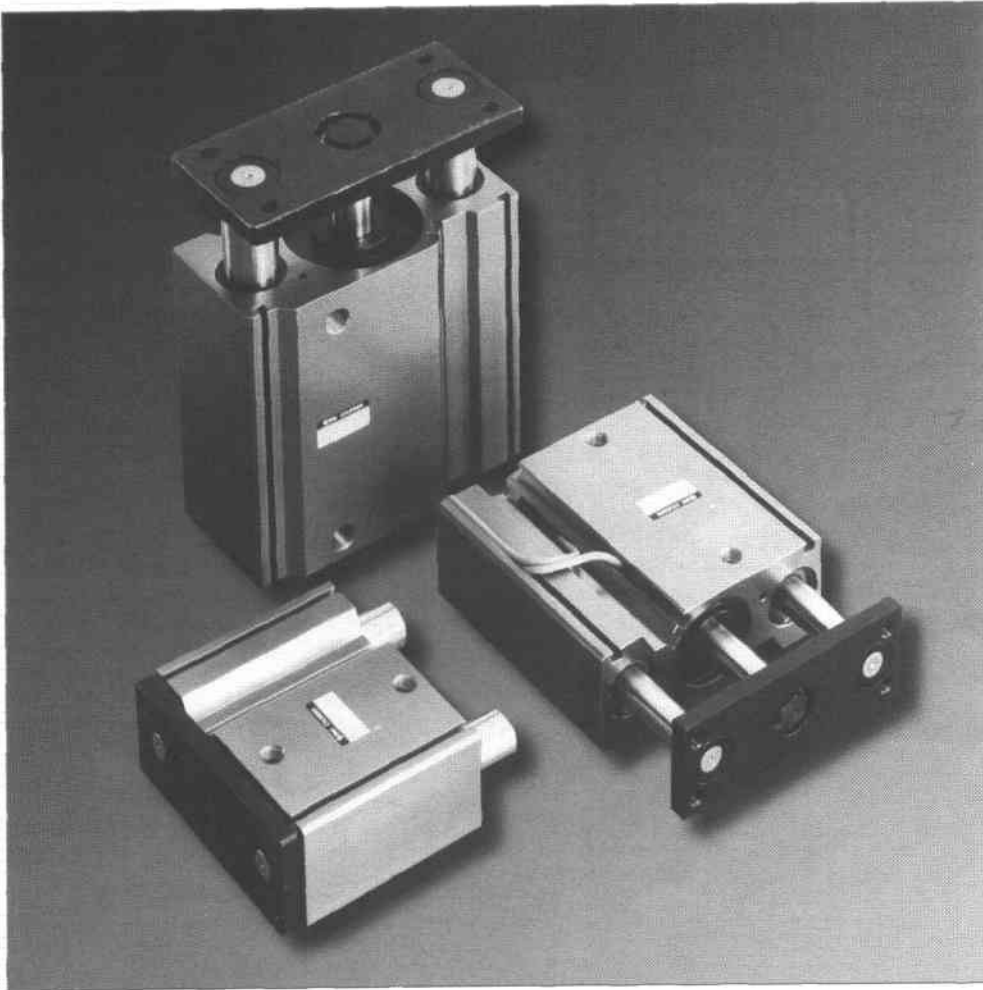




Air Cylinder

MGQ Series

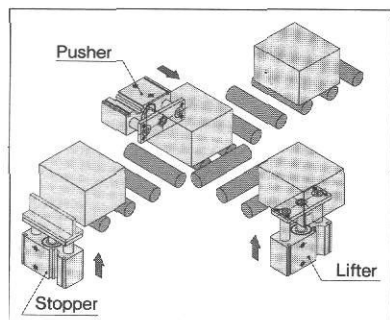
Compact Guide Cylinder



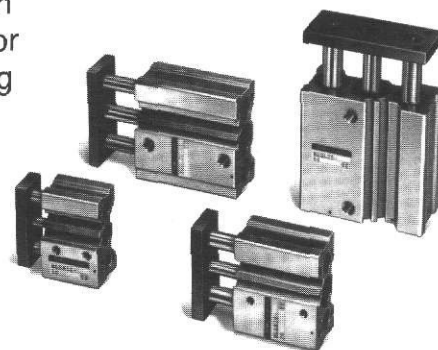
Compact, Single body Guide Cylinder
10 Bore Sizes from $\varnothing 12\text{mm}$ ~ $\varnothing 100\text{mm}$
Perfect for Conveyor Line Stopping & Lifting
Mounts from Bottom or Side
Auto Switch Capable

Compact Guide Cylinder Series MGQ

φ12, φ16, φ20, φ25, φ32, φ40, φ50, φ63, φ80, φ100



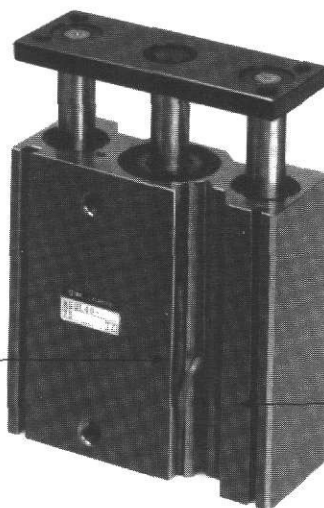
Space saving cylinder.
Provides non-rotating strength
against side loads. Suitable for
conveyor lines where stopping
and lifting are required.



MGQ Series
equipped with
magnets standard.

Lead wires and
terminals can be
fixed in the groove of
cylinder body.

(Except for φ12, φ16, φ20, φ25)



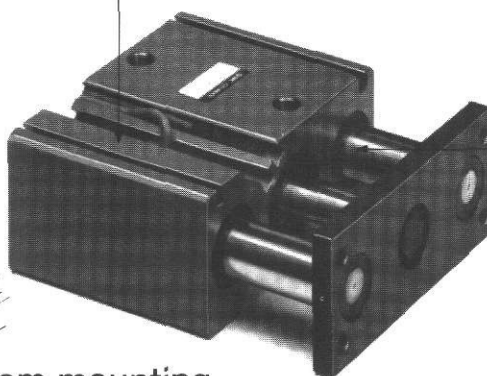
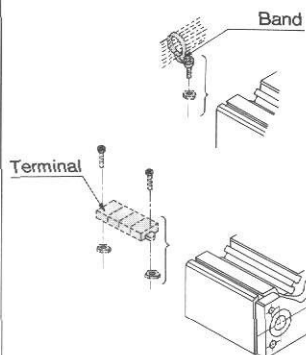
2 kinds of bearings

Slide bearing

Strength against side load
is more than 2 times that
of conventional stopper
cylinders.

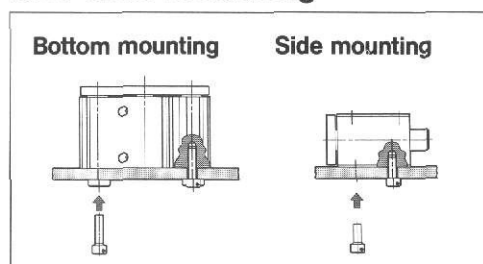
Ball bush bearing

Smooth operation suitable
for pushing, lifting and
applications where high
precision is required.



High non-rotating
accuracy

Mounting: Bottom mounting
and side mounting



Bore size	Non-rotating accuracy (°)	
	MGQM	MGQL
12		
16	±0.08°	±0.10°
20		
25	±0.07°	±0.09°
32		
40	±0.06°	±0.08°
50		
63	±0.05°	±0.06°
80		
100	±0.04°	±0.05°



Compact Guide Cylinder Series MGQ

ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

How to Order

MGQ M 50 75 Z73 XC18

Compact guide cylinder

Type of Bearing

M	Slide bearing (suitable for stopper)
L	Ball bush bearing (suitable for lifting/pushing)

Bore size

12	12mm
16	16mm
20	20mm
25	25mm
32	32mm
40	40mm
50	50mm
63	63mm
80	80mm
100	100mm

Cylinder stroke (mm)
Refer to Model/Standard Stroke Table

Type of auto switch

Porting

—	PT(Rc) Ports
XC18	NPT Ports
XB11	Longstroke

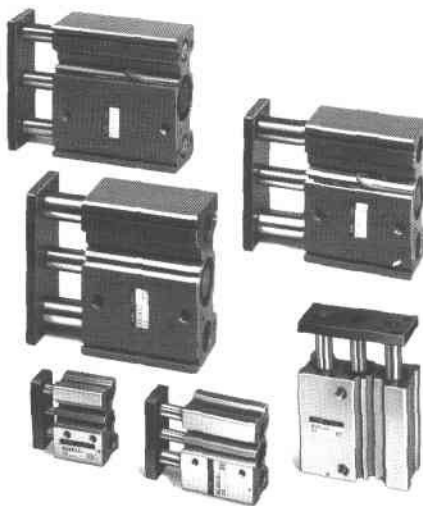
see page 16 for details

Auto Switch

—	2pcs
S	1pc.

