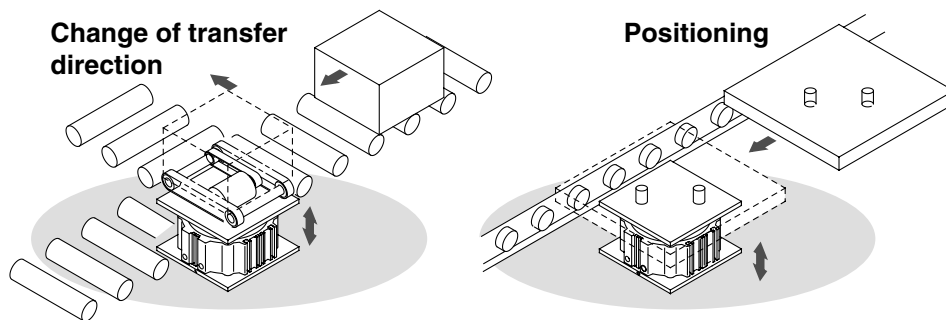


■ Auto switch can be mounted on 4 faces of the body.

■ Mounting from 2 directions is possible.



■ Typical applications





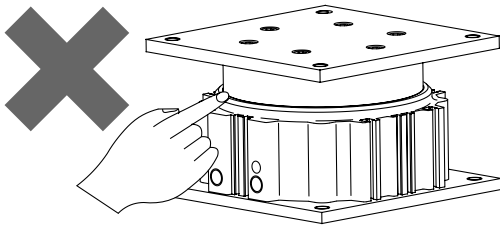
Series MGF/Precautions

Be sure to read before handling.

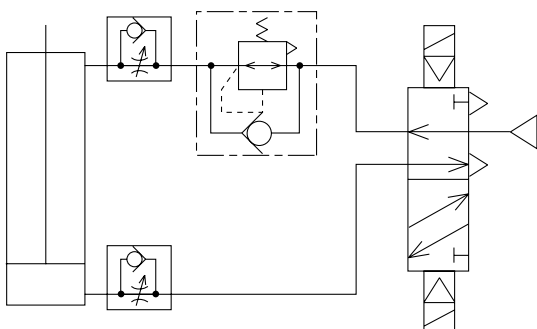
Selection

⚠ Caution

- ① **Use the cylinder within its load limitation.**
Select a model taking into consideration horizontal allowables loads, rotation torque and eccentric loads. When used in excess of the applicable limit, eccentric loads applied to the tube guide will cause wear of the guide, decrease of life of the cylinder, and damage of the mounting bolts.
- ② **Do not allow any dents, scratches, etc. on the mounting faces of either the plate or end plate.**
Mounting face may deteriorate and cause decrease the life of the cylinder, increase of sliding resistance, etc.
- ③ **Do not allow hand, fingers, etc. near to the cylinder during cylinder operation.**
Your fingers may be caught between the body and the plate. If you need come near to the cylinder, install a cover, etc. on the cylinder.



- ④ **Do not locate near objects which will be affected by magnets.**
Since a magnet is built in the cylinder, do not place near magnetic disks, magnetic cards, magnetic tapes, etc. Data may be lost.
- ⑤ **If the cylinder is operated vertically with heavy loads, a measure must be taken to prevent rapid advancement of the piston rod when starting to operate in the downward direction.**
If the cylinder is operated vertically with heavy loads at the same pressure for both upward and downward directions, starting speed in the downward direction may be over the speed controlled with a speed controller. In this case, use a dual pressure control circuit for air circuit.
Example)

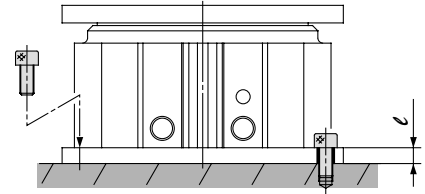


Mounting

⚠ Caution

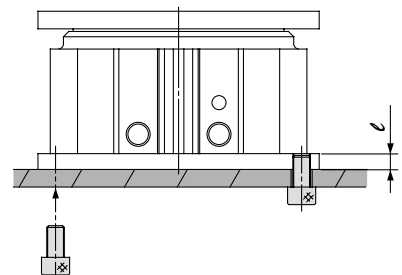
- ① **For mounting the cylinder, use screws with appropriate length and tighten the screws less than the max. clamping torque.**

Mounting from top



Model	Applicable screw	Max. clamping torque (Nm)	ℓ (mm)
MGF 40	M6	10	7.5
MGF 63	M8	25	9
MGF100	M10	51	9

Mounting from bottom



Model	Applicable screw	Max. clamping torque (Nm)	ℓ (mm)
MGF 40	M8	18	7.5
MGF 63	M10	36	9
MGF100	M12	65	9

