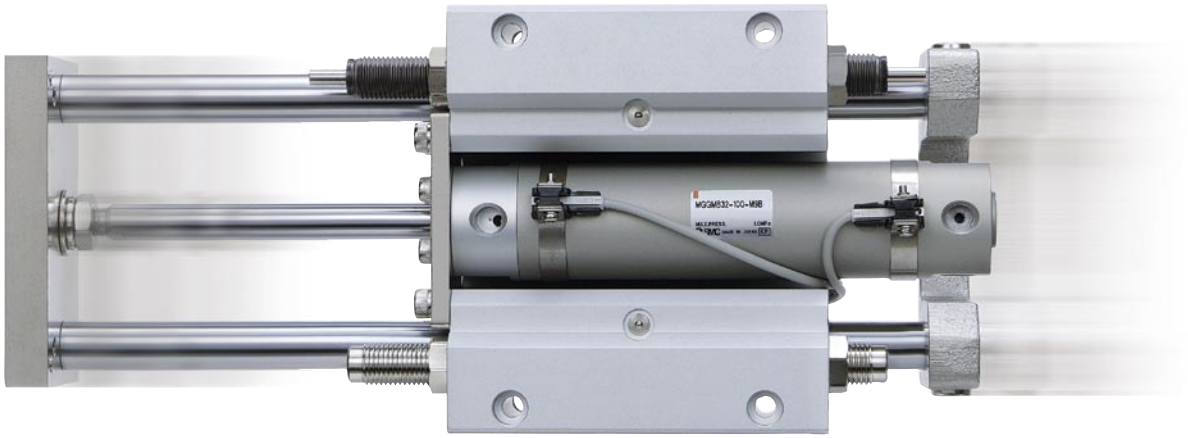
Guide Cylinders

Linear Transfer Unit



Integration of a basic cylinder and guide rods

Series MGG/MGC

SMC

CAT.EUS20-191A-UK

Guide Cylinders

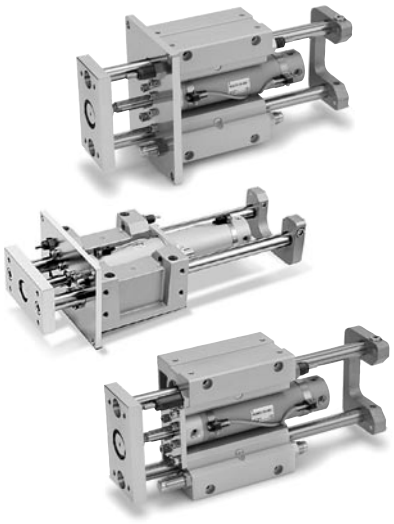
Series MG□

Guide cylinder

Series MGG

Basic cylinder with integrated guide rods in a compact configuration

- Long strokes available
- Shock absorbers are standard.



Bore size (mm)	Standard stroke (mm)						
	75	100	125	150	200	250	300
20	●	●	●	●	●	●	●
25	●	●	●	●	●	●	●
32	●	●	●	●	●	●	●
40	●	●	●	●	●	●	●
50	●	●	●	●	●	●	●
63	●	●	●	●	●	●	●
80	●	●	●	●	●	●	●
100	●	●	●	●	●	●	●

P. 1

P. 24
(End lock type)

Long Stroke

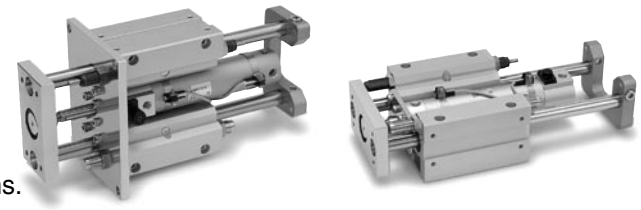
Bore size (mm)	Long stroke (mm)													
	250	300	350	400	450	500	600	700	800	900	1000	1100	1200	1300
20	●	●	●	●	●	●	●	●	●	●	●	●	●	●
25	●	●	●	●	●	●	●	●	●	●	●	●	●	●
32	●	●	●	●	●	●	●	●	●	●	●	●	●	●
40	●	●	●	●	●	●	●	●	●	●	●	●	●	●
50	●	●	●	●	●	●	●	●	●	●	●	●	●	●
63	●	●	●	●	●	●	●	●	●	●	●	●	●	●
80	●	●	●	●	●	●	●	●	●	●	●	●	●	●
100	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Guide cylinder / End lock type

Series MGG

Allows holding of cylinder position even when air supply is cut off.

- Moving parts are locked and held in place when air is discharged at the stroke end positions.



Guide cylinder / Compact type

Series MGC

Compact type of Series MGG

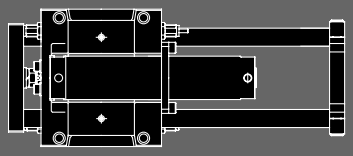
- Compact guide body and front plate

Bore size (mm)	Standard stroke (mm)						
	75	100	125	150	200	250	300
20	●	●	●	●	●	●	●
25	●	●	●	●	●	●	●
32	●	●	●	●	●	●	●
40	●	●	●	●	●	●	●
50	●	●	●	●	●	●	●

P. 39

Long Stroke

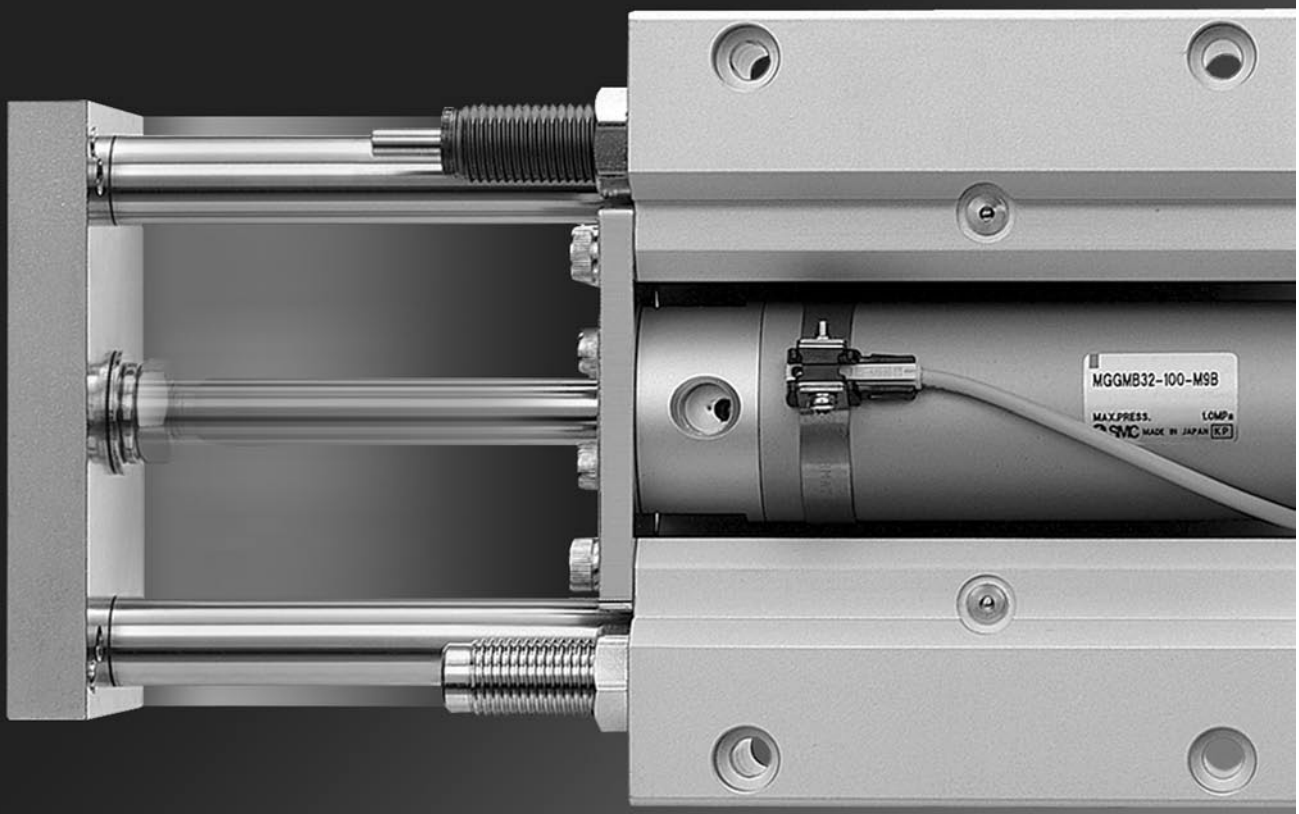
Bore size (mm)	Long stroke (mm)										
	250	300	350	400	450	500	600	700	800	900	1000
20	●	●	●	●	●	●	●	●	●	●	●
25	●	●	●	●	●	●	●	●	●	●	●
32	●	●	●	●	●	●	●	●	●	●	●
40	●	●	●	●	●	●	●	●	●	●	●
50	●	●	●	●	●	●	●	●	●	●	●