Shaded Options
Special Order Only

	Without auto switch (Cylinder with built-in magnet)	
Z73	D-Z73 (2 wire system)	Reed switch
Z76	D-Z76 (3 wire system)	Lead wire: Axial
Z80	D-Z80 (2 wire system)	direction take-off
Y59A	D-Y59A (3 wire system)/NPN	
Y7P	D-Y7P (3 wire system)/PNP	Solid state switch
Y59B	D-Y59B (2 wire system)	Lead wire: Axial
Y7BW	D-Y7BW (2 wire system)	direction take-off
Y7PW	D-Y7PW (3 wire system)/PNP	
Y7NW	D-Y7NW (3 wire system)/NPN	
Y69A	D-Y69A (3 wire system)/NPN	
Y7PV	D-Y7PV (3 wire system)/PNP	Solid state switch
Y69B	D-Y69B (2 wire system)	Lead wire: Right angle
Y7BWV	D-Y7BWV (2 wire system)	take-off
Y7PWV	D-Y7PWV (3 wire system)/PNP	
Y7NWV	D-Y7NWV (3 wire system)/NPN	



Model/Standard Stroke Table

Model	Type of bearing	Model, Bore size (mm)	Standard stroke (mm)
MGQM	Slide bearing	MGQ ^M _L 12, 16	10, 20, 30, 40, 50
		MGQ ^M _L 20, 25	20, 30, 40, 50, 75, 100
MGQL	Ball bush bearing	MGQ ^M _L 32, 40, 50, 63, 80, 100	25, 50, 75, 100

• intermediate stroke

As to intermediate stroke (5, 10, 15, 20, 30, 35.....), spacer of 5, 10, 15, 20mm width will be used.

(Example) MGQM50-10 is produced by installing 15mm spacer in MGQM50-25.

Consult factory when the desired stroke is greater than the standard stroke.

Specifications

1MPa=10.20kgf/cm²

Operation	Double acting	
Fluid	Air	
Proof pressure	1.5MPa(15.3kgf/cm ² ; 217PSI)	
Max. operating pressure	1.0MPa(10.2kgf/cm ² ; 145PSI)	
Min. operating pressure	φ12, φ16	0.12MPa(1.2kgf/cm ² ; 17PSI)
	φ20~φ100	0.1MPa(1.0kgf/cm ² ; 14PSI)
Ambient and fluid temperature	-10~+60°C (14~140°F)	
Piston speed	φ12~φ63	50~500mm/s
	φ80, φ100	50~400mm/s
Cushion	Rubber cushion at both sides	
Lubrication	Non-lubrication	
Stroke tolerance	+1.5 0 mm	

Theoretical Output Table



Bore size, (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
12	6	OUT	113	23	34	45	57	68	79	90	102	113
		IN	85	17	26	34	43	51	60	68	77	85
16	8	OUT	201	40	60	80	101	121	141	161	181	201
		IN	151	30	45	60	76	91	106	121	136	151
20	10	OUT	314	63	94	126	157	188	220	251	283	314
		IN	236	47	71	94	118	142	165	189	212	236
25	12	OUT	491	98	147	196	246	295	344	393	442	491
		IN	378	76	113	151	189	227	265	302	340	378
32	16	OUT	804	161	241	322	402	482	563	643	724	804
		IN	603	121	181	241	302	362	422	482	543	603
40	16	OUT	1257	251	377	503	629	754	880	1006	1131	1257
		IN	1056	211	317	422	528	634	739	845	950	1056
50	20	OUT	1963	393	589	785	982	1178	1374	1570	1767	1963
		IN	1649	330	495	660	825	990	1154	1319	1484	1649
63	20	OUT	3117	623	935	1247	1559	1870	2182	2494	2805	3117
		IN	2803	561	841	1121	1402	1682	1962	2242	2523	2803
80	25	OUT	5027	1005	1508	2011	2514	3016	3519	4022	4524	5027
		IN	4536	907	1361	1814	2268	2722	3175	3629	4082	4536
100	30	OUT	7854	1571	2356	3142	3927	4712	5498	6283	7069	7854
		IN	7147	1429	2144	2859	3574	4288	5003	5718	6432	7147

1N=0.102kgf 1MPa=10.2kgf/cm² 1MPa=145psi 1N=0.225lbs.Theoretical output (N)=Pressure(MPa) x Piston area (mm²)

Weight Table

(kg)

Bore size (mm)	Model	Type of bearing	Standard stroke (mm)							
			10	20	25	30	40	50	75	100
12	MGQM12	Slide bearing	0.24	0.28	—	0.32	0.35	0.39	—	—
	MGQL12	Ball bush bearing	0.23	0.26	—	0.29	0.35	0.38	—	—
16	MGQM16	Slide bearing	0.36	0.41	—	0.47	0.52	0.57	—	—
	MGQL16	Ball bush bearing	0.35	0.39	—	0.44	0.52	0.57	—	—
20	MGQM20	Slide bearing	—	0.56	—	0.63	0.70	0.77	0.96	1.10
	MGQL20	Ball bush bearing	—	0.54	—	0.60	0.70	0.75	0.90	1.04
25	MGQM25	Slide bearing	—	0.85	—	0.95	1.05	1.14	1.45	1.69
	MGQL25	Ball bush bearing	—	0.84	—	0.93	1.08	1.17	1.37	1.58
32	MGQM32	Slide bearing	—	—	1.60	—	—	2.00	2.38	2.78
	MGQL32	Ball bush bearing	—	—	1.32	—	—	1.67	2.09	2.45
40	MGQM40	Slide bearing	—	—	1.74	—	—	2.33	2.55	2.96
	MGQL40	Ball bush bearing	—	—	1.46	—	—	1.82	2.27	2.63
50	MGQM50	Slide bearing	—	—	2.65	—	—	3.20	3.75	4.31
	MGQL50	Ball bush bearing	—	—	2.11	—	—	2.59	3.19	3.68
63	MGQM63	Slide bearing	—	—	3.12	—	—	3.73	4.33	4.94
	MGQL63	Ball bush bearing	—	—	2.65	—	—	3.19	3.85	4.39
80	MGQM80	Slide bearing	—	—	5.93	—	—	6.86	7.78	8.70
	MGQL80	Ball bush bearing	—	—	5.49	—	—	6.38	7.95	8.79
100	MGQM100	Slide bearing	—	—	9.22	—	—	10.53	11.85	13.18
	MGQL100	Ball bush bearing	—	—	8.34	—	—	9.53	11.78	12.96

1kg=2.2lbs.

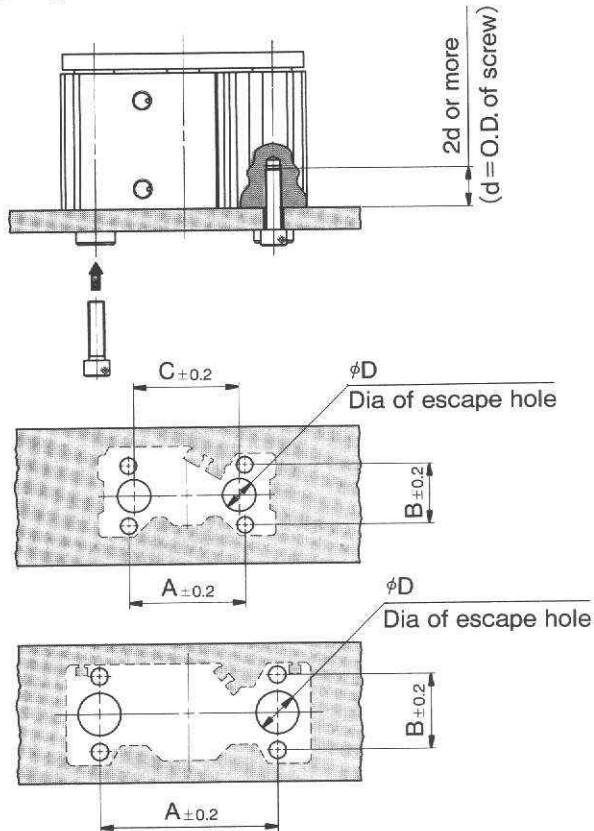
Precautions

At the time of pipe-laying, thoroughly flush pipes and joints with air and then connect them. Avoid scratching or denting piston rod and guide rod. Otherwise, air leaks due to damage to packings or faulty operation may occur.
Cylinder tube can be used without lubrication but if you lubricate, use turbine oil class-1 ISO VG32). (Do not use machine oil or spindle oil.)

Precautions for Cylinder Mounting

In bottom mounting, the guide shaft will protrude from the bottom surface. Therefore, drill a hole for a hexagon-headed bolt for mounting and an escape hole for guide shaft on the mounting plate.

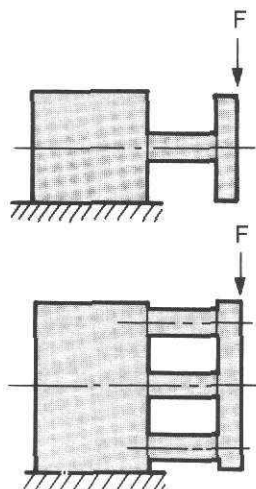
When used in stopper application mounting hole, diameter should be $2d$ or more.