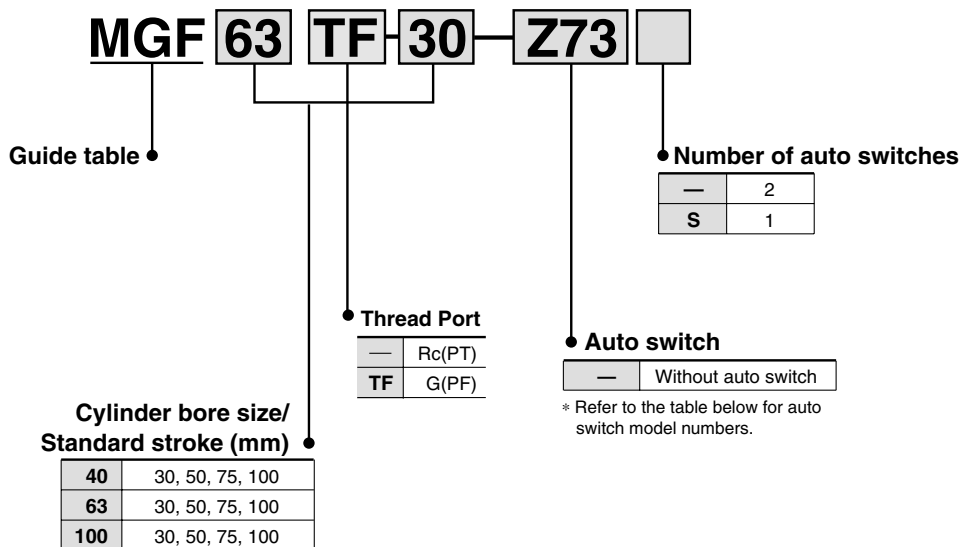
- ② **When mounting a workpiece to the cylinder, do so when the piston is retracted. Also, make sure that a rotational torque that exceeds the allowable torque (given on p. 2-497) is not applied to the cylinder body. (This will damage the non-rotating mechanism and lead to a malfunction.)**

Series MGF

Guide Table

ø40, ø63, ø100

How to Order



Applicable Auto Switches

Style	Special function	Electrical entry	Indicator	Wiring (output)	Load voltage			Auto switch model		Lead wire (m)*			Applicable load	
					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
				2 wire	24V	12V	100V	—	Z73	●	●	●	—	
						5V 12V	≤100V	—	Z80	●	●	—	IC circuit	
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	5V 12V	—	Y69A	Y59A	●	●	●	IC circuit	Relay PLC
				3 wire (PNP)				Y7PV	Y7P	●	●	●	IC circuit	
				2 wire				Y69B	Y59B	●	●	●	—	
				3 wire (NPN)				Y7NWV	Y7NW	●	●	●	IC circuit	
				3 wire (PNP)				Y7PWV	Y7PW	●	●	●	IC circuit	
				2 wire				Y7BWV	Y7BW	●	●	●	—	
	—	Y7BAL	—		●	●	—							
Water resistant (2 colour)	—	—	—	—	—	—	—	—	—	—	—	—		

* 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		

Minimum Strokes for Mounting Auto Switches

(mm)

