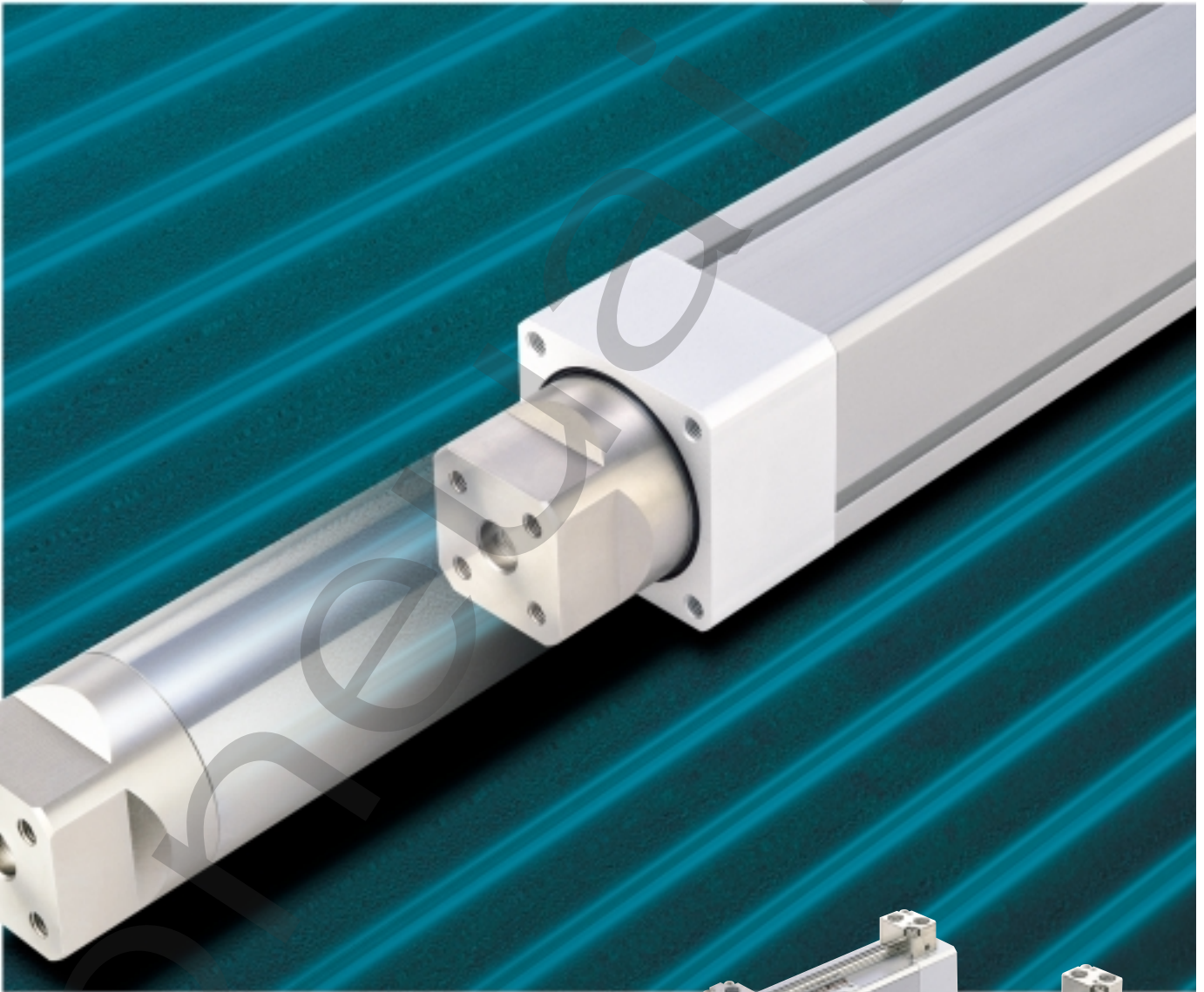


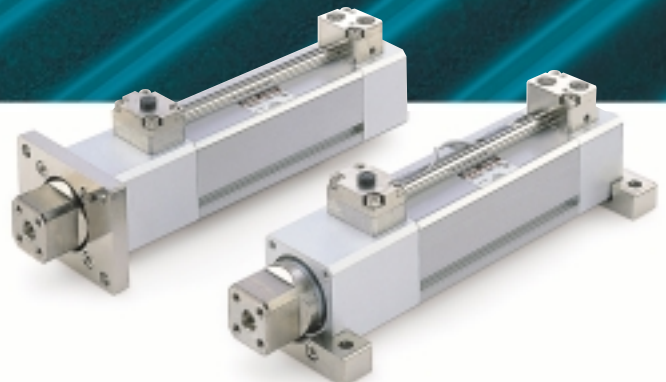
Non-rotating Double Power Cylinder

# Series **MGZ**

ø40, ø50, ø63



**Non-rotation guide unnecessary!  
Double output power on extension  
stroke!**

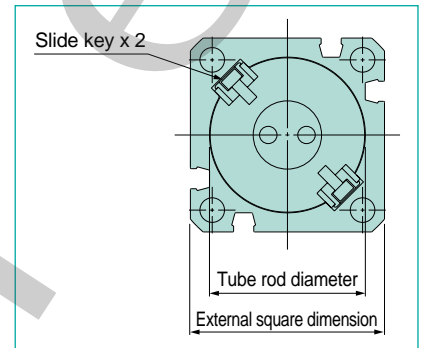


Front end lock type and cylinder mounting brackets now available

# Non-rotating Double Power Cylinder

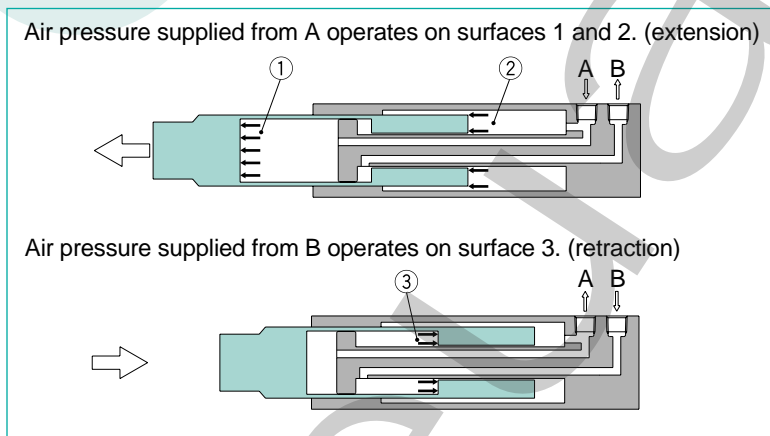
## Non-rotation guide is unnecessary!

Employs a large bore tube rod up to 80% of the cylinder's external square dimension plus slide bearings. In addition, a built-in non-rotation mechanism using slide keys allows direct mounting of loads.



## Double output power for extension!

A unique construction doubles the pressurized area for extension. An ideal air cylinder for lifting and pressing operations.

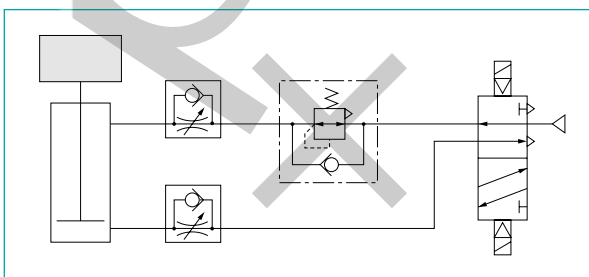


## Mounting accuracy improved

Positioning holes are provided on the work piece mounting surface for easy alignment.

## Regulator with check valve is unnecessary

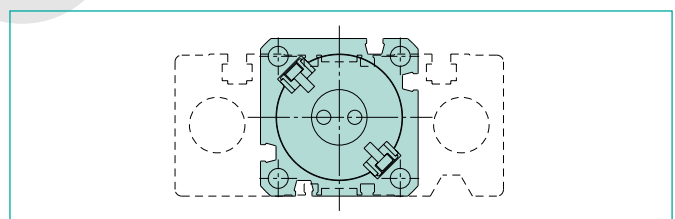
A regulator with check valve normally required for a lifting circuit becomes unnecessary.



Features 1

## High strength with space savings

Moment resistance is equal to that of a guide cylinder (cylinder + two guide shafts). Furthermore, the mounting cross section is reduced by approximately 40%.