Bore size (mm)	A (mm)	B (mm)	C (mm)	ϕD (mm)		Hexagonal socket head cap screw for mounting
				MGQM	MGQL	
12	40	18	36	10	8	M4 × 0.7
16	42	22	38	12	10	M5 × 0.8
20	52	26	46	14	12	M5 × 0.8
25	62	32	56	18	15	M6 × 1
32	80	38	80	22	18	M8 × 1.25
40	90	38	90	22	18	M8 × 1.25
50	100	44	100	27	22	M10 × 1.5
63	110	44	110	27	22	M10 × 1.5
80	140	56	140	31	28	M12 × 1.75
100	170	62	170	39	33	M14 × 2

Operating Conditions

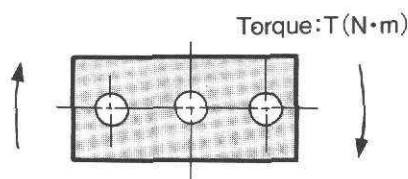
Permissible lateral load (Ordinary-use load)



Bore size	Model	Stroke (mm)								F (N)
		10	20	25	30	40	50	75	100	
12	MGQM	21	18	—	15	13	12	—	—	
	MGQL	27	22	—	17	21	19	—	—	
16	MGQM	34	28	—	25	22	19	—	—	
	MGQL	38	30	—	26	37	33	—	—	
20	MGQM	—	51	—	44	38	34	57	49	
	MGQL	—	55	—	47	78	69	53	44	
25	MGQM	—	70	—	60	53	47	77	65	
	MGQL	—	71	—	61	77	72	59	51	
32	MGQM	—	—	196	—	—	167	137	108	
	MGQL	—	—	88	—	—	59	275	216	
40	MGQM	—	—	196	—	—	167	137	108	
	MGQL	—	—	88	—	—	59	275	216	
50	MGQM	—	—	294	—	—	255	215	176	
	MGQL	—	—	137	—	—	88	392	313	
63	MGQM	—	—	294	—	—	255	215	176	
	MGQL	—	—	137	—	—	88	392	313	
80	MGQM	—	—	353	—	—	304	255	206	
	MGQL	—	—	235	—	—	157	863	686	
100	MGQM	—	—	539	—	—	470	412	343	
	MGQL	—	—	470	—	—	313	1370	1070	

1N ≒ 0.102kgf

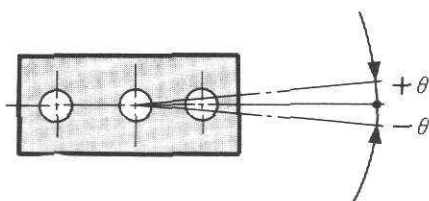
Permissible rotary torque of plate



Bore size	Model	Stroke (mm)								T (N·m)
		10	20	25	30	40	50	75	100	
12	MGQM	0.29	0.24	—	0.21	0.18	0.16	—	—	
	MGQL	0.48	0.39	—	0.31	0.37	0.33	—	—	
16	MGQM	0.51	0.43	—	0.35	0.31	0.27	—	—	
	MGQL	0.73	0.58	—	0.48	0.71	0.64	—	—	
20	MGQM	—	0.91	—	0.78	0.71	0.63	1.04	0.88	
	MGQL	—	1.26	—	1.06	1.77	1.58	1.22	1.01	
25	MGQM	—	1.53	—	1.31	1.16	1.03	1.68	1.42	
	MGQL	—	1.96	—	1.69	2.16	2.00	1.65	1.41	
32	MGQM	—	—	3.92	—	—	2.94	2.45	1.96	
	MGQL	—	—	1.96	—	—	0.98	5.88	4.41	
40	MGQM	—	—	4.41	—	—	3.43	2.94	2.45	
	MGQL	—	—	2.45	—	—	1.47	6.37	5.39	
50	MGQM	—	—	7.35	—	—	5.88	4.90	4.41	
	MGQL	—	—	3.43	—	—	2.45	10.78	8.33	
63	MGQM	—	—	7.84	—	—	6.37	5.39	4.90	
	MGQL	—	—	3.92	—	—	2.45	11.76	9.31	
80	MGQM	—	—	11.76	—	—	9.80	7.84	6.86	
	MGQL	—	—	9.31	—	—	5.88	31.36	24.50	
100	MGQM	—	—	22.54	—	—	19.60	16.66	14.70	
	MGQL	—	—	21.56	—	—	13.72	63.70	49.00	

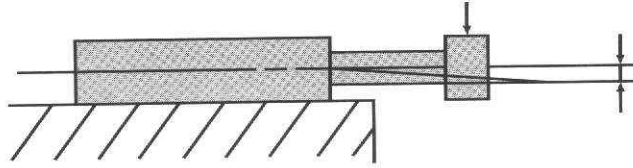
1N·m ≒ 10.2kgf·cm

Non-rotation accuracy of plate



Bore size	Non-rotation accuracy (°)	
	MGQM	MGQL
12		
16	±0.08°	±0.10°
20		
25	±0.07°	±0.09°
32		
40	±0.06°	±0.08°
50		
63	±0.05°	±0.06°
80		
100	±0.04°	±0.05°

Maximum Allowable Deflection (from clearance)



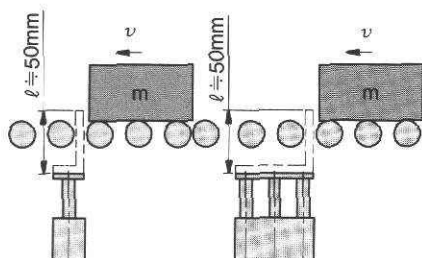
(mm)

Bore	Type	Stroke							
		10	20	25	30	40	50	75	100
12	MGQM	0.096	0.124	—	0.153	0.181	0.210	—	—
	MGQL	0.102	0.133	—	0.164	0.136	0.156	—	—
16	MGQM	0.089	0.114	—	0.139	0.164	0.189	—	—
	MGQL	0.093	0.119	—	0.145	0.120	0.137	—	—
20	MGQM	0.121	0.147	—	0.200	0.177	0.217	—	—
	MGQL	0.106	0.127	—	0.124	0.160	0.195	—	—
25	MGQM	0.119	0.145	—	0.195	0.178	0.218	—	—
	MGQL	0.098	0.117	—	0.120	0.153	0.186	—	—
32	MGQM	—	—	0.095	—	—	0.152	0.209	0.266
	MGQL	—	—	0.052	—	—	0.087	0.061	0.078
40	MGQM	—	—	0.095	—	—	0.152	0.209	0.266
	MGQL	—	—	0.052	—	—	0.087	0.061	0.078
50	MGQM	—	—	0.092	—	—	0.145	0.198	0.250
	MGQL	—	—	0.058	—	—	0.094	0.065	0.084
63	MGQM	—	—	0.092	—	—	0.145	0.198	0.250
	MGQL	—	—	0.058	—	—	0.094	0.065	0.084
80	MGQM	—	—	0.102	—	—	0.152	0.200	0.250
	MGQL	—	—	0.049	—	—	0.074	0.050	0.063
100	MGQM	—	—	0.094	—	—	0.139	0.184	0.229
	MGQL	—	—	0.045	—	—	0.069	0.046	0.058

This is theoretical max. data not test data

Operating Range When Used as Stopper

Bore size $\phi 12 \sim \phi 25$ / MGQM12~25 (Slide bearing)

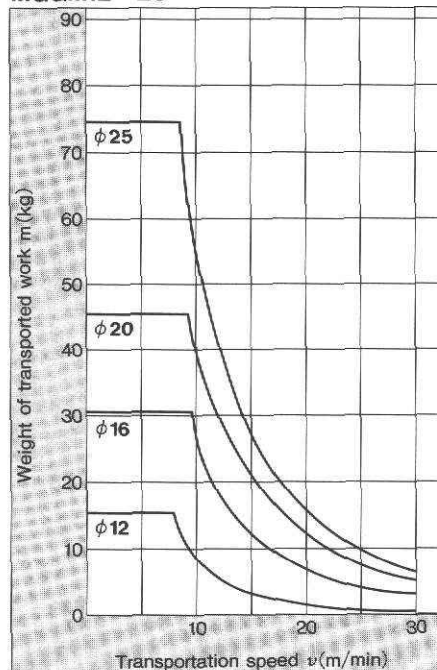


※In the machine type selection when l dimension becomes longer, select the cylinder having a sufficient I.D. of the tube.

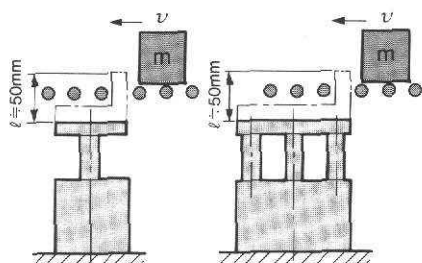
Note 1) When the cylinder is to be used as a stopper use is at 30 stroke or less.

Note 2) MGQL (Ball bush bearing) cannot be used as stopper.