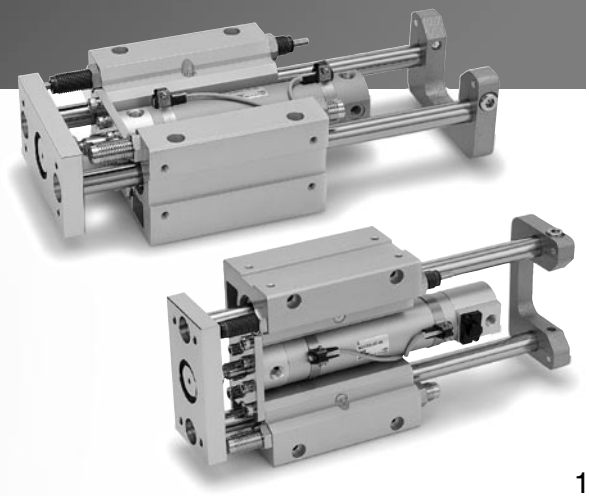


Guide Cylinder
Series MGG

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

Integration of a basic cylinder and guide rods
Linear Transfer Unit





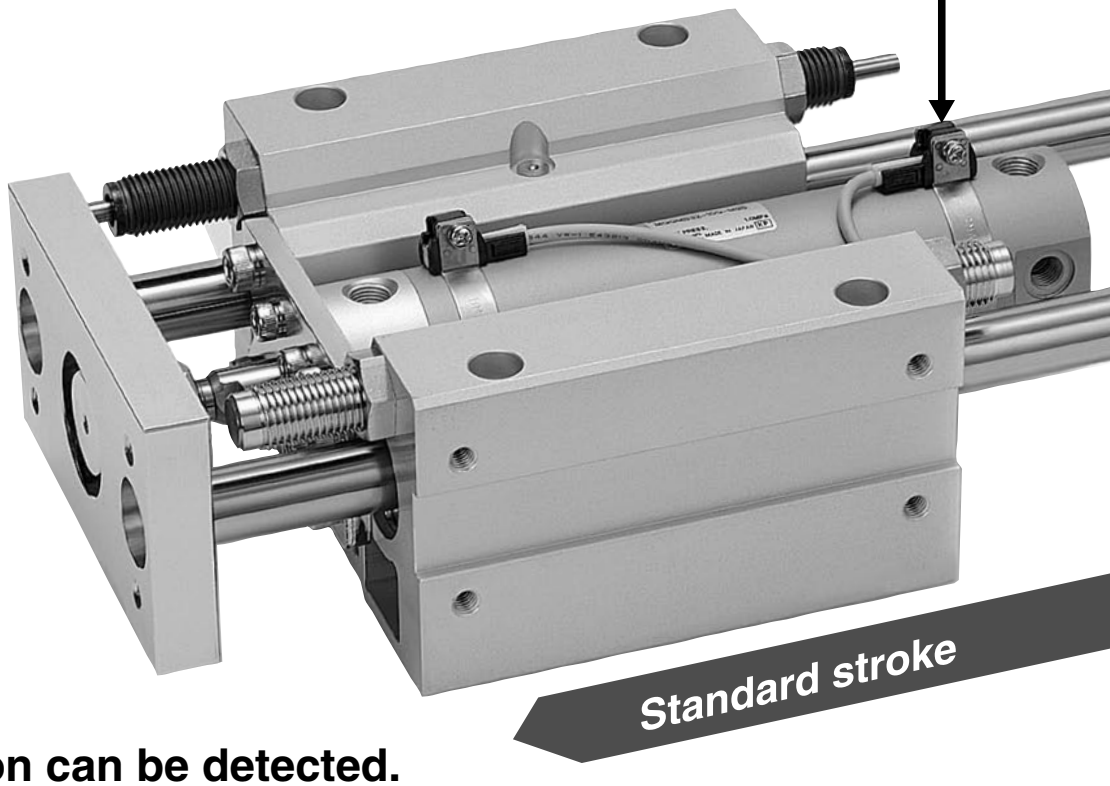
Basic cylinder with integrated guide rods
A linear transfer unit that achieves high lateral load

Guide Cylinder
ø20, ø25, ø32, ø40,

Two types of guide rod bearings

Slide bearing ····· Excellent wear resistance and heavy load capacity
Ball bushing bearing ····· High precision and smooth operation

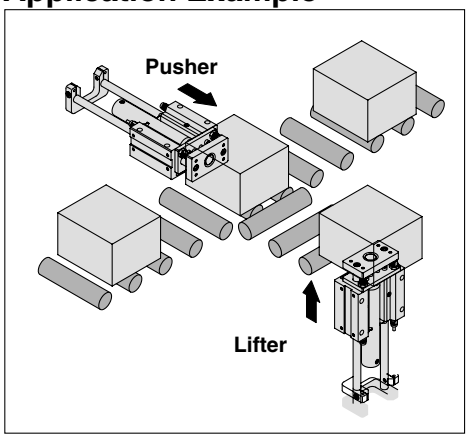
Compact auto switches can be mounted.



Cylinder position can be detected.

All models have built-in magnets for auto switches.
Auto switch capable throughout entire stroke range.

Application Example



Non-rotating accuracy improved by using two guide rods

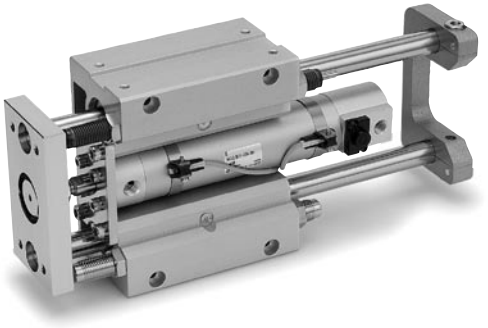
Bore size (mm)	20	25	32	40	50	63	80	100
Slide bearing	±0.07°	±0.06°	±0.06°	±0.05°	±0.04°	±0.04°	±0.04°	±0.03°
Ball bushing bearing	±0.06°	±0.05°	±0.04°	±0.04°	±0.04°	±0.03°	±0.03°	±0.02°

When the cylinder is retracted (initial value), with no load or without deflection of the guide rod, the non-rotating accuracy shall be the value in the table or less.

A grease port is provided as standard.

This allows lubrication of the bearings.

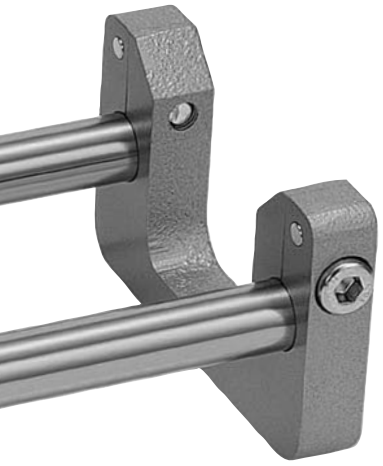
in a compact configuration
resistance and non-rotating precision



Series MGG
ø50, ø63, ø80, ø100

End lock option introduced to allow holding of cylinder position even when air supply is cut off.

Moving parts are locked and held in place when air is discharged at the stroke end positions.



Long strokes available

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

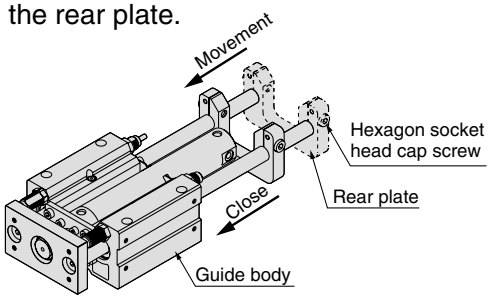
ø20: 75 to 200 st
ø25 to ø100: 75 to 300 st

Shock absorbers and adjusting bolts are standard.

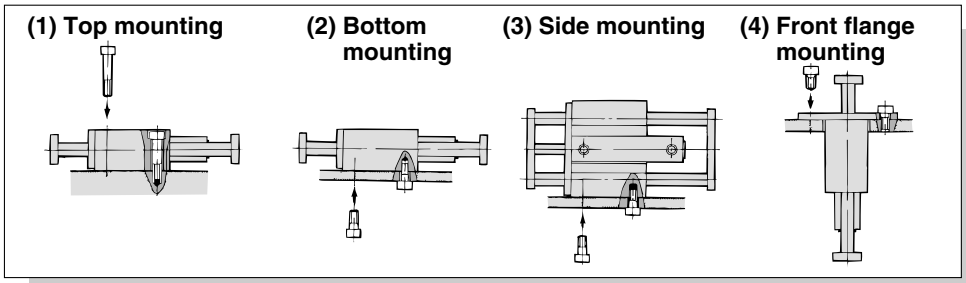
Stroke end shock absorption for high speed operation and fine stroke adjustment are possible.

Simple adjustment of extension stroke

The extension stroke can be adjusted by moving the rear plate.



Four mounting styles

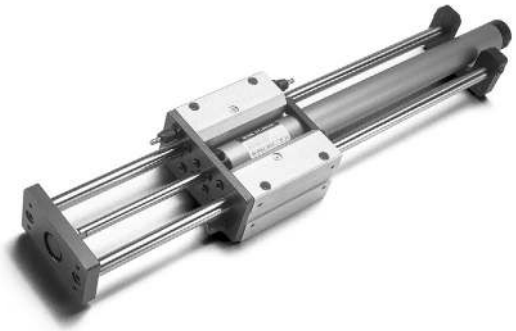


A full range of made-to-order specifications

MGG

ø20~100

- Компактная конструкция, объединяющая стандартный цилиндр CG1 и направляющие
- Тип направляющей: скольжения или качения
- Высокая устойчивость к боковым нагрузкам
- Защита от проворота
- В стандартном исполнении с магнитным кольцом
- Встроенный амортизатор
- Регулировка выдвижения штока

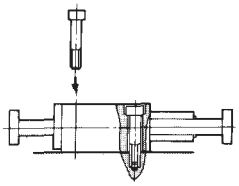


Технические характеристики

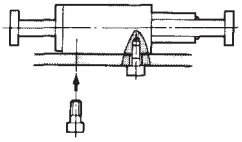
Модель		MGG**20	MGG**25	MGG**32	MGG**40	MGG**50	MGG**63	MGG**80	MGG**100
На основе цилиндра		CDG1BN20	CDG1BN25	CDG1BN32	CDG1BN40	CDG1BN50	CDG1BN63	CDG1BN80	CDG1BN100
Диаметр поршня, мм		20	25	32	40	50	63	80	100
Принцип действия		Двустороннего действия							
Среда		Сжатый воздух							
Испытательное давление (МПа)		1.5							
Макс. рабочее давление (МПа)		1.0							
Мин. рабочее давление (МПа)		0.15 (при горизонтальной нагрузке)							
Диапазон рабочих температур (°C)		-10 до +70							
Скорость поршня (мм/с)		50~1000							
Демпфирование	Цилиндр	Встроенный упругий демпфер							
	Направляющие	Встроенный амортизатор с обеих сторон							
Диапазон регулирования положения поршня, мм		0~-10	0~-15 (встроенные регулировочные болты - 2 шт)						
Смазка		Не требуется							
Допуски по длине хода, мм		до 1000 +1.9 / +0.2; свыше 1000 +2.3 / +0.2							
Защита от проворота	Направл. скольжения	±0.07°	±0.06°	±0.06°	±0.05°	±0.04°	±0.04°	±0.04°	±0.03°
	Направл. качения	±0.06°	±0.06°	±0.04°	±0.04°	±0.04°	±0.03°	±0.03°	±0.02°
Присоединение		1/8				1/4	1/4	3/8	1/2