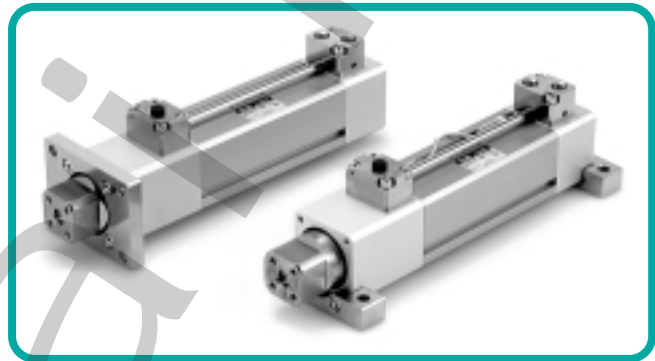


# Series MGZ $\varnothing 40, \varnothing 50, \varnothing 63$

**New**

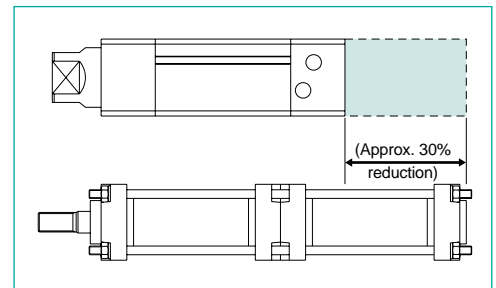
## Front end lock type and mounting brackets now available

- End lock holds the rod when extended
- Transaxial foot type, front flange type and rear flange type



## Long stroke capability with space savings

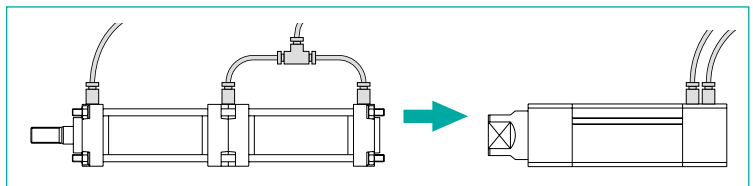
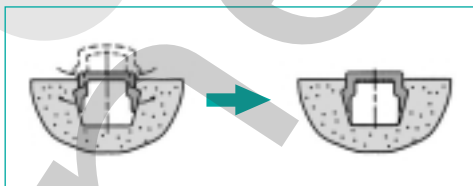
Strokes up to 1000mm are possible. The overall cylinder length is not two or more times the stroke length, as is the case with conventional double output cylinders (tandem type).



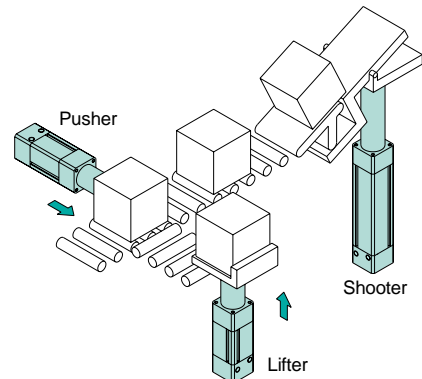
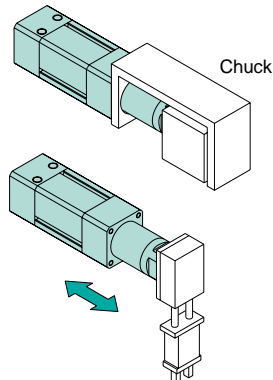
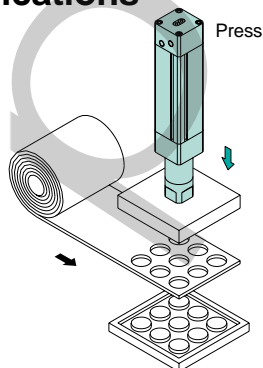
## Clean external appearance

Auto switches are contained in grooves on four sides

Piping is centralized on the head cover.



## Applications



# Non-rotating Double Power Cylinder

## Series **MGZ**

ø40, ø50, ø63

### How to Order

#### Standard Type

**MGZ**    40 — 100 — Z73   

#### Mounting

Nil	Basic type
L	Transaxial foot type
F	Front flange type
G	Rear flange type

#### Number of auto switches

Nil	2 pcs.
S	1 pc.

#### Bore size

40	40mm
50	50mm
63	63mm

#### Auto switch type

Nil	Without auto switch (built-in magnet cylinder)
-----	--

\* Select applicable auto switch models from the table below.

#### Stroke (mm)

Refer to the standard stroke table on page 2.

### Applicable auto switches/Direct mount type

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage		Auto switch model		Lead wire length (m)*			Applicable load	
					DC	AC	Electrical entry direction		0.5 (Nil)	3 (L)	5 (Z)		
							Perpendicular	In-line					
Reed switch	—	Grommet	Yes	3 wire	—	5V	—	Z76	●	●	—	IC circuit	Relay, PLC
				2 wire	24V	—	100V	—	Z73	●	●	●	
			No	5V, 12V	100V or less	—	Z80	●	●	—	IC circuit	—	
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	5V, 12V	—	Y69A	Y59A	●	●	○	Relay, PLC
				3 wire (PNP)				Y7PV	Y7P	●	●	○	
				2 wire				Y69B	Y59B	●	●	○	
				3 wire (NPN)				Y7NWV	Y7NW	●	●	○	
				3 wire (PNP)				Y7PWV	Y7PW	●	●	○	
				2 wire				Y7BWV	Y7BW	●	●	○	
				—				Y7BA	—	●	○	—	

\* Lead wire length symbols: 0.5m ..... Nil (Example) Y69B  
 3m ..... L Y69BL  
 5m ..... Z Y69BZ

\*\* Solid state switches marked with a "O" symbol are produced upon receipt of order.

\*\*\* When later installing auto switches on a cylinder ordered without auto switches, the switch spacers in the table below are necessary.

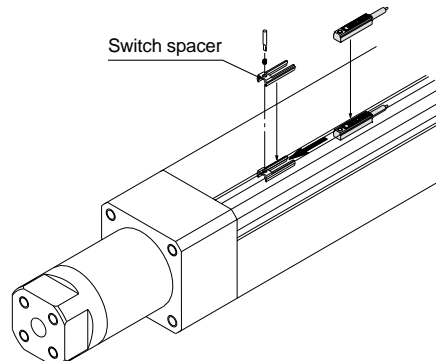
#### Switch spacers

Applicable bore size (mm)	40, 50, 63
Switch spacer	BMP1-032

#### Mounting bracket part nos.

Bore size (mm)	40	50	63
Foot Note1)	MGZ-L04	MGZ-L05	MGZ-L06
Flange	MGZ-F04	MGZ-F05	MGZ-F06

Note 1) When ordering foot brackets, order two pieces per cylinder.





# Non-rotating Double Power Cylinder *Series MGZ*

## Specifications



Bore size (mm)	40	50	63
Action	Double acting single rod		
Fluid	Air		
Proof pressure	1.5MPa		
Maximum operating pressure	1.0MPa		
Minimum operating pressure	Standard stroke: 0.08MPa		
	Long stroke: 0.12MPa		
Ambient and fluid temperature	Without auto switch: -10 to 70°C (with no freezing)		
	With auto switch: -10 to 60°C (with no freezing)		
Lubrication	Non-lube		
Piston speed	Extending: 50 to 700mm/s		
	Retracting: 50 to 450mm/s		
Stroke length tolerance	to 250 <sup>+1.0</sup> <sub>0</sub> , 251 to 1000 <sup>+1.4</sup> <sub>0</sub>		
Cushion	Rubber bumper		
Thread tolerance	JIS class 2		
Port size	Rc 1/4		
Mounting	Basic type, Transaxial foot type, Front flange type, Rear flange type		

## Standard strokes

Bore size (mm)	Standard stroke (mm)	Long stroke (mm)
40, 50, 63	75, 100, 125, 150, 175 200, 250, 300	350, 400, 450, 500, 600 700, 800, 900, 1000

Intermediate strokes and strokes of 75mm or less can also be manufactured.

