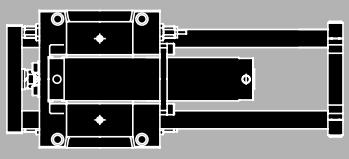
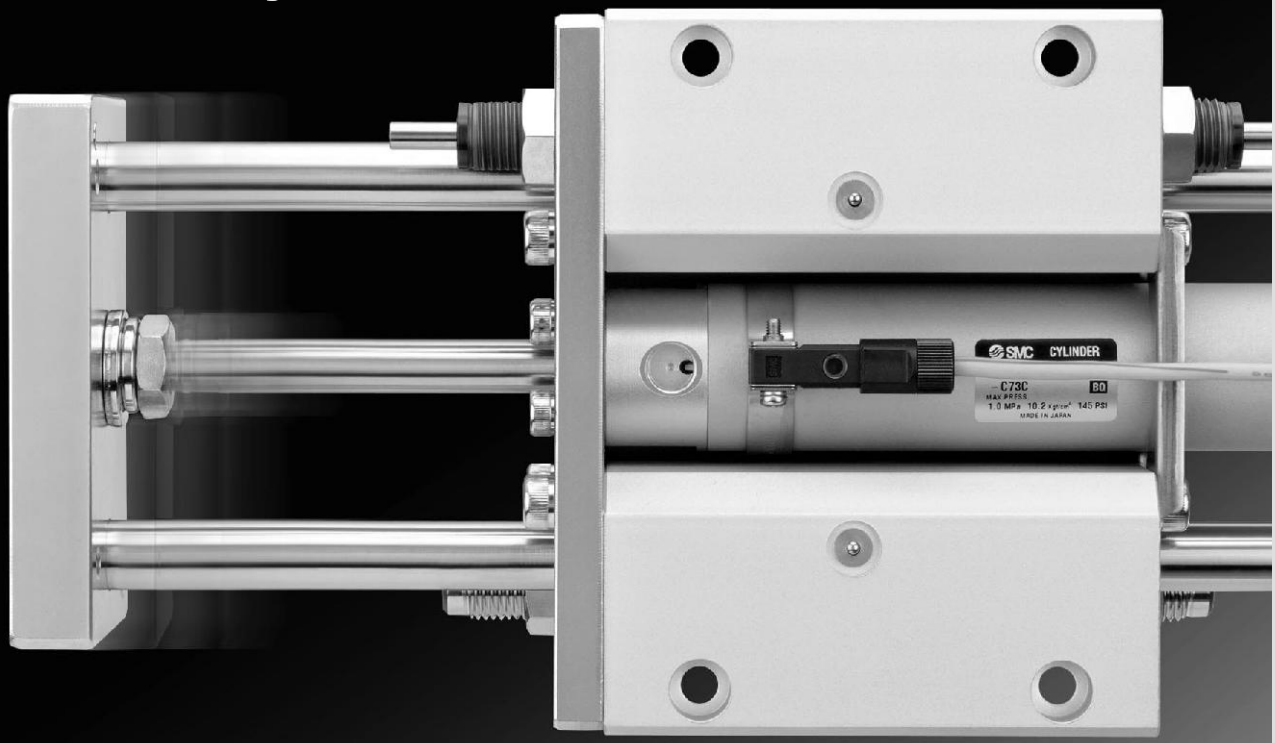


Guide Cylinder
Series MGG
ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

Linear Transfer Unit
Compact Integration of Basic Cylinder and Guide Rod



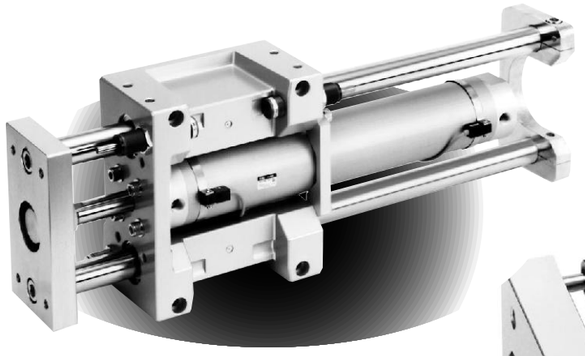
Compact Integration of Basic Cylinder and Guide Rod

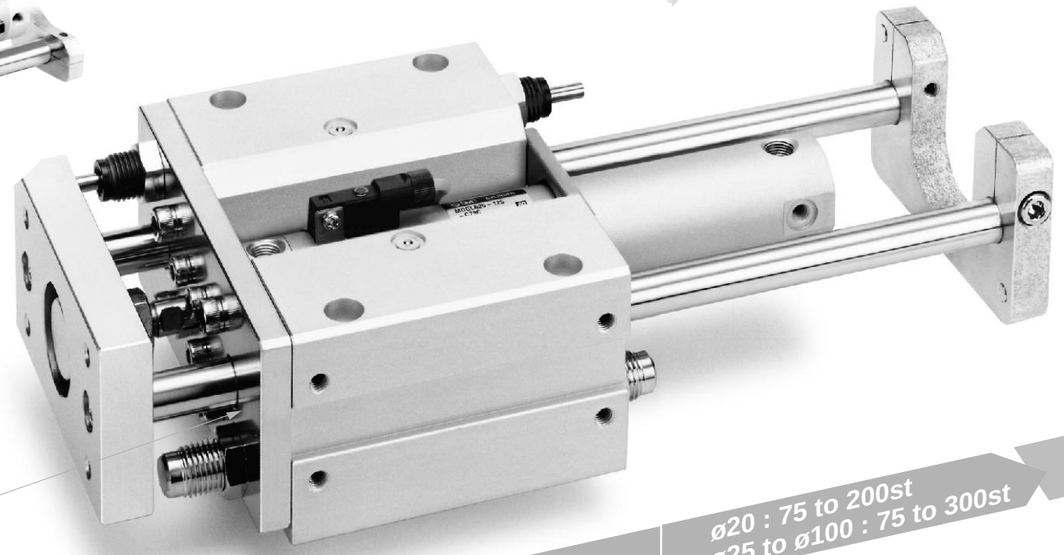
The linear transfer unit has strong resistance to lateral loads and a high-precision non-rotating piston rod

Now on sale ø63, ø80, ø100

Guide cylinder/
ø20, ø25, ø32, ø40,

Series MGG
ø50, ø63, ø80, ø100





Long stroke is available

MAX. ø20-400st
MAX. ø25-500st
MAX. ø32-600st
MAX. ø40-800st
MAX. ø50-1000st
MAX. ø63-1100st
MAX. ø80-1200st
MAX. ø100-1300st

Standard stroke
ø20 : 75 to 200st
ø25 to ø100 : 75 to 300st

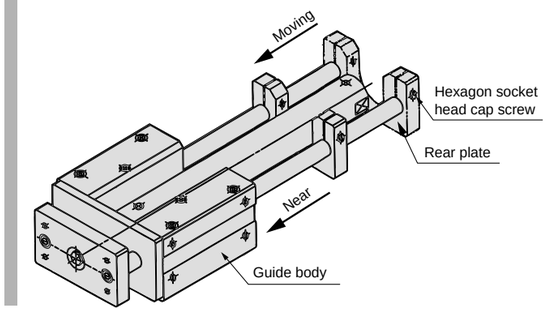
2 guide rod bearings

Slide bearing
— Excellent in abrasion resistance. Non-lube operation under large load is possible.

Ball bushing bearing
— High accuracy, Long life.

Extending stroke can be adjusted

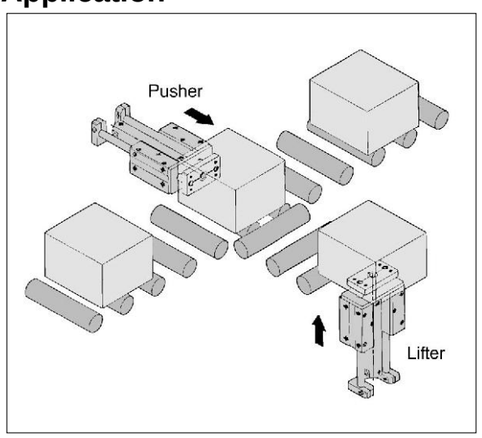
Extending stroke can be adjusted by moving rear plate.



Shock absorber, adjusting bolt is standard

Shock absorber absorbs shock at end in high speed operations and adjusting bolt allows fine adjustment of stroke.

Application



The operating position can be detected

The product is equipped with magnet as standard.

2 guide rods offer high non-rotating accuracy

Bore size (mm)	20	25	32	40	50	63	80	100
Slide bearing	±0.07°	±0.06°	±0.06°	±0.05°	±0.04°	±0.04°	±0.04°	±0.03°
Ball bushing bearing	±0.06°	±0.05°	±0.04°	±0.04°	±0.04°	±0.03°	±0.03°	±0.02°

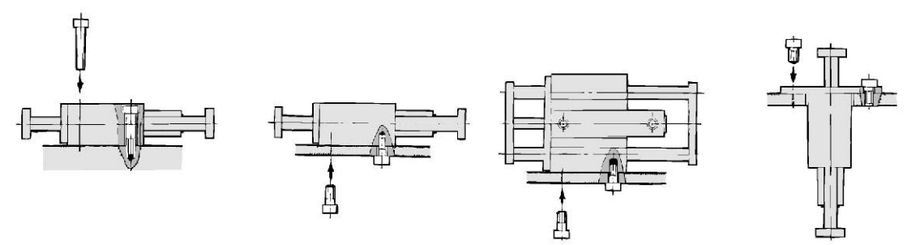
(Except for deflection of guide rod)

Grease nipple is standard

Lubrication of bearing is possible.

Various mounting possibilities

① Top face mounting ② Bottom face mounting ③ Left and right side mounting ④ Front face flange mounting



Series MGG/Precautions

Be sure to read before handling.
Refer to p.0-39 to 0-46 for Safety Instructions and actuator and auto switch precautions.

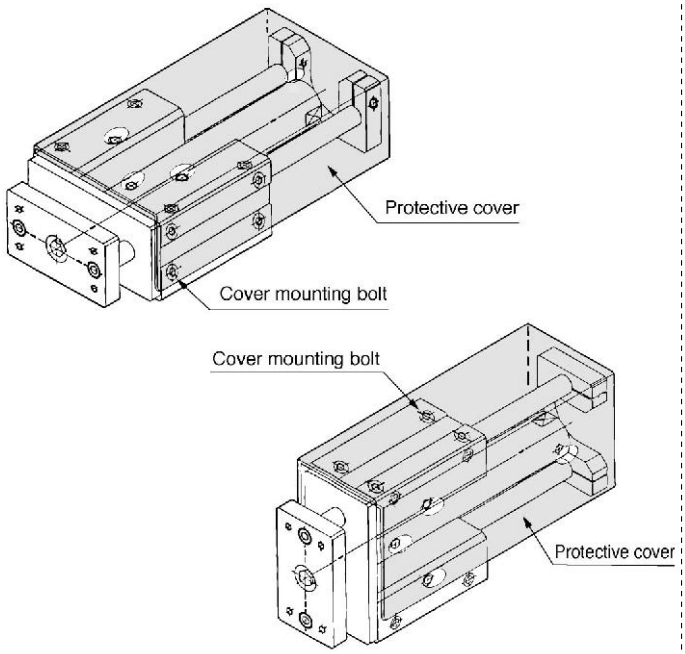
Mounting/Adjustment

⚠ Warning

①**Installing a protective cover**

During mounting, handling and operation, the rear plate makes reciprocating movements. Therefore, pay careful attention not to insert your hand, etc., between the cylinder and the rear plate. When you are going to fit this product to the outside of your equipment, take preventative measures such as installing a protective cover.

Example of installing a protective cover



Shock Absorber

⚠ Caution

Refer to shock absorber catalog (series RB) for details.

⚠ Caution

①**Do not scratch or gouge the sliding portion of the guide rod by striking it or squeezing it.**

The surface of the guide rod is manufactured under precision tolerances. Thus, even a slight deformation, scratch, or gouge could cause a malfunction or decrease durability.

②**When fitting the guide body, use the guide body which has high flatness of the fitting surface.**

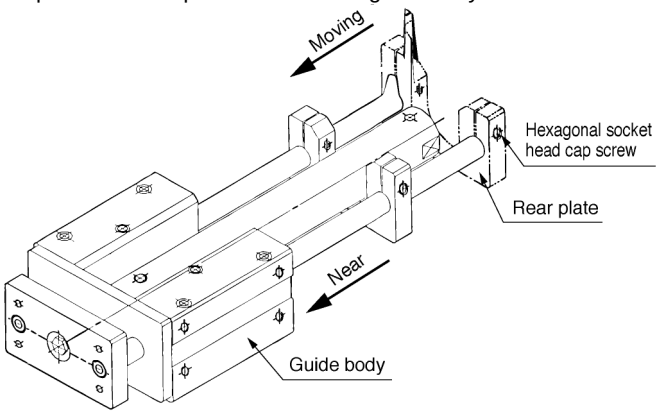
If the guide rod has twisted, operation resistance will become abnormally higher and the bearings will wear at an early state, thereby resulting in poor performance.

③**Install the cylinder in an area in which it can be serviced easily.**

Allow an ample space around the cylinder so that no obstruction will occur during checking and maintenance.

④**Extension-side stroke adjustment**

When you are going to adjust the extension-side stroke by moving the rear plate, loosen the right and left hexagon socket head cap screw, move the rear plate to the set strokes, and tighten the right and left hexagon socket head cap screw at the positions near the guide body.



⑤**Lubrication**

The bearing can be used in the oilless state, but when you are going to oil the bearing, do so by using a ball-cup so that no foreign matter will be mixed.

For the grease, we recommended using good-quality lithium soap-based grease No. 2.

Guide Cylinder

Series MGG

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

How to Order

MGG | **L** | **B** | **32** | **100** | **C73** | **S**

Guide cylinder

Bearing

M	Slide bearing
L	Ball bushing bearing

Mounting

B	Basic
F	Front flange

Bore size

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

Cylinder stroke (mm)

Refer to Model/Stroke Table (P.3.19-7)

Auto switch

—	Without auto switch (Cylinder with built-in magnet)

∗Refer to the table below for auto swichies.