Монтаж

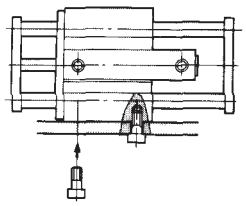
❶ Монтаж лицевой стороной наверх



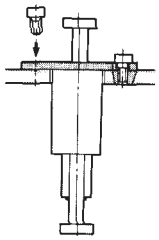
❷ Монтаж лицевой стороной вниз



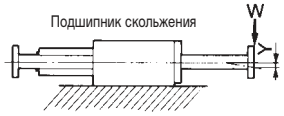
❸ Монтаж на левой или правой стороне



❹ Монтаж на переднем фланце



Макс. нагрузка для хода 300 мм (H)



ø	MGGM	MGGL
20	20	23
25	26	28
32	42	45
40	65	45
50	110	45

Цилиндр с направляющей
MGG

Номер для заказа

MGG [M] [B] [40] – [200] [ ]

Направляющие

L	С направляющими качения
M	С направляющими скольжения

Монтаж

B	Стандарт
F	Фланцевого типа

Диаметр поршня, мм

20	макс. ход 400
25	макс. ход 500
32	макс. ход 600
40	макс. ход 800
50	макс. ход 1000
60	макс. ход 1200
80	макс. ход 1300
100	макс. ход 1000

Стандартный ход

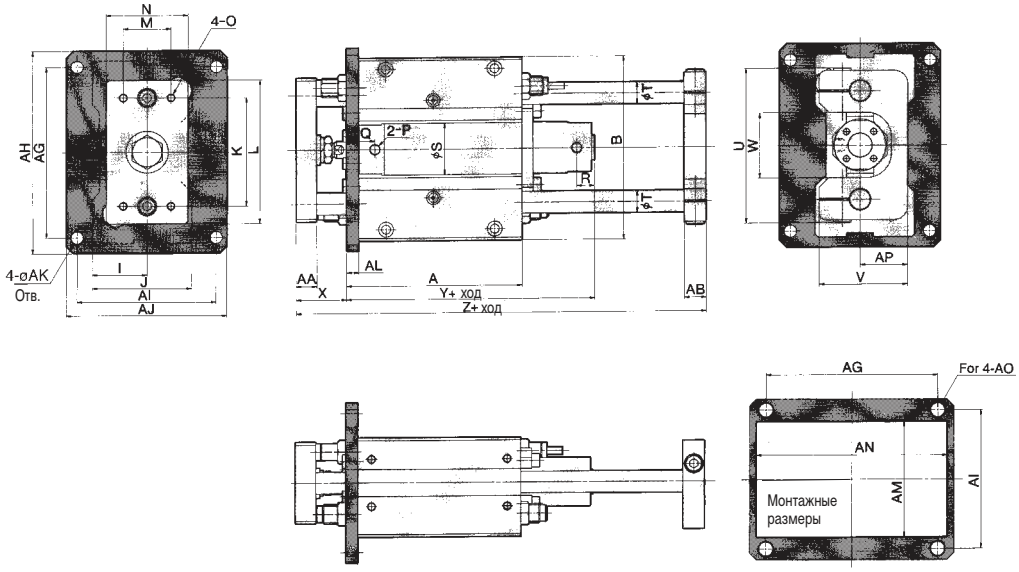
75, 100, 125, 150, 200	Цилиндры ⌀20
75, 100, 125, 150, 200, 250, 300	Цилиндры ⌀25 ~100

Опции

XC8	Настр. штока при выдвижении
XC9	Настр. штока при втягивании
XB6	Высокотемпературное исполнение (макс. 150° C)
XC22	Фторсодержащее резиновое уплотнение
XC37	Увеличенное присоединительное отверстие

Размеры

Фланцевое крепление



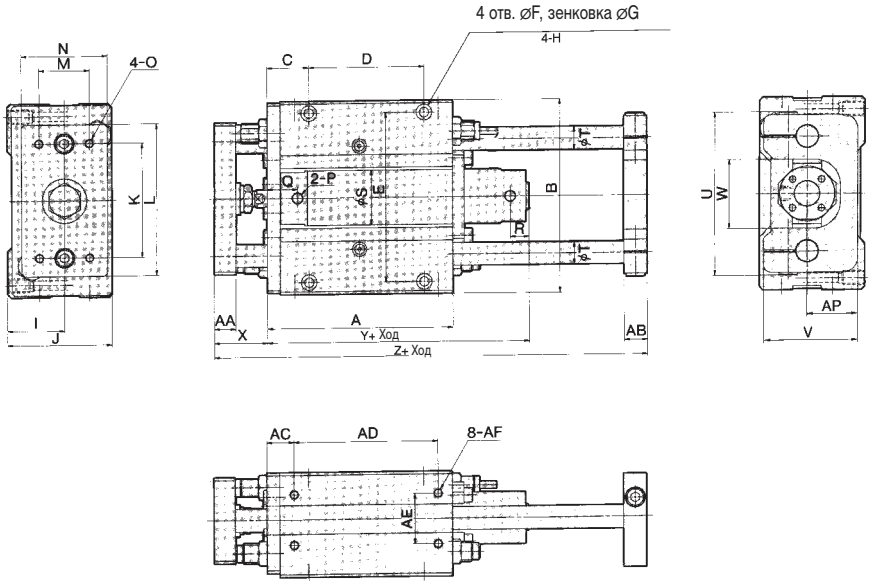
ø поршня	Стандартный ход	AG	AH	AI	AJ	AK	AL	AM	AN	AO
20	75, 100, 125, 150, 200	112	125	82	95	6.6	9	65	115	M6
25	75, 100, 125, 150,	134	150	92	108	9	9	75	135	M8
32	200, 250, 300	134	150	102	118	9	9	85	140	M8
40		170	186	134	150	9	12	105	175	M8
50		190	210	140	160	11	12	115	200	M10

Другие размеры см. на след. стр.

Размеры

Базовое исполнение

ø20~50



Длинный ход

ø поршня	Диапазон хода, мм	R	Y
20	250 ~ 400	14	88
25	350 ~ 500	14	88
32	350 ~ 600	14	90
40	350 ~ 800	15	101
50	350 ~ 1000	16	116

ø поршня	Стандартный ход	A	AA	AB	AC	AD	AE	AF	AP	B	C	D	E	F	G	H
20	75, 100, 125, 150, 200	99	11	13	16.5	75	30	M5 глубина 10	25	108	24	60	92	5.5	9.5 глубина 6	M8 глубина 14
25	75, 100, 125, 150, 200, 250, 300	109	15	13	16.5	85	30	M6 глубина 12	30	130	26.5	65	113	6.6	11 глубина 8	M10 глубина 18
32		129	15	16	19	100	35	M6 глубина 12	35	135	29	80	118	6.6	11 глубина 8	M10 глубина 18
40		152	18	19	22	120	40	M8 глубина 16	45	170	32	100	150	9	14 глубина 10	M12 глубина 21
50		182	23	21	22	150	45	M10 глубина 20	50	194	37	120	170	11	17 глубина 12	M14 глубина 25

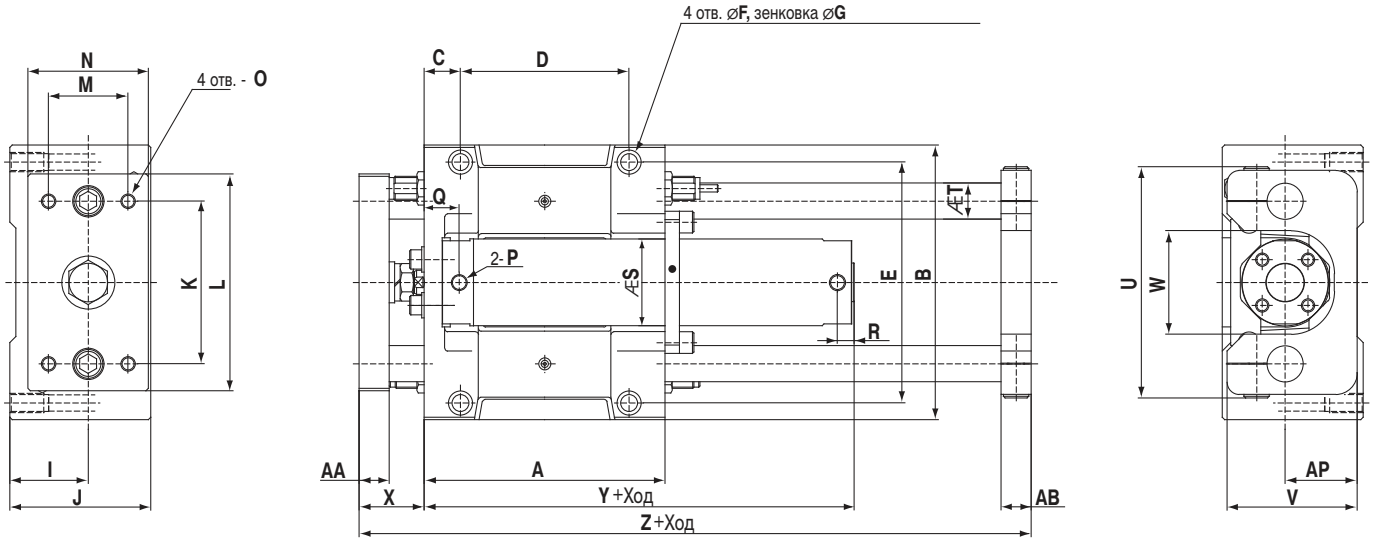
ø поршня	Стандартный ход	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
20	75, 100, 125, 150, 200	30	55	60	80	25	45	M6 глубина 9	1/8	21	14	26	12	86	48	36	30	80	157
25	75, 100, 125, 150, 200, 250, 300	35	65	70	100	35	54	M6 глубина 13	1/8	21	14	31	13	100	57	42	37	80	175
32		40	73	80	106	35	60	M6 глубина 13	1/8	21	13	38	16	114	65	4	37	82	201
40		50	93	95	134	50	75	M8 глубина 16	1/8	25	14	47	20	140	8	58	44	92	238
50		55	103	115	152	56	90	M10 глубина 21	1/4	26	15	58	25	164	9	70	55	104	285