## Weights

Bore size (mm)		(kg)		
		40	50	63
Standard weight	Basic type	1.90	3.03	4.83
	Foot type	2.39	3.92	6.08
	Flange type	2.34	3.79	5.83
Additional weight per 50mm of stroke	All brackets	0.39	0.59	0.78

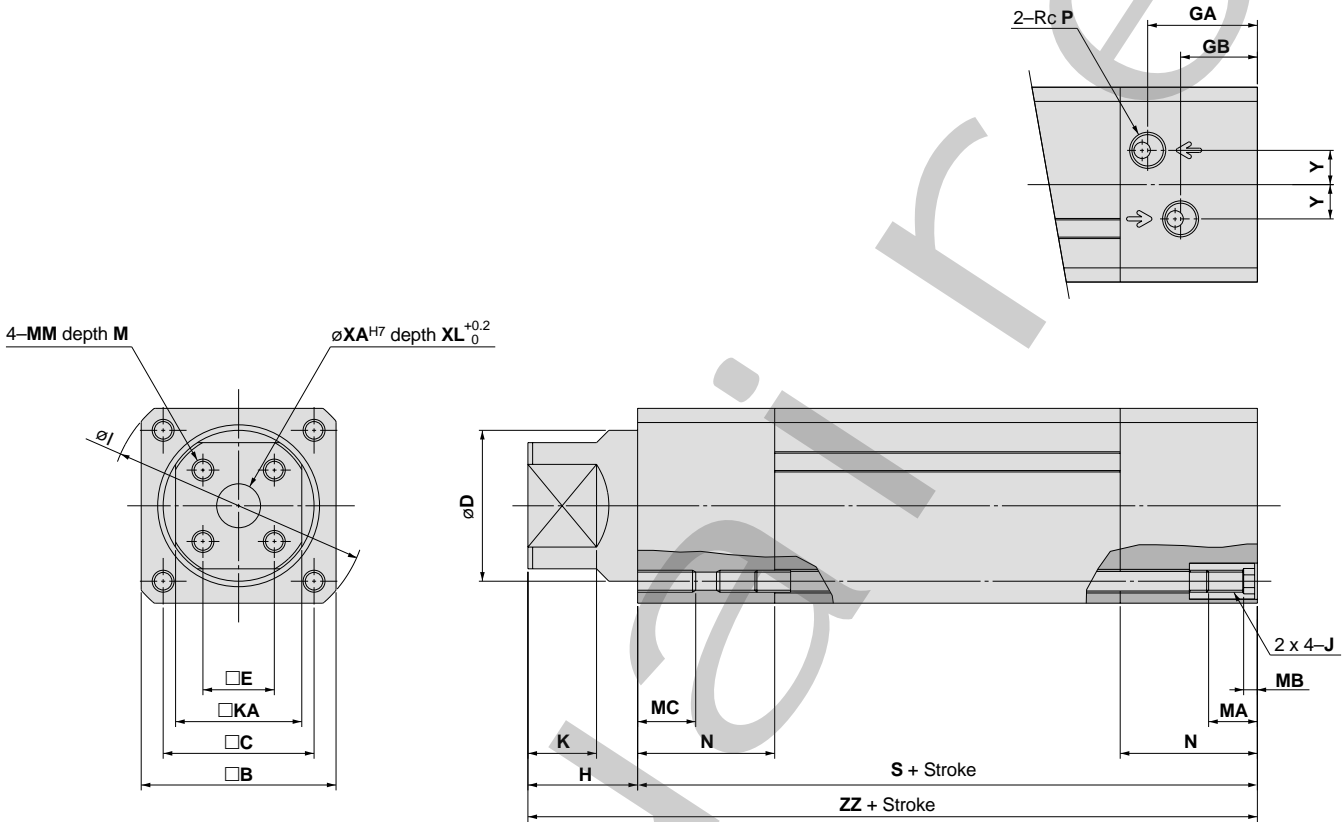
## Theoretical output

Model	Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm <sup>2</sup> )	Operating pressure (MPa)								
					0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
MGZ40	45 x 40	20	OUT	2533	507	760	1013	1267	1520	1773	2026	2280	2533
	40		IN	942	188	283	377	471	565	659	754	848	942
MGZ50	55 x 50	25	OUT	3848	770	1154	1539	1924	2309	2694	3078	3463	3848
	50		IN	1473	295	442	589	737	884	1031	1178	1326	1473
MGZ63	68 x 63	32	OUT	5945	1189	1784	2378	2973	3567	4162	4756	5351	5945
	63		IN	2313	463	694	925	1157	1388	1619	1850	2082	2313

# Series MGZ

## Dimensions

### Basic type



Allowable angle displacement of □E to □B is  $\pm 1.5^\circ$ .

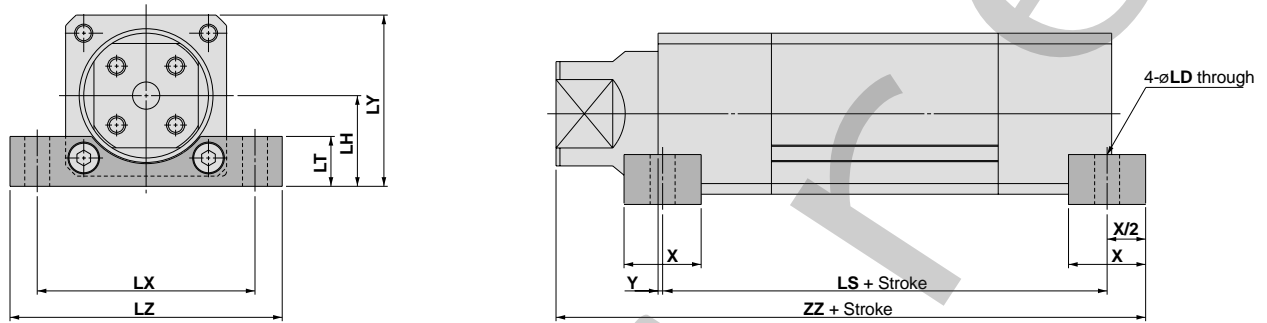
Bore size (mm)	Stroke range	B	C	D	E	KA	GA	GB	H	I	J	K	M
40	to 1000	59	46	45	21	36	34.5	23.5	40	78	M6 x 1.0	25	10
50	to 1000	71	55	55	26	46	40	28	45	92	M8 x 1.25	25	14
63	to 1000	82	66	68	32	53	46.5	34.5	50	110	M8 x 1.25	25	14

Bore size (mm)	Stroke range	MA	MB	MC	MM	N	P	S	XA	XL	Y	ZZ
40	to 1000	16	4	12	M6 x 1.0	44	1/4	138	12	6	9.5	178
50	to 1000	16	5	15	M8 x 1.25	50	1/4	150	16	6	12.5	195
63	to 1000	16	5	15	M8 x 1.25	56	1/4	171	16	6	15	221

**Dimensions with Mounting Brackets**

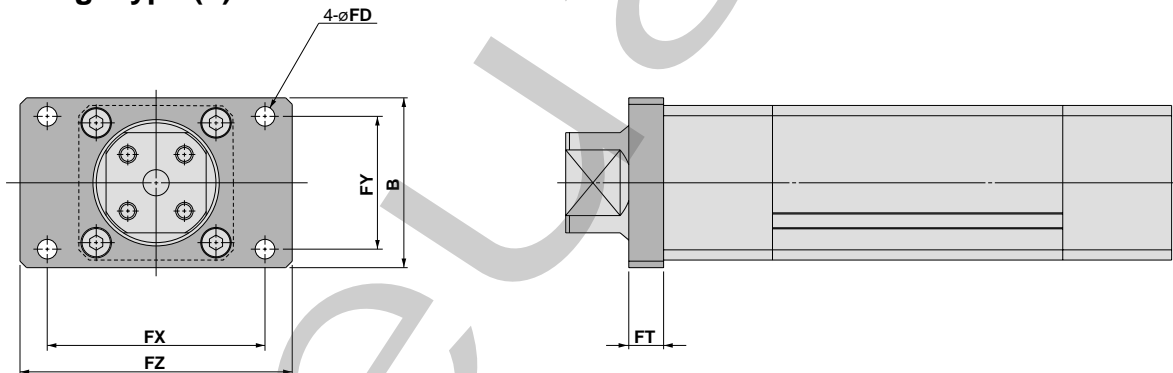
**Transaxial foot type (L)**



Bore size (mm)	Stroke range	X	Y	LD	LH	LT	LX	LY	LZ	LS	ZZ
40	to 1000	24	0	9	34	19	80	63.5	100	138	190
50	to 1000	32	1	11	40	22	96	75.5	120	148	210
63	to 1000	36	3	13	47	24	110	88	140	165	236

(mm)