Number of auto switches

—	2
S	1
n	n

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 DC	Load voltage AC	Auto switch model In-line ø20 to ø63	Auto switch model In-line ø20 to ø100	Auto switch model Perpendicular ø20 to ø63	Lead wire∗(m) 0.5 (–)	3 (L)	5 (Z)	None (N)	Applicable load	
Reed switch	—	Grommet	Yes	3 wire (Equ. NPN)	—	5V	—	**C76**	—	**B76**	●	●	—	—	IC	—
				2 wire	24V	12V	100V	**C73**	—	**B73**	●	●	●	—		Relay PLC
							—	**B53**	—	—	●	●	●	—	—	PLC
							100V, 200V	**B54**	—	—	●	●	●	—		Relay PLC
			No				200V or less	**B64**	—	—	●	●	—	—		
						5V, 12V	100V or less	**C80**	—	**B80**	●	●	—	—	IC	
		Connector	Yes			12V	—	**C73C**	—	**B73C**	●	●	●	●	—	
			No			5V, 12V	24V or less	**C80C**	—	**B80C**	●	●	●	●	IC	
	Diagnostic indication (2 color)	Grommet	Yes			—	—	**B59W**	—	—	●	●	—	—	—	
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	5V, 12V	—	**H7A1**	**G59**	**G79**	●	●	○	—	IC	Relay PLC
				3 wire (PNP)				**H7A2**	**G5P**	—	●	●	○	—		
				2 wire		12V		**H7B**	**K59**	**K79**	●	●	○	—	—	
		Connector						**H7C**	—	**K79C**	●	●	●	●		
	Diagnostic indication (2 color)	Grommet		3 wire (NPN)		5V, 12V		**H7NW**	**G59W**	—	●	●	○	—	IC	
				3 wire (PNP)				**H7PW**	**G5PW**	—	●	●	○	—		
				2 wire		12V		**H7BW**	**K59W**	—	●	●	○	—	—	
	Water resistant (2 color)							**H7BA**	**G5BA**	—	—	●	○	—		
	With timer			3 wire (NPN)		5V, 12V		**G5NT**	—	—	—	●	○	—	IC	
	With diagnostic output (2 color)			4 wire (NPN)				**H7NF**	**G59F**	—	●	●	○	—		
	Latch with diagnostic output (2 color)					—		**H7LF**	—	—	●	●	○	—	—	

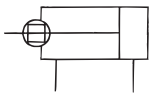
∗Lead wire length 0.5m ·····– (Example) B80C 5m ····· Z (Example) B80CZ
3m ····· L (Example) B80CL None ····· N (Example) B80CN

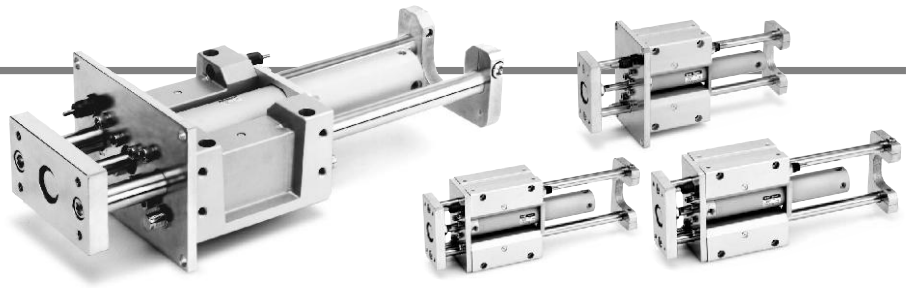
PLC: Programmable Logic controller

∗○: Manufactured upon receipt of order

Model/Specifications

JIS Symbol





Model/Stroke Table

Model	Bearing	Bore (mm)	Standard stroke (mm)	Long stroke (mm)
MGGM	Slide bearing	20	75, 100, 125, 150, 200	250, 300, 350, 400
		25	75, 100, 125, 150, 200, 250, 300	350, 400, 450, 500
		32		350, 400, 450, 500, 600
		40		350, 400, 450, 500, 600, 700, 800
MGGL	Ball bushing bearing	50		350, 400, 450, 500, 600, 700, 800, 900, 1000
		63		350, 400, 450, 500, 600, 700, 800, 900, 1000, 1100
		80		350, 400, 450, 500, 600, 700, 800, 900, 1000, 1100, 1200
		100		350, 400, 450, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300

Specifications

Model		MGG□□20	MGG□□25	MGG□□32	MGG□□40	MGG□□50	MGG□□63	MGG□□80	MGG□□100
Base cylinder		CDGIBN20	CDGIBN25	CDGIBN32	CDGIBN40	CDGIBN50	CDGIBN63	CDGIBN80	CDGIBN100
Bore (mm)		20	25	32	40	50	63	80	100
Action		Double acting							
Fluid		Air							
Proof pressure		1.5MPa							
Max. operating pressure		1.0MPa							
Min. operating pressure		0.15MPa (At horizontal non-load)							
Ambient and fluid temperature		–10 to 60°C							
Piston speed		50 to 1000mm/s						50 to 700mm/s	
Cushion	Base cylinder	Rubber bumper							
	Guide part	Shock absorber built-in (2 pcs.)							
Adjustable stroke range		0 to –10mm	0 to –15mm <Adjusting bolts built-in (2 pcs.)>						
Lubrication		Non-lube							
Thread tolerance		JIS class 2							
Stroke tolerance		$^{+1.9}_{+0.2}$mm(1000st or less), $^{+2.3}_{+0.2}$mm(1001st or more)							
Non-rotating accuracy (Expect for bending of guide rod)	Slide	±0.07°	±0.06°	±0.06°	±0.05°	±0.04°	±0.04°	±0.04°	±0.03°
	Ball bushing	±0.06°	±0.05°	±0.04°	±0.04°	±0.04°	±0.03°	±0.03°	±0.02°
Port size		Rc(PT) $^1/_8$				Rc(PT) $^1/_4$		Rc(PT) $^3/_8$	Rc(PT) $^1/_2$

Shock Absorber Specifications

Shock absorber model		RB1007	RB1412	RB2015	RB2725
Applicable guide cylinder		MGG□□20	MGG□□25, 32	MGG□□40, 50, 63	MGG□□80, 100
Max. absorbed energy J		5.88	19.6	58.8	147
Absorbed stroke (mm)		7	12	15	25
Max. collision speed (m/S)		5			
*Max. operating freq. (cyc/min)		70	45	25	10
Operating temperature range (°C)		–10 to 80			
Spring force (N)	Extended	4.22	6.86	8.34	8.83
	Retracted	6.86	15.98	20.5	20.01

∗ The value shown is for when the absorption energy per cycle is at the maximum level. Accordingly, the operating frequency can be increased in accordance with the absorption energy.

Theoretical Force

Unit: N

Bore size (mm)	Position 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
20	8	OUT	314	62.8	94.2	126	157	188	220	251	283	314
		IN	264	52.8	79.2	106	132	158	185	211	238	264
25	10	OUT	491	98.2	147	196	246	295	344	393	442	491
		IN	412	82.4	124	165	206	247	288	330	371	412
32	12	OUT	804	161	241	322	402	482	563	643	724	804
		IN	691	138	207	276	346	415	484	553	622	691
40	16	OUT	1260	252	378	504	630	756	882	1010	1130	1260
		IN	1060	212	318	424	530	636	742	848	954	1060
50	20	OUT	1960	392	588	784	980	1180	1370	1570	1760	1960
		IN	1650	330	495	660	825	990	1160	1320	1490	1650
63	20	OUT	3120	624	936	1250	1560	1870	2180	2500	2810	3120
		IN	2800	560	840	1120	1400	1680	1960	2240	2520	2800
80	25	OUT	5030	1010	1510	2010	2520	3020	3520	4020	4530	5030
		IN	4540	908	1360	1820	2270	2720	3180	3630	4090	4540
100	30	OUT	7850	1570	2360	3140	3930	4710	5500	6280	7070	7850
		IN	7150	1430	2150	2860	3580	4290	5010	5720	6440	7150

Note) Theoretical output (N)=Pressure (Mpa) X Piston area (mm^2)

Weight

(kg)

Bore size (mm)		20	25	32	40	50	63	80	100
Standard weight	Basic	1.37	2.2	2.87	5.7	8.75	10.27	16.81	23.61
	Front flange	1.81	2.77	3.44	6.85	9.99	14.18	23.27	31.95
Bearing weight	Slide	0.92	1.43	1.94	3.6	5.38	5.98	8.96	12.93
	Ball bushing	0.93	1.47	1.95	3.62	5.63	6.6	9.76	14.24
Additional weight per 50 stroke		0.14	0.17	0.25	0.4	0.61	0.82	1.11	1.48
Additional weight for long stroke		0.01	0.01	0.02	0.03	0.06	0.1	0.19	0.26
Additional weight for bracket		0.02	0.03	0.04	0.08	0.12	0.27	0.39	0.57

Calculation example: **MGGLB32-500** (Basic, Ball bushing bearing, ø32·500st, with bracket)
- Basic weight ····· 2.87 (Basic)
- Stroke ····· 500st.
- Bearing weight ····· 1.95 (Ball bushing bearing)
- Additional weight for long stroke ····· 0.02
- Additional weight for stroke ····· 0.25/50st.
- Additional weight for bracket ····· 0.04

2.87+1.95+0.25 X 500/50+0.02+0.04=7.38kg

Weight (Moving parts)

(kg)

Bore size (mm)	20	25	32	40	50	63	80	100
Basic weight of moving parts	0.8	1.3	1.8	3.4	5.7	8.5	13.5	19
Additional weight per 50 stroke	0.09	0.104	0.158	0.248	0.386	0.556	0.756	0.988

Calculation example: **MGGLB32-500**
- Basic weight of moving parts ·····1.8
- Additional weight for stroke ·····0.158/50st.
- Stroke ·····500st.

1.8+0.158 X 500/50=3.38kg

Air-hydro

Low hydraulic pressure cylinder under 1.0MPa
Through the concurrent use of a CC Series air-hydro unit, it becomes possible to operate at a constant or low speed or allow intermediate stops, just like a hydraulic unit, while using pneumatic equipment such as a valve.

MGG**H** | Bearing | Mounting | Bore size | Stroke

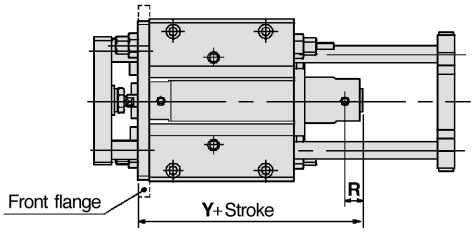
H: Air-hydro

Specifications

Bore size (mm)		20, 25, 32, 40, 50
Action		Double acting
Fluid		Turbine oil
Proof pressure		1.5MPa
Max. operating pressure		1.0MPa
Min. operating pressure		0.18MPa (At horizontal non-load)
Piston speed		15 to 300mm/s
Cushion	Base cylinder	None
	Guide part	Built-in shock absorber (2 pcs)
Ambient and fluid temperature		+5 to 60°C
Thread tolerance		JIS class 2
Stroke tolerance		$^{+1.9}_{+0.2}$ mm
Mounting		Basic Front flange

∗ Refer to the p.3.19-7 regarding other specifications.
∗ Possible to mount auto switch

Dimensions



(mm)

Bore size (mm)	20	25	32	40	50
R	14	14	14	15	16
Y	81	81	83	94	109

∗ Other dimensions are same as the p.3.19-22 and 3.19-24.

Copper Free

To prevent the generation of copper ions, in order to eliminate any influences of copper ions or fluororesins on color CRTs, copper materials have been nickel plated or replaced with copper-free materials.

20-MGG | Bearing | Mounting | Bore size | Stroke

20: Copper free

Specifications

Bore size (mm)		20, 25, 32, 40, 50
Action		Double acting
Fluid		Air
Max. operating pressure		1.0MPa
Min. operating pressure		0.15MPa (At horizontal non-load)
Cushion	Base cylinder	Rubber bumper
	Guide part	Built-in shock absorber (2 pcs.)
Piston speed		50 to 1000mm/s
Mounting		Basic Front flange

∗ Refer to the p.3.19-7 for other specifications, and refer to the p.3.19-22 and 3.19-24 for dimensions.
∗ Possible to mount auto switch

Water resistant

This type prevents the intrusion of fluids from the surroundings into the cylinder by providing a special scraper in front of the rod seal of a standard cylinder. It can be used in a machine tool environment exposed to coolant, or in areas in which water splashes, such as food processing equipment or car washers.

MGG**M** | Mounting | Bore size | **R** | Stroke | H7BAL

M: Slide bearing
H7BAL: Water resistant, 2 color solid state switch
R: Water resistant cylinder

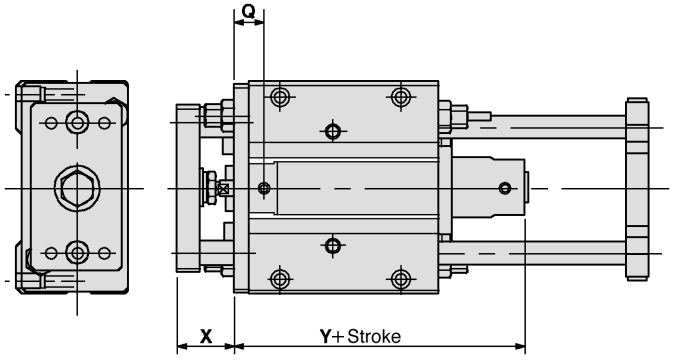
R	Seal NBR (Nitrile rubber)
V	Seal FKM (Fluorine rubber)

Specifications

Bore size (mm)		32, 40, 50
Action		Double acting
Fluid		Air
Max. operating pressure		1.0MPa
Min. operating pressure		0.15MPa (At horizontal non-load)
Mounting		Slide bearing
Cushion	Base cylinder	Rubber bumper
	Guide part	Built-in shock absorber (2 pcs.)
Piston speed		50 to 1000mm/s
Mounting		Basic Front flange

∗ Refer to the p.3.19-7 regarding other specifications.
∗ Possible to mount auto switch (improved water resistant style)
Note) Use a shock absorber RBL (Coolant resistant) style.

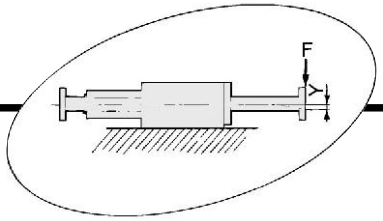
Dimensions



(mm)

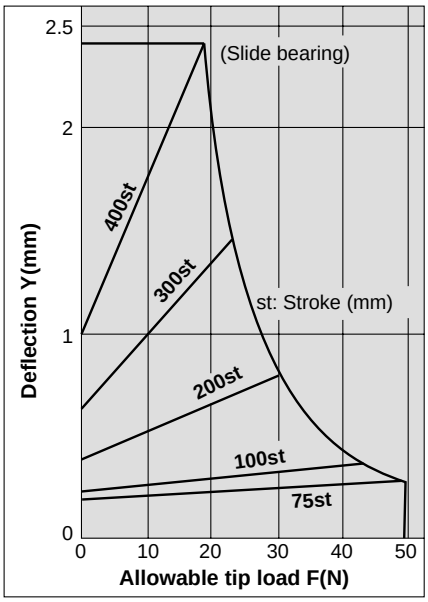
Bore size (mm)	Q	X	Y
32	25	39	86(94)
40	29	46	96(105)
50	31	57	109(121)

∗ ( ) : For long strokes
∗ Refer to p.3.19-22 and 3.19-24 for other dimensions.