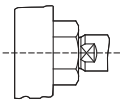
Цилиндр с направляющей
MGG

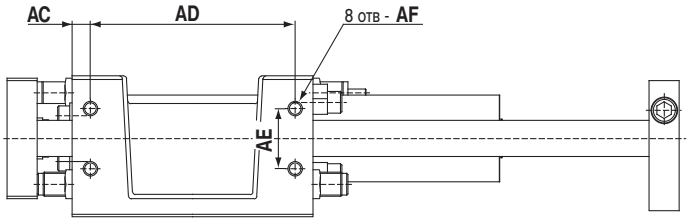
Размеры

Базовое исполнение

ø63~100







Шток для цилиндров ø100

ø	Ход (мм)	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 глубина 24	60	228	30	140	200	13.5	20 Глуб.14.5	M16 глубина 28	65	117	135	180	66	100
80		230	30	27	15	200	55	M12 глубина 24	70	262	30	170	234	13.5	20 Глуб.14.5	M16 глубина 28	75	138	160	214	76	115
100		280	32	30	17.5	245	70	M14 глубина 28	80	304	35	210	274	15	23 Глуб.17	M18 глубина 32	85	153	190	245	80	125

ø	O	P	Q	R	S	T	U	V	W	X	Y	Z
63	M12 глубина 23	Rc(PT) 1/4	29	14	72	30	192	108	86	54	107	308
80	M12 глубина 28	Rc(PT) 3/8	40	19	89	35	224	128	104	66	131	355
100	M14 глубина 30	Rc(PT) 1/2	40	19	110	40	262	143	128	66	131	410

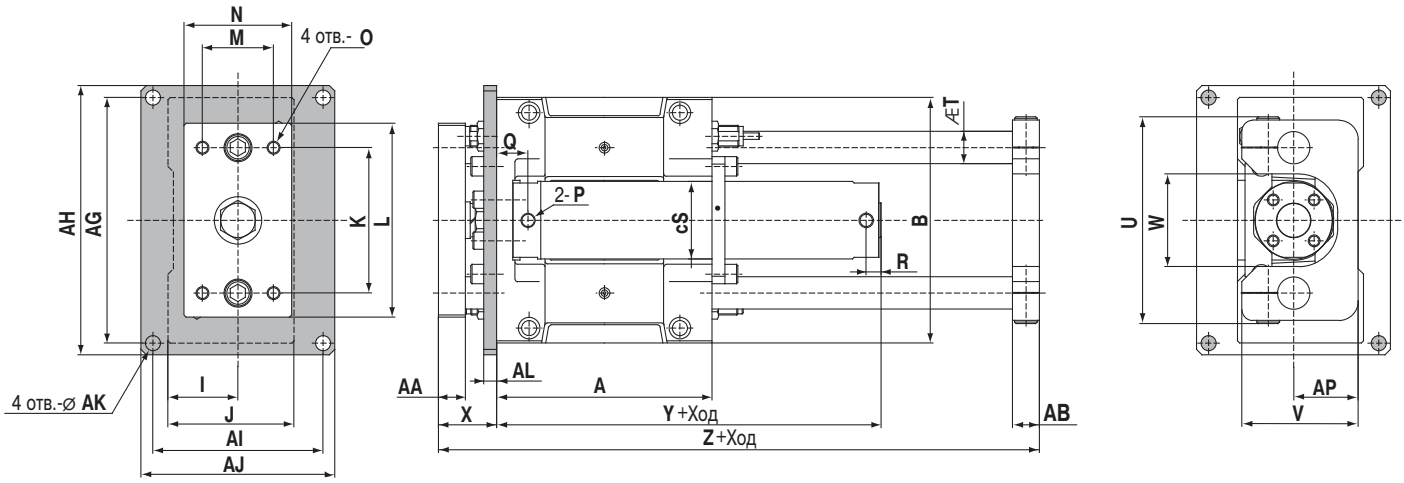
Длинный ход

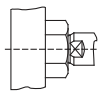
ø	Ход (мм)	R	Y
63	350 ~ 1100	16	119
80	350 ~1200	23	145
100	350 ~1300	23	145

Размеры

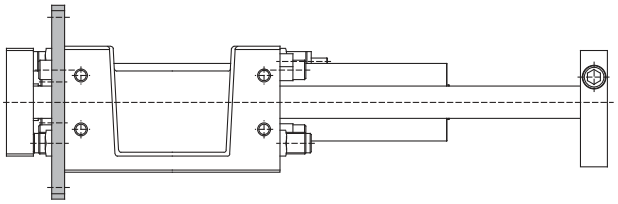
Фланцевое исполнение

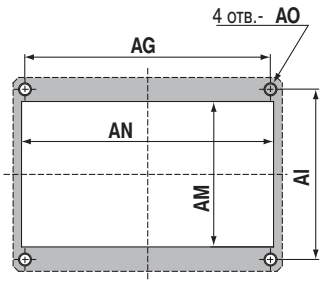
ø63~100





Шток для цилиндров ø100





ø	Ход (мм)	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 глубина 23	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 глубина 28	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 глубина 30	Rc(PT) 1/2

ø	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

Длинный ход

ø	Ход (мм)	R	Y
63	350 ~ 1100	16	119
80	350 ~ 1200	23	145
100	350 ~ 1300	23	145

Цилиндр с направляющей MGG ⌀20~100
Датчики положения

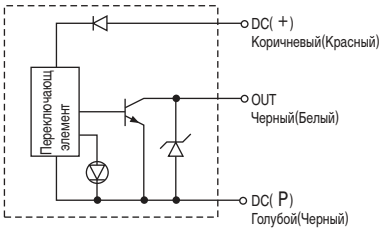
Электронные выключатели

Технические характеристики

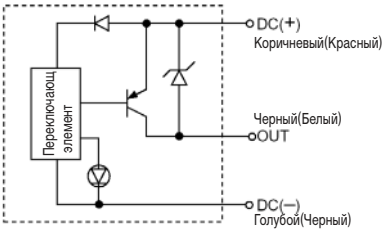
D-G59L/D-G59PL (с индикатором рабочего состояния), длина кабеля 3 м		
Номер для заказа	**D-G59L**	**D-G5PL**
Тип вывода	3 провода	3 провода
Выход	NPN	PNP
Область примененя	Управление на ИС, реле, SPS	
Потребляемый ток	<10 мА	
Напряжение питания	4.5 ~ 28 VDC	
Макс. ток	40 мА	80 мА
Внутреннее падение напряжения	< 1.5 В	< 0.8 В
Ток утечки	< 0.1 мА при 24 VDC	

* Хомуты для крепления датчиков заказываются отдельно

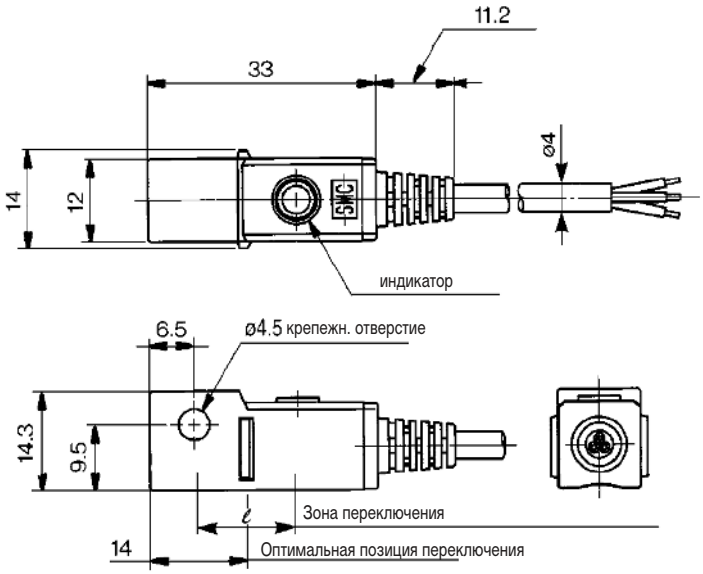
D-G59L



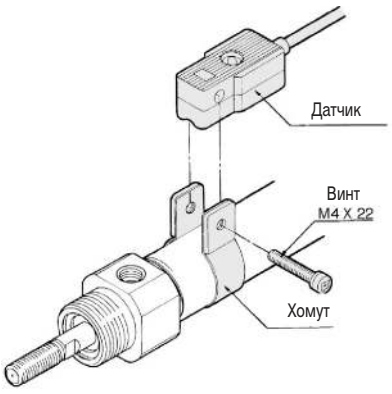
D-G5PL



Размеры D-G59L / D-G5PL



Монтаж датчиков D-G59L / D-G5PL



⌀ поршня	Зона переключения ℓ
20, 25	4
32	4.5
40	5
50	6
63,80	6.5
100	7

Номер для заказа хомута с винтом для датчиков D-G59L, D-G5PL

Цилиндр	⌀ цилиндра, (мм)							
	20	25	32	40	50	63	80	100
MGG	**BA-01**	**BA-02**	**BA-03**	**BA-04**	**BA-05**	**BA-06**	**BA-08**	**BA-10**