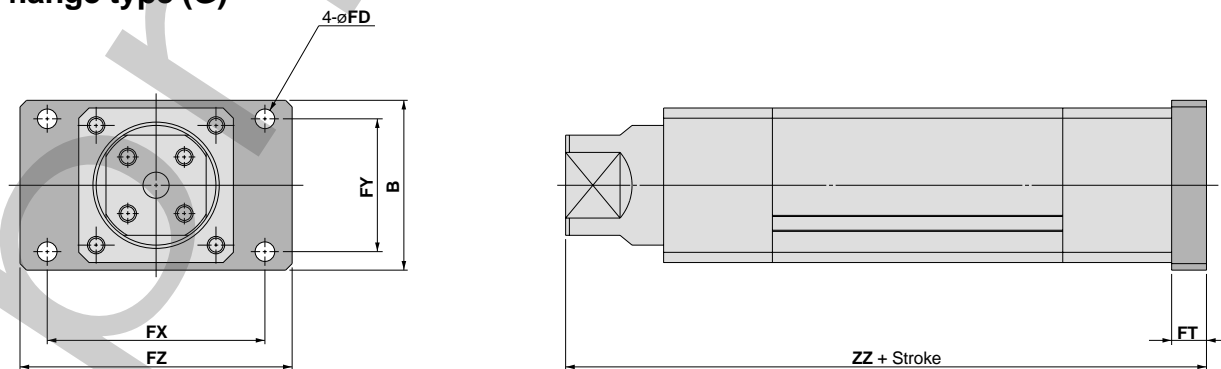
**Front flange type (F)**



Bore size (mm)	Stroke range	B	FD	FT	FX	FY	FZ
40	to 1000	74	9	12	80	58	100
50	to 1000	78	9	16	100	61	125
63	to 1000	100	12	16	112	75	138

(mm)

**Rear flange type (G)**

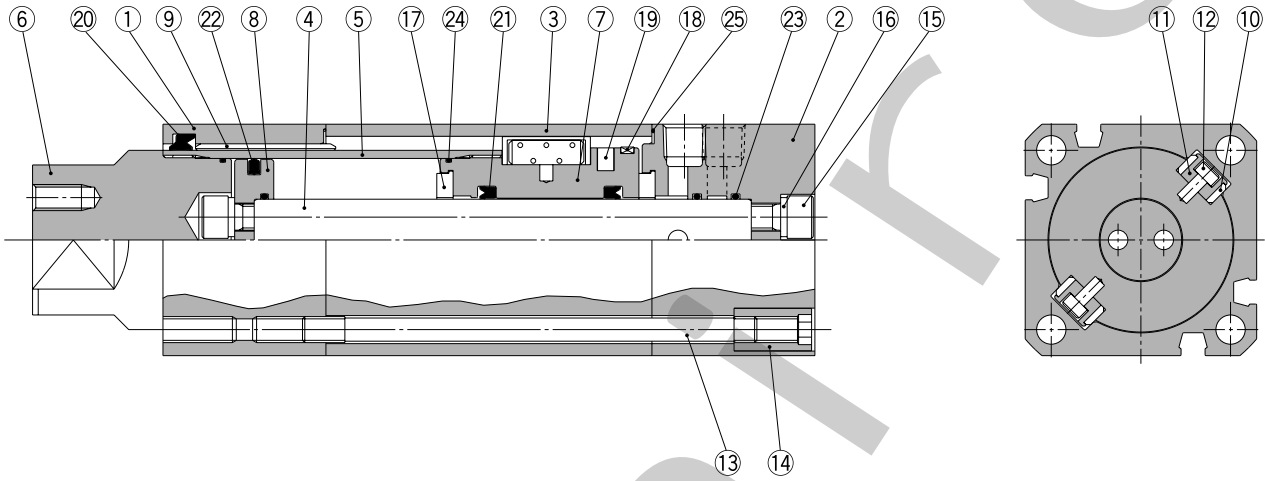


Bore size (mm)	Stroke range	B	FD	FT	FX	FY	FZ	ZZ
40	to 1000	74	9	12	80	58	100	190
50	to 1000	78	9	16	100	61	125	211
63	to 1000	100	12	16	112	75	138	237

(mm)

# Series MGZ

## Construction



### Parts list

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	Clear anodized
2	Head cover	Aluminum alloy	Clear anodized
3	Cylinder tube	Aluminum alloy	Hard anodized
4	Piston rod	Aluminum alloy	Hard anodized
5	Tube rod	Carbon steel pipe	Hard chrome plated
6	Tube rod cover	Carbon steel	Electroless nickel plated
7	Piston	Aluminum alloy	Chromated
8	Stationary piston	Aluminum alloy	Chromated
9	Bushing	Lead bronze casting	
10	Thrust plate	Lead bronze casting	
11	Holder	Aluminum alloy	Chromated
12	Pin	Carbon steel	Zinc chromated
13	Tie-rod	Carbon steel	Corrosion resistant chromated

No.	Description	Material	Note
14	Tie-rod nut	Carbon steel	Nickel plated
15	Hexagon socket head cap screw	Chrome molybdenum steel	Nickel plated
16	Spring washer	Steel wire	Nickel plated
17	Bumper	Urethane	
18	Wear ring	Resin	
19	Magnet	Magnetic material	
20*	Rod seal A	NBR	
21	Rod seal B	NBR	
22	Piston seal	NBR	
23	Piston gasket	NBR	
24	Tube rod gasket	NBR	
25*	Cylinder tube gasket	NBR	

### Replacement parts/Seal kits

Bore size (mm)	Seal kit no.	Content
40	MGZ40-PS	A set of above nos. 20 and 25.
50	MGZ50-PS	
63	MGZ63-PS	

\* Seal kits consist of a set of items 20 and 25, which can be ordered using the seal kit number for each bore size.



# Non-rotating Double Power Cylinder with Front End Lock

# Series **MGZ**

Ø40, Ø50, Ø63

## How to Order

**With End Lock**

**MGZ** [ ] **40** — **100** **R** — **Z73** [ ]

### Mounting

Nil	Basic type
L	Transaxial foot type
F	Front flange type
G	Rear flange type

### Number of auto switches

Nil	2 pcs.
S	1 pc.

### Auto switch type

Nil	Without auto switch (built-in magnet cylinder)
-----	---

\* Select applicable auto switch models from the table below.

### Bore size

40	40mm
50	50mm
63	63mm

### With front end lock

### Stroke (mm)

Refer to the standard stroke table on page 8.

## Applicable auto switches/Direct mount type

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage		Auto switch model		Lead wire length (m)*			Applicable load		
					DC	AC	Electrical entry direction		0.5 (Nil)	3 (L)	5 (Z)			
							Perpendicular	In-line						
Reed switch	—	Grommet	Yes	3 wire	—	5V	—	Z76	●	●	—	IC circuit	Relay, PLC	
				2 wire	24V	—	100V	—	Z73	●	●	●		—
					5V, 12V	100V or less	—	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	●	●	○	—	
				2 wire				Y69B	Y59B	●	●	○	—	
				3 wire (NPN)				Y7NWV	Y7NW	●	●	○	IC circuit	
				3 wire (PNP)				Y7PWV	Y7PW	●	●	○	—	
				2 wire				Y7BWV	Y7BW	●	●	○	—	
								—	Y7BA	—	●	○	—	

\* Lead wire length symbols: 0.5m ..... Nil (Example) Y69B  
3m ..... L Y69BL  
5m ..... Z Y69BZ

\*\* Solid state switches marked with a "O" symbol are produced upon receipt of order.

\*\*\* When later installing auto switches on a cylinder ordered without auto switches, the switch spacers in the table below are necessary.

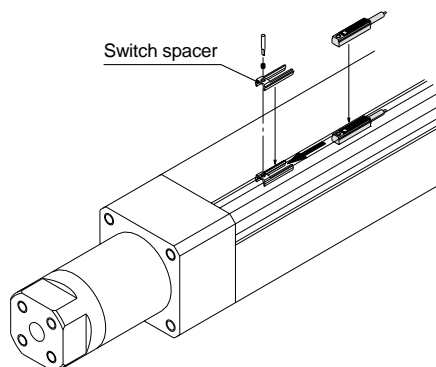
### Switch spacers

Applicable bore size (mm)	<b>40, 50, 63</b>
Switch spacer	BMP1-032

### Mounting bracket part nos.

Bore size (mm)	<b>40</b>	<b>50</b>	<b>63</b>
Foot <sup>Note1)</sup>	MGZ-L04	MGZ-L05	MGZ-L06
Flange	MGZ-F04	MGZ-F05	MGZ-F06

Note 1) When ordering foot brackets, order two pieces per cylinder.



# Non-rotating Double Power Cylinder *Series MGZ*



## Cylinder specifications

Bore size (mm)	40	50	63
Action	Double acting single rod		
Fluid	Air		
Proof pressure	1.5MPa		
Maximum operating pressure	1.0MPa		
Minimum operating pressure	0.2MPa*		
Ambient and fluid temperature	Without auto switch: -10 to 70°C (with no freezing)		
	With auto switch: -10 to 60°C (with no freezing)		
Lubrication	Non-lube		
Piston speed	Extending: 50 to 700mm/s		
	Retracting: 50 to 450mm/s		
Stroke length tolerance	to 250 <sup>+1.0</sup> <sub>0</sub> , 251 to 1000 <sup>+1.4</sup> <sub>0</sub>		
Cushion	Rubber bumper		
Thread tolerance	JIS class 2		
Port size	Rc 1/4		
Mounting	Basic type, Transaxial foot type, Front flange type, Rear flange type		

\* Except for the lock section, the minimum operating pressure is 0.08MPa (0.12MPa for long strokes).