Switch type Number of pcs.	D-Z7, D-Z8	D-Y5, D-Y6, D-Y7
	1 pc.	10
2 pcs.	15	10

Theoretical Force

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

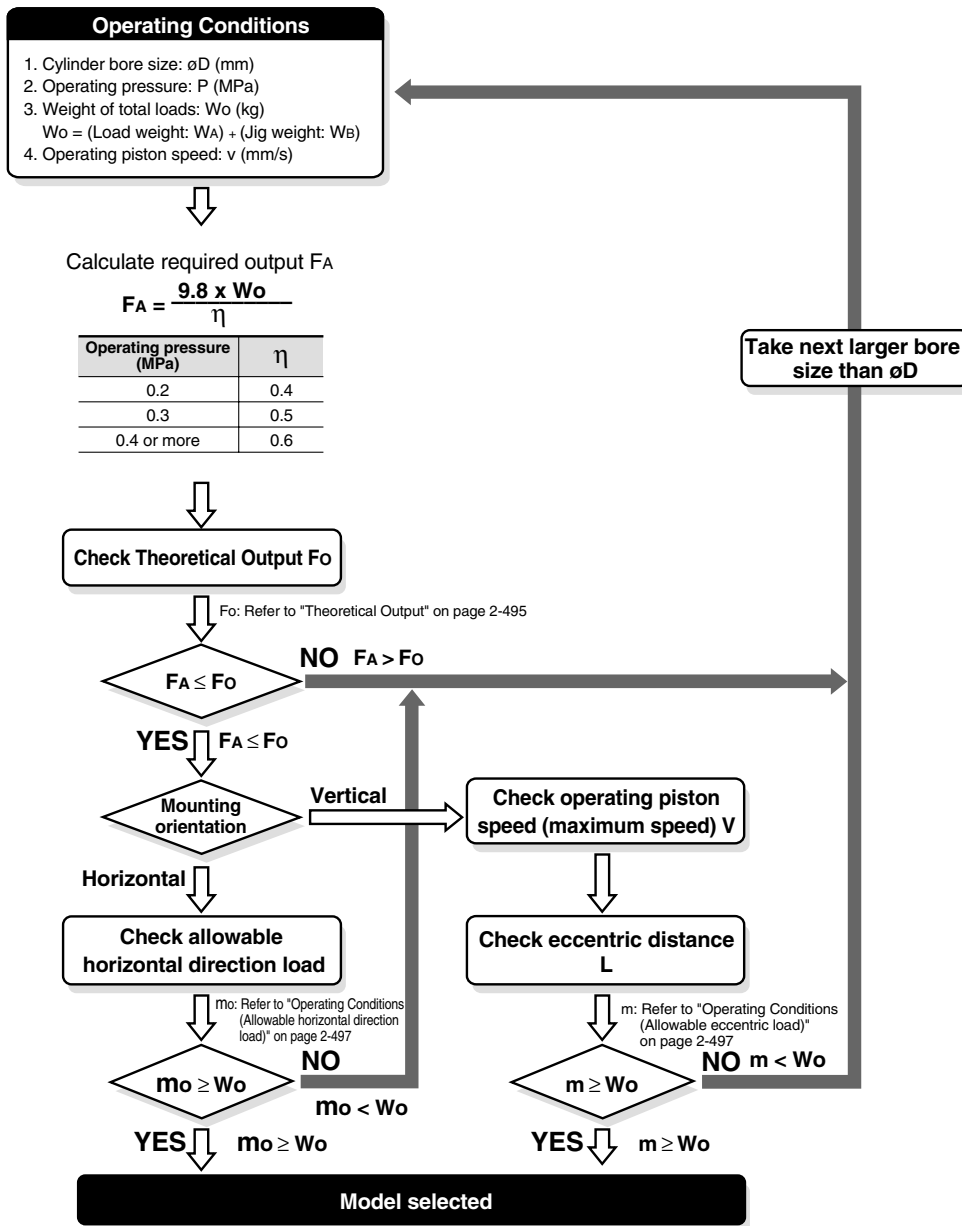
Weight

(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

Series MGF

How to Select a Model



↓

Horizontal

↓

Check allowable horizontal direction load

↓

m_o : Refer to "Operating Conditions (Allowable horizontal direction load)" on page 2-497

NO $m_o < W_o$

↓

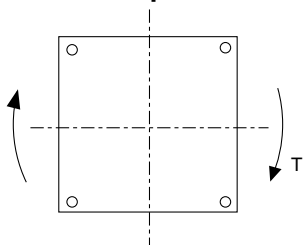
Take next larger bore size than ϕD

YES $m_o \geq W_o$

↓

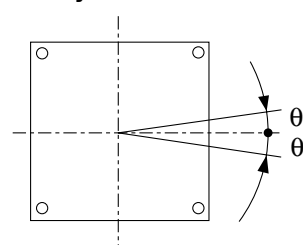
Model selected

Allowable rotational torque



Bore size (mm)	Stroke (mm)			
	30	50	75	100
40	7	5	4	3
63	22	16	12	10
100	30	22	17	13

Non-rotating accuracy

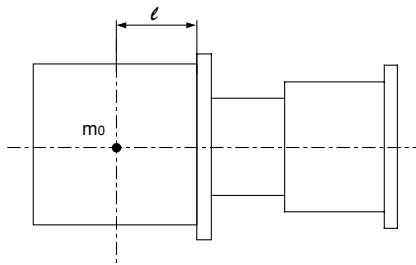


Bore size (mm)	Non-rotating accuracy θ
40	± 0.08
63	± 0.06
100	± 0.05

Note) The value given for the non-rotating accuracy is applicable below the allowable rotation torque. If a greater rotational torque is applied, the non-rotating rod (page 2-498 (8)) bends, exceeding the value of the non-rotating accuracy.

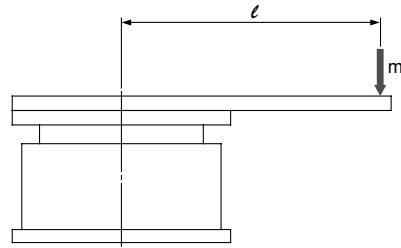
Operating Conditions

Allowable horizontal direction load



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.

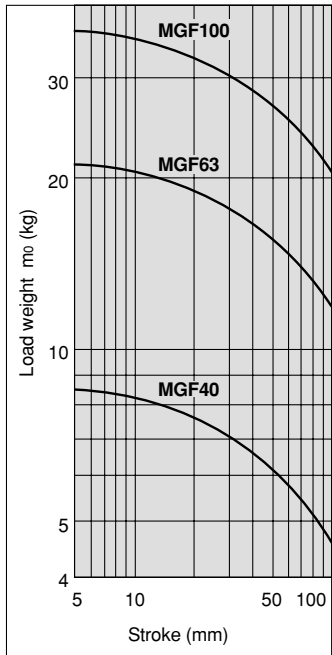
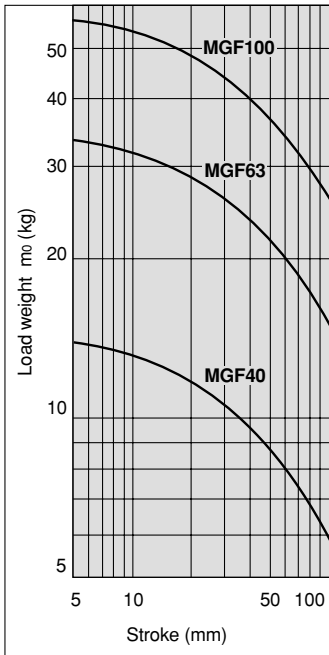