MGQM12~25



Bore size $\phi 32 \sim \phi 100$ / MGQM32~100 (Slide bearing)

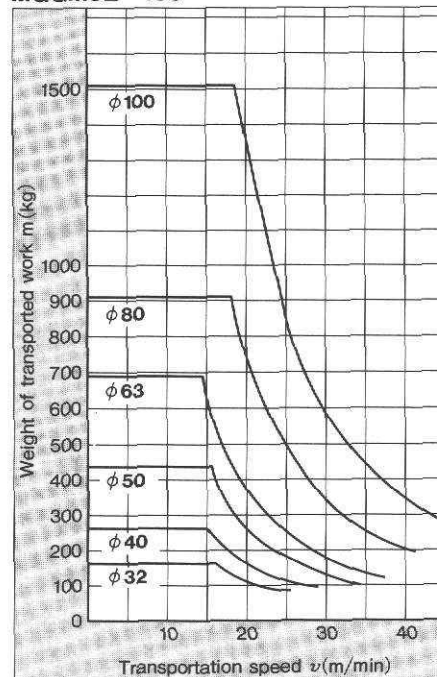


※In the machine type selection when l dimension becomes longer, select the cylinder having a sufficient I.D. of the tube.

Note 1) When the cylinder is to be used as a stopper use it at 50 stroke or less.

Note 2) MGQL (Ball bush bearing) cannot be used as stopper.

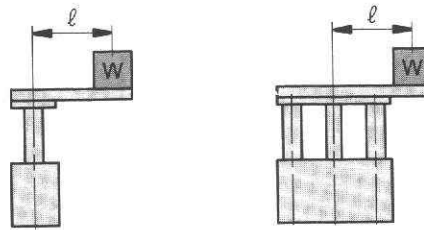
MGQM32~100



Operating Range When Used as Lifter

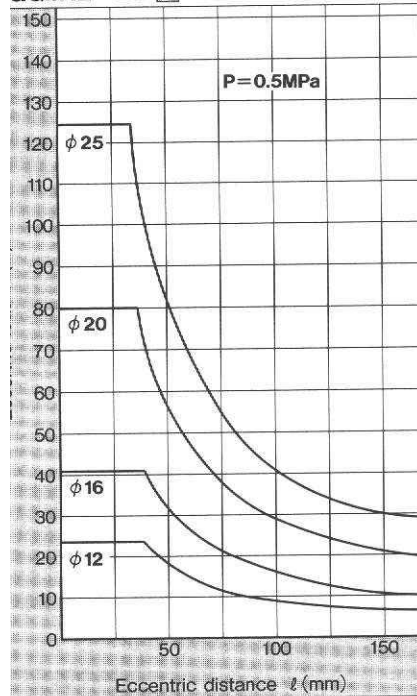
Select the bore size so that the total load W remains at or below the theoretical output (See the chart below).

Bore size	Theoretical output
$\phi 12, \phi 16$	40% or below
$\phi 20, \phi 25$	50% or below
$\phi 32 \sim \phi 100$	60% or below