## Lock specifications

End lock position	Front only		
Holding force (maximum) N	ø40	ø50	ø63
	1770	2690	4160
Backlash	2mm or less		
Manual release	Non-locking type		

Adjust an auto switch's position so that it operates for movement to both the stroke end and backlash (2mm) positions.

## Standard strokes

Bore size (mm)	Standard stroke (mm)	Long stroke (mm)
<b>40, 50, 63</b>	75, 100, 125, 150, 175 200, 250, 300	350, 400, 450, 500, 600 700, 800, 900, 1000

Intermediate strokes and strokes of 75mm or less can also be manufactured.

## Weights

Bore size (mm)	(kg)			
	40	50	63	
Standard weight	Basic type	2.80	4.08	6.13
	Foot type	3.29	4.97	7.39
	Flange type	3.24	4.84	7.13
Additional weight per 50mm of stroke	All brackets	0.41	0.61	0.80

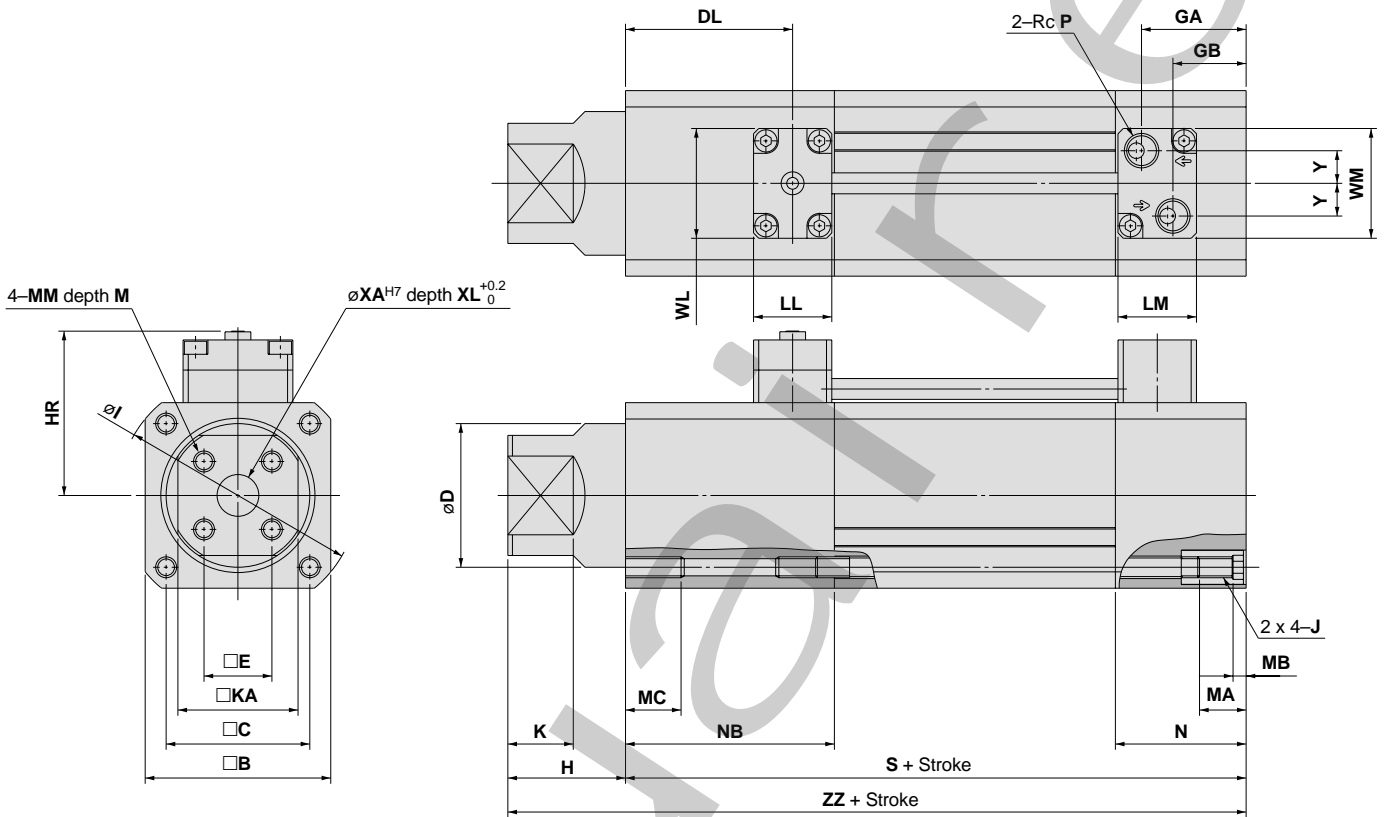
## Theoretical output

Model	Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm <sup>2</sup> )	Operating pressure (MPa)									
					0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
<b>MGZ40</b>	45 x 40	20	OUT	2533	507	760	1013	1267	1520	1773	2026	2280	2533	
	40		IN	942	188	283	377	471	565	659	754	848	942	
<b>MGZ50</b>	55 x 50	25	OUT	3848	770	1154	1539	1924	2309	2694	3078	3463	3848	
	50		IN	1473	295	442	589	737	884	1031	1178	1326	1473	
<b>MGZ63</b>	68 x 63	32	OUT	5945	1189	1784	2378	2973	3567	4162	4756	5351	5945	
	63		IN	2313	463	694	925	1157	1388	1619	1850	2082	2313	

# Series MGZ

## Dimensions

### Basic type



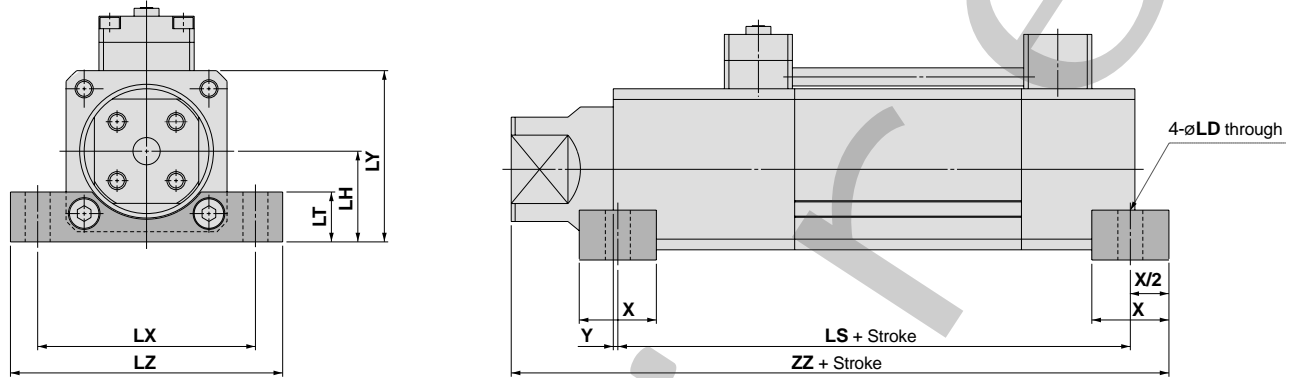
Bore size (mm)	Stroke range	$\square B$	$\square C$	D	DL	$\square E$	GA	GB	H	HR	I	J	K	KA	LL	LM
40	to 1000	59	46	45	58	21	34.5	23.5	40	57.5	78	M6 x 1.0	25	36	30	30
50	to 1000	71	55	55	67	26	40	28	45	63.5	92	M8 x 1.25	25	46	30	30
63	to 1000	82	66	68	73	32	46.5	34.5	50	69	110	M8 x 1.25	25	53	30	30

Bore size (mm)	Stroke range	M	MA	MB	MC	MM	N	NB	P	S	XA	XL	Y	WL	WM	ZZ
40	to 1000	10	16	4	12	M6 x 1.0	44	74	1/4	168	12	6	9.5	42	39	208
50	to 1000	14	16	5	15	M8 x 1.25	50	83	1/4	183	16	6	12.5	42	42	228
63	to 1000	14	16	5	15	M8 x 1.25	56	89	1/4	204	16	6	15	52	52	254