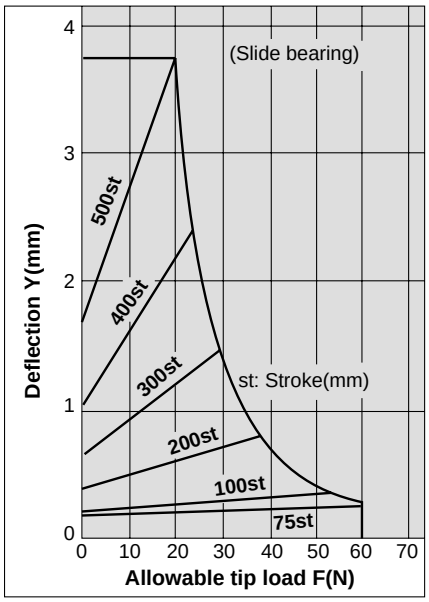


Allowable Tip Load and Deflection Slide Bearing

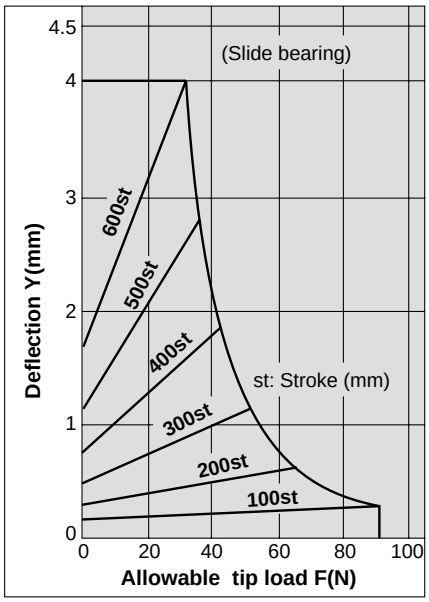
MGGM□20- Stroke



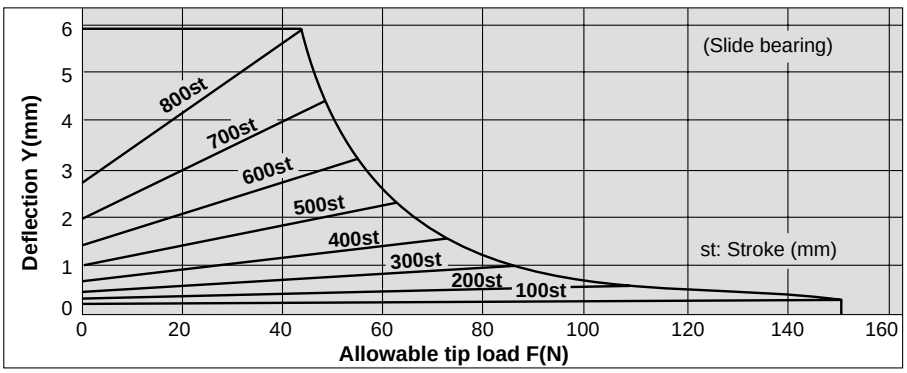
MGGM□25- Stroke



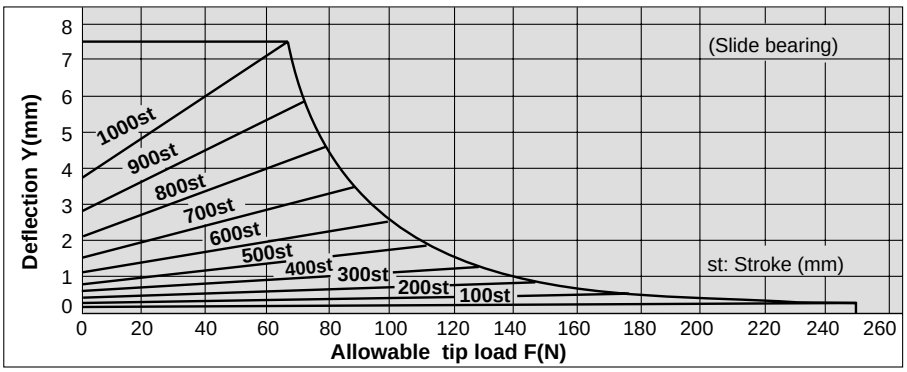
MGGM□32- Stroke



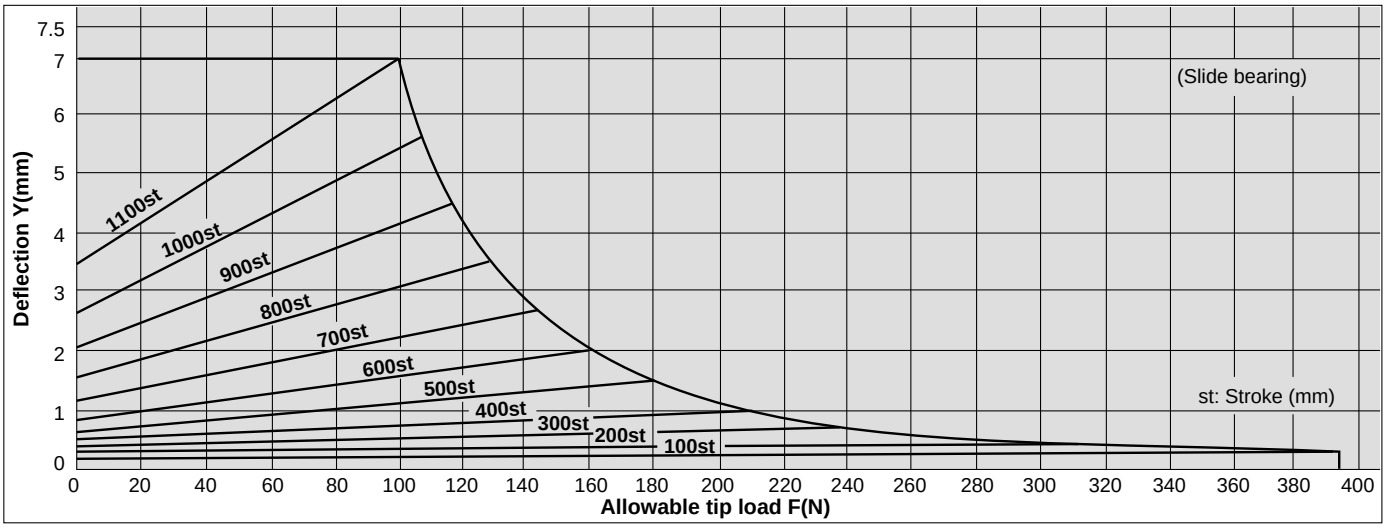
MGGM□40- Stroke



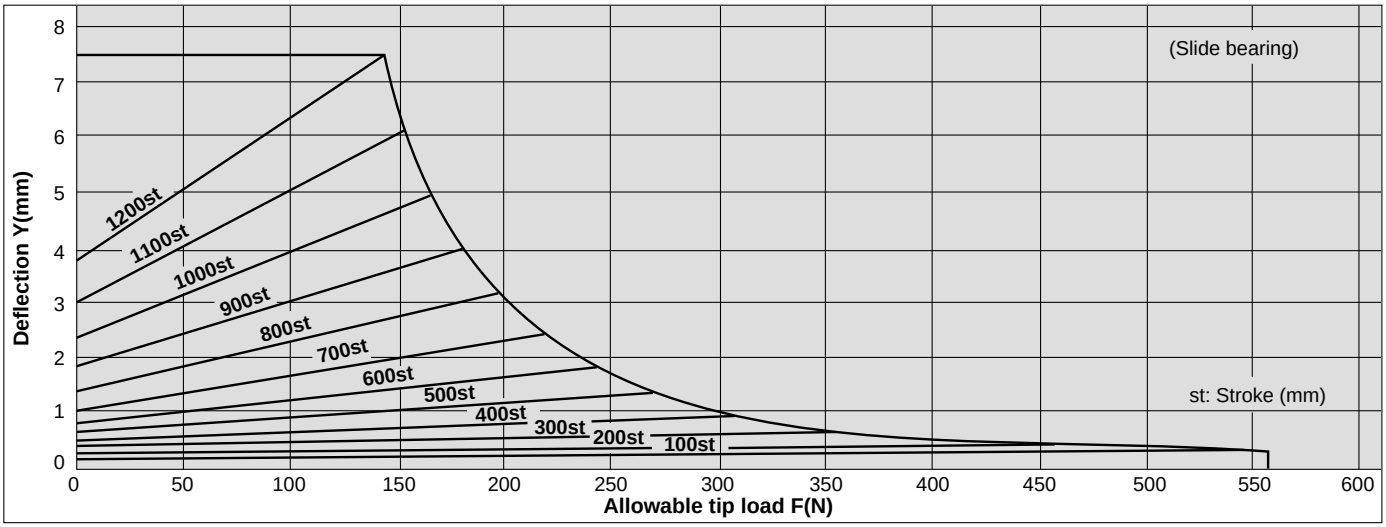
MGGM□50- Stroke



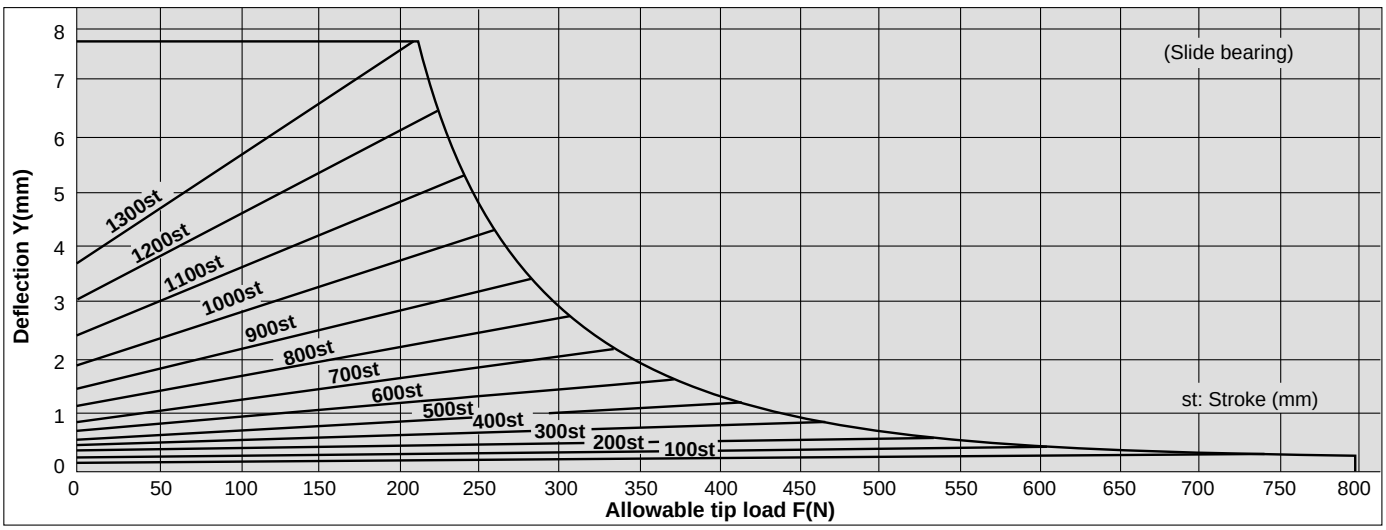
MGGM□63-Stroke

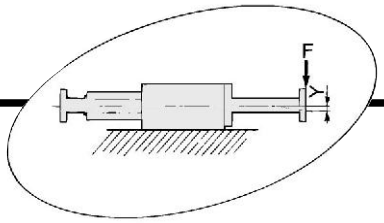


MGGM□80-Stroke



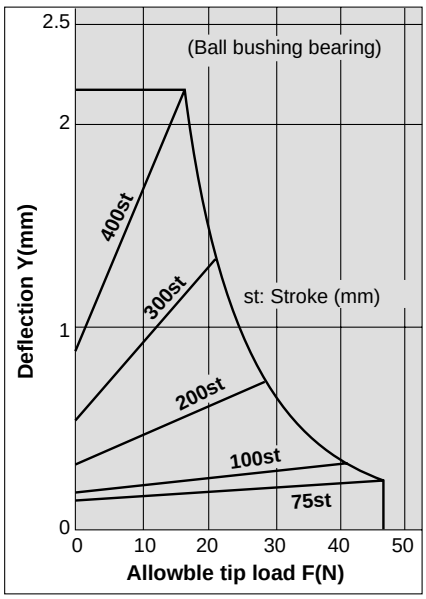
MGGM□100-Stroke



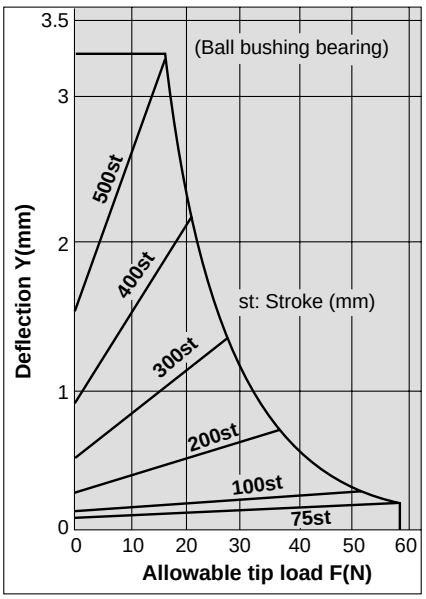


Allowable Tip Load and Deflection
Ball Bushing Bearing

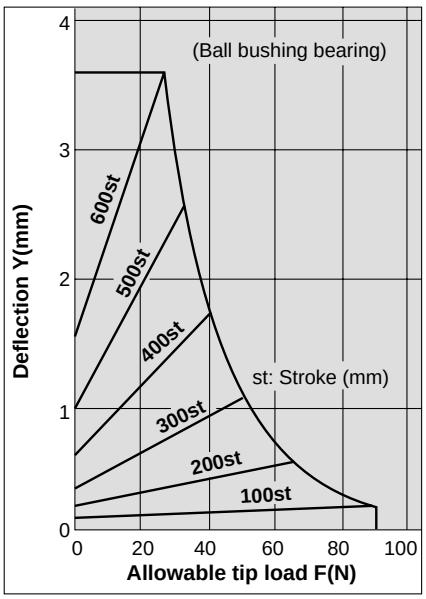
MGGL□20-Stroke



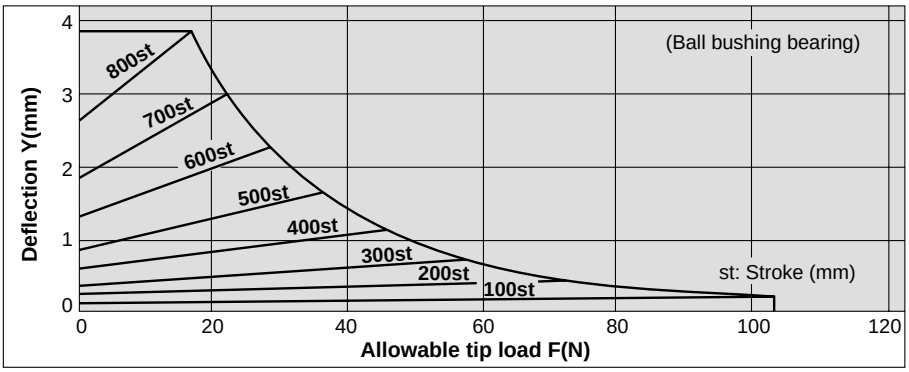
MGGL□25-Stroke



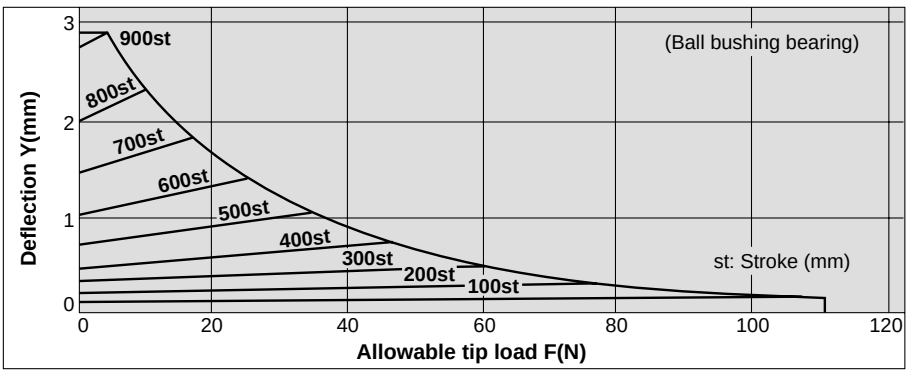
MGGL□32-Stroke