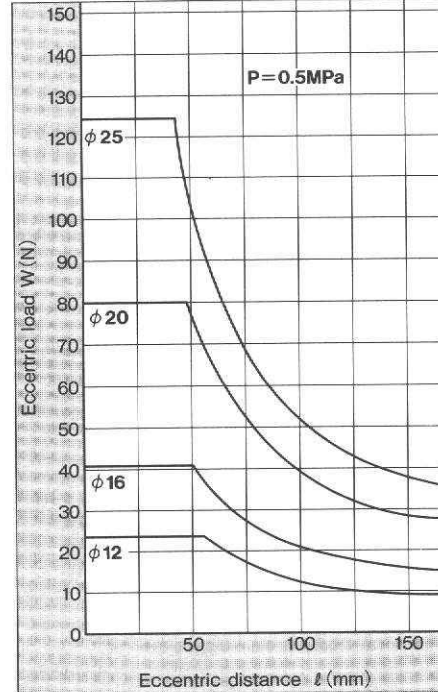


GQM/Slide bearing

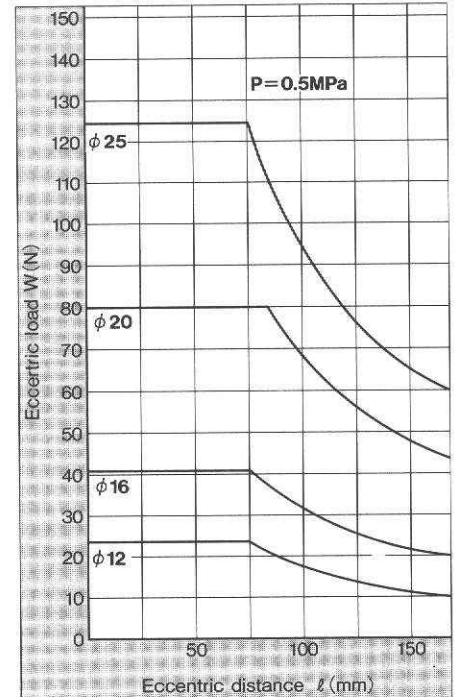
GQM12~25



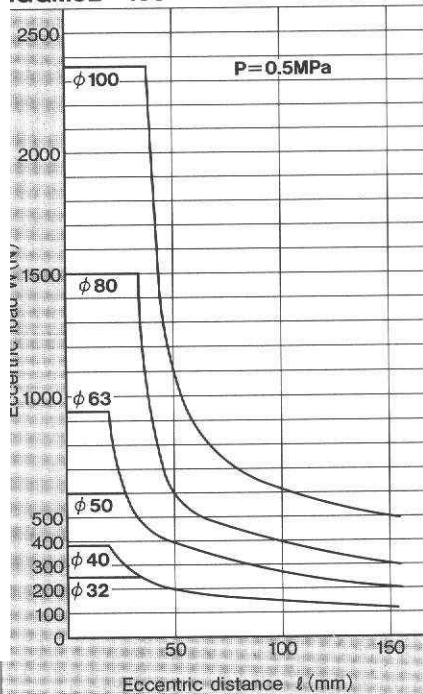
MGQL12~25-¹⁰/₃₀



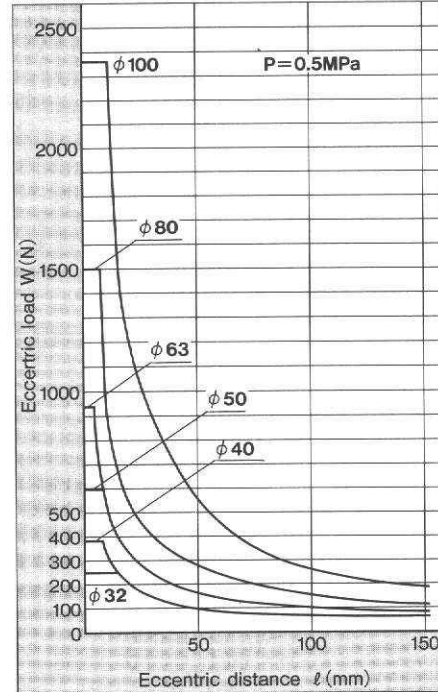
MGQL12~25-30 more stroke



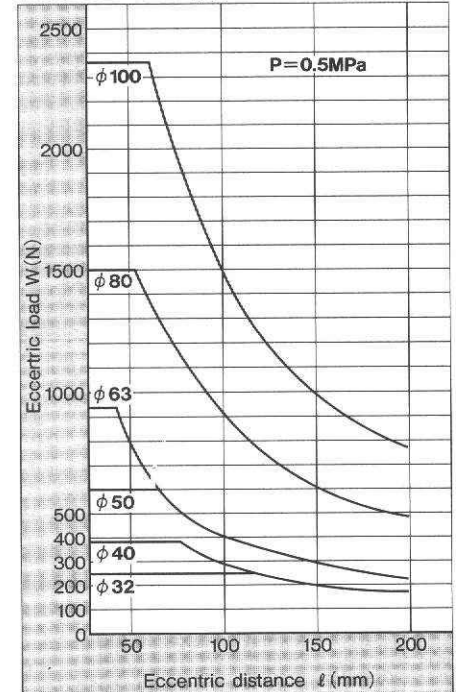
IGQM32~100



MGQL32~100-²⁵/₅₀



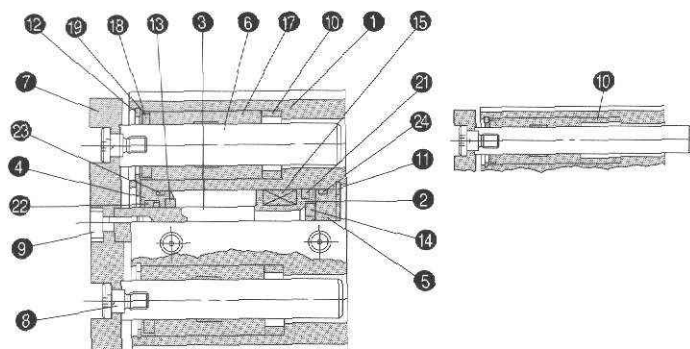
MGQL32~100-⁷⁵/₁₀₀



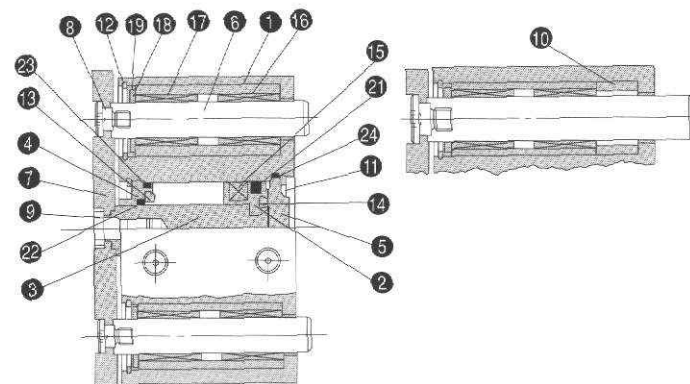
Constructions/Parts List • Packing List

Series MGQM

MGQM 12~25

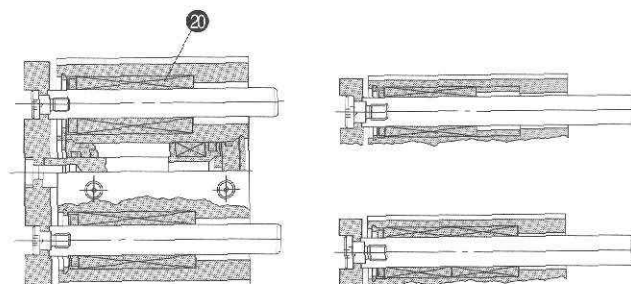


MGQM 32~100

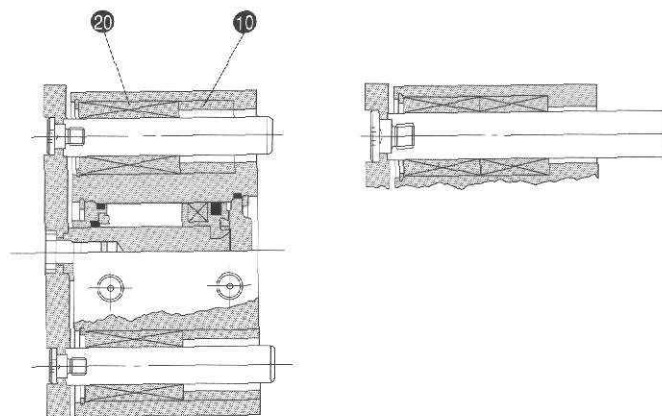


Series MGQL

MGQL 12~25



MGQL32~100



Parts List

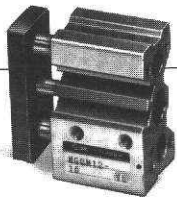
No.	Description	Material	Note
1	Body	Aluminum alloy	Hard alumite
2	Piston	Aluminum alloy	Chromate
3	Piston rod	Stainless	$\phi 32 \sim \phi 100$: Hard chromium plating
		Carbon steel	
4	Collar	Aluminum bearing alloy	Black alumite
5	Head cover	Aluminum alloy	Black dye
6	Guide rod	MGQM Carbon steel	Hard chromium plating
		MGQL High-carbon chromium steel	High-cycle hardened, Hard chromium plating
7	Plate	Carbon steel	Black zinc chromate
8	Guide Rod Bolt	Carbon steel	Black zinc chromate
9	Plate mounting bolt	Carbon steel	Black zinc chromate
10	Guide Spacer	Aluminum alloy	

No.	Description	Material	Note
11	Retaining ring	Carbon tool steel	Black zinc chromate
12	Retaining ring	Carbon tool steel	Black zinc chromate
13	Damper A	Urethane	
14	Damper B	Urethane	
15	Magnet	Synthetic rubber	
16	Bushing built-in collar	Carbon steel	
17	Slide bearing	Special brake material	
18	Felt	Felt	
19	Holder	Carbon steel	Black zinc chromate
20	Ball bush bearing	—	

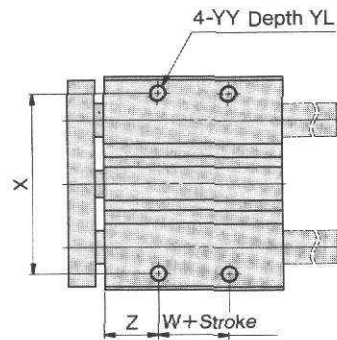
Packing List/Spare Parts

No.	Description	Material	Parts No.									
			$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
—	Seal Kit*	—	MGQ12-PS	MGQ16-PS	MGQ20-PS	MGQ25-PS	MGQ32-PS	MGQ40-PS	MGQ50-PS	MGQ63-PS	MGQ80-PS	MGQ100-PS
21	Piston packing	NBR	NLP-12	NLP-16A	NLP-20A	NLP-25A	NLP-32A	NLP-40A	NLP-50A	NLP-63A	NLP-80A	NLP-100A
22	Rod packing	NBR	DYR-6K	DYR-8K	DYR-10SK	DYR-12	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z
23	Gasket A	NBR	SO-013-6	C14	C18	C22	C29	C36	C46	C60	C75	C95
24	Gasket B	NBR	SO-013-6	C14	C18	C22	C34	C42	C52	C65	C82	C102

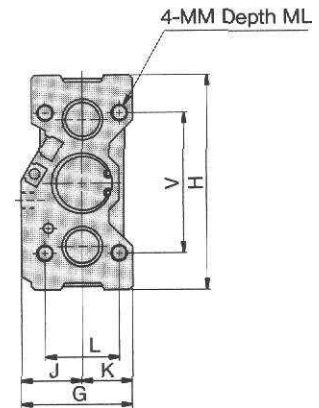
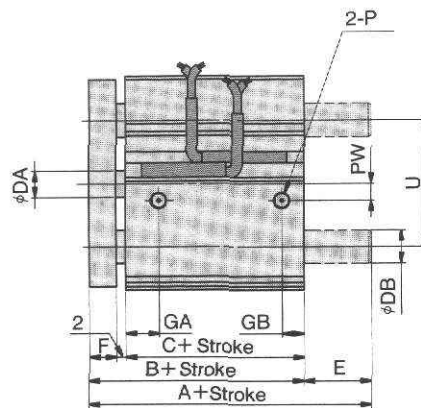
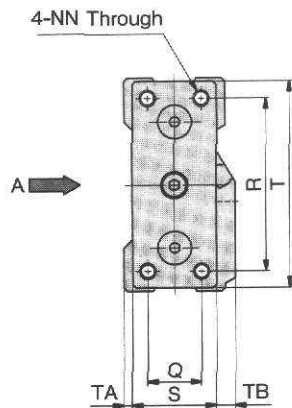
*Includes Rod Packing, Piston Packing, and Tube Gasket (2).



Bore size
 $\phi 12 \sim \phi 25$ / MGQM • MGQL



A Perspective drawing



MGQ • MGQL Common dimensions

Bore Size (mm)	Standard stroke (mm)	B	C	DA	F	G	GA	GB	H	J	K	L	MM	ML	NN	P	PW	Q	R	S	T	TA	TB	U	V	W	X	YY	YL	Z
12	10, 20, 30, 40, 50	39	29	6	8	29	11	7.5	58	16	13	18	M4X0.7	10	M4X0.7	M5X0.8	7	14	48	22	56	2	5	36	40	5	50	M4X0.7	7	12
16	10, 20, 30, 40, 50	43	33	8	8	33	11	8	64	18	15	22	M5X0.8	13	M5X0.8	M5X0.8	5	16	52	25	62	2.5	5.5	38	42	7	54	M5X0.8	8	13
20	20, 30, 40, 50, 75, 100	47	37	10	8	36	10.5	8.5	74	19	17	26	M5X0.8	13	M5X0.8	1/8	7	18	60	30	72	2	4	46	52	10	64	M5X0.8	8	13
25	20, 30, 40, 50, 75, 100	47.5	37.5	12	8	42	11.5	9	88	21	21	32	M6X1.0	15	M6X1.0	1/8	8	26	70	38	86	2	2	56	62	10	76	M6X1.0	9	14

NOTE: Intermediate strokes have dimensions equal to the next higher stroke.

MGQM (Slide Bearing)

Bore size (mm)	Symbol Stroke	A		DB	E	
		50st or less	75,100st		50st or less	75,100st
12		39	—	8	0	—
16		43	—	10	0	—
20		47	61.5	12	0	14.5
25		47.5	62	16	0	14.5

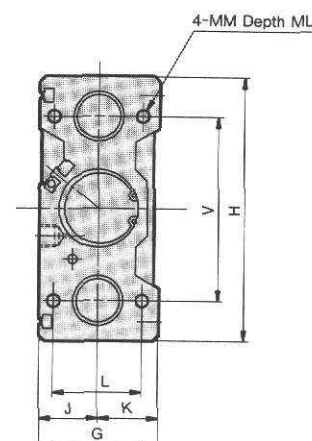
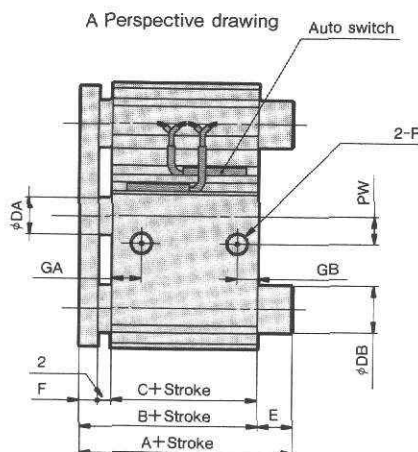
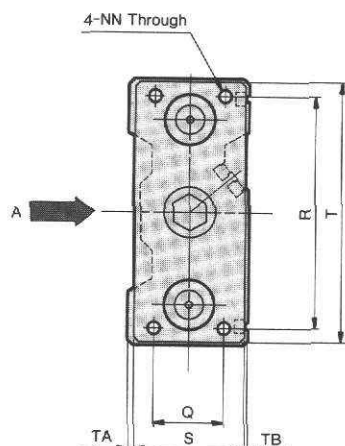
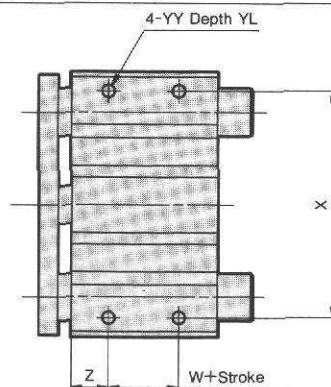
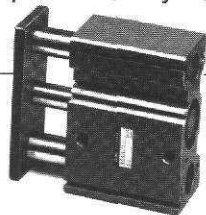
MGQL (Ball Bushing Bearing)