$l = 50\text{mm}$

Graph 1

$l = 100\text{mm}$

Graph 2

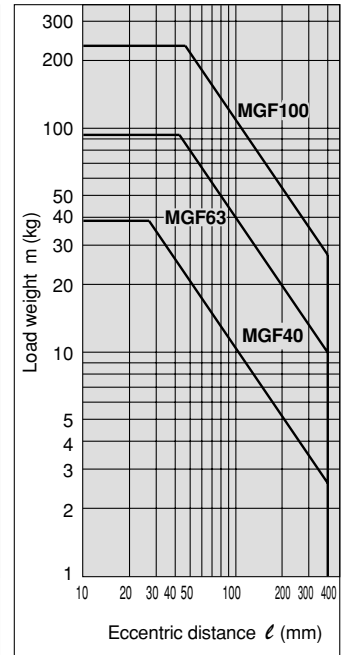
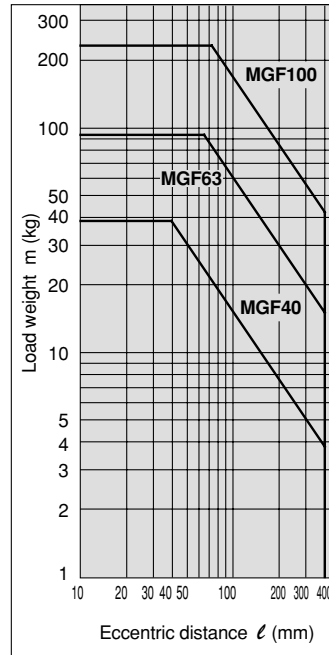


$v = 50\text{mm/s}$ or less

Graph 5

$v = 100\text{mm/s}$ or less

Graph 6

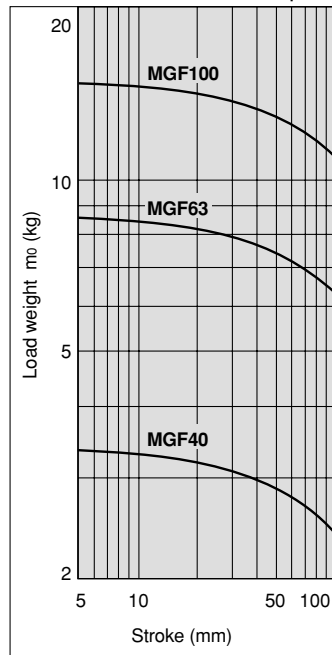
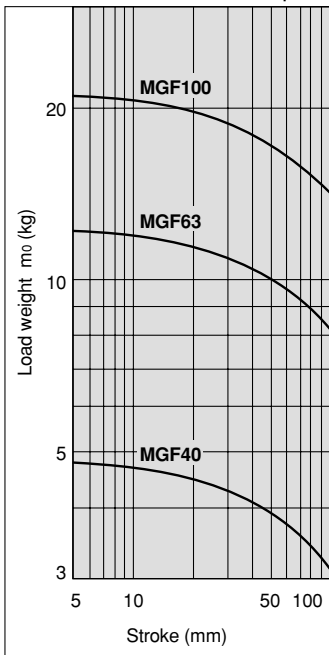


$l = 200\text{mm}$

Graph 3

$l = 300\text{mm}$

Graph 4

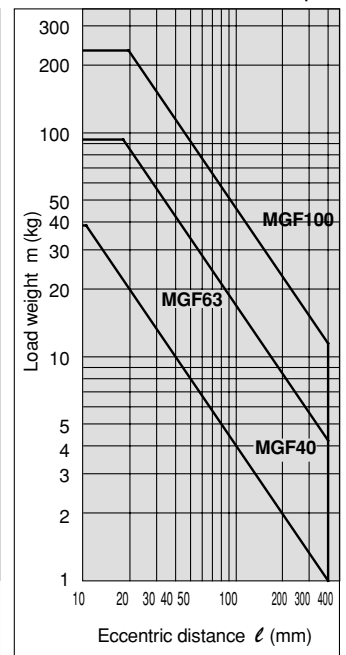
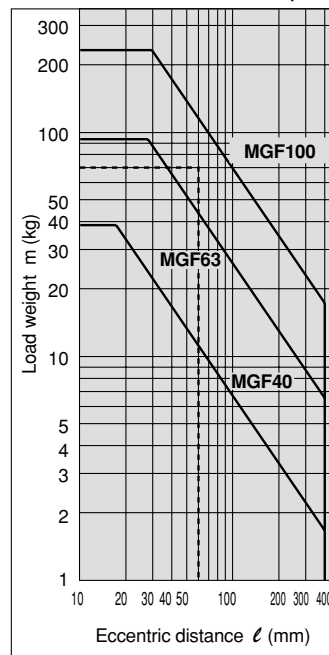