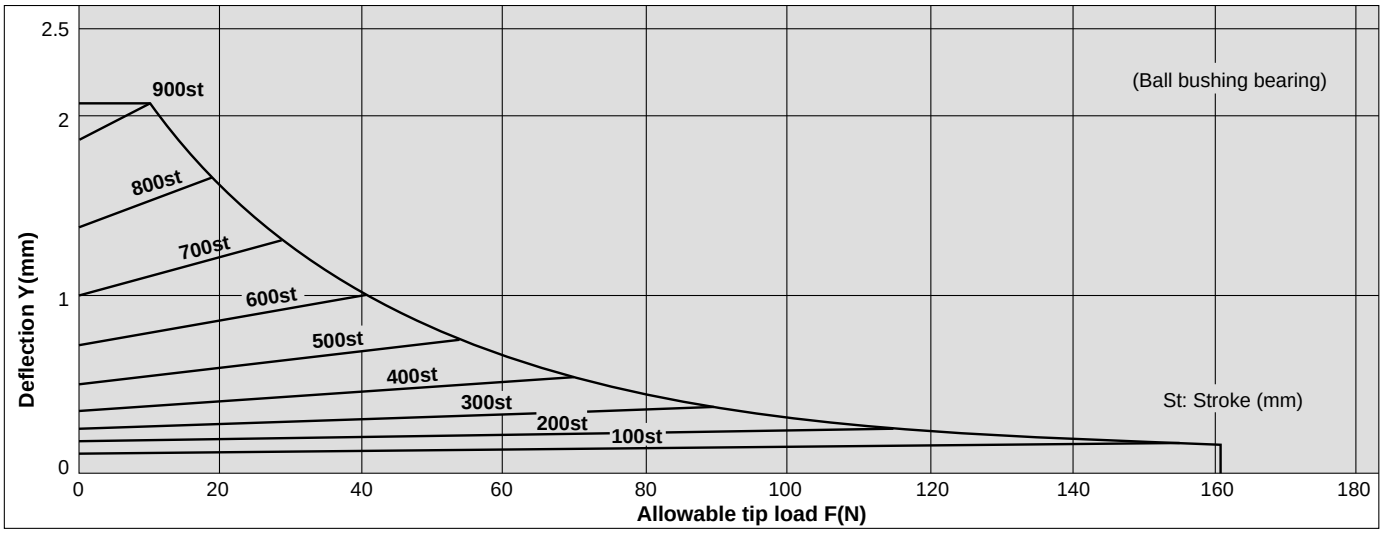
MGGL□40-Stroke



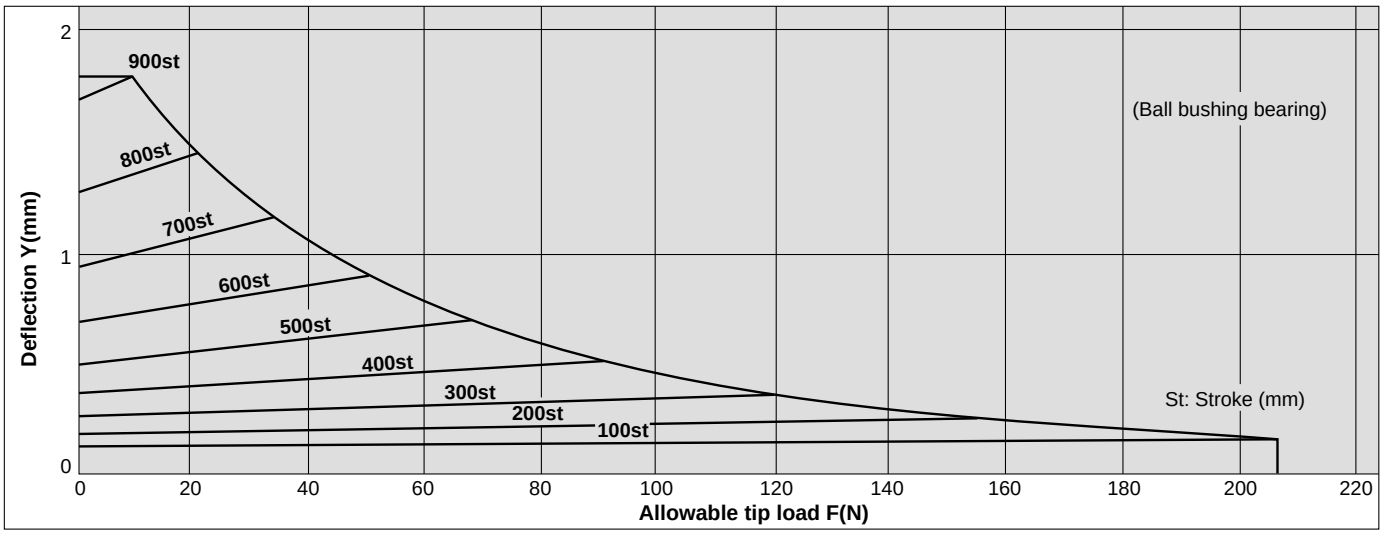
MGGL□50-Stroke



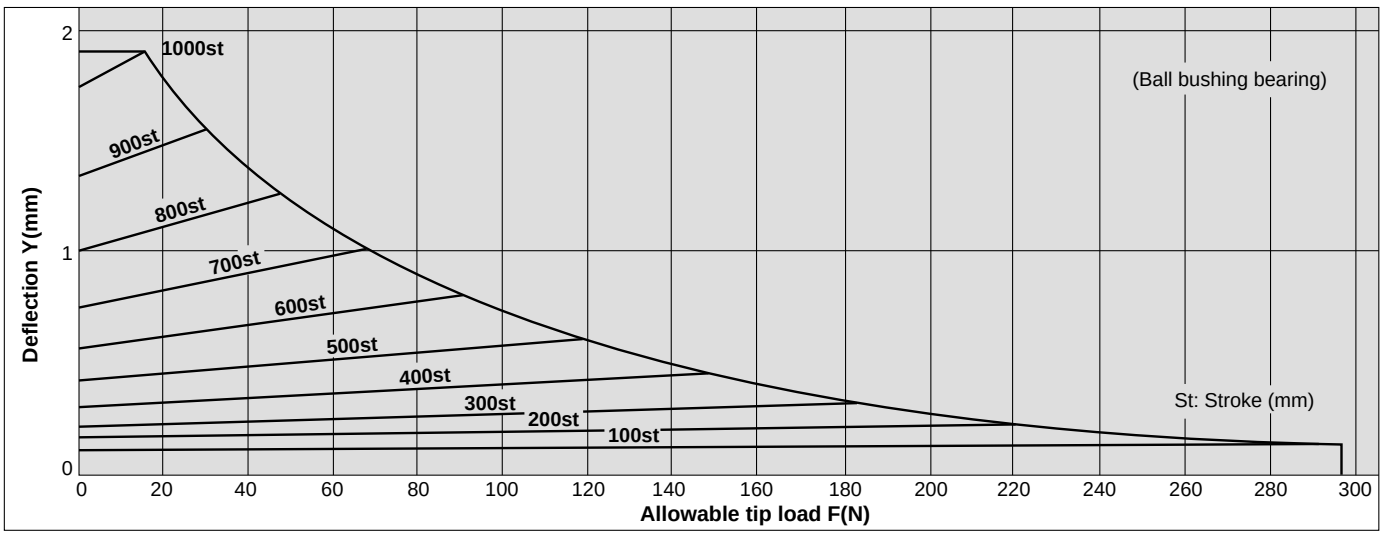
MGGL□63-Stroke

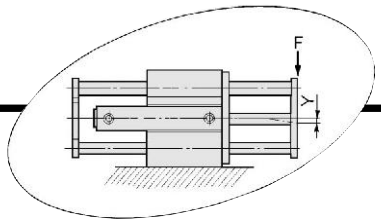


MGGL□80-Stroke



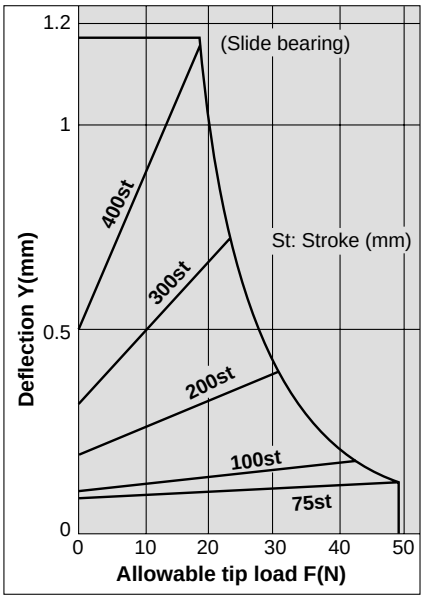
MGGL□100-Stroke



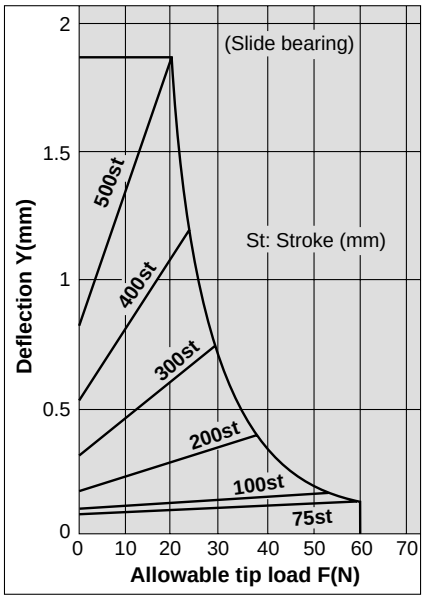


Allowable Tip Load and Deflection Slide Bearing

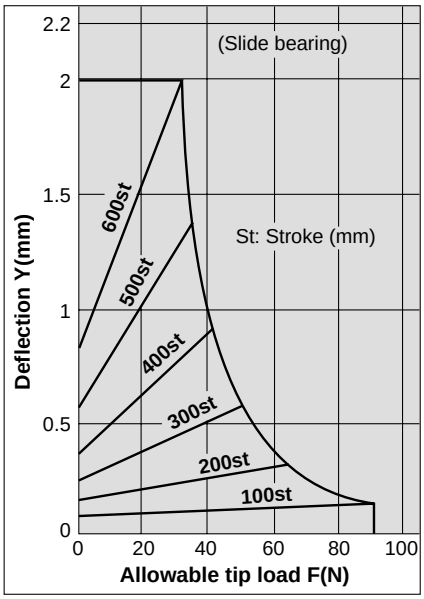
MGGM□20-Stroke



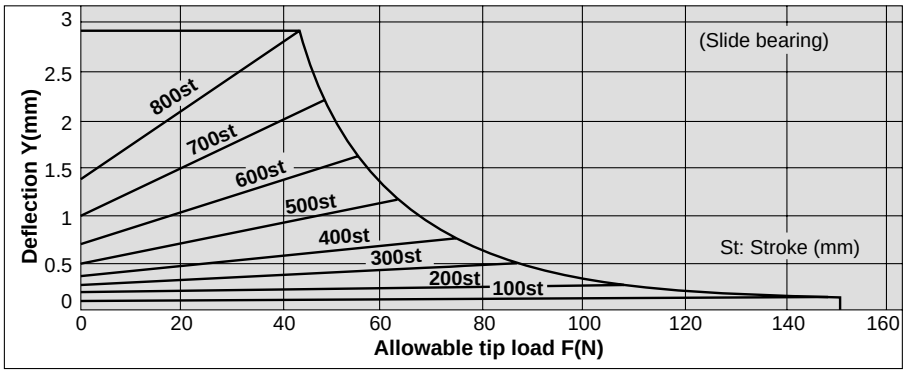
MGGM□25-Stroke



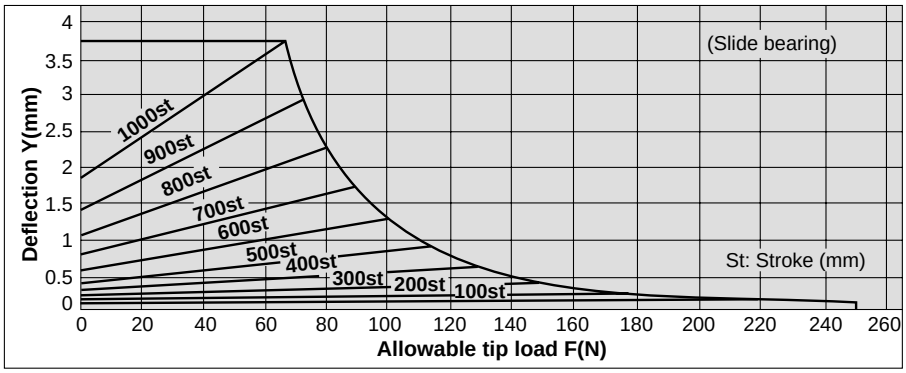
MGGM□32-Stroke



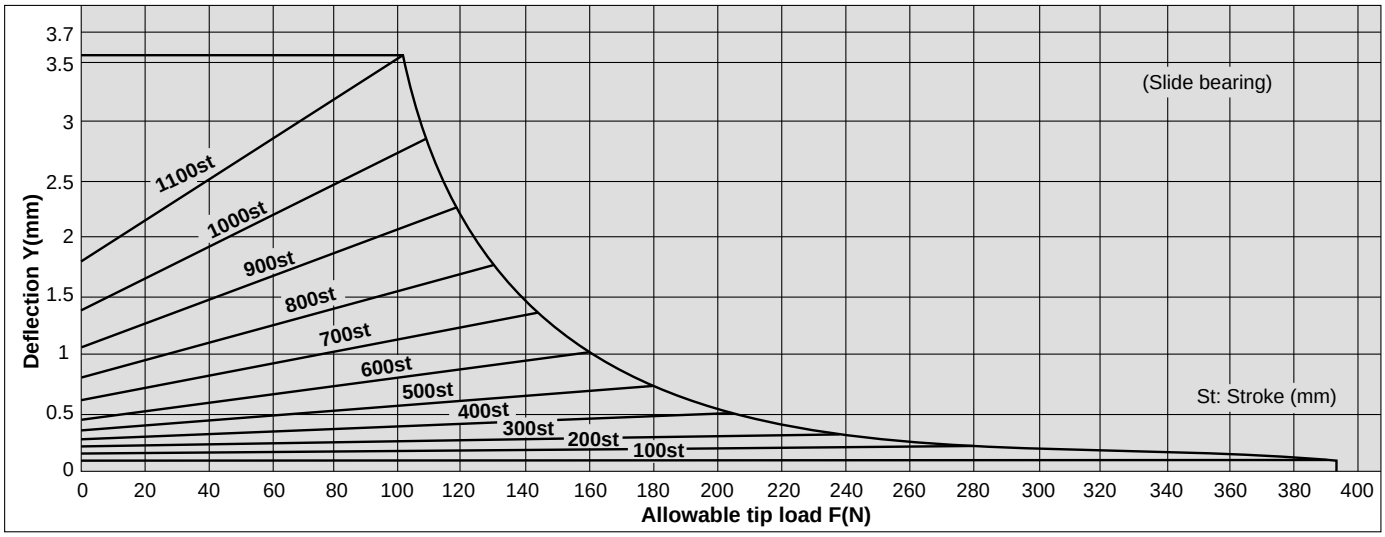
MGGM□40-Stroke



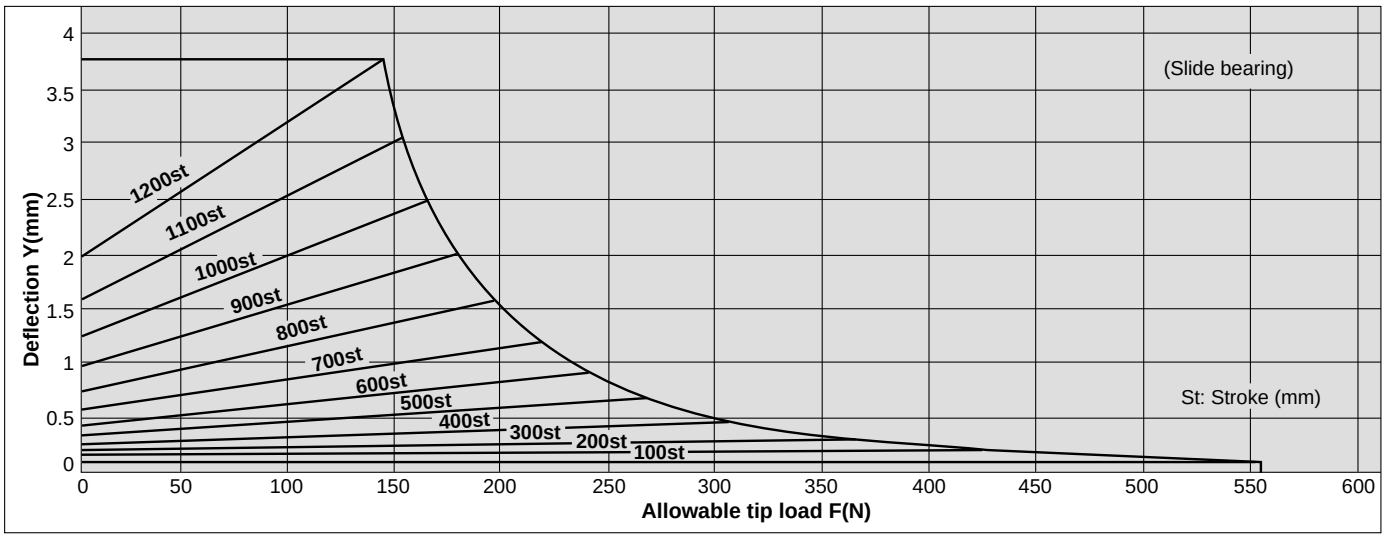
MGGM□50-Stroke



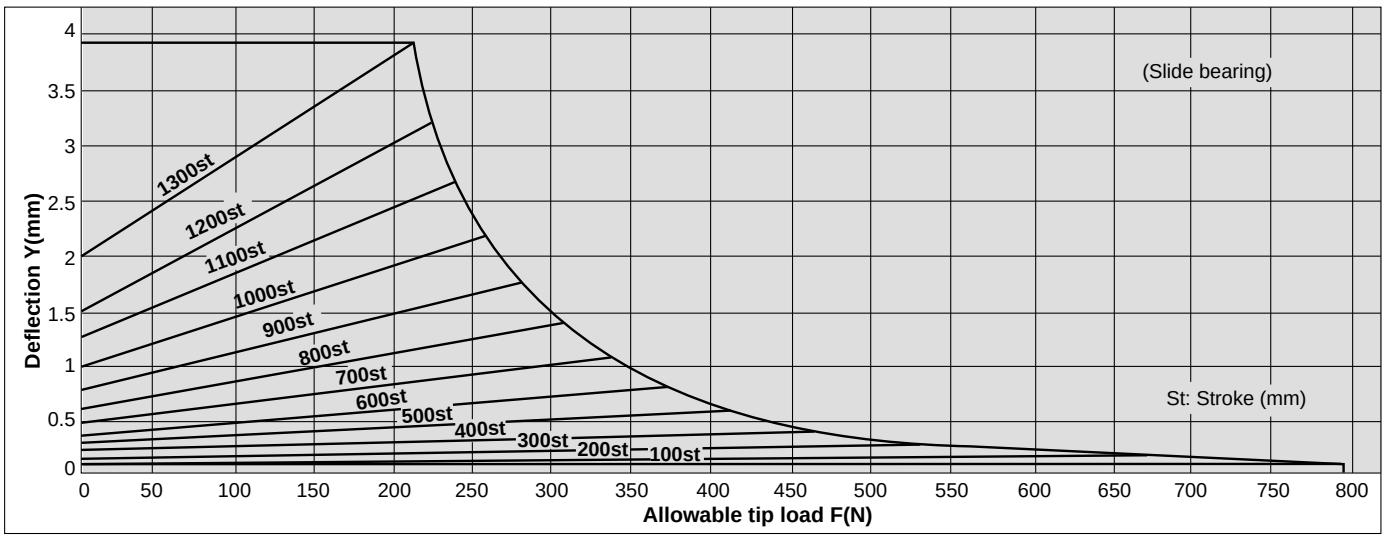
MGGM□63-Stroke

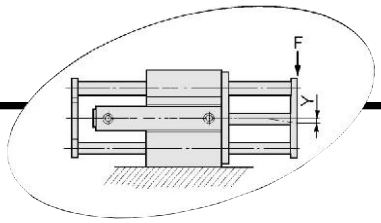


MGGM□80-Stroke



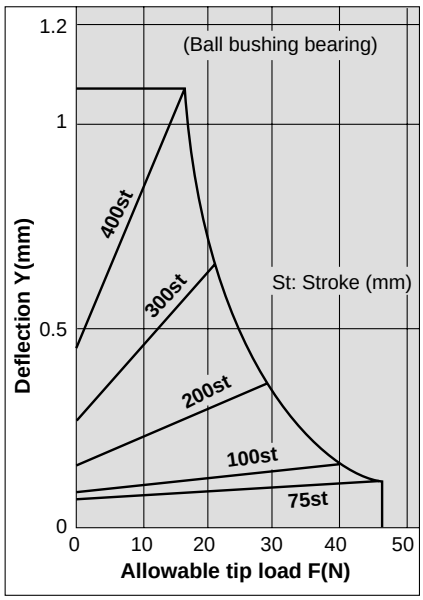
MGGM□100-Stroke