Bore size (mm)	Symbol Stroke	A		DB	E	
		30st or less	40st or more		30st or less	40st or more
12		43	55	6	4	16
16		49	65	8	6	22
20		57	74	10	10	27
25		63.5	79.5	13	16	32

Compact Guide Cylinder: Series MGQ

Bore size

φ 32 ~ φ 100 / MGQM • MGQL



MGQM • MGQL Common dimensions

*As to intermediate stroke, spacer will be used. (Refer to P.1) (mm)

Bore size (mm)	Standard stroke (mm)	B	C	DA	F	G	GA	GB	H	J	K	L	MM	ML	NN	P	PW	Q	R	S	T	TA	TB	V	W	X	YY	YL	Z
32	25, 50, 75, 100	47.5	37.5	16	8	51	12.5	9	114	25	26	38	M8×1.25	20	M8×1.25	1/8	15	30	96	48	112	2	1	80	5	100	M8×1.25	11	16
40		54	44	16	8	51	14	10	124	25	26	38	M8×1.25	20	M8×1.25	1/8	21	30	106	48	122	2	1	90	10	110	M8×1.25	11	17
50		56	44	20	10	59	14	11	140	29	30	44	M10×1.5	25	M10×1.5	1/4	27	40	120	56	138	2	1	100	10	124	M10×1.5	12.5	17
63		61	49	20	10	72	16.5	13.5	150	35.5	36.5	44	M10×1.5	25	M10×1.5	1/4	33	50	130	69	148	2	1	110	10	132	M10×1.5	15	19
80		74.5	56.5	25	16	92	19	15.5	188	45.5	46.5	56	M12×1.75	30	M12×1.75	3/8	37	60	160	88	185	2.5	1.5	140	15	166	M12×1.75	18	21
100		84	66	30	16	112	23	19	224	55.5	56.5	62	M14×2	35	M14×2	3/8	40	80	190	108	221	2.5	1.5	170	15	200	M14×2	21	25

NOTE: Intermediate strokes have dimensions equal to the next higher stroke.

MGQM Slide Bearing

Bore Size (mm)	A	DB	E
32	71.5	20	24
40	71.5	20	17.5
50	81	25	25
63	81	25	20
80	93	28	18.5
100	105	36	21

MGQL (Ball Bushing Bearing)

Bore size (mm)	Symbol Stroke	A		DB	E	
		25,50st	75,100st		25,50st	75,100st
32		53	90	16	5.5	42.5
40		54	90	16	0	36
50		60	102	20	4	46
63		61	102	20	0	41
80		84	143	25	9.5	68.5
100		89	153	30	5	69

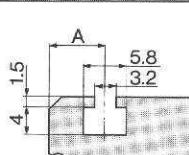
Grooves (Except for φ12, φ16, φ20, φ25)

Use grooves part a and part b in the figure below of the cylinder body for firmly fixing in the following case.
(Applicable bolt size is M3.)

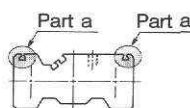
These grooves can be used for firmly fixing the tying bands of lead wires of the auto switch, etc., and also terminal boards, etc., to the main body of the cylinder.

(mm)

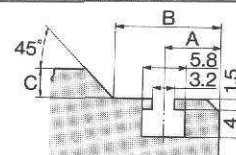
Model	A	B	C
MGQ-32	8	—	—
MGQ-40	8	—	—
MGQ-50	8	—	—
MGQ-63	8	14.5	6.5
MGQ-80	10	25	7
MGQ-100	10	29.5	14.5



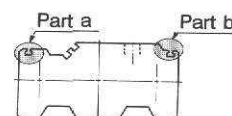
Detailed drawing of part a



MGQ-32
MGQ-40
MGQ-50

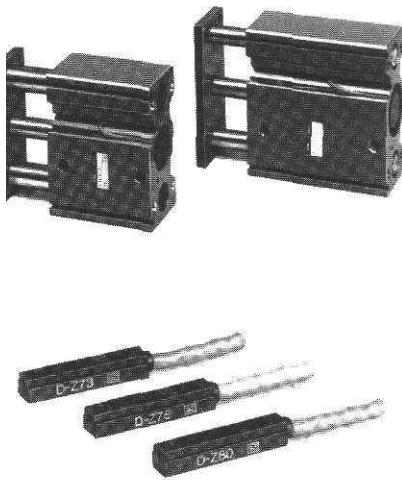


Detailed drawing of part b



MGQ-63
MGQ-80
MGQ-100

Specifications of Reed Switch



Auto Switch Specifications

With indicator lamp

Auto switch No.	D-273		D-276
Lead wire entry	Axial direction		
Application	Relay, Sequence controller		IC circuit
Load voltage	24VDC	100VAC	4~8VDC
Max. load current and load current range	5~40mA	5~20mA	20mA
Contact point protection circuit	Not provided		
Internal drop voltage	2.4V or less		0.7V or less
Indicator lamp	Red LED lights up when ON		

Without indicator lamp

Auto switch No.	D-Z80		
Lead wire securing method	Axial direction		
Application	Relay, Sequence controller, IC circuit		
Load voltage	24VAC/DC or less	48VAC/DC	100VAC/DC
Max. load current	50mA	40mA	20mA
Contact point protection circuit	Not provided		
Internal resistance	0		

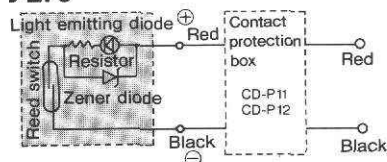
- Leak current ————— None
- Operating time ————— 1.2ms
- Lead wire ————— Oil resistant vinyl cord. $\phi 3.4$, 0.2mm², 3 cores (red, white, black), 2 cores (red, black), 0.5m long ※
- Shock resistance ————— 300m/S²{30.6G}
- Insulation resistance ————— Min. 50M Ω (between lead wire and case) as measured with a 500VDC megger.
- Dielectric resistance ————— 1500VAC for 1 min. (between lead wire and case)
- Ambient temperature ————— -10~60°C
- Protective structure ————— IEC Standard, watertight (JIS C0920) and oil resisting structure

※ "L" is added to the end when the lead wire is 3m long.

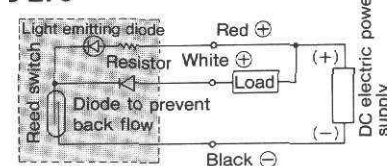
(Example) D-Z73L

Auto Switch Internal Circuit

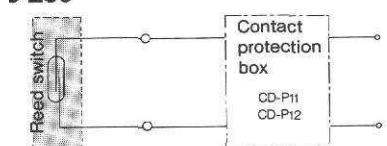
D-Z73



D-Z76



D-Z80

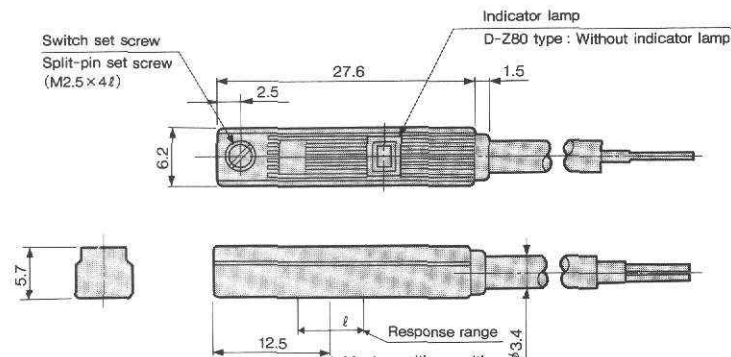


Refer to back cover for details of the specification of contact protection box.