$v = 150\text{mm/s}$ or less

Graph 7

$v = 200\text{mm/s}$ or less

Graph 8

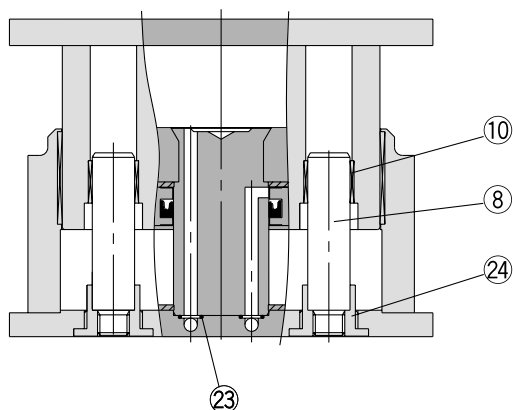


How to read the graph

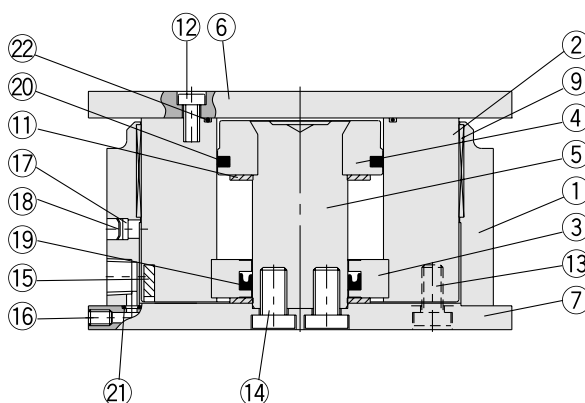
- 1) When the load weight is 70kg, eccentric distance is 60mm, and the maximum speed is 150mm/s → Select MGF100 from Graph 7.
- 2) When MGF63 is operated with a load weight 30kg and 100mm eccentric distance → From Graph 6, the cylinder can be used at a maximum speed of 100mm/s or less.

Series MGF

Construction



When the cylinder is extended



When the cylinder is retracted

Parts list

No.	Description	Material	Note
1	Body	Aluminum alloy	Clear anodized
2	Tube	Aluminum alloy	Hard anodized
3	Rod cover	Aluminum alloy	Clear anodized
4	Piston	Aluminum alloy	Chromated
5	Piston rod	Carbon steel	Electroless nickel plated
6	Plate	Aluminum alloy	Anodized
7	End plate	Aluminum alloy	Anodized
8	Non-rotating rod	Stainless steel	Hard chrome plated
9	Bushing	Resin	
10	Bushing (for non-rotating rod)	Lead-bronze casting	
11	Bumper	Urethane rubber	
12	Hexagon socket head cap screw A	Carbon steel	Nickel plated

Parts list

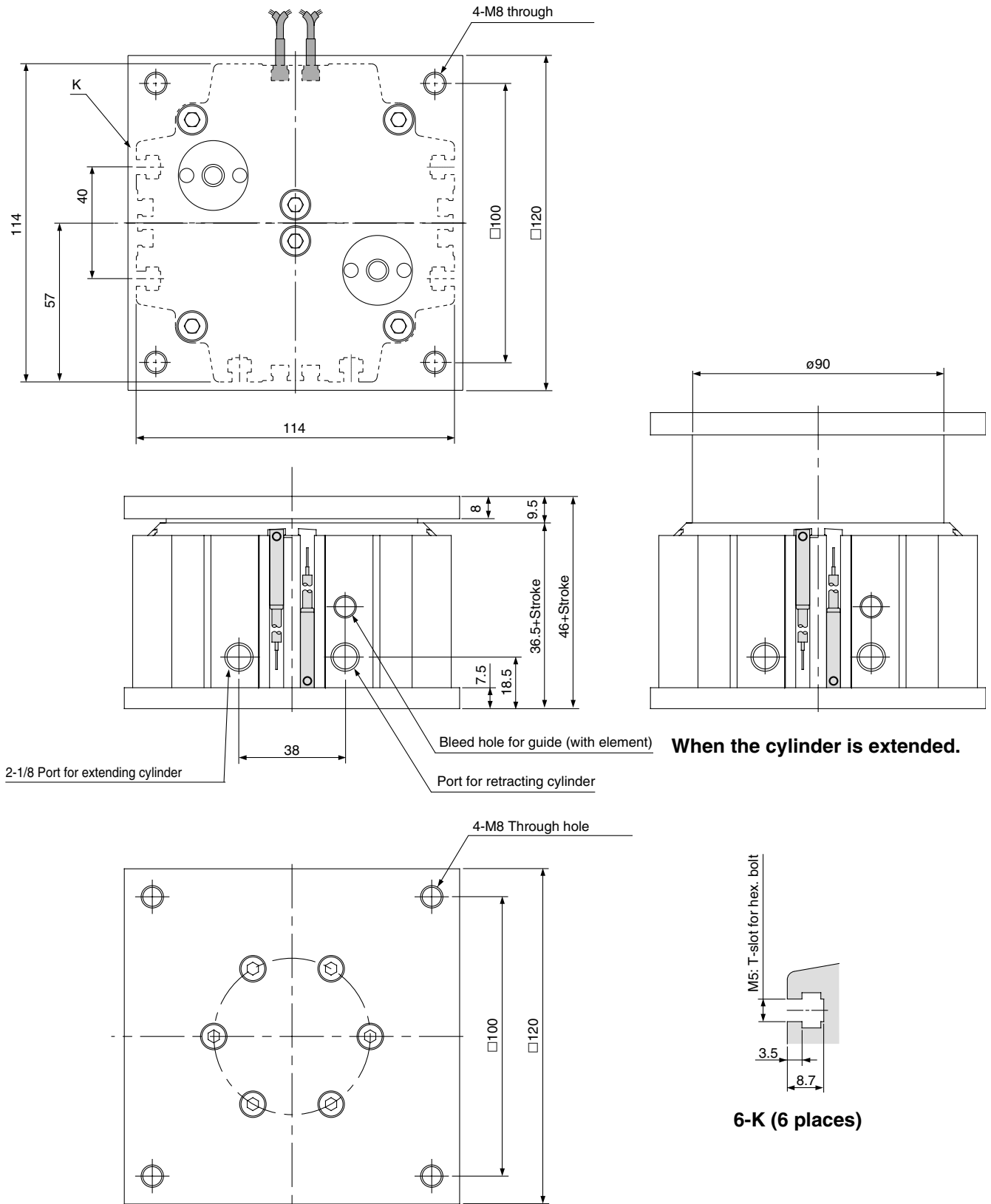
No.	Description	Material	Note
13	Hexagon socket head cap screw B	Carbon steel	Nickel plated
14	Hexagon socket head cap screw C	Carbon steel	Nickel plated
15	Magnet	Magnet	
16	Plug	Carbon steel	
17	Element	Resin	
18	Snap ring	Spring steel	
19	Rod seal	NBR	
20	Piston seal	NBR	
21	O-ring A	NBR	
22	O-ring B	NBR	
23	O-ring C	NBR	
24	Reinforcement ring	Carbon steel	Electroless nickel plated