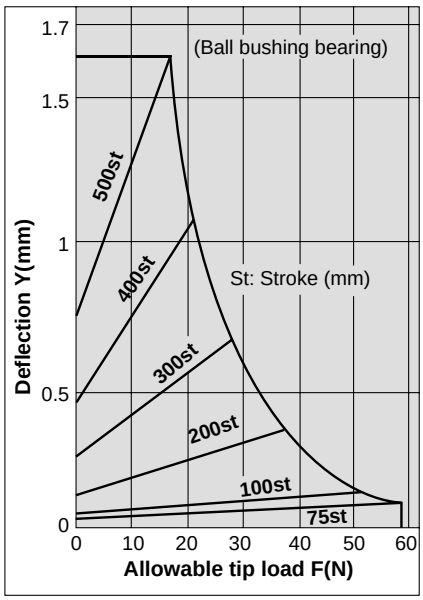


Allowable Tip Load and Deflection
Ball Bushing Bearing

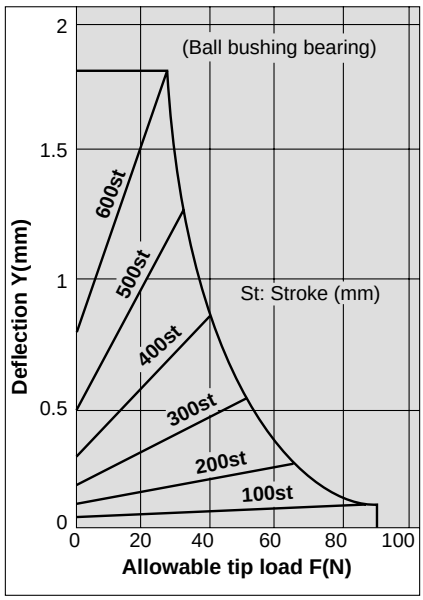
MGGL□20-Stroke



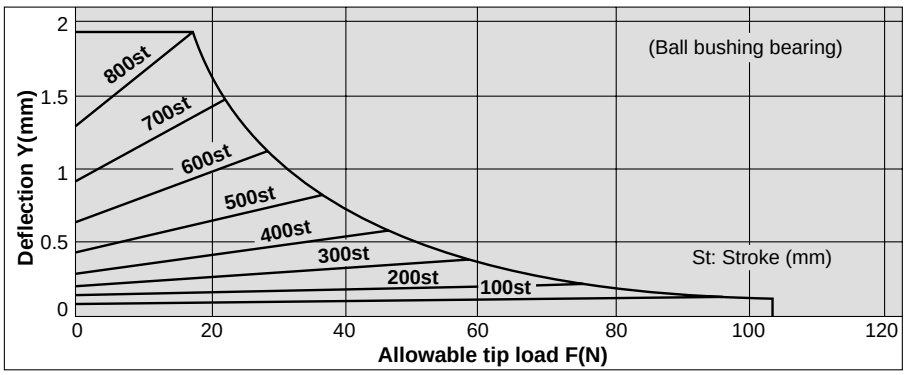
MGGL□25-Stroke



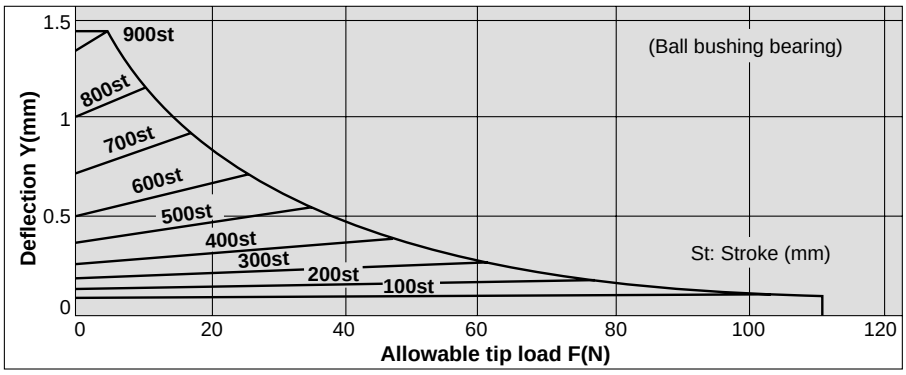
MGGL□32-Stroke



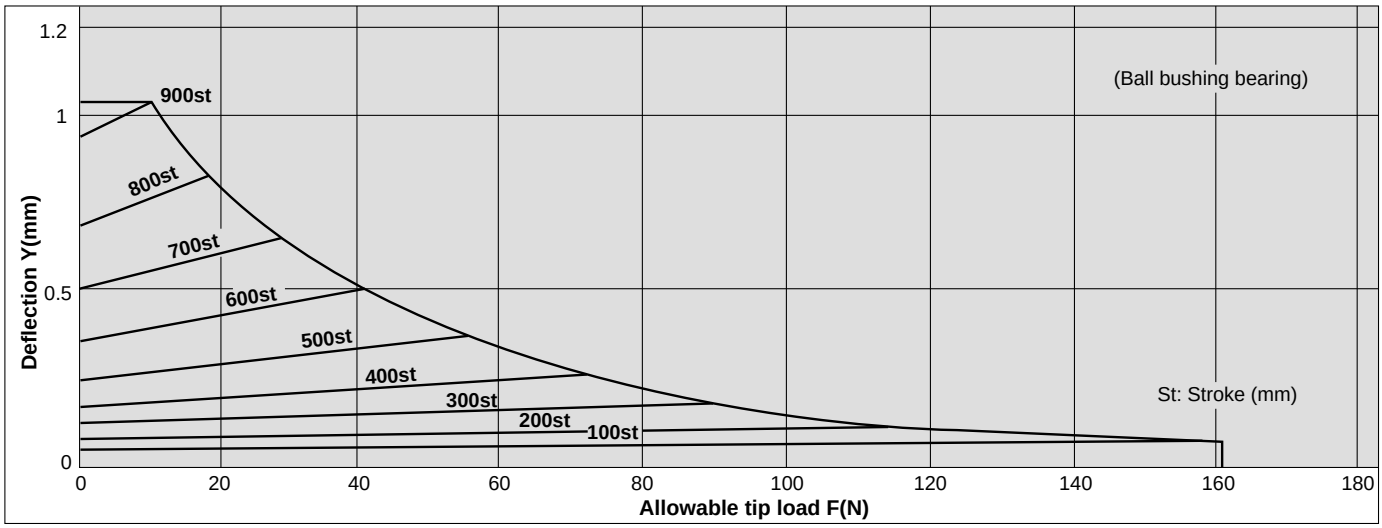
MGGL□40-Stroke



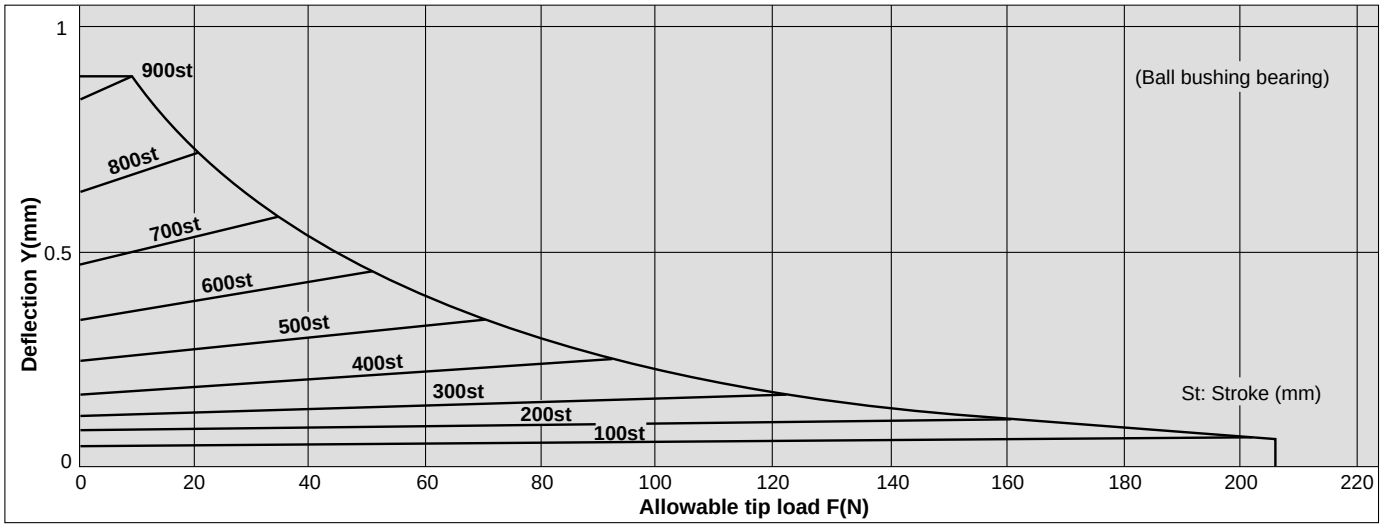
MGGL□50-Stroke



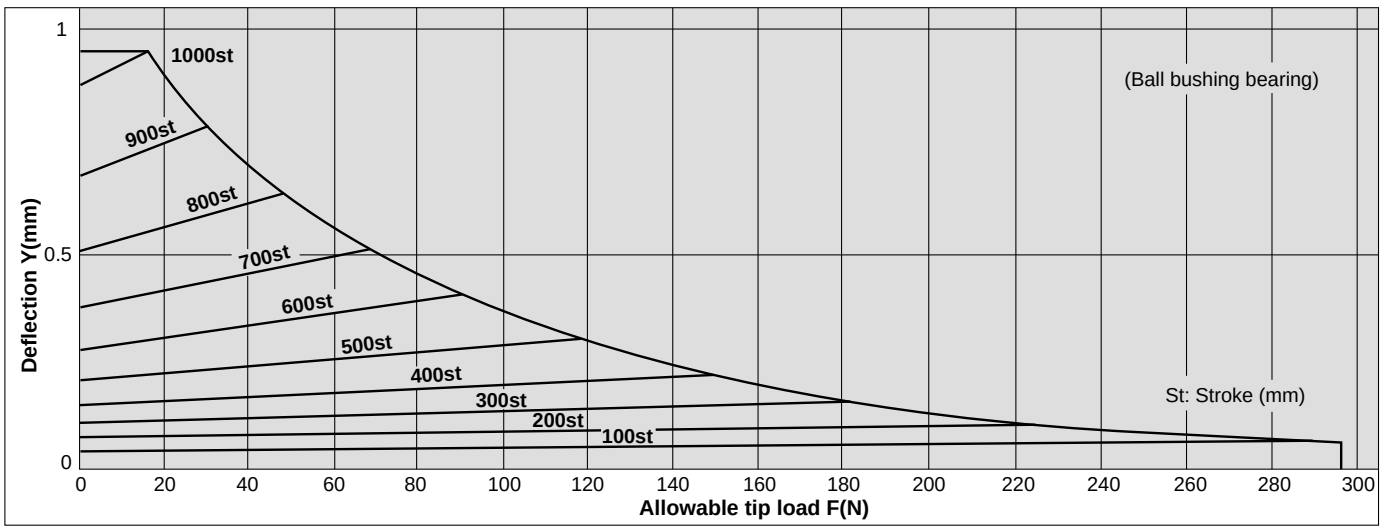
MGGL□63-Stroke



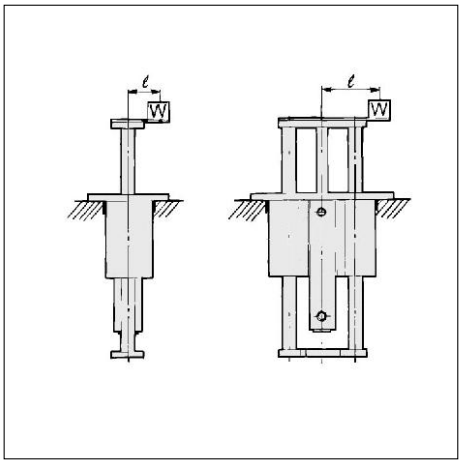
MGGL□80-Stroke



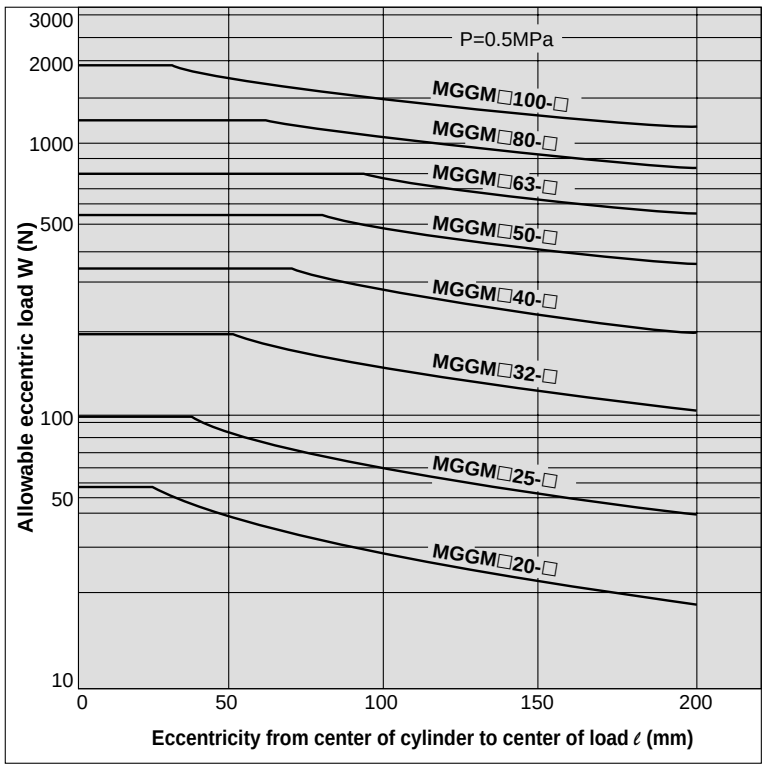
MGGL□100-Stroke



Allowable Eccentric Load

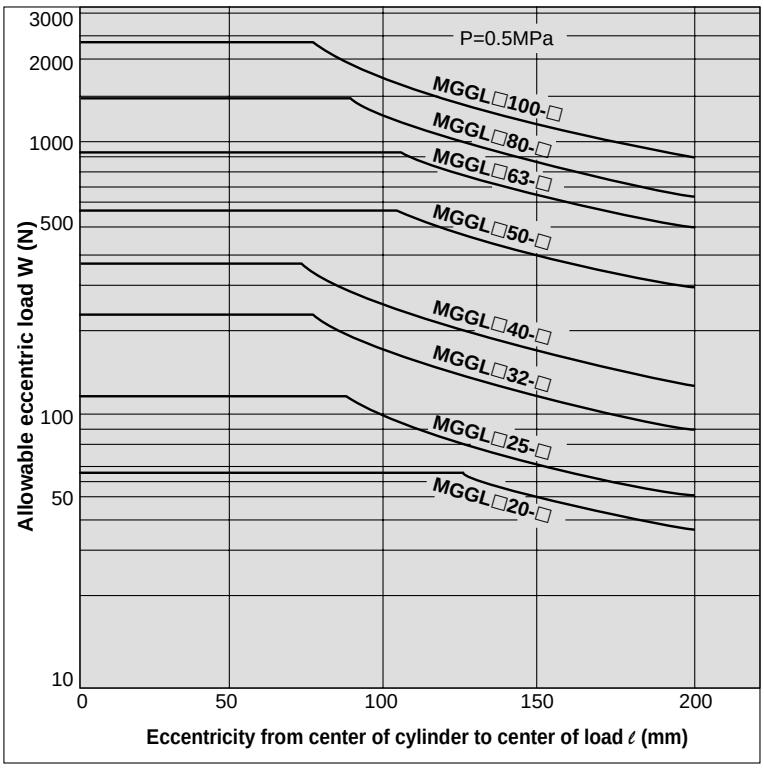


Slide bearing/MGGM□□-Stroke



(Arrange so that the maximum permissible load will be 35% for theoretical force of ø20, 40% for ø25, 50% for ø32, 55% for ø40 and ø50 and 50% or less for ø63, ø80 and ø100.)