**Dimensions with Mounting Brackets**

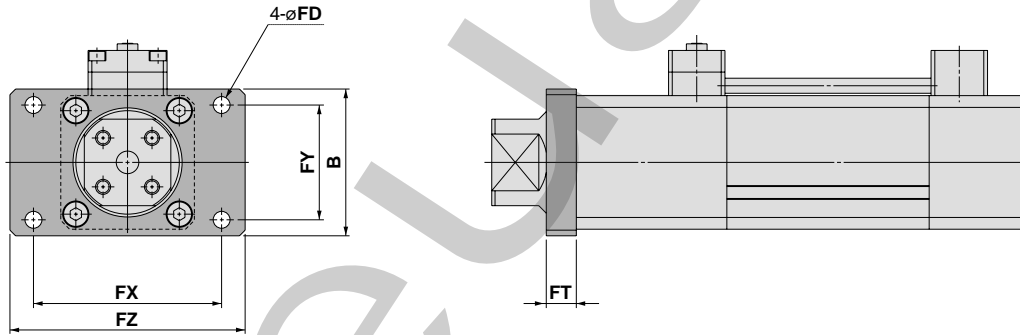
**Transaxial foot type (L)**



(mm)

Bore size (mm)	Stroke range	X	Y	LD	LH	LT	LX	LY	LZ	LS	ZZ
40	to 1000	24	0	9	34	19	80	63.5	100	168	220
50	to 1000	32	1	11	40	22	96	75.5	120	181	243
63	to 1000	36	3	13	47	24	110	88	140	198	269

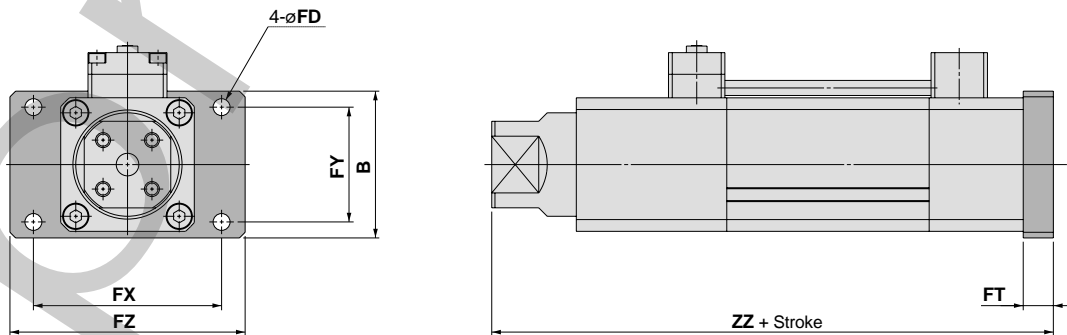
**Front flange type (F)**



(mm)

Bore size (mm)	Stroke range	B	FD	FT	FX	FY	FZ
40	to 1000	74	9	12	80	58	100
50	to 1000	78	9	16	100	61	125
63	to 1000	100	12	16	112	75	138

**Rear flange type (G)**

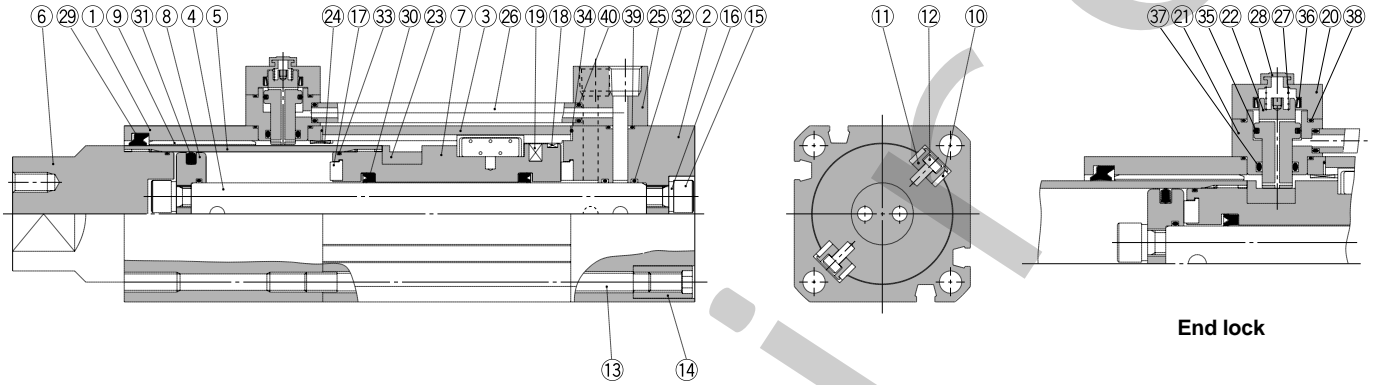


(mm)

Bore size (mm)	Stroke range	B	FD	FT	FX	FY	FZ	ZZ
40	to 1000	74	9	12	80	58	100	220
50	to 1000	78	9	16	100	61	125	244
63	to 1000	100	12	16	112	75	138	270

# Series MGZ

## Construction



### Parts list

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	Clear anodized
2	Head cover	Aluminum alloy	Clear anodized
3	Cylinder tube	Aluminum alloy	Hard anodized
4	Piston rod	Aluminum alloy	Hard anodized
5	Tube rod	Carbon steel pipe	Hard chrome plated
6	Tube rod cover	Carbon steel	Electroless nickel plated
7	Piston	Aluminum alloy	Chromated
8	Stationary piston	Aluminum alloy	Chromated
9	Bushing	Lead bronze casting	
10	Thrust plate	Lead bronze casting	
11	Holder	Aluminum alloy	Chromated
12	Pin	Carbon steel	Zinc chromated
13	Tie-rod	Carbon steel	Corrosion resistant chromated
14	Tie-rod nut	Carbon steel	Nickel plated
15	Hexagon socket head cap screw	Chrome molybdenum steel	Nickel plated
16	Spring washer	Steel wire	Nickel plated
17	Bumper	Urethane	
18	Wear ring	Resin	
19	Magnet	Magnetic material	
20	Cap	Bronze alloy	Electroless nickel plated

No.	Description	Material	Note
21	Lock holder	Stainless steel	
22	Lock piston	Carbon steel	Quenched, Hard chrome plated
23	Stopper	Carbon steel	Quenched
24	Collar	Lead bronze casting	
25	Port block	Bronze alloy	Electroless nickel plated
26	Pipe	Bronze alloy	
27	Lock spring	Steel wire	
28	Rubber cap	Synthetic rubber	
29*	Rod seal A	NBR	
30	Rod seal B	NBR	
31	Piston seal	NBR	
32	Piston gasket	NBR	
33	Tube rod gasket	NBR	
34*	Cylinder tube gasket	NBR	
35*	Lock piston seal A	NBR	
36*	Lock piston seal B	NBR	
37*	Lock piston seal C	NBR	
38*	Lock holder gasket	NBR	
39*	Port block gasket	NBR	
40*	Pipe gasket	NBR	

### Replacement parts/Seal kits

Bore size (mm)	Seal kit no.	Content
40	MGZ40R-PS	A set of above nos. 29, 34, 35, 36, 37, 38, 39 and 40.
50	MGZ50R-PS	
63	MGZ63R-PS	

\* Seal kits consist of a set of items 29 and 34 through 40, which can be ordered using the seal kit number for each bore size.

# Series MGZ Auto Switch Specifications Direct Mount Type

## Applicable auto switches

Auto switch type	Auto switch model	Electrical entry
Reed switch	D-Z7□, Z80	Grommet
Solid state switch	D-Y59□, Y69□, Y7P□	Grommet
	D-Y7NW□, Y7PW□, Y7BW□	Grommet (2 color indicator, With diagnostic output)
	D-Y7BAL	Grommet (2 color indicator, Water resistant)



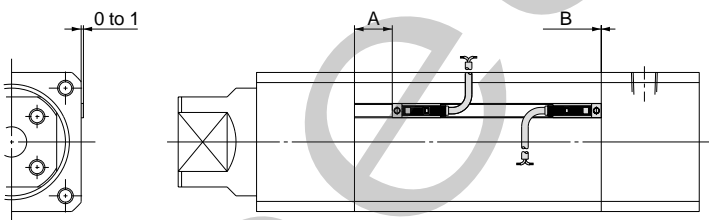
## ⚠ Specific Product Precautions

Be sure to read before handling.  
Refer to pages 20 through 22 for auto switch precautions.