Replacement parts: Seal kits

Bore size (mm)	Order no.	Kit components
40	MGF 40-PS	Items 19 through 23 from the table above.
63	MGF 63-PS	
100	MGF100-PS	

Dimensions **Ø 40**

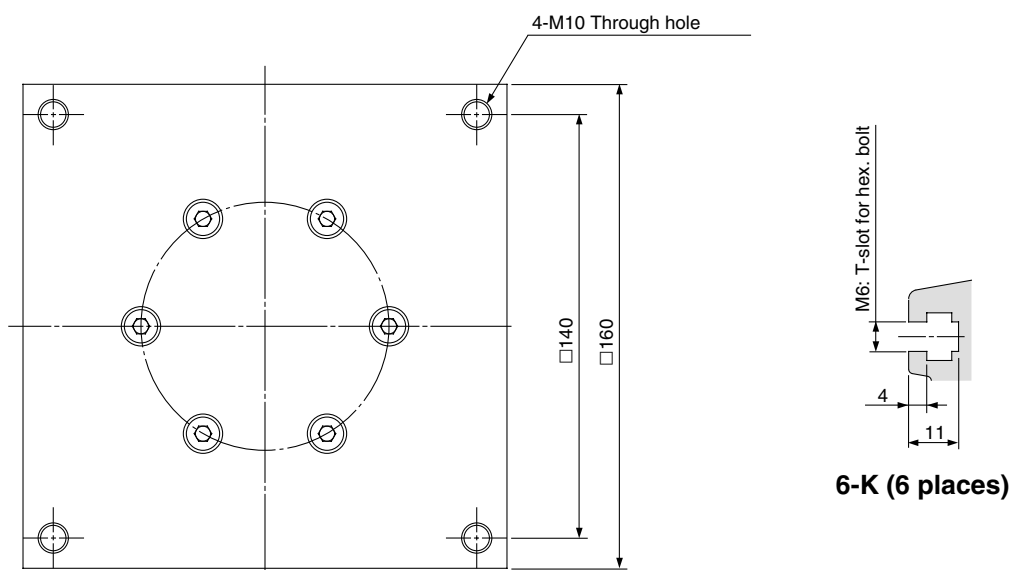
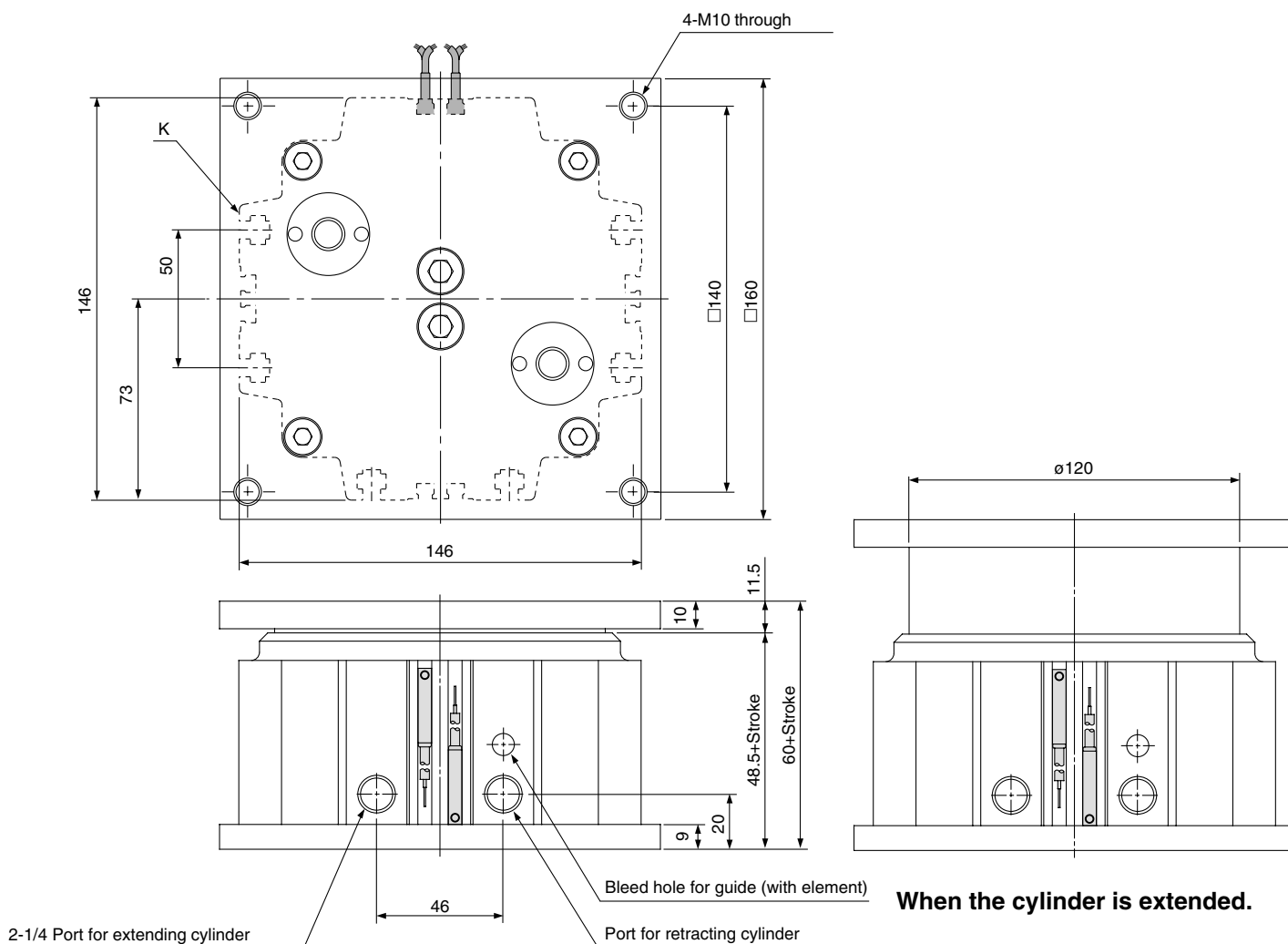
MGF40



Series MGF

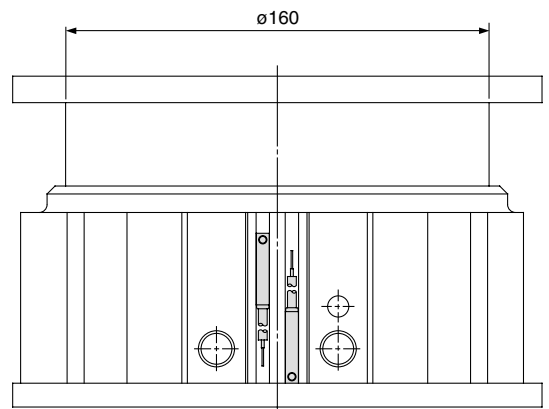
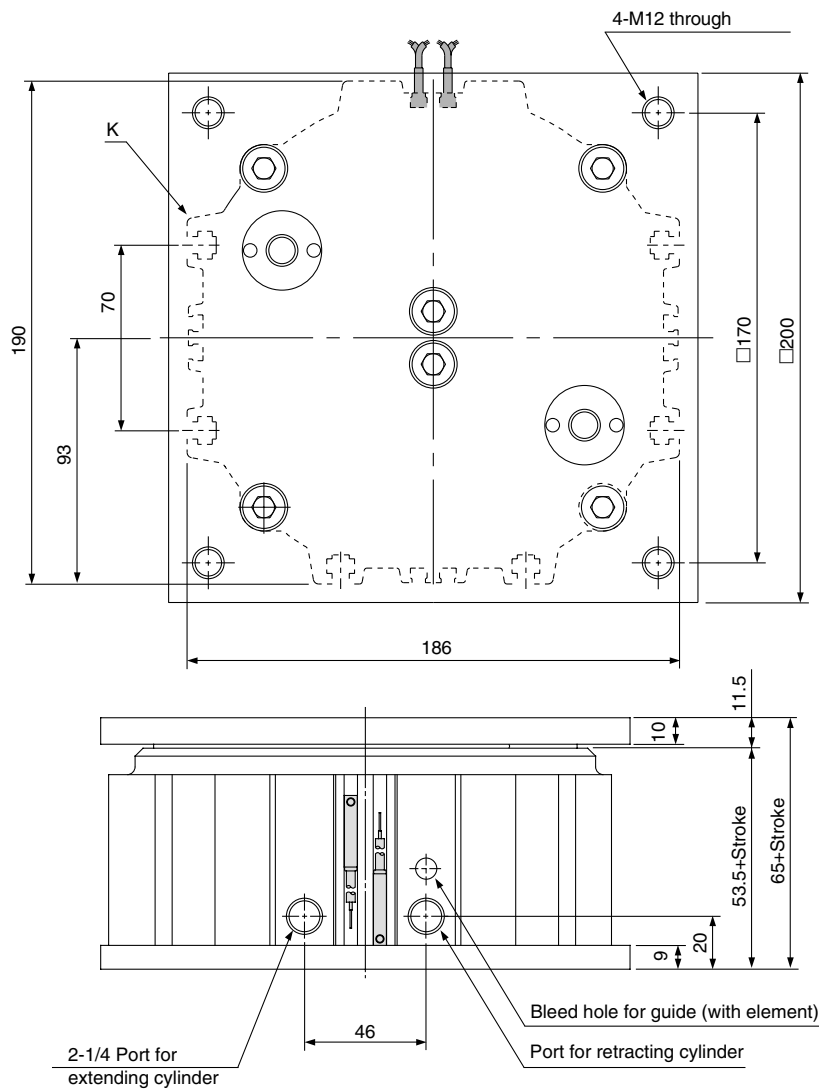
Dimensions **Ø 63**