Auto Switch Weight Table

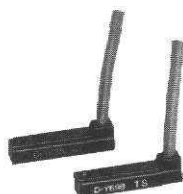
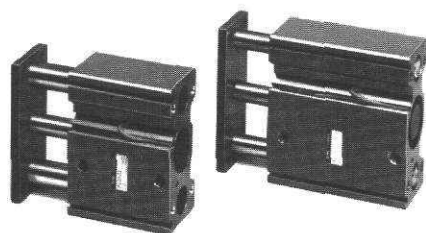
Unit:g

Type	Lead wire length 0.5m	Lead wire length 3m
D-Z73	9	49
D-Z76	10	52
D-Z80	9	49



Bore size (mm)	Response range ℓ (mm)
12	7.5
16	8.5
20-25	9.5
32-40-50	11
63-80	13
100	14

Specifications of Solid State Switch



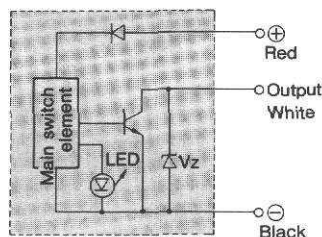
Auto Switch Specifications

Auto Switch No.	D-Y59A		D-Y69A	D-Y7P		D-Y7PV	D-Y59B		D-Y69B	
Lead wire entry	Axial direction		Right angle	Axial direction		Right angle	Axial direction		Right anle	
Wiring method	3 wire system						2 wire system			
Output method	NPN			PNP			—			
Application	IC circuit, Relay, Sequence controller						24VDC relay, Sequence controller			
Power source	5, 12, 24 VDC						—			
Current consumption	1mA or less at OFF, 12mA or less at ON			1mA or less at OFF, 15mA or less at ON			—			
Load voltage	28VDC or less			—			24VDC(10~28VDC)			
Load current	150mA or less						5~150mA			
Internal voltage drop	0.4V or less at 50mA 0.8V or less at 150mA						3V or less			
Leak current	10μA or less at 24VDC						1mA or less at 24VDC			
Indicator lamp	ON: Red light emitting diode									

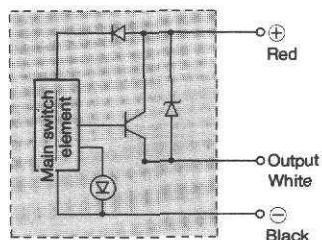
- Operating time — Max. 1ms.
 - Lead wire — Oil resistant vinyl cord, $\phi 3.4$, 0.2mm², 3 cores (red, white, black), cores (red, black), 0.5m long ※
 - Shock resistance — 1000m/S² (102G)
 - Insulation resistance — Min. 50Ω (between lead wire and case) as measured with a 500VDC meger.
 - Dielectric resistance — 1000VAC for 1 min (between lead wire and case)
 - Ambient temperature — -10~60°C
 - Protective structure — IEC Standard, watertight (JISC 0920) and oil resisting structure
- ※ "L" is added to the end when the lead wire is 3m long
(Example) D-Y59AL

Auto Switch Internal Circuit

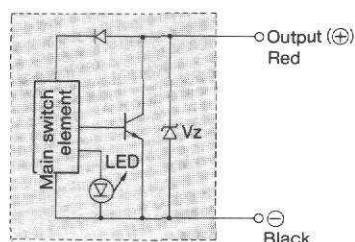
D-Y59A·Y69A/3 Wire system NPN output.



D-Y7P·Y7PV/3 wire system PNP output.



D-Y59B·Y69B/2 wire system

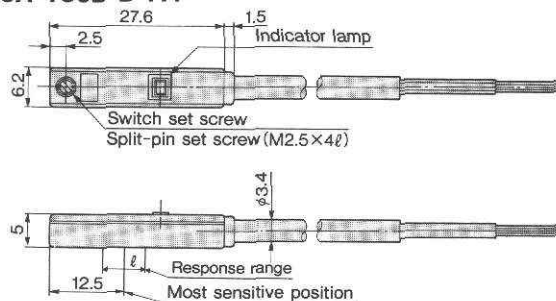


Auto Switch Weight Table

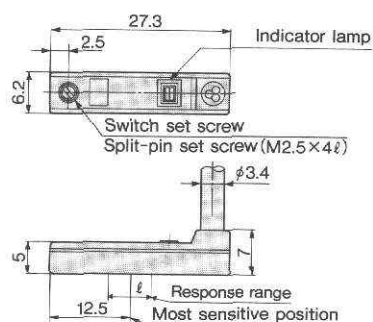
Type	Lead wire length 0.5m	Lead wire length 3m
D-Y59A·Y69A Y7P·Y7PV	11	53
D-Y59B·Y69B	10	50

Auto Switch Dimensions

D-Y59A·Y59B·D-Y7P



D-Y69A·Y69B·D-Y7PV



Bore size (mm)	Response range ℓ (mm)
12	4
16	5.5
20	6
25	6.5
32·40	7
50	7.5
63	9
80	8.5
100	10

Specifications of Solid State Switch

Auto Switch Specifications

D-Y&7 □ W • D-Y7 □ WV (With indicator light)

Auto switch no.	D-Y7NW	D-Y7NW	D-Y7PW	D-Y7PWV	D-Y7BW	D-Y7BWV
Lead wire entry	Axial entry	Right angle entry	Axial entry	Right Angle entry	Axial entry	Right angle entry
Wiring method	3 wire				2 wire	
Output method	NPN		PNP		—	
Applications	IC circuit, Relay, PLC (Sequence controller)				24VDC relay, PLC (Sequence controller)	
Power source	5・12・24VDC (4.5~28VDC)				—	
Current consumption	10mA or less		12mA or less		—	
Load voltage	28VDC or less		—		24VDC(10~28VDC)	
Load current	40mA or less				5~30mA	
Internal voltage drop	1.5V or less (0.8V or less at 5mA)		0.8V or less		4V or less	
Leak current	10μA or less at 24VDC				1mA or less at 24VDC	
Indicator light	Operating position ----- ON: Red light emitting diode Suitable operating position ----- ON: Green light emitting diode					

- Lead wire ——— Oil proof vinyl heavy insulation cable, $\phi 2.7$, 3-core(red, white, black), 0.15mm², 2-core(red, black), 0.18mm², 0.5m
 - Insulation resistance ——— 50M Ω or more under the test voltage of 500VDC Mega (between case and cable)
 - Withstand voltage ——— 1000VAC for 1 min. (between case and cable)
 - Indicator light ——— Light at ON
 - Ambient temperature ——— -10~60°C
 - Operating time ——— 1ms or less
 - Shock resistance ——— 1000m/s²(102G)
 - Protective structure ——— IEC529 spec. IP67 (JISC0920 watertight)
- *"L" is added to the end when the lead wire is 3m long
Example) D-Y7NL

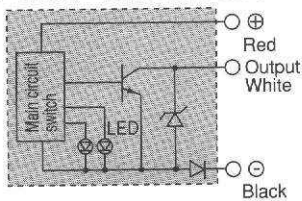
Auto Switch Weight Table

Unit:g

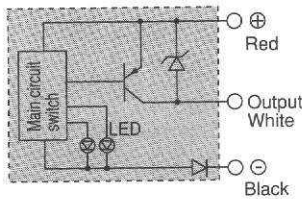
Model	Lead wire length 0.5m	Lead wire length 3m
D-Y7NW • Y7PW • Y7BW	11	54
D-Y7NWV • Y7PWV • Y7BWV	9	50

Auto Switch Internal Circuit

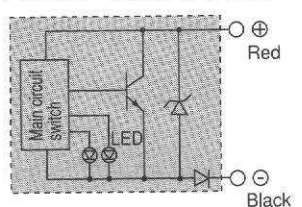
D-Y7NW • Y7NWV/ 3 wire



D-Y7PW • Y7PWV/ 3 wire

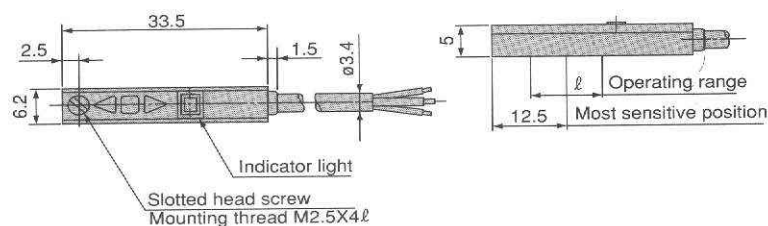


D-Y7BW • Y7BWV/ 2 wire

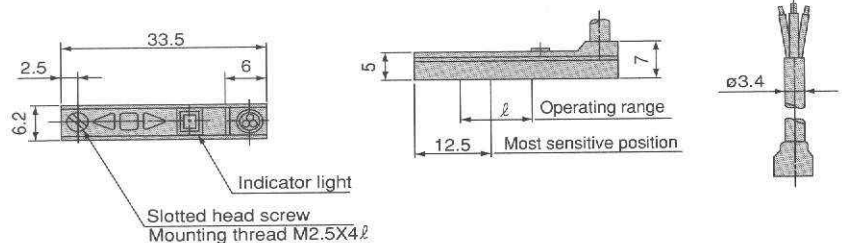


Auto Switch Dimensions

D-Y7NW • D-Y7PW • D-Y7BW



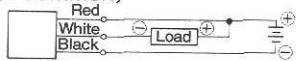
D-Y7NWV • D-Y7PWV • D-Y7BWV



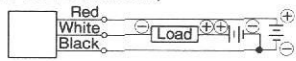
Connection Method of Solid State Switch and Connection Example

Basic Wiring

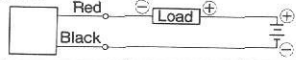
3 wire system (When power source for switch and load is common)



3 wire system (When power source for switch and load is not common)



2 wire system



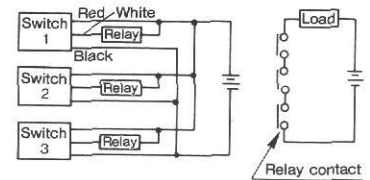
Red lead wire: Connect to the power source $\oplus$ (Power source $\oplus$ terminal) to operate main circuit of switch. In case of 2 wire systems connect with $\ominus$ side of load.