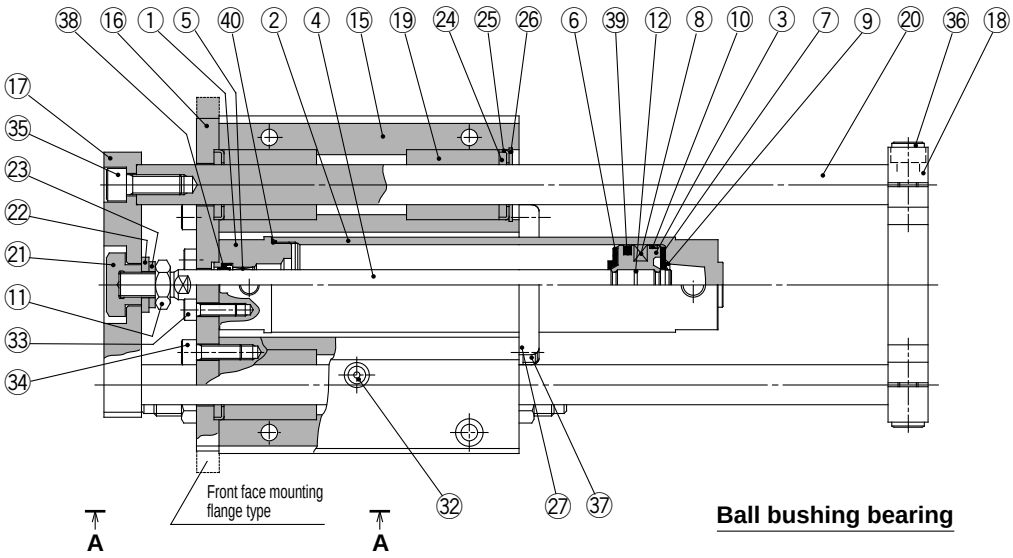
Ball bushing bearing/MGGL□□-Stroke



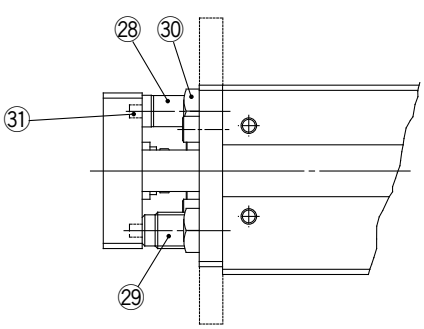
(Arrange so that the maximum permissible load will be 40% for theoretical force of ø20, 50% for ø25, 60% or less for ø32, ø40, ø50, ø63, ø80 and ø100.)

Construction

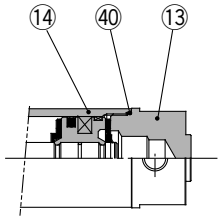
ø20 to ø50/MGG□□



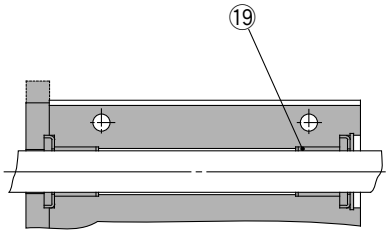
Ball bushing bearing



A-A View drawing



Long stroke



Slide bearing

Component Parts

No.	Description	Material	Note	
①	**Rod cover**	Aluminum alloy	Hard white anodized	
②	**Tube cover**	Aluminum alloy	Hard white anodized	
③	**Piston**	Aluminum alloy	Chromate	
④	**Piston rod**	Carbon steel	Hard chrome plated	ø20, ø25: SUS
⑤	**Bush**	Oil impregnated sintered alloy	ø40 or more: Lead-bronze cast	
⑥	**Bumper A**	Urethane		
⑦	**Bumper B**	Urethane	ø40 or more: Common with bumper A	
⑧	**Rubber magnet**	Synthetic rubber		
⑨	**Set ring**	Stainless steel		
⑩	**Wearingm**	Resin		
⑪	**Rod end nut**	Rolled steel	Nickel plated	
⑫	**Piston gasket**	NBR		
⑬	**Head cover**	Aluminum alloy	Hard white anodized	For long stroke
⑭	**Cylinder tube**	Aluminum alloy	Hard anodized	
⑮	**Guide body**	Aluminum alloy	White anodized	
⑯	**Small flange**	Rolled steel	Mat nickel plated	Basic
	Large flange			Front face mounting flange
⑰	**Front plate**	Rolled steel	Mat nickel plated	
⑱	**Rear plate**	Cast iron	Mat nickel plated	
⑲	**Slide bearing**	Special friction material	For slide bearing	
	Ball bushing	—	For ball bushing bearing	
⑳	**Guide rod**	Carbon steel	Hard chrome plated	Slide bearing
		Hi-carbon chromium steel	Quenched/Hard chrome plated	Ball bushing
㉑	**End bracket**	Carbon steel	Mat nickel plated	
㉒	**Washer**	Rolled steel	Nickel plated	
㉓	**Spring washer**	Steel wire	Nickel plated	
㉔	**Felt**	Felt		
㉕	**Holder**	Stainless steel		

Component Parts

No.	Description	Material	Note	
㉖	**For hole C retaining ring**	Carbon tool steel	Nickel plated	
㉗	**Bracket**	Stainless steel		
㉘	**Shock absorber**	—		
㉙	**Adjusting bolt**	Rolled steel	Nickel plated	
㉚	**Nut**	Rolled steel	Nickel plated	
㉛	**Parallel pin**	Hi-carbon chromium steel	Nickel plated	
㉜	**Ball in cup**	—	Nickel plated	
㉝	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	Cylinder mounting
㉞	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	Large/small flange mounting
㉟	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	Front plate
㊱	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	Rear plate
㊲	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	Bracket mounting
㊳	**Rod seal**	NBR		
㊴	**Piston seal**	NBR		
㊵	**Tube gasket**	NBR		

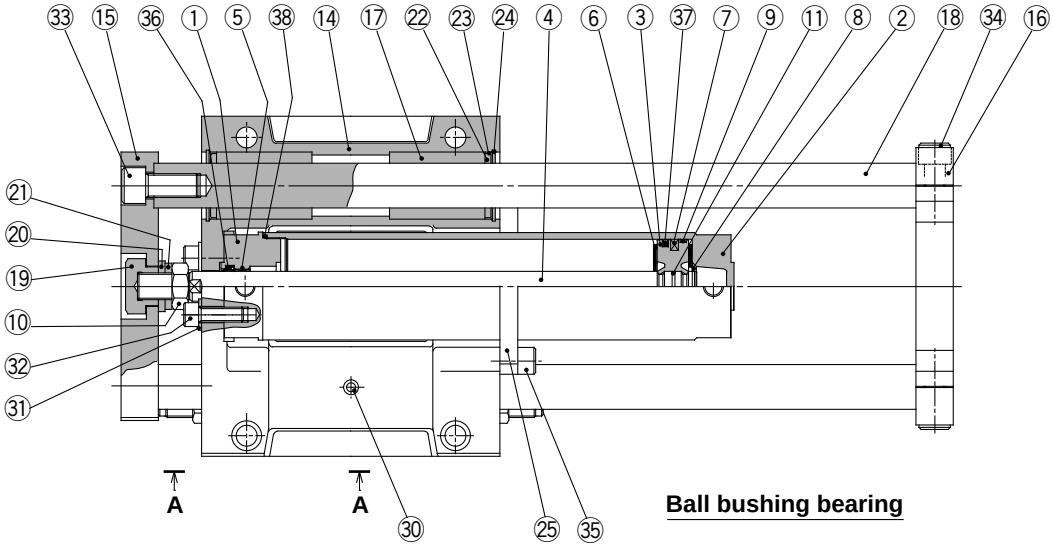
Replacement Parts: Seal Kits

Bore size (mm)	Kit No.	Contents
20	CGIN20-PS	Set of above ㊳, ㊴ and ㊵
25	CGIN25-PS	
32	CGIN32-PS	
40	CGIN40-PS	
50	CGIN50-PS	

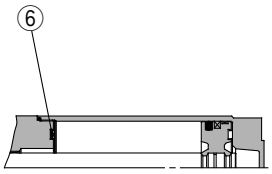
Seal kit includes rod seal ㊳, piston seal ㊴ and tube gasket ㊵.
Order a seal kit according to applicable bore size.

Construction

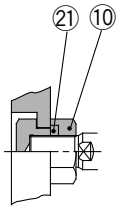
ø63 to ø100/MGG□B



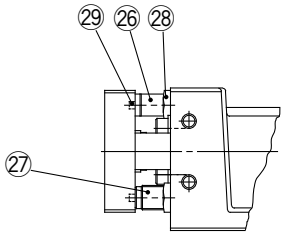
Ball bushing bearing



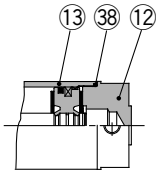
ø80, ø100



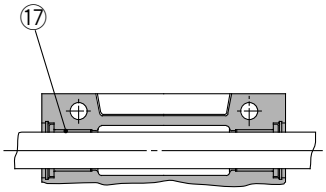
ø100



A-A View drawing



Long stroke



Slide bearing

Component Parts

No.	Description	Material	Note	
①	**Rod cover**	Aluminum alloy	Hard white anodized	
②	**Tube cover**	Aluminum alloy	Hard white anodized	
③	**Piston**	Aluminum alloy	Chromated	
④	**Piston rod**	Carbon steel	Hard chromium plated	
⑤	**Bushing**	Lead-bronze casting		
⑥	**Bumper**	Urethane		
⑦	**Rubber magnet**	Synthetic rubber		
⑧	**Set ring**	Stainless steel	None for ø80, ø100	
⑨	**Wearing**	Resin		
⑩	**Rod end nut**	Rolled steel	Nickel plated	ø100: Carbon steel
⑪	**Piston gasket**	NBR		
⑫	**Head cover**	Aluminum alloy	Hard white anodized	For long stroke
⑬	**Cylinder tube**	Aluminum alloy	Hard anodized	
⑭	**Guide cylinder**	Aluminum alloy	Metallic silver	
⑮	**Front plate**	Rolled steel	Mat nickel plated	
⑯	**Rear plate**	Cast iron	Mat nickel plated	
⑰	**Slide bearing**	Special friction material	For slide bearing	
	Ball bushing	—	For ball bushing bearing	
⑱	**Guide rod**	Carbon steel	Hard chrome plated	Slide bearing
		Hi-carbon chromium steel	Queuched/Hard chrome plated	Ball bushing
⑲	**End bracket**	Carbon steel	Mat nickel plated	
⑳	**Washer**	Rolled steel	Nickel plated	Non for ø100
㉑	**Spring washer**	Steel wire	Nickel plated	
㉒	**Felt**	Felt		
㉓	**Holder**	Rolled steel	Nickel plated	
㉔	**Hole C retaining ring**	Carbon tool steel	Nickel plated	

Component Parts

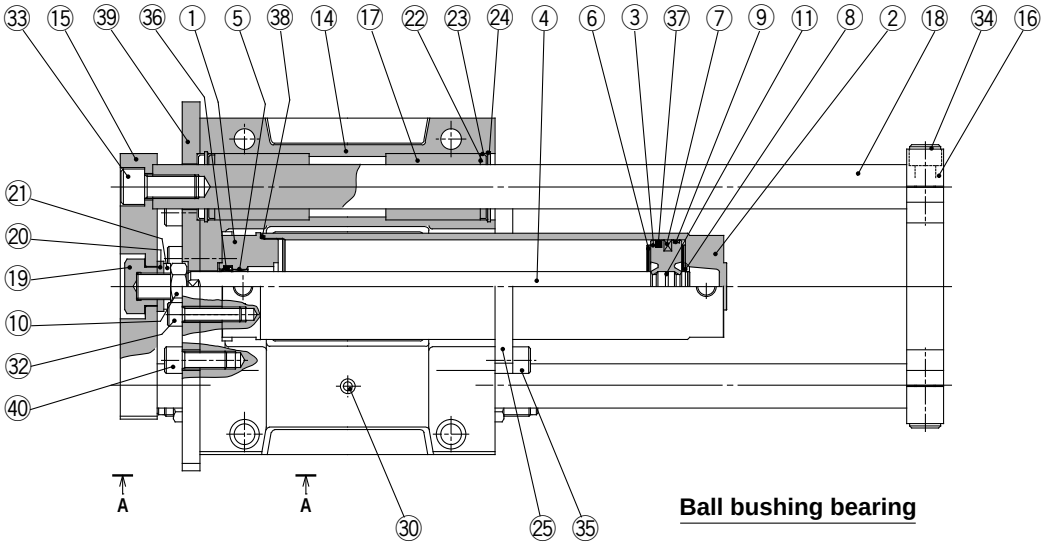
No.	Description	Material	Note	
㉕	**Bracket**	Aluminum alloy	White anodized	
㉖	**Shock absorber**	—		
㉗	**Adjusting bolt**	Rolled steel	Nickel plated	
㉘	**Nut**	Rolled steel	Nickel plated	
㉙	**Parallel pin**	Hi-carbon chromium steel	Nickel plated	
㉚	**Ball in cup**	—	Nickel plated	
㉛	**Flat washer**	Carbon steel	Nickel plated	
㉜	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	For cylinder mounting
㉝	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	For front plate
㉞	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	For rear plate
㉟	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	For bracket mounting
㊱	**Rod seal**	NBR		
㊲	**Piston seal**	NBR		
㊳	**Tube gasket**	NBR		

Replacement Parts: Seal Kits

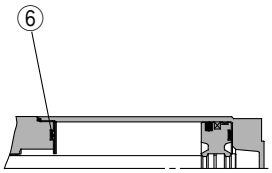
Bore size (mm)	Kits No.	Contents
63	CGIN63-PS	Set of above ㊱, ㊲ and ㊳
80	CGIN80-PS	
100	CGIN100-PS	

Seal kit includes rod seal ㊱, piston seal ㊲ and tube gasket ㊳.
Order a seal kit according to applicable bore size.