MGF63

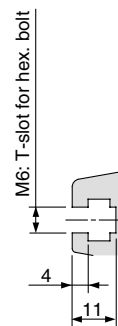
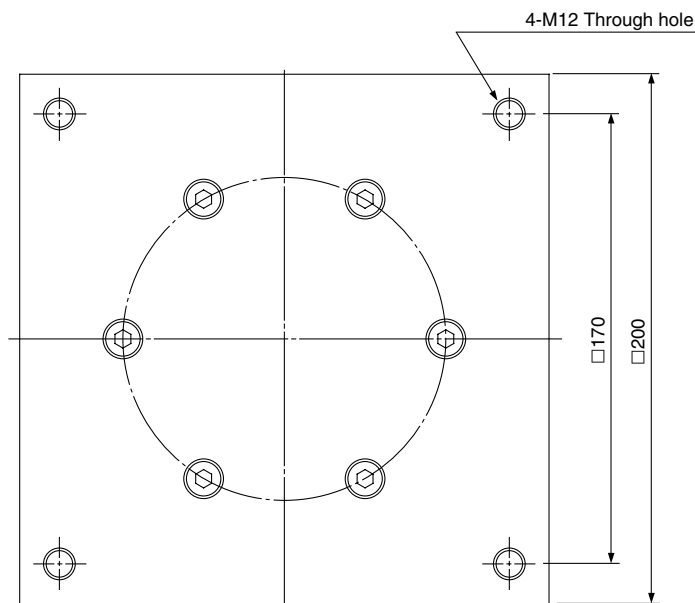


ø100

MGF100



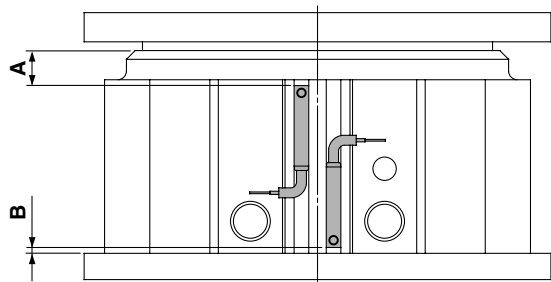
When the cylinder is extended.



6-K (6 places)

Series MGF

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

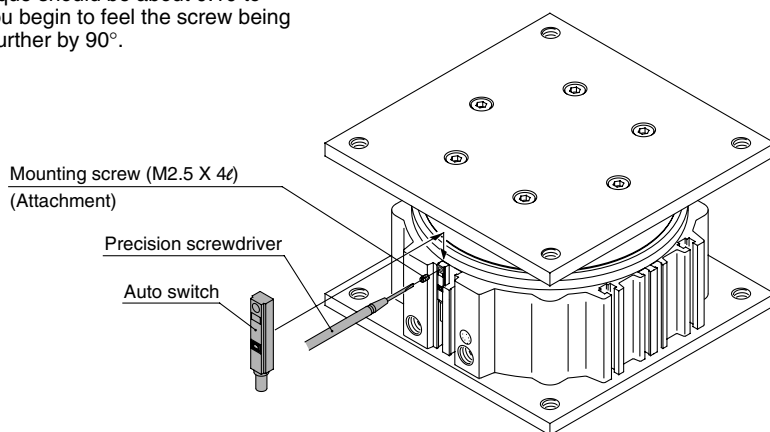
Caution

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.