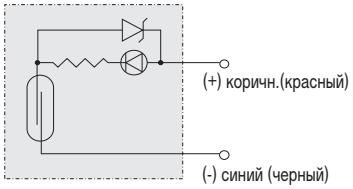
Герконовые выключатели

Технические характеристики герконовых выключателей

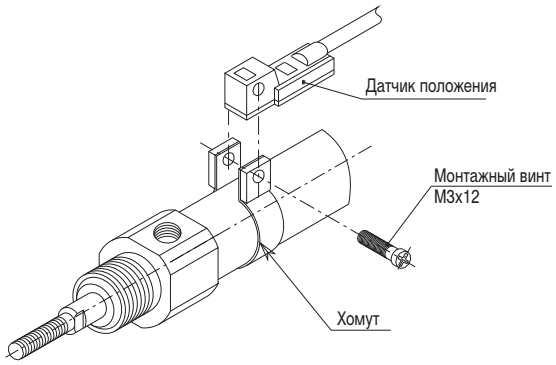
Номер для заказа	D-C73L		D-C80L		
Крепление	Монтаж на хомуте*				
Электрический подвод	Кабель залитый				
Применение	Реле, SPS		Реле, SPS, управление на ИС		
Рабочее напряжение	24 V DC	110 V AC	24 V AC /DC	48 V AC /DC	110 V AC /DC
Макс.ток и диапазон токов	5~40 мА	5~18 мА	50 мА	40 мА	18 мА
Искрогашение	Искрогаситель не встроен				
Внутр. падение напряжения	<2.4 В		0		
Индикатор рабочего состояния	Вкл.: красный светодиод		Отсутствует		
Длина кабеля	3 м				

*Хомуты для крепления датчиков сигналов на цилиндре заказываются отдельно)

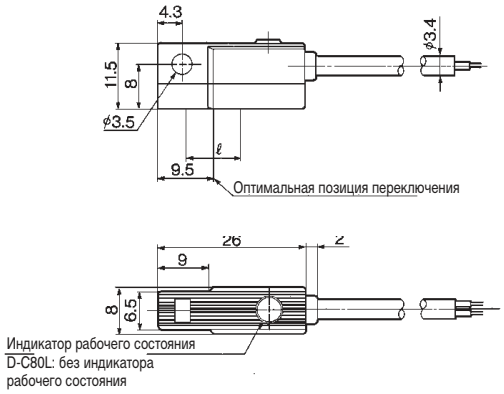
D-C73L



Монтаж датчиков D-C73L / D-C80L



Размеры
D-C73L, D-C80L



Номер для заказа хомута с винтом для датчиков D-C73L, D-C80L

Цилиндр	⌀ цилиндра, (мм)					
	20	25	32	40	50	63
MGG	**BMA-020**	**BMA-025**	**BMA-032**	**BMA-040**	**BMA-050**	**BMA-063**

Меры предосторожности

Герконовые выключатели

Монтаж

1. Несмотря на то, что герконовые выключатели могут выдерживать ударные нагрузки до 30 G, следует избегать ударов и механических повреждений.
2. Не используйте датчики положения в зоне сильных магнитных полей, что позволит избежать ошибочных включений.
3. В случаях, когда смонтированы несколько цилиндров с датчиками положения параллельно друг другу, расстояние от одной гильзы цилиндра до другой должно быть не менее 40 мм.
4. Соединительный кабель не должен подвергаться растягивающим нагрузкам. Не подвергайте кабель длительным изгибающим нагрузкам.
5. Несмотря на то, что датчики положения выполняют требования по степени защиты IP67, они, по возможности, не должны подвергаться воздействию воды, масла, охлаждающей жидкости и т.д.

Подключение датчиков положения

1. Электрическая нагрузка не должна превышать допустимых значений по току и напряжению.
2. Полностью произведите электрический монтаж схемы датчика положения, прежде чем он будет подключен к источнику тока.
3. У датчиков сигналов с индикатором рабочего состояния следует учитывать полярность. Красный кабель подключайте к плюсу, черный - к минусу. При неправильном подключении датчик сигналов включается, однако ' индикатор рабочего состояния не горит.
4. Если у датчиков положения с индикатором рабочего состояния не обеспечен мин. ток, то он функционирует, но при этом индикатор рабочего состояния горит тусклым светом или не горит вовсе.
5. При последовательном включении датчиков положения значения падения напряжений суммируются, что обусловлено сопротивлением светодиодов.
6. Если напряжение питания недостаточно, внутреннее падение напряжения на светодиоде может привести к неправильному действию нагрузки.
7. В случае, когда внутреннее падение напряжения светодиода влечет за собой проблемы, следует предпочесть датчик положения без индикатора рабочего состояния (D-C80 или D-A80).

Guide Cylinder With End Lock

Series MGG

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

How to Order

MGG L B 32 □ – 100 – H N – M9BW □ – □

Guide cylinder

Bearing

M	Slide bearing
L	Ball bushing bearing

Mounting

B	Basic
F	Front mounting flange

Bore size

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

Port thread

-	Rc
TN	NPT
TF	G

Cylinder stroke (mm)
Refer to "Standard Stroke" on page 25.

Lock position

H	Head end lock
R	Rod end lock

Manual release

N	Non-lock type
L	Lock type

Auto switch

-	Without auto switch (Built-in magnet)

∗ For applicable auto switch models, refer to the below table.

Number of auto switches

-	2 pcs.
S	1 pc.
n	"n" pcs.

Made to Order
Refer to page 26.

Applicable Auto Switches / For detailed auto switch specifications, refer to page 56 through to 70.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage DC	Load voltage AC	Auto switch model: Applicable tubing I.D. ø20, ø25	ø32	ø40 to ø63	ø80, ø100	Lead wire length (m) 0.5 (-)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Reed switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96			—	●	—	●	—	—	—	IC circuit	—
			None	2-wire	24 V	12 V	100 V	A93			—	●	—	●	—	—	—	—	Relay, PLC
							100 V or less	A90			—	●	—	●	—	—	—	IC circuit	
			Yes				100 V, 200 V	(B54)		B54		●	—	●	●	—	—	—	
			None				200 V or less	(B64)		B64		●	—	●	—	—	—		
		Connector	Yes				—	C73C			—	●	—	●	●	●	—	—	
			None				24 V or less	C80C			—	●	—	●	●	●	—		
	Diagnostic indication (2-colour indication)	Grommet	Yes			—	—	(B59W)	B59W			●	—	●	—	—	—		
Solid state switch	——	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9N			G59	●	—	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				M9P			G5P	●	—	●	○	—	○		
				2-wire		12 V		M9B			K59	●	—	●	○	—	○	—	
		Connector						H7C			—	●	—	●	●	●	—		
	Diagnostic indication (2-colour indication)	Grommet		3-wire (NPN)		5 V, 12 V		M9NW			—	●	●	●	○	—	○	IC circuit	
								—			G59W	●	—	●	○	—	○		
				3-wire (PNP)				M9PW			—	●	●	●	○	—	○		
								—			G5PW	●	—	●	○	—	○		
				2-wire		12 V		M9BW			—	●	●	●	○	—	○	—	
								—			K59W	●	—	●	○	—	○		
	Water resistant (2-colour indication)							H7BA			G5BA	—	—	●	○	—	○		
	With diagnostic output (2-colour indication)			4-wire (NPN)		5 V, 12 V		H7NF			G59F	●	—	●	○	—	○	IC circuit	

∗ Lead wire length symbols: 0.5 m ····· - (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ
None ····· N (Example) H7CN

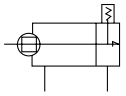
∗ Solid state switches marked with "○" are produced upon receipt of order.
∗ D-A9□V, M9□V, M9□WV, and D-M9BA cannot be mounted.

∗ Since there are other applicable auto switches than listed, refer to page 36 for details.
∗ For details about auto switches with pre-wired connector, refer to SMC's "Best Pneumatics" catalogue.
∗ D-A9□, M9□, M9□W are shipped together (but not assembled). (Only switch mounting bracket is assembled at the time of shipment.)

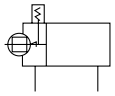
Caution
When using auto switches shown inside ( ), stroke end detection may not be possible depending on the one-touch fitting or speed controller model. Please contact SMC in this case.

Model / Specifications

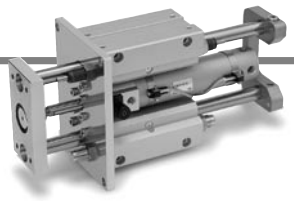
JIS Symbol

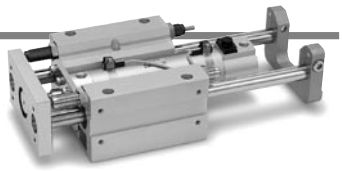


Head end lock



Rod end lock





Standard Stroke

Model (Bearing type)	Bore size (mm)	Standard stroke (mm)	Long stroke (mm)
MGGM (Slide bearing) **MGGL (Ball bushing 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
	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

∗ Intermediate strokes and short strokes other than the above are produced upon receipt of order.

Specifications

Model		MGG□□20	MGG□□25	MGG□□32	MGG□□40	MGG□□50	MGG□□63	MGG□□80	MGG□□100
Basic cylinder		CDBG1BN	Bore size	Port thread	Stroke	- Lock position	Manual release	- Auto switch	- XC70
Bore size (mm)		20	25	32	40	50	63	80	100
Action		Double acting							
Fluid		Air							
Proof pressure		1.5 MPa							
Maximum operating pressure		1.0 MPa							
Minimum operating pressure		0.15 MPa (Horizontal with no load)							
Ambient and fluid temperature		–10 to 60°C							
Piston speed		50 to 1000 mm/s						50 to 700 mm/s	
Cushion	**Basic cylinder**	Rubber bumper							
	Guide unit	Built-in shock absorbers (2 pcs.)							
Stroke adjusting range (One side) [Built-in adjusting bolts (2 pcs.)]		0 to –10 mm	0 to –15 mm						
Base cylinder lubrication		Non-lube							
Thread tolerance		JIS Class 2							
Stroke length tolerance		$^{+1.9}_{+0.2}$ mm (1000 st or less), $^{+2.3}_{+0.2}$ mm (1001 st or more)							
Non-rotating accuracy*	**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°
Piping port size (Rc, NPT, G)		1/8				1/4		3/8	1/2

∗ When the cylinder is retracted (initial value), with no load or without deflection of the guide rod, the non-rotating accuracy shall be the value in the table or less.