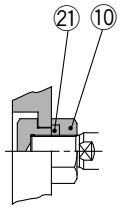
ø63 to ø100/MGG□F



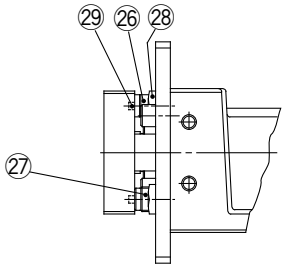
Ball bushing bearing



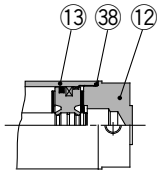
ø80, ø100



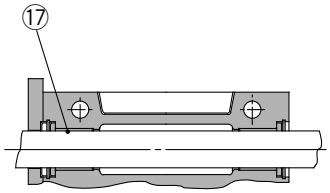
ø100



A-A View drawing



Long stroke



Slide bearing

Component Parts

No.	Description	Material	Note	
①	**Rod cover**	Aluminum alloy	Hard white anodized	
②	**Tube cover**	Aluminum alloy	Hard white anodized	
③	**Piston**	Aluminum alloy	Chromated	
④	**Piston rod**	Carbon steel	Hard chrome plated	
⑤	**Bush**	Lead-bronze casting		
⑥	**Bumper**	Urethane		
⑦	**Rubber magnet**	Synthetic rubber		
⑧	**Set ring**	Stainless steel	None for ø80, ø100	
⑨	**Wearing**	Resin		
⑩	**Rod end nut**	Rolled steel	Nickel plated	ø100: Carbon steel
⑪	**Piston gasket**	NBR		
⑫	**Head cover**	Aluminum alloy	Hard white anodized	For long stroke
⑬	**Cylinder tube**	Aluminum alloy	Hard anodized	
⑭	**Guide body**	Aluminum alloy	Metallic silver	
⑮	**Front plate**	Rolled steel	Mat nickel plated	
⑯	**Rear plate**	Cast iron	Mat nickel plated	
⑰	**Slide bearing**	Special friction material	For slide bearing	
	Ball bushing bearing	—	For ball bushing bearing	
⑱	**Guide rod**	Carbon steel	Hard chrome plated	Slide bearing
		Hi-carbon chromium steel	Quenched/Hard chrome plated	Ball bushing
⑲	**End bracket**	Carbon steel	Mat nickel plated	
⑳	**Washer**	Rolled steel	Nickel plated	None for ø100
㉑	**Spring washer**	Steel wire	Nickel plated	
㉒	**Felt**	Felt		
㉓	**Holder**	Rolled steel	Nickel plated	
㉔	**Hole C retaining ring**	Carbon tool steel	Nickel plated	
㉕	**Bracket**	Aluminum alloy	White anodized	

Component Parts

No.	Description	Material	Note	
㉖	**Shock absorber**	—		
㉗	**Adjusting bolt**	Rolled steel	Nickel plated	
㉘	**Nut**	Rolled steel	Nickel plated	
㉙	**Parallel pin**	Hi-carbon chromium steel	Nickel plated	
㉚	**Ball in cup**	—	Nickel plated	
㉛	**—**	—		
㉜	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	Cylinder mounting
㉝	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	Front plate mounting
㉞	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	Rear plate mounting
㉟	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	Bracket mounting
㊱	**Rod seal**	NBR		
㊲	**Piston seal**	NBR		
㊳	**Tube gasket**	NBR		
㊴	**Large flange**	Rolled steel	Nickel plated	
㊵	**Hex. socket head cap screw**	Chrome molybdnum steel	Nickel plated	Large flange mounting

Replacement Parts: Seal Kits

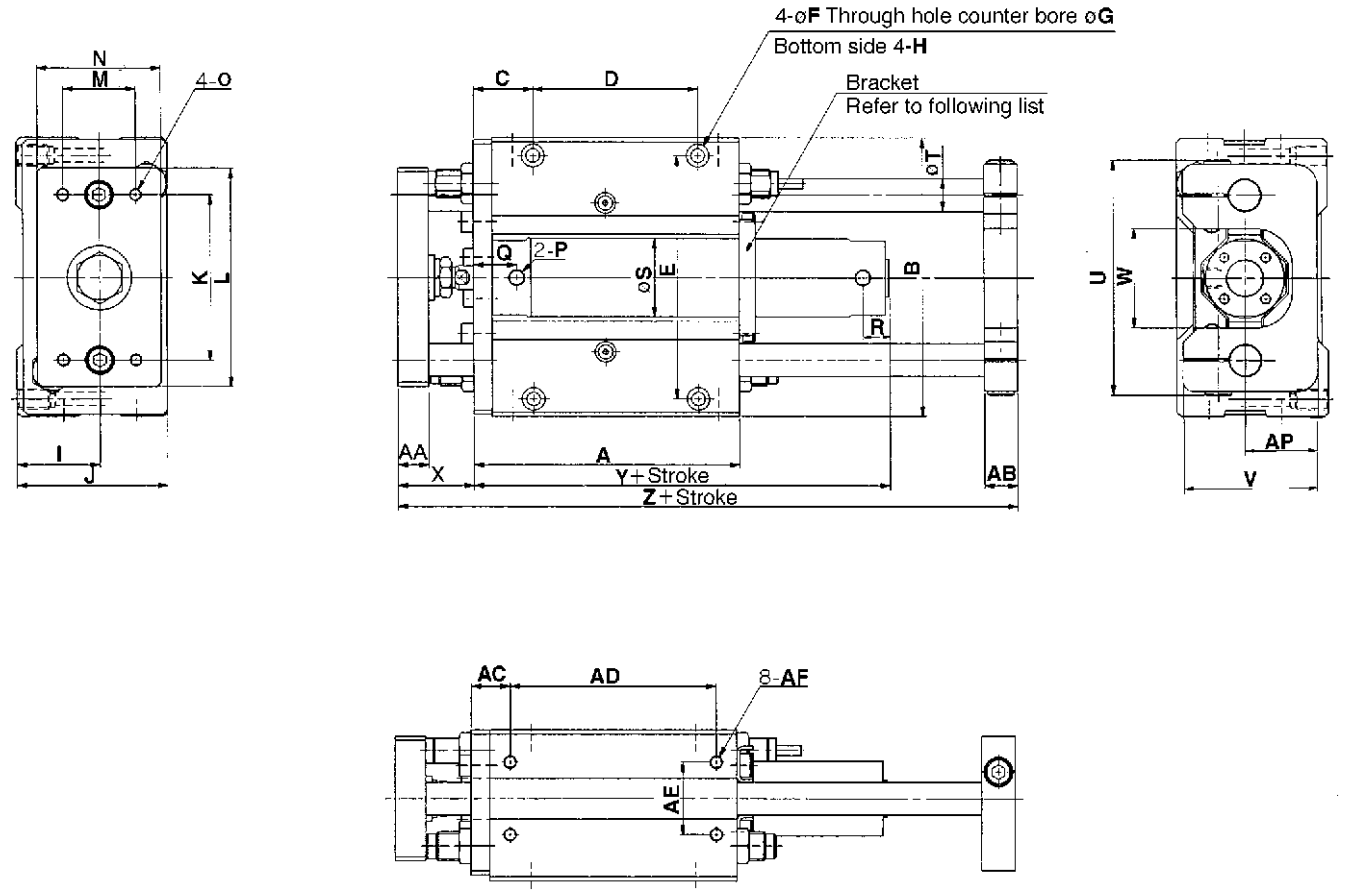
Bore size (mm)	Kit No.	Contents
63	CGIN63-PS	Set of above ㊱, ㊲ and ㊳
80	CGIN80-PS	
100	CGIN100-PS	

Seal kit includes rod seal ㊱, piston seal ㊲ and tube gasket ㊳.
Order a seal kit according to applicable bore size.

Dimensions

Basic/MGG□B

ø20 to ø50



(mm)

Bore (mm)	Stroke range (mm)	A	AA	AB	AC	AD	AE	AF	AP	B	C	D	E	F	G	H	I	J	K	L	M	N
20	75, 100, 125, 150, 200	99	11	13	16.5	75	30	M5 X 0.8 Depth 10	25	108	24	60	92	5.5	9.5 Depth 6	M8 X 1.25 Depth 14	30	55	60	80	25	45
25	75, 100 125, 150 200, 250 300	109	15	13	16.5	85	30	M6 X 1 Depth 12	30	130	26.5	65	113	6.6	11 Depth 8	M10 X 1.5 Depth 18	35	65	70	100	35	54
32		129	15	16	19	100	35	M6 X 1 Depth 12	35	135	29	80	118	6.6	11 Depth 8	M10 X 1.5 Depth 18	40	73	80	106	35	60
40		152	18	19	22	120	40	M8 X 1.25 Depth 16	45	170	32	100	150	9	14 Depth 10	M12 X 1.75 Depth 21	50	93	95	134	50	75
50		182	23	21	22	150	45	M10 X 1.5 Depth 20	50	194	37	120	170	11	17 Depth 12	M14 X 2 Depth 25	55	103	115	152	56	90

Bore (mm)	O	P	Q	R	S	T	U	V	W	X	Y	Z
20	M6 X 1 Depth 9	Rc(PT)$^{1}/_{8}$	21	12	26	12	86	48	36	30	80	157
25	M6 X 1 Depth 13	Rc(PT)$^{1}/_{8}$	21	12	31	13	100	57	42	37	80	175
32	M6 X 1 Depth 13	Rc(PT)$^{1}/_{8}$	21	12	38	16	114	65	48	37	82	201
40	M8 X 1.25 Depth 16	Rc(PT)$^{1}/_{8}$	25	12	47	20	140	84	58	44	92	238
50	M10 X 1.5 Depth 21	Rc(PT)$^{1}/_{4}$	26	14	58	25	164	94	70	55	104	285

Long stroke

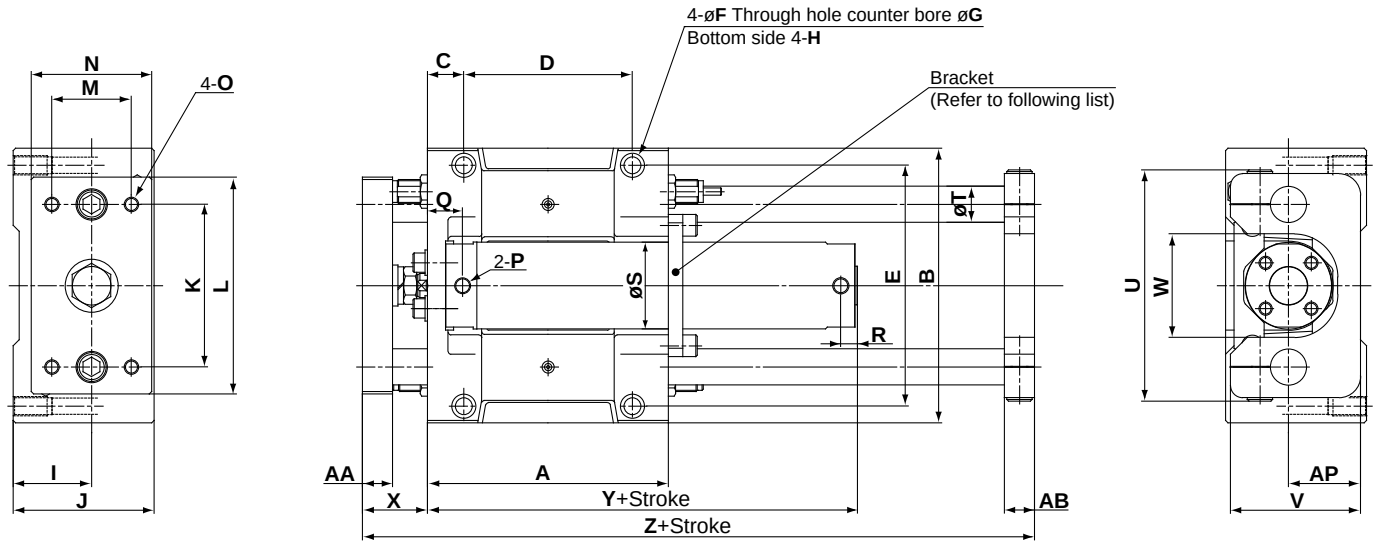
Bore (mm)	Stroke range (mm)	R	Y
20	250 to 400	14	88
25	350 to 500	14	88
32	350 to 600	14	90
40	350 to 800	15	101
50	350 to 1000	16	116

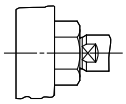
Bracket mounting stroke

Bore (mm)	Bracket mounting stroke
20	100st or more
25	125st or more
32	150st or more
40	200st or more
50	250st or more

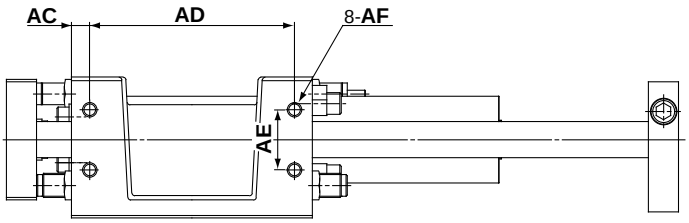
Basic/MGG□B

ø63 to ø100





ø100 Piston rod end



(mm)

Bore (mm)	Stroke range (mm)	A	AA	AB	AC	AD	AE	AF	AP	B	C	D	E	F	G	H	I	J	K	L	M	N
63	75, 100 125, 150 200, 250 300	200	25	25	15	170	50	M12 X 1.75 Depth24	60	228	30	140	200	13.5	20 Depth14.5	M16 X 2 Depth28	65	117	135	180	66	100
80		230	30	27	15	200	55	M12 X 1.75 Depth24	70	262	30	170	234	13.5	20 Depth14.5	M16 X 2 Depth28	75	138	160	214	76	115
100		280	32	30	17.5	245	70	M14 X 2 Depth28	80	304	35	210	274	15	23 Depth17	M18 X 2.5 Depth32	85	153	190	245	80	125

Bore (mm)	O	P	Q	R	S	T	U	V	W	X	Y	Z
63	M12 X 1.75 Depth23	Rc(PT)$^{1}/_{4}$	29	14	72	30	192	108	86	54	107	308
80	M12 X 1.75 Depth28	Rc(PT)$^{3}/_{8}$	40	19	89	35	224	128	104	66	131	355
100	M14 X 2 Depth30	Rc(PT)$^{1}/_{2}$	40	19	110	40	262	143	128	66	131	410

Long stroke

Bore (mm)	Stroke size (mm)	R	Y
63	350 to 1100	16	119
80	350 to 1200	23	145
100	350 to 1300	23	145