White lead wire: Connect to load (to the input of sequence controller and outlet relay)

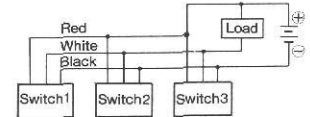
Black lead wire: Connect to the power source $\ominus$ (Power source GND terminal)

AND (Serial), OR (Parallel) Connection Examples

3 wire system AND connection



3 wire system OR connection

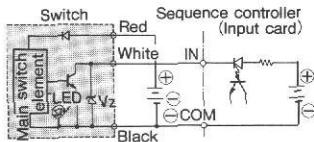


2 wire system should not be connected by AND or OR because these connections may cause malfunction.

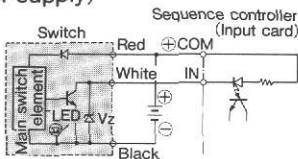
Typical Sequence Controller Connection Circuits

Connect according to the input specification of the sequence controller because the connection method varies with the input specification of the sequence controller.

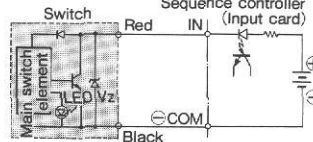
3 wire system connection example
(For sequence controller with a $\ominus$ COM internal power supply)



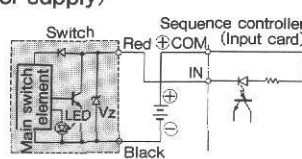
(In the case of $\oplus$ COM external power supply)



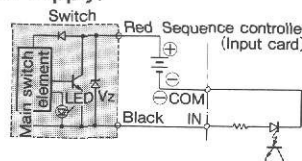
2 wire system connection example
(For sequence controller with a $\ominus$ COM internal power supply)



(In the case of $\oplus$ COM external power supply)



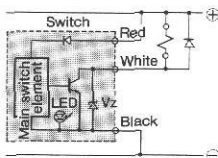
(In the case of $\ominus$ COM external power supply)



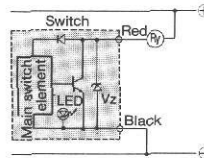
Connection Examples to Relay and Solenoid Valve

Load—DC Relay, Solenoid valve

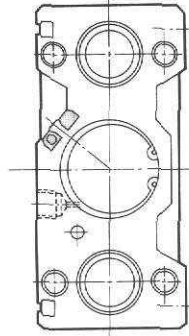
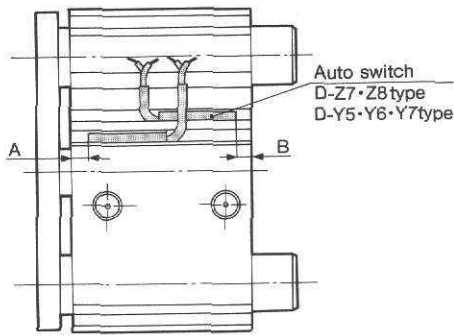
3 wire system solenoid valve load



2 wire system relay load



Auto Switch Setting Position (Stroke End)



Setting position (mm)

Bore size (mm)	A	B
12	1.5	3
16	4.5	4
20	4	8
25	4.5	8
32	5.5	7
40	9.5	9.5
50	7.5	11.5
63	10	14
80	13	18.5
100	17.5	23.5

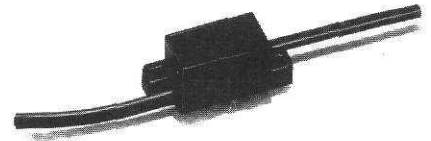
Contact Protection Box

D-Z7 type and D-Z8 type switches have no built-in contact protection circuit.

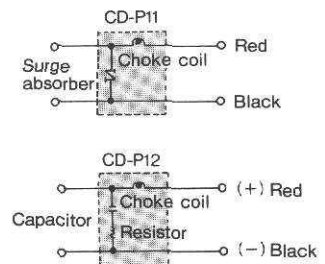
Use this box for inductive loads, 5 meters or more of lead wires, or 100VAC applications.

Model	Operating voltage	Length of lead wire
CD-P11	100VAC	Switch connecting side 0.5m
CD-P12	24VDC	Load connecting side 0.5m

*D-Z8 type switch is used for 100VAC or less, since there is no voltage limitation you can select a suitable model for your needs.



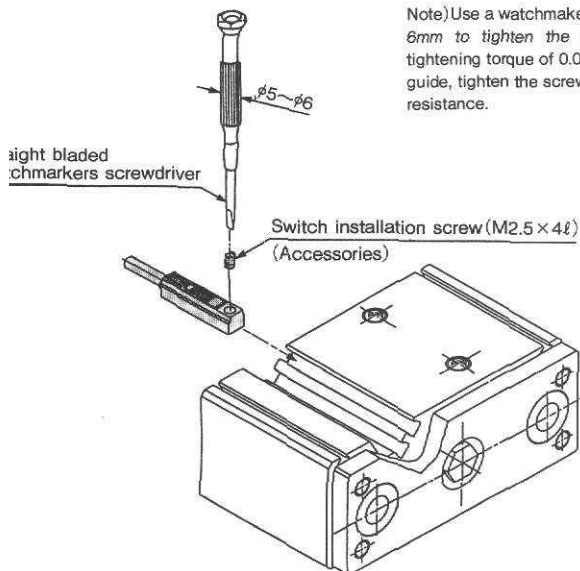
Contact Protection Box Internal Circuit



Setting Method of Auto Switch

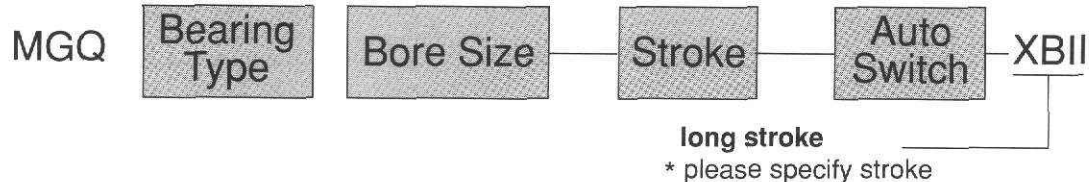
$1\text{N}\cdot\text{m} \approx 10.2\text{kgf}\cdot\text{cm}$

set the auto switch, insert the auto switch into the switch installation groove of the cylinder from direction indicated in the following drawing. After setting the installation position, tighten the attached switch mounting machine screw with a straight bladed watchmakers screwdriver.



Note) Use a watchmakers screwdriver with a grip diameter of 5 or 6mm to tighten the auto switch installation screw. Use a tightening torque of $0.05 \sim 0.1\text{N}\cdot\text{m}$ ($0.51 \sim 1.02\text{kgf}\cdot\text{cm}$). As a rough guide, tighten the screw through a further 90° after feeling a tight resistance.

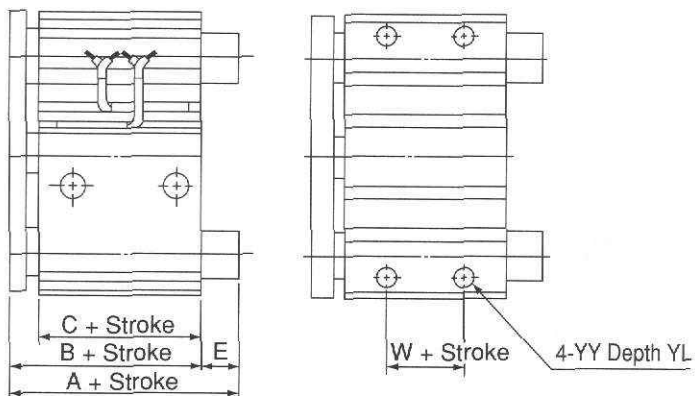
– XB11: long stroke (special order only)



Cylinder Type	Guided Cylinder
Series	MGQM MGQL
Bore Size	32, 40, 50, 63, 80, 100
Auto Switch	Capable
Specifications	Same specifications as page 1, please refer.

Series	Bore size	Standard stroke	Long stroke (XB11)
MGQM MGQL	32,40,50,63,80,100	25,50,75,100	125,150,175,200

MGQM • MGQL Common Dimensions



Bore size	Long stroke	A		B	C	E		W	YY	YL
		MGQM	MGQL			MGQM	MGQL			
ø32		71.5	90	47.5	37.5	24	42.5	5	M8X1.25	11
ø40	125	71.5	90	54	44	17.5	36	10	M8X1.25	11
ø50	150	81	102	56	44	25	46	10	M10X1.5	12.5
ø63	175	81	102	61	49	20	41	10	M10X1.5	15
ø80	200	93	143	74.5	56.5	18.5	68.5	15	M12X1.75	18
ø100		105	153	84	66	21	69	15	M14X2	21

See page 9 for dimensions other than shown.

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