Lock Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
Holding force (Max.) (N)	215	330	550	860	1340	2140	3450	5390
Lock position	Head end, Rod end							
Backlash	2 mm or less							
Manual release	Non-lock type, Lock type							

∗ Adjust switch positions for operation at both the stroke end and backlash (2 mm) movement positions.

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
Maximum energy absorption (J)		5.88	19.6	58.8	147
Stroke absorption (mm)		7	12	15	25
Maximum collision speed (m/s)		5			
Max. operating frequency (cycle/min*)		70	45	25	10
Ambient 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

∗ It denotes the values at the maximum energy absorption per cycle. Therefore, the operating frequency can be increased according to the energy absorption.

Theoretical Output

OUT IN

Unit: N

Bore size (mm)	Rod size (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
Basic weight	LB type (Ball bushing bearing / Basic)		1.72	2.82	3.84	7.19	11.63	16.6	26.32	37.46
	LF type (Ball bushing bearing / Front mounting flange)		2.44	3.79	4.87	9.38	14.17	20.58	33	45.98
	MB type (Slide bearing / Basic)		1.71	2.79	3.36	7.17	11.36	16.22	25.61	36.36
	MF type (Slide bearing / Front mounting flange)		2.42	3.75	4.39	9.37	13.89	20.2	32.29	44.89
Additional weight per each 50 mm of 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 with bracket			0.011	0.018	0.019	0.031	0.061	0.269	0.384	0.548
Additional weight of lock unit	Head end lock (H)	Non-lock type (N)	0.05	0.07	0.08	0.17	0.26	0.44	0.8	1.15
		Lock type (L)	0.07	0.08	0.1	0.21	0.3	0.48	0.88	1.23
	Rod end lock (R)	Non-lock type (N)	0.07	0.08	0.12	0.19	0.31	0.51	0.9	1.31
		Lock type (L)	0.09	0.1	0.14	0.23	0.34	0.54	0.97	1.39

Calculation: (Example) **MGGLB32-500-HN**
(Ball bushing bearing / Basic, ø32/500 st., with bracket)
- Basic weight ····· 3.84 (LB type)
- Additional stroke weight ····· 0.25/50 st
- Stroke ····· 500 st
- Additional weight for long stroke ····· 0.02
- Additional weight with bracket ····· 0.019
- Additional weight of lock unit ····· 0.08 (Head end, Non-lock type)

3.84 + 0.25 x 500/50 + 0.02 + 0.019 + 0.08 = 6.459 kg

Made to Order

Made to Order
(For details, refer to page 71.)

Symbol	Specifications
XC79	Additional machining of tapped hole, drilled hole or pinned hole

Moving Parts Weight

(kg)

Bore size (mm)	20	25	32	40	50	63	80	100
Moving parts basic weight	0.69	1.14	1.61	3.09	5.23	8.29	13.09	18.58
Additional weight per each 50 mm of stroke	0.109	0.135	0.203	0.326	0.509	0.679	0.948	1.265

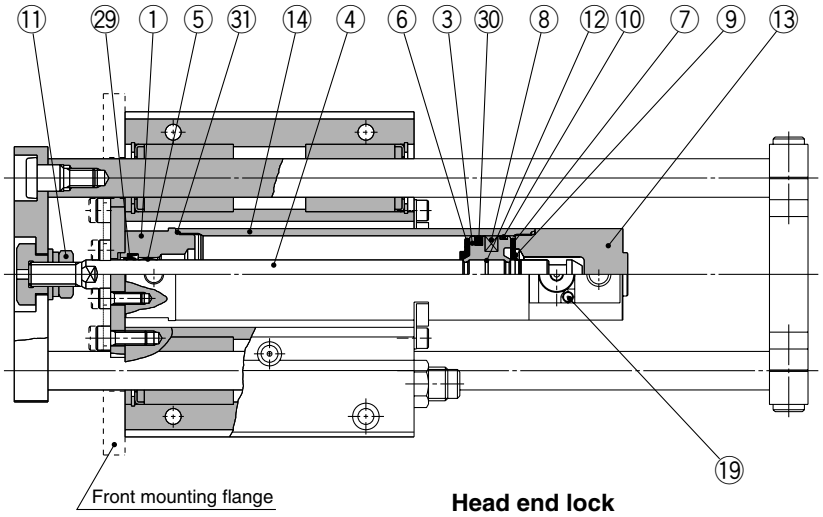
Calculating weight of moving parts (Example) **MGGLB32-500-HN**
- Moving parts basic weight ····· 1.61
- Additional stroke weight ····· 0.203/50 st
- Stroke ····· 500 st

1.61 + 0.203 x 500/50 = 3.64 kg

Refer to pages 8 to 16 for the allowable end load and deflection, as well as the allowable eccentric load.

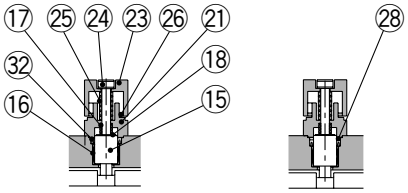
Construction

MGG□□
ø20 to ø100



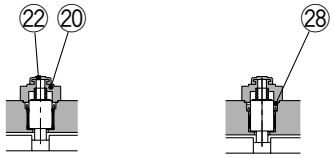
Head end lock

Manual release (Lock type)

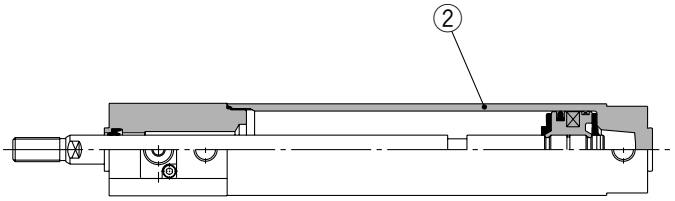


ø20 to ø63 **ø80, ø100**

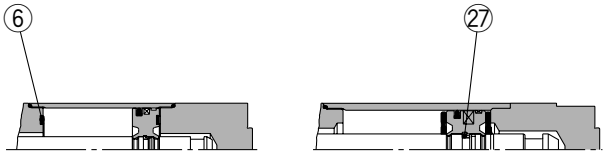
Manual release (Non-lock type)



ø20 to ø63 **ø80, ø100**



With rod end locking (Base cylinder only)



ø80, ø100 **ø40 to ø100**

∗ Since the guide unit figure is the same as the standard type, refer to page 17 through to 19.

Component Parts

No.	Description	Material	Note	
1	**Rod cover**	Aluminum alloy	White hard anodized	
2	**Tube cover**	Aluminum alloy	White hard anodized	
3	**Piston**	Aluminum alloy	Chromated	
4	**Piston rod**	Carbon steel	Hard chrome plated	ø20, ø25 are stainless steel
5	**Bushing**	Bearing alloy		
6	**Bumper A**	Urethane	Description is "Bumper" for ø63 and larger	
7	**Bumper B**	Urethane	ø40 and larger are the same as Bumper A.	
8	**Magnet**	—		
9	**Snap ring**	Stainless steel	Not required for ø80, ø100	
10	**Wear ring**	Resin		
11	**Rod end nut**	Rolled steel	Nickel plated	ø100 is carbon steel
12	**Piston gasket**	NBR		
13	**Head cover**	Aluminum alloy	White hard anodized	For head side locking type and long stroke
14	**Cylinder tube**	Aluminum alloy	Hard anodized	
15	**Lock piston**	Carbon steel	Hard chrome plated, Heat treated	
16	**Lock bushing**	Bearing alloy		
17	**Lock spring**	Stainless steel		
18	**Bumper**	Urethane		
19	**Hexagon socket head cap screw**	Chromium molybdenum steel	Black zinc chromated	
20	**Cap A**	Aluminum die-casted	Black painted	For non-lock type
21	**Cap B**	Carbon steel	Oxide film treated	For lock type
22	**Rubber cap**	Synthetic rubber	For non-lock type	
23	**M/O knob**	Zinc die-casted	Black painted	For lock type
24	**M/O bolt**	Chromium molybdenum steel	Black zinc chromated, Red painted	For lock type
25	**M/O spring**	Steel wire	Zinc chromated	For lock type ø20, ø25, ø32 are stainless stee

Component Parts

No.	Description	Material	Note	
26	**Stopper ring**	Carbon steel	Zinc chromated	For lock type
27	**Piston holder**	Urethane	Used for ø40 and larger	
28	**Seal retainer**	Rolled steel	Used for ø80 and ø100	
29	**Rod seal**	NBR		
30	**Piston seal**	NBR		
31	**Tube gasket**	NBR		
32	**Lock piston seal**	NBR		

∗ Since the guide unit parts are the same as the standard type, refer to page 17 through to 19.

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
20	CBG1N20-PS	Set of nos. above ㉙, ㉚, ㉛, ㉜.
25	CBG1N25-PS	
32	CBG1N32-PS	
40	CBG1N40-PS	

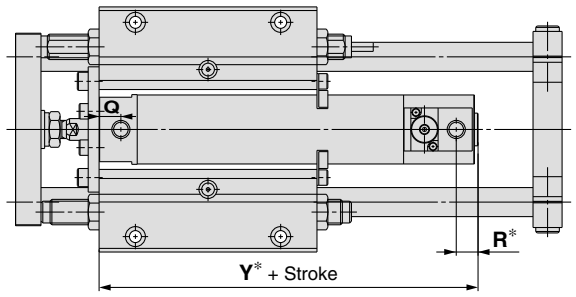
∗ Seal kit includes ㉙ to ㉜. Order the seal kit, based upon the bore size.

⚠Caution

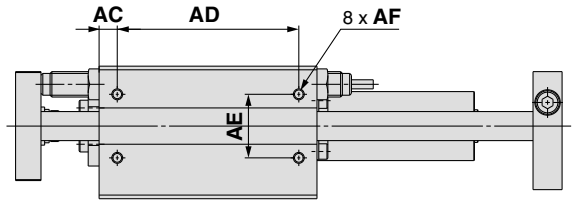
Basic cylinders with ø50 or larger bore sizes cannot be disassembled.
(Cylinders with ø50 or larger bore sizes are tightened with a large tightening torque and cannot be disassembled. Please contact SMC when disassembly is required.)