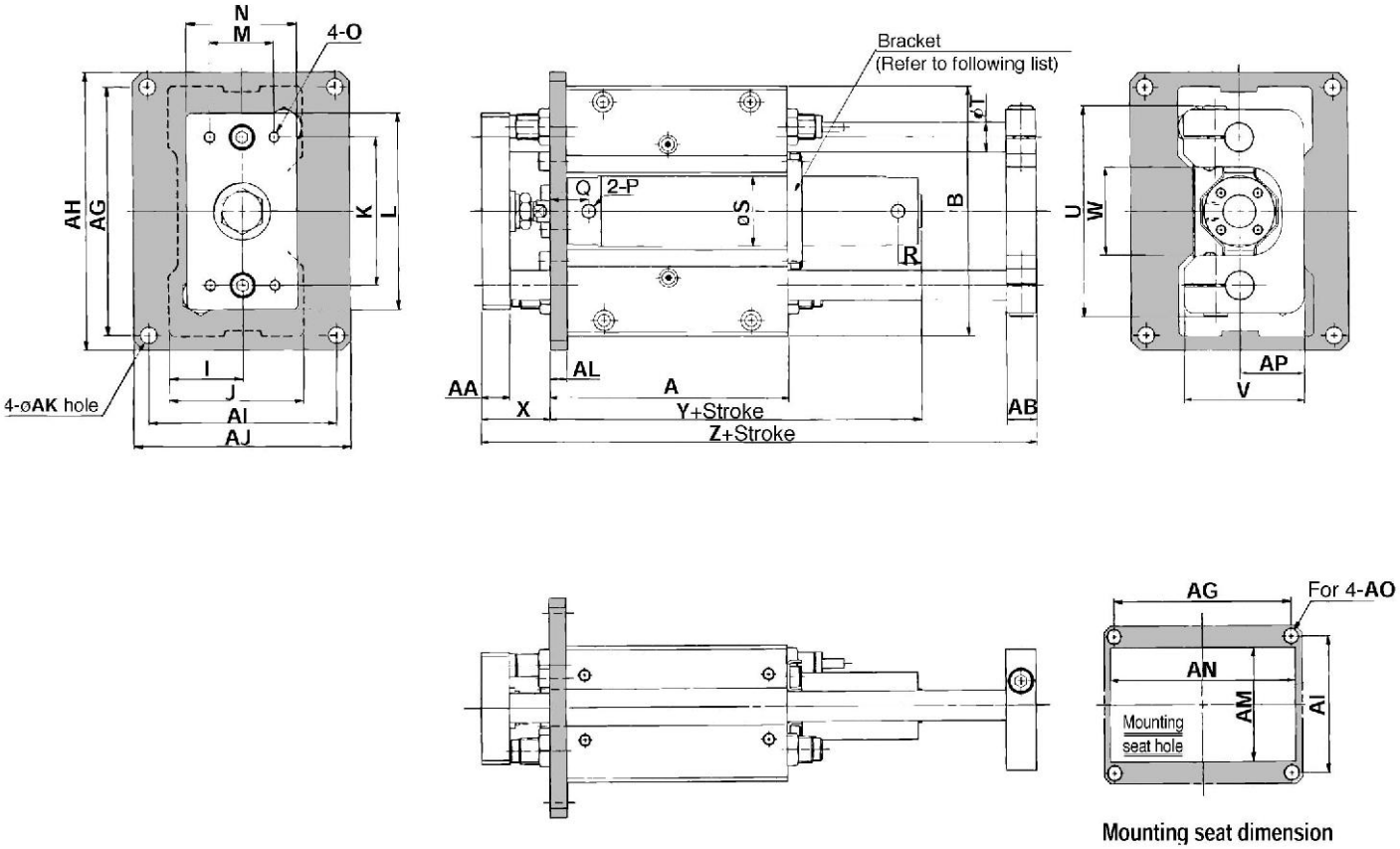
Bracket mounting stroke

Bore (mm)	Bracket mounting stroke
63	300st or more
80	400st or more
100	500st or more

Dimensions

Front Flange/MGG□F

ø20 to ø50



Mounting seat dimension

(mm)

Bore (mm)	Stroke range (mm)	A	AA	AB	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	B	I	J	K	L	M	N	O
20	75, 100, 125, 150, 200	99	11	13	112	125	82	95	6.6	9	65	115	M6	25	108	30	55	60	80	25	45	M6 X 1 Depth9
25	75, 100 125, 150 200, 250 300	109	15	13	134	150	92	108	9	9	75	135	M8	30	130	35	65	70	100	35	54	M6 X 1 Depth13
32		129	15	16	134	150	102	118	9	9	85	140	M8	35	135	40	73	80	106	35	60	M6 X 1 Depth13
40		152	18	19	170	186	134	150	9	12	105	175	M8	45	170	50	93	95	134	50	75	M8 X 1.25 Depth16
50		182	23	21	190	210	140	160	11	12	115	200	M10	50	194	55	103	115	152	56	90	M10 X 1.5 Depth21

Bore (mm)	P	Q	R	S	T	U	V	W	X	Y	Z
20	Rc(PT)$^{1}/_{8}$	21	12	26	12	86	48	36	30	80	157
25	Rc(PT)$^{1}/_{8}$	21	12	31	13	100	57	42	37	80	175
32	Rc(PT)$^{1}/_{8}$	21	12	38	16	114	65	48	37	82	201
40	Rc(PT)$^{1}/_{8}$	25	12	47	20	140	84	58	44	92	238
50	Rc(PT)$^{1}/_{4}$	26	14	58	25	164	94	70	55	104	285

Long stroke

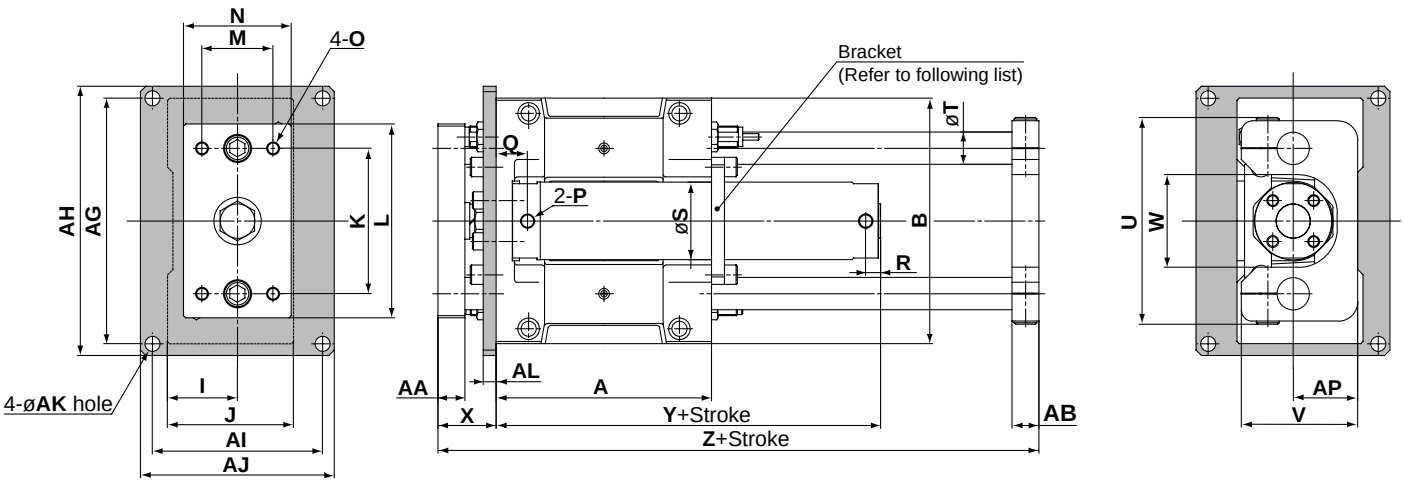
Bore (mm)	Stroke range (mm)	R	Y
20	250 to 400	14	88
25	350 to 500	14	88
32	350 to 600	14	90
40	350 to 800	15	101
50	350 to 1000	16	116

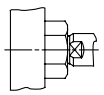
Bracket mounting stroke

Bore (mm)	Bracket mounting stroke
20	100st or more
25	125st or more
32	150st or more
40	200st or more
50	250st or more

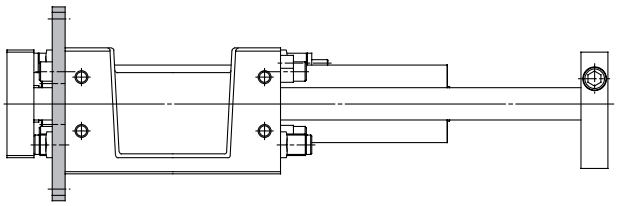
Front Flange/MGG□F

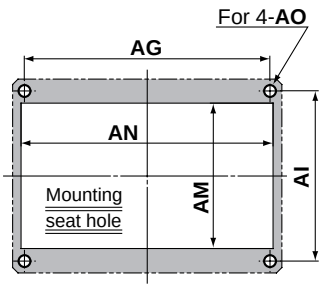
ø63 to ø100





ø100 Piston rod end





Mounting seat dimension

(mm)

Bore (mm)	Stroke range (mm)	A	AA	AB	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	B	I	J	K	L	M	N	O	P
63	75, 100 125, 150 200, 250 300	200	25	25	228	250	158	180	14	12	135	234	M12	60	228	65	117	135	180	66	100	M12 X 1.75 Depth23	$Rc(PT)^{1}/_{4}$
80		230	30	27	262	284	178	200	14	16	155	268	M12	70	262	75	138	160	214	76	115	M12 X 1.75 Depth28	$Rc(PT)^{3}/_{8}$
100		280	32	30	300	326	200	226	16	16	175	310	M14	80	304	85	153	190	245	80	125	M14 X 2 Depth30	$Rc(PT)^{1}/_{2}$

Bore (mm)	Q	R	S	T	U	V	W	X	Y	Z
63	29	14	72	30	192	108	86	54	107	308
80	40	19	89	35	224	128	104	66	131	355
100	40	19	110	40	262	143	128	66	131	410

Long stroke

Bore (mm)	Stroke range (mm)	R	Y
63	350 to 1100	16	119
80	350 to 1200	23	145
100	350 to 1300	23	145

Bracket mounting stroke

Bore (mm)	Bracket mounting stroke
63	300st or more
80	400st or more
100	500st or more

Series MGG

Auto Switch Specifications

∗ Refer to the p.5.3-2 for detailed information of auto switch.

Applicable Auto Switch

Bore size (mm)	Applicable auto switch		Electrical entry (Function)	Page
20 to 100	**Reed switch**	**D-B5, B6**	Grommet	5.3-10
20 to 63		**D-B7, B8**	Grommet	∗
		D-B73C, B80C	Connector	∗
		D-C7, C8	Grommet	5.3-9
		D-C73C, C80C	Connector	5.311
20 to 100		**D-B59W**	Grommet (2 color)	5.3-25
20 to 100	**Solid state switch**	**D-G5, K5**	Grommet	5.3-30
		D-G5NTL	Grommet (with timer)	5.3-59
20 to 63		**D-G7, K7**	Grommet	∗
		D-K79C	Connector	∗
		D-H7	Grommet	5.3-29
		D-H7C	Connector	5.3-31
20 to 100		**D-G5□W, K59W**	Grommet (2 color)	5.3-43
		D-G5BAL	Grommet (2 color, water resistant)	5.3-56
		D-G59F	Grommet (2 color, diagnostic output)	5.3-51
20 to 63		**D-H7□W**	Grommet (2 color)	5.3-42
		D-H7BAL	Grommet (2 color, water resistant)	5.3-55
		D-H7□F	Grommet (with 2 color, diagnostic output)	5.3-50

∗ Contact SMC for detailed information of D-B7/8 and D-G7/K7.

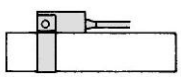
⚠Precautions

Be sure to read before handling. Refer to p.0-44 to 0-46 for commn precautions for auto switch.

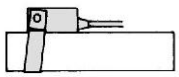
How to Mount an Auto Switch

⚠Caution

①Do not apply a greater torque than the specified tightening torque.
②Make sure that the band is not attached diagonally.



Correct



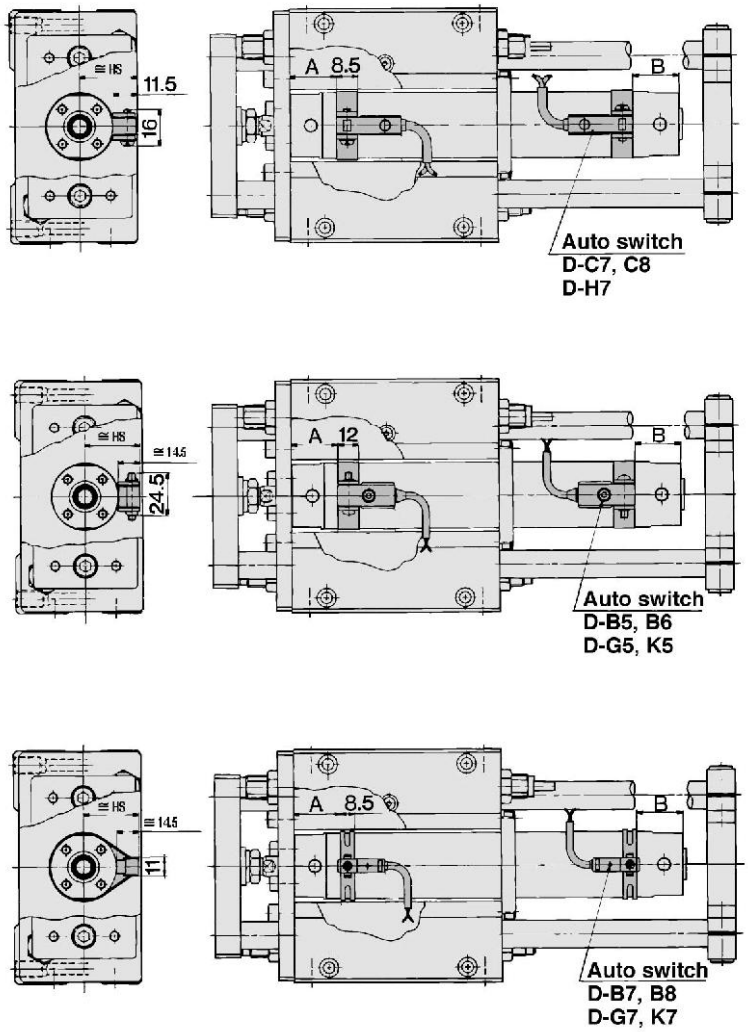
Wrong

Auto Switch Mounting Bracket Part No. (Included band, screw)

Auto switch type	Bore size (mm)							
	20	**25**	**32**	**40**	**50**	**63**	**80**	**100**
D-C7, C8	BMA2	BMA2	BMA2	BMA2	BMA2	BMA2	___	___
D-H7	–020	–025	–032	–040	–050	–063		
D-B5, B6	BA	BA	BA	BA	BA	BA	BA	BA
D-G5, K5	–01	–02	–32	–04	–05	–06	–08	–10
D-B7, B8	BM1	BM1	BM1	BM1	BM1	BM1	___	___
D-G7, K7	–01	–02	–32	–04	–05	–06		

<Stainless Steel Mounting Screw Set>
The set of stainless steel mounting screws (set screws included) described below are available and can be used depending on the operating environment.
(The bands for mounting the switches must be ordered separately, as they are not included.)
BBA3: for D-B5/B6/G5/K5
BBA4: for D-C7/C8/H7
The stainless steel screws described above are used when the D-G5BA and H7BA switches are shipped mounted on a cylinder. When the switches are shipped as individual parts, the BBA3 or BBA4 is included.

Proper Auto Switch Mounting Position (Stroke End)



Auto Switch Mounting Position (mm)

Auto switch / Bore size	D-B7, B8 D-B73C D-B80C D-G7, K7 D-K79C		D-C7, C8 D-C73C D-C80C		D-B5, B6 D-G5□W D-K59W D-G5BAL D-G59F		D-B59W		D-H7 D-H7C		D-H7□W D-H7□F D-H7BAL		D-G5 D-K5 D-G5NTL	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
20	31	21.5 (29.5)	30	20.5 (28.5)	24	15 (22.5)	27	17.5 (25.5)	29	19.5 (27.5)	27.5	18 (26)	25.5	16 (24)
25	31	21.5 (29.5)	30	20.5 (28.5)	24	15 (22.5)	27	17.5 (25.5)	29	19.5 (27.5)	27.5	18 (26)	25.5	16 (24)
32	32	22.5 (30.5)	31	21.5 (29.5)	25	15.5 (23.5)	28	18.5 (26.5)	30	20.5 (28.5)	28.5	19 (27)	26.5	17 (25)
40	36.5	25 (34)	35.5	24 (33)	29.5	18 (27)	32.5	21 (30)	34.5	33 (32)	33	21.5 (30.5)	31	19.5 (28.5)
50	44	29.5 (41.5)	43	28.5 (40.5)	37	22.5 (34.5)	40	25.5 (37.5)	42	27.5 (39.5)	40.5	26 (38)	38.5	24 (36)
63	44	29.5 (41.5)	43	28.5 (40.5)	37	22.5 (34.5)	40	25.5 (37.5)	42	27.5 (395)	40.5	26 (38)	38.5	24 (36)
80	—	—	—	—	46.5	31 (45)	49.5	34 (48)	—	—	—	—	48	32.5 (46.5)
100	—	—	—	—	46.5	31 (45)	49.5	34 (48)	—	—	—	—	48	32.5 (46.5)

Auto Switch Mounting Height (mm)

D-C7, C8 D-H7 D-H7□W D-H7□F D-H7BAL	D-C73C D-C80C	D-B7, B8 D-B73C D-B80C D-G7, K7 D-K79C D-H7C	D-G5, K5 D-G5□W D-K59W D-G5NTL D-B5, B6 D-B59W D-G5BA D-G59F
Hs	Hs	Hs	Hs
24.5	27	27.5	27.5
27	29.5	30	30
30.5	33	33.5	33.5
35	37.5	38	38
40.5	43	43.5	43.5
47.5	50	50.5	50.5
—	—	—	59
—	—	—	69.5

∗ ( ): At long stroke