## Minimum strokes for mounting of auto switches

Auto switch type	Auto switch model	Number of auto switches mounted	ø40	ø50	ø63
Reed switch	D-Z73, Z76, Z80	2 pcs. (same side)		60	
		1 pc., 2 pcs. (different sides)		20	
Solid state switch	D-Y59A(B), Y69A(B) Y7P(V)	2 pcs. (same side)		60	
		1 pc., 2 pcs. (different sides)		20	
	D-Y7NW(V), Y7PW(V) Y7BW(V)	2 pcs. (same side)		70	
		1 pc., 2 pcs. (different sides)		25	
	D-Y7BAL	2 pcs. (same side)		70	
		1pc., 2 pcs. (different sides)		25	

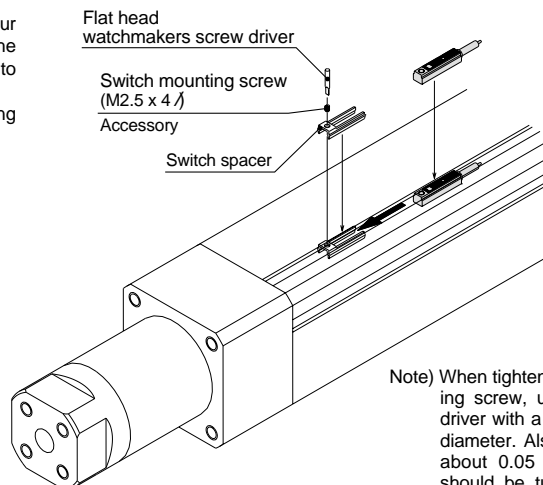
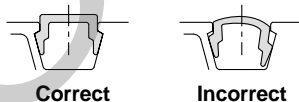
## Auto Switches/Proper Mounting Position for Stroke End Detection



Bore size (mm)	D-Z7□, Z80 D-Y59□, Y69□, Y7P□ D-Y7NW□, Y7PW□, Y7BW□ D-Y7BAL	
	A	B
40	23	0
50	23	0
63	32	0

## Auto Switch Mounting

When mounting an auto switch, first hold the switch spacer between your fingers and press it into the groove. Then confirm that it is seated in the proper mounting position, and correct if necessary. Next insert the auto switch into the groove and slide it under the switch spacer. After setting in the desired mounting position, tighten the switch mounting screw, which is included, using a flat head watchmakers screw driver.



Note) When tightening the auto switch mounting screw, use a watchmakers screw driver with a handle about 5 to 6mm in diameter. Also tighten with a torque of about 0.05 to 0.1N·m. As a rule, it should be turned about 90° past the point at which tightening can be felt.

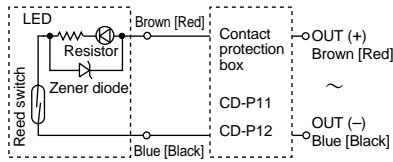


# Series MGZ

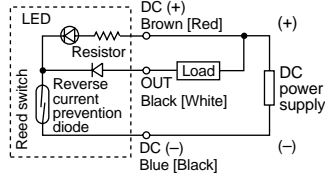
## Reed Switch Internal Circuits

Lead wire colors inside [ ] are those prior to conformity with IEC standards.

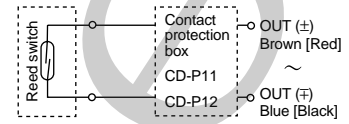
D-Z73



D-Z76



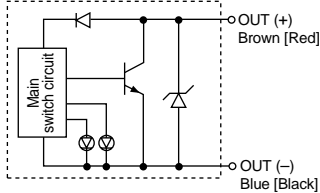
D-Z80



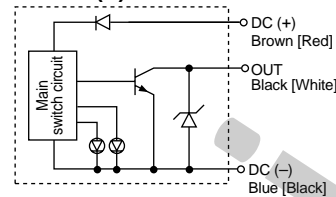
## Solid State Switch Internal Circuits

Lead wire colors inside [ ] are those prior to conformity with IEC standards.

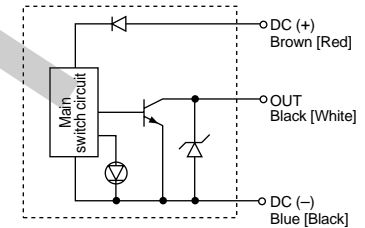
D-Y7BAL



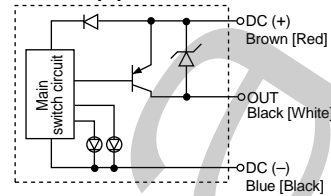
D-Y7NW(V)



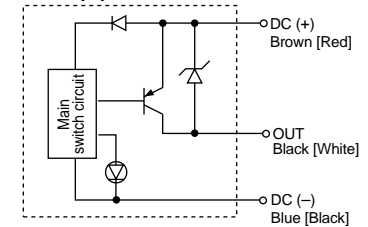
D-Y59A, Y69A



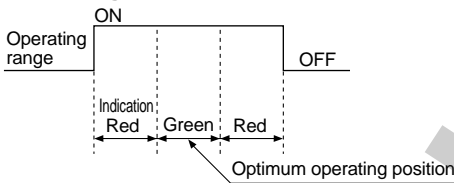
D-Y7PW(V)



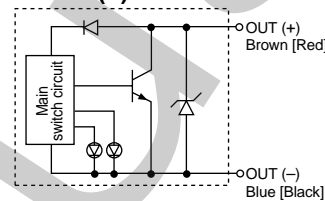
D-Y7P(V)



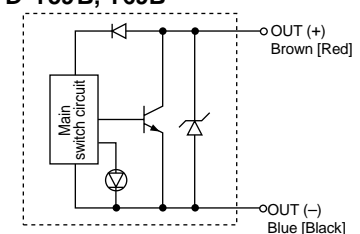
### Indicator light



D-Y7BW(V)



D-Y59B, Y69B



## Contact Protection Boxes/CD-P11, CD-P12

### <Applicable auto switches>

D-Z7, Z8

Auto switches shown above do not have internal contact protection circuits.

1. The operated load is an induction load.
2. The length of wiring to the load is 5m or more.
3. The load voltage is 100VAC.

A contact protection box should be used in any of the above cases.

### Contact protection box specifications

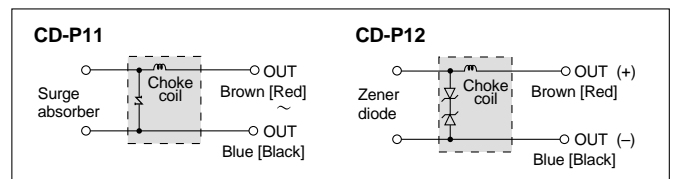
Part no.	CD-P11	CD-P12
Load voltage	100VAC or less	24VDC
Maximum load current	25mA	50mA

\* Lead wire length ..... Switch connection side 0.5m  
Load connection side 0.5m

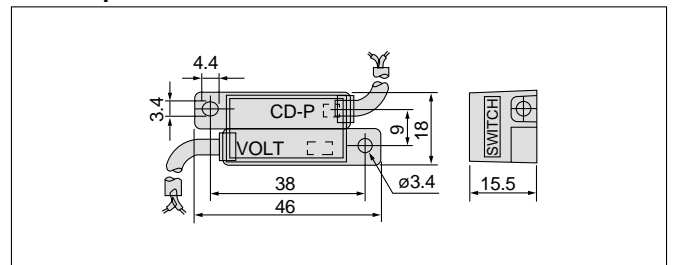


### Contact protection box internal circuits

Lead wire colors inside [ ] are those prior to conformity with IEC standards.



### Contact protection box dimensions



### Contact protection box connection

To connect a switch unit to a contact protection box, connect the lead wire from the side of the contact protection box marked SWITCH to the lead wire coming out of the switch unit. Further, the switch unit should be kept as close as possible to the contact protection box, with a lead wire length of no more than 1 meter.

# Series MGZ Model Selection

**⚠ Caution** Theoretical output must be confirmed separately. Refer to the theoretical output table on page 2.

**Selection Conditions:** Determine the selection conditions in order from the top of the table below, and choose one of the selection graphs to be used.

## 1. Confirmation of allowable load weight by application

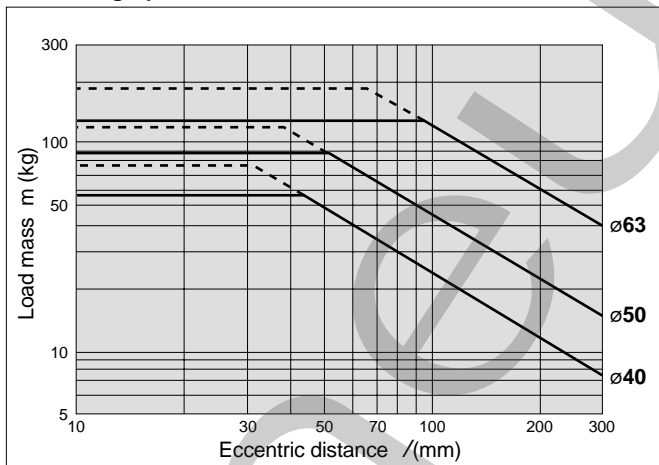
Vertical upward: Lifter			Vertical downward: Press		Horizontal: Chucking		
Maximum speed (mm/s)			Maximum speed (mm/s)		Load center of gravity position $l$ (mm)		
to 300	to 500	to 700	to 300	to 500	to 100	to 200	to 300
Graph 1	Graph 2	Graph 3	Graph 4	Graph 5	Graph 6	Graph 7	Graph 8

\*  $l$ : The dimension for the load center of gravity position is the dimension when the cylinder is retracted.