Dimensions

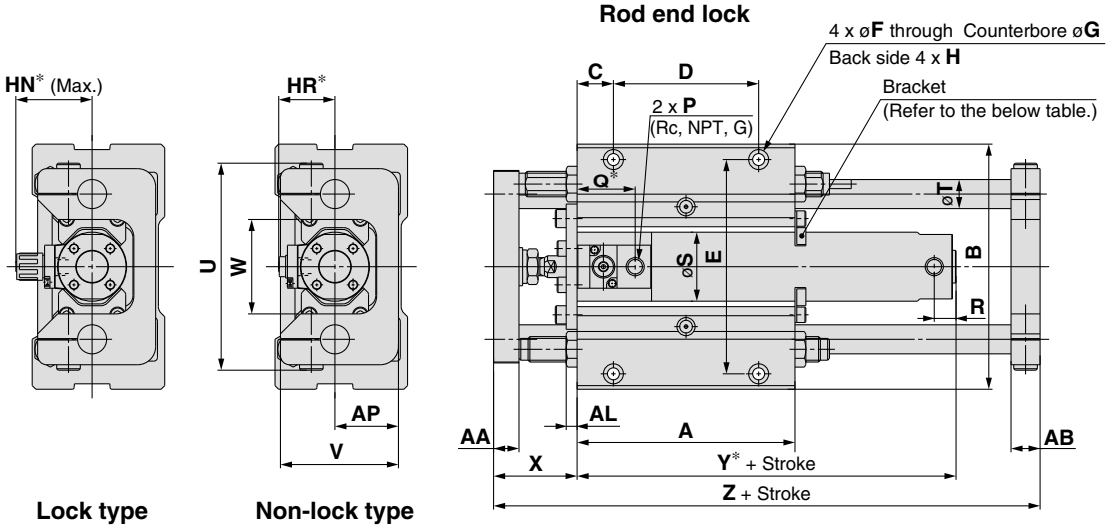
Basic: MGG□B
ø20 to ø50



Head end lock



Rod end lock



Lock type **Non-lock type**

Dimensions not marked with an "∗" are the same as standard type. (mm)

Bore size (mm)	Stroke range (mm)	A	AA	AB	AC	AD	AE	AF	AL	AP	B	C	D	E	F	G	H	I	J	K	L	M	N
20	75, 100, 125, 150, 200	90	11	11	7.5	75	30	M5 depth 10	6	25	108	15	60	92	5.5	9.5 depth 6	M8 depth 14	30	55	60	80	25	45
25	75, 100, 125, 150, 200, 250, 300	100	14	13	7.5	85	30	M6 depth 12	6	30	130	17.5	65	113	6.6	11 depth 8	M10 depth 18	35	65	70	100	35	54
32		120	14	16	10	100	35	M6 depth 12	6	35	135	20	80	118	6.6	11 depth 8	M10 depth 18	40	73	80	106	35	60
40		140	17	19	10	120	40	M8 depth 16	9	45	170	20	100	150	9	14 depth 10	M12 depth 21	50	93	95	134	50	75
50		170	23	21	10	150	45	M10 depth 20	9	50	194	25	120	170	11	17 depth 12	M14 depth 25	55	103	115	152	56	90

Bore size (mm)	O	P Note)	S	T	U	V	W	X	Z
20	M6 depth 9	1/8	26	12	82	48	40	39	157
25	M6 depth 13	1/8	31	13	100	57	46	46	175
32	M6 depth 13	1/8	38	16	114	65	52	46	201
40	M8 depth 16	1/8	47	20	138	84	62	56	238
50	M10 depth 21	1/4	58	25	164	94	75	67	285

Note) Rc, NPT, G port are available.

Bore size (mm)	For lock type	For non-lock type
	HN*	**HR***
20	37	25.3
25	40	28.3
32	43	31.3
40	52.5	38.3
50	58.5	44.5

Bore size (mm)	Rod end lock			Head end lock		
	Q*	**R**	**Y***	**Q**	**R***	**Y***
20	38.5	12 (14)	98 (106)	12	11	95
25	39	12 (14)	98 (106)	12	11	95
32	40	12 (14)	101 (109)	12	11	97
40	41	12 (15)	109 (118)	13	11	111
50	47	14 (16)	125 (137)	14	16	128

Note) ( ): Dimensions for long stroke.

Long Stroke

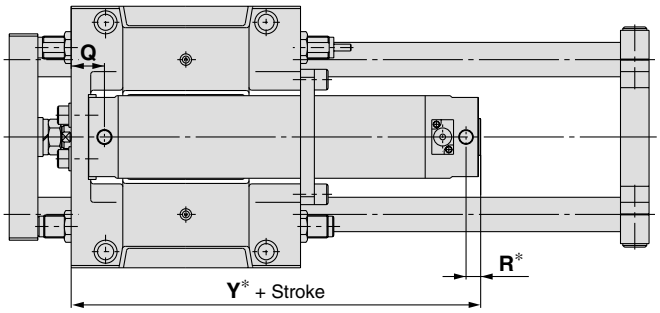
Bore size (mm)	Stroke range (mm)
20	250 to 400
25	350 to 500
32	350 to 600
40	350 to 800
50	350 to 1000

Bracket Mounting Stroke

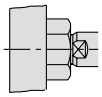
Bore size (mm)	Bracket mounting stroke
20	100 st or more
25	125 st or more
32	150 st or more
40	200 st or more
50	250 st or more

Dimensions

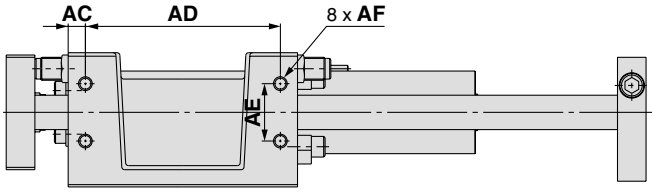
Basic: MGG□B
ø63 to ø100



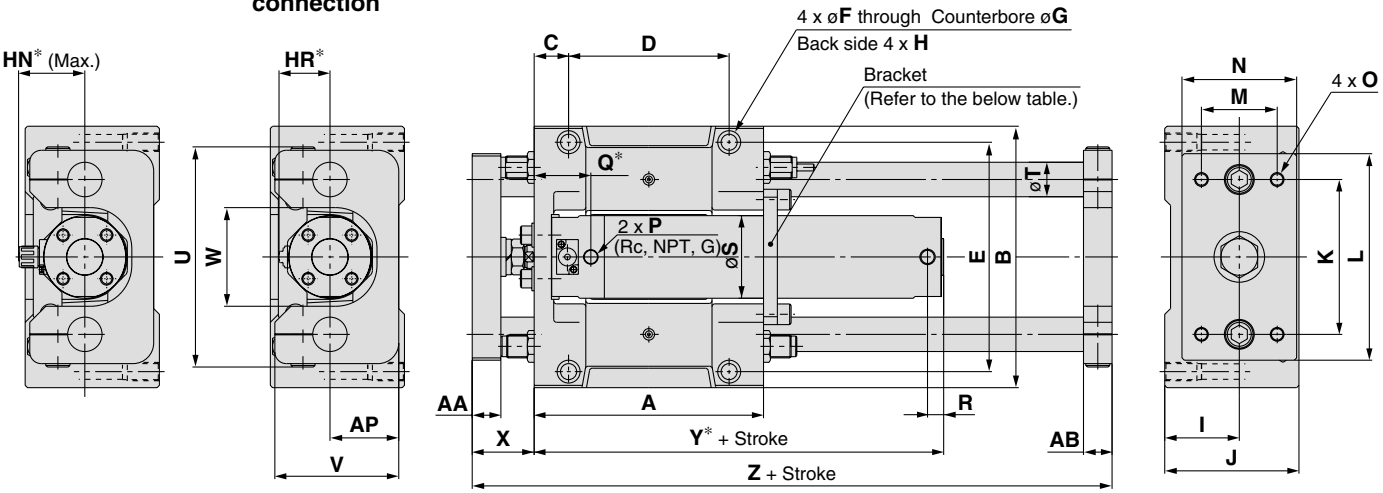
Head end lock



ø100 piston rod end connection



Rod end lock



Lock type **Non-lock type**

Dimensions not marked with an "∗" are the same as standard type. (mm)

Bore size (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 depth 24	60	228	30	140	200	13.5	20 depth 14.5	M16 depth 28	65	117	135	180	66	100
80		230	30	27	15	200	55	M12 depth 24	70	262	30	170	234	13.5	20 depth 14.5	M16 depth 28	75	138	160	214	76	115
100		280	32	30	17.5	245	70	M14 depth 28	80	304	35	210	274	15	23 depth 17	M18 depth 32	85	153	190	245	80	125

Bore size (mm)	O	P Note)	S	T	U	V	W	X	Z
63	M12 depth 23	1/4	72	30	192	108	86	54	308
80	M12 depth 28	3/8	89	35	224	128	104	66	355
100	M14 depth 30	1/2	110	40	262	143	128	66	410

Note) Rc, NPT, G port are available.

Bore size (mm)	For lock type	For non-lock type
	HN*	**HR***
63	59	45
80	68	53.5
100	79	64.5

Bore size (mm)	Rod end lock			Head end lock		
	Q*	**R**	**Y***	**Q**	**R***	**Y***
63	63	14 (16)	142 (154)	29	15	147
80	82	19 (23)	175 (189)	40	17	182
100	85	19 (23)	180 (194)	40	23	188

Note) ( ): Dimensions for long stroke.