## Selection Graphs 1 to 3 (Vertical Upward Mounting)

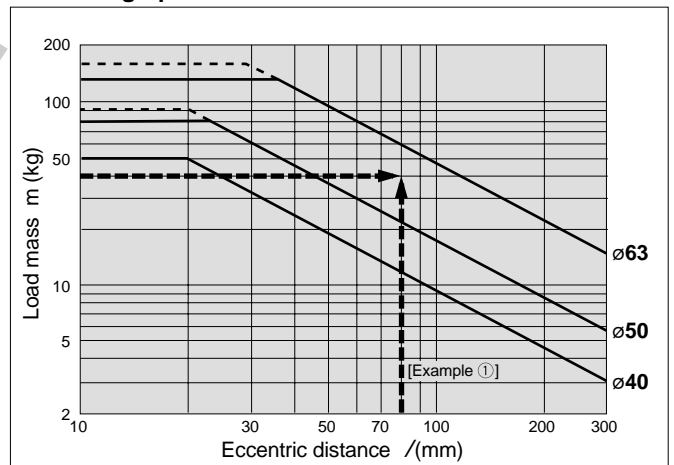
Selection graph 1 to 300mm/s

Solid line: Operating pressure 0.4MPa or more  
Dotted line: Operating pressure 0.5MPa or more



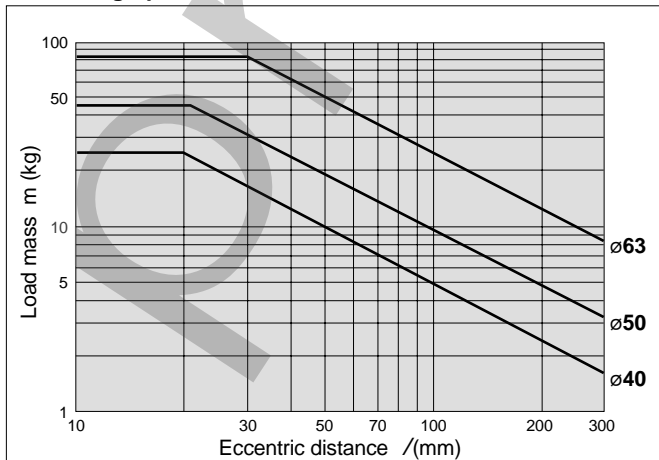
Selection graph 2 to 500mm/s

Solid line: Operating pressure 0.4MPa or more  
Dotted line: Operating pressure 0.5MPa or more



Selection graph 3 to 700mm/s

Solid line: Operating pressure 0.4MPa or more



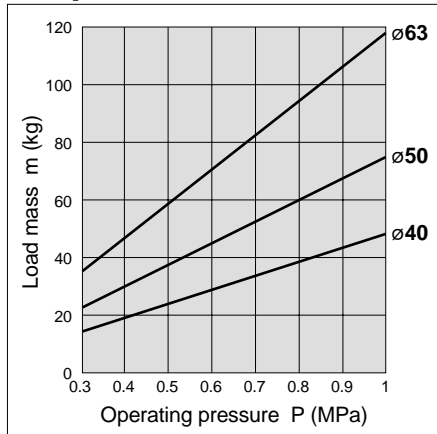
## Selection Example: Vertical Upward Mounting

- ① Selection conditions
- Mounting: Vertical upward (lifter)
  - Maximum speed: 500mm/s
  - Load mass: 40kg
  - Eccentric distance: 80mm

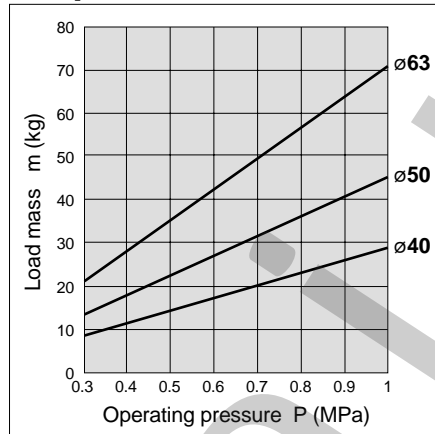
Refer to graph 2 based on vertical mounting and speed of 500mm/s. Find the intersection of load mass 40kg and eccentric distance 80mm in graph 2, and determine bore size ø63.

## Selection Graphs 4 5 (Vertical Downward Mounting)

Graph 4 to 300mm/s



Graph 5 to 500mm/s



## Selection Example: Horizontal Mounting

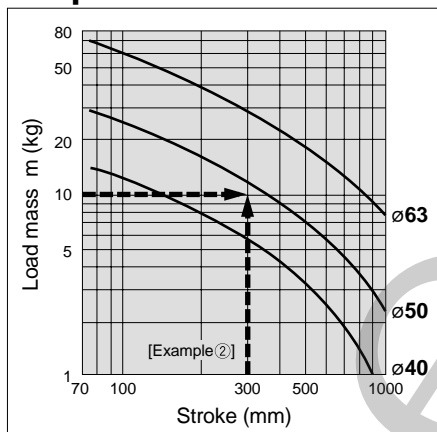
② Selection conditions

Mounting: Horizontal (chucking)  
Stroke: 300mm  
Load center of gravity position: 100mm  
Load mass: 10kg  
Operating pressure: 0.5MPa

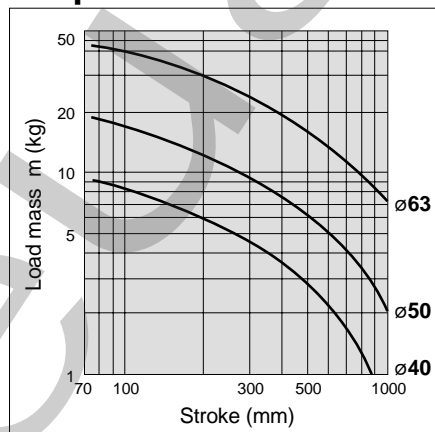
Refer to graph 6 based on horizontal mounting and load center of gravity position. Find the intersection of load mass 10kg and stroke 300mm in graph 6, and determine bore size ø50. The theoretical output for extension is 1924N, from the theoretical output table on page 2.

## Selection Graphs 6 to 8 (Horizontal Mounting)

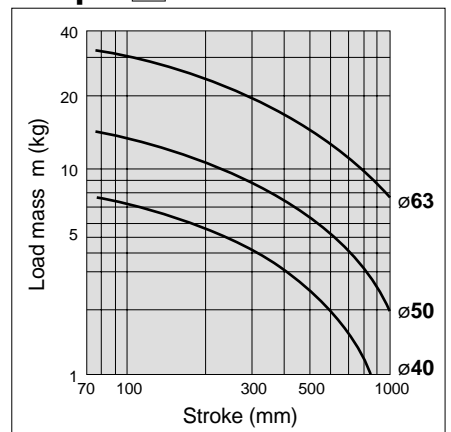
Graph 6 ∠ 100mm or less



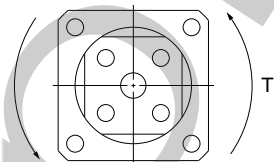
Graph 7 ∠ 101 to 200mm



Graph 8 ∠ 201 to 300mm



### 2. Confirmation of allowable rotary torque

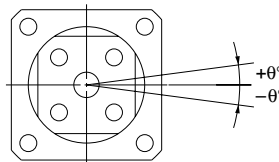


#### Allowable rotary torque

Bore size (mm)	Allowable rotary torque T (N·m)
40	7
50	15
63	20

### 3. Confirmation of non-rotating accuracy

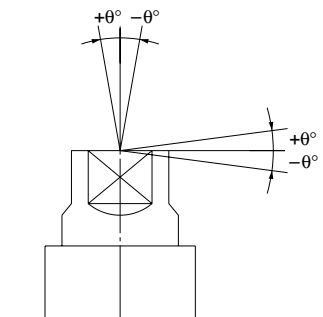
#### 3-1 Rolling direction



#### Non-rotating accuracy

Bore size (mm)	Non-rotating accuracy (±θ°)
40	±0.3° or less
50	
63	

#### 3-2 Pitching direction



#### Deflection angle for eccentric load

Bore size (mm)	Non-rotating accuracy (±θ°)
40	±0.12° or less
50	
63	