Long Stroke

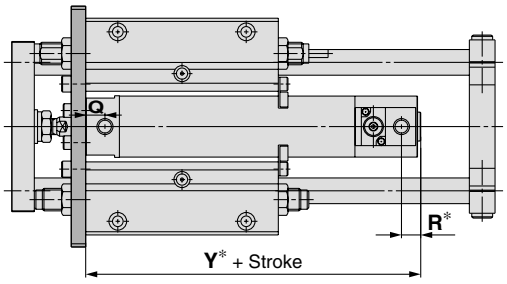
Bore size (mm)	Stroke range (mm)
63	350 to 1100
80	350 to 1200
100	350 to 1300

Bracket Mounting Stroke

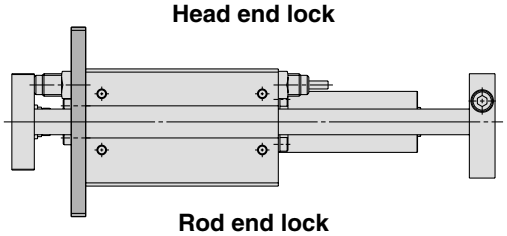
Bore size (mm)	Bracket mounting stroke
63	300 st or more
80	400 st or more
100	500 st or more

Dimensions

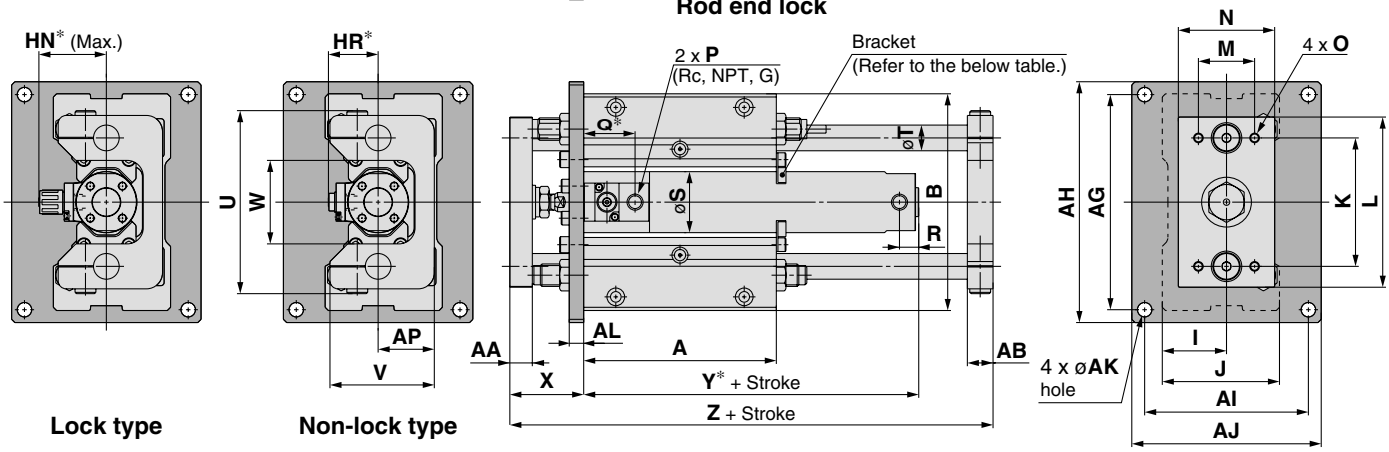
Front mounting flange: MGG□F
ø20 to ø50



Head end lock



Rod end lock



Lock type

Non-lock type

Dimensions not marked with an "∗" are the same as standard type.

(mm)

Bore size (mm)	Stroke range (mm)	A	AA	AB	AG	AH	AI	AJ	AK	AL	AP	B	I	J	K	L	M	N	O	P Note)	S	T	U	V
20	75, 100, 125, 150, 200	90	11	11	112	125	82	95	6.6	9	25	108	30	55	60	80	25	45	M6 depth 9	1/8	26	12	82	48
25	75, 100, 125, 150, 200, 250, 300	100	14	13	134	150	92	108	9	9	30	130	35	65	70	100	35	54	M6 depth 13	1/8	31	13	100	57
32		120	14	16	134	150	102	118	9	9	35	135	40	73	80	106	35	60	M6 depth 13	1/8	38	16	114	65
40		140	17	19	170	186	134	150	9	12	45	170	50	93	95	134	50	75	M8 depth 16	1/8	47	20	138	84
50		170	23	21	190	210	140	160	11	12	50	194	55	103	115	152	56	90	M10 depth 21	1/4	58	25	164	94

Bore size (mm)	W	X	Z
20	40	39	157
25	46	46	175
32	52	46	201
40	62	56	238
50	75	67	285

Bore size (mm)	For lock type	For non-lock type
	HN*	**HR***
20	37	25.3
25	40	28.3
32	43	31.3
40	52.5	38.3
50	58.5	44.5

Bore size (mm)	Rod end lock			Head end lock		
	Q*	**R**	**Y***	**Q**	**R***	**Y***
20	38.5	12 (14)	98 (106)	12	11	95
25	39	12 (14)	98 (106)	12	11	95
32	40	12 (14)	101 (109)	12	11	97
40	41	12 (15)	109 (118)	13	11	111
50	47	14 (16)	125 (137)	14	16	128

Note) ( ): Dimensions for long stroke.

Note) Rc, NPT, G ports are available.

Long Stroke

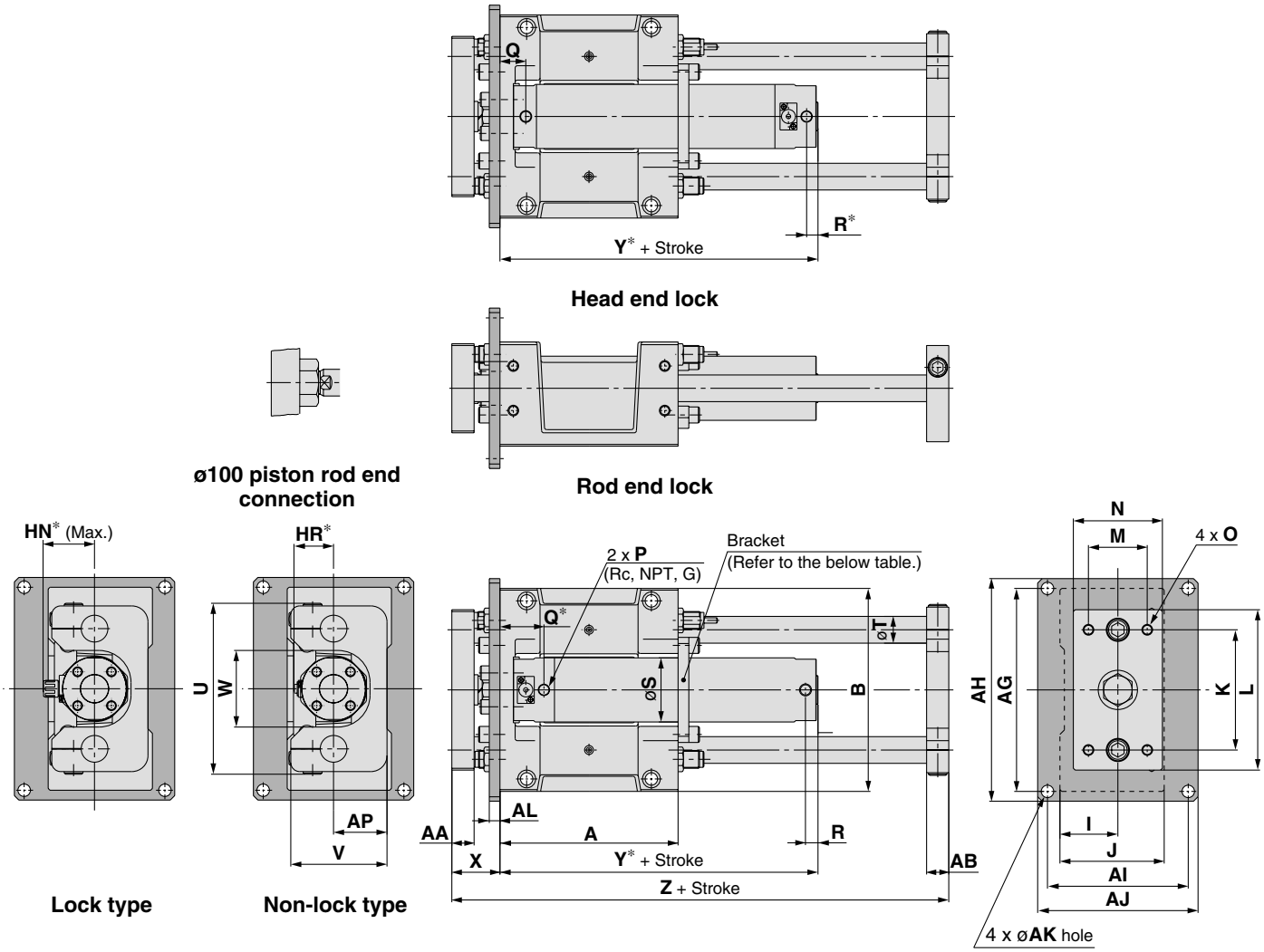
Bore size (mm)	Stroke range (mm)
20	250 to 400
25	350 to 500
32	350 to 600
40	350 to 800
50	350 to 1000

Bracket Mounting Stroke

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

Dimensions

Front mounting flange: MGG□F
ø63 to ø100



Dimensions not marked with an "∗" are the same as standard type. (mm)

Bore size (mm)	Stroke range (mm)	A	AA	AB	AG	AH	AI	AJ	AK	AL	AP	B	I	J	K	L	M	N	O	P Note)	S	T	U	V
63	75, 100, 125 150, 200 250, 300	200	25	25	228	250	158	180	14	12	60	228	65	117	135	180	66	100	M12 depth 23	1/4	72	30	192	108
80		230	30	27	262	284	178	200	14	16	70	262	75	138	160	214	76	115	M12 depth 28	3/8	89	35	224	128
100		280	32	30	300	326	200	226	16	16	80	304	85	153	190	245	80	125	M14 depth 30	1/2	110	40	262	143

Note) Rc, NPT, G ports are available.

Bore size (mm)	W	X	Z
63	86	54	308
80	104	66	355
100	128	66	410

Bore size (mm)	For lock type	For non-lock type
	HN*	**HR***
63	59	45
80	68	53.5
100	79	64.5

Bore size (mm)	Rod end lock			Head end lock		
	Q*	**R**	**Y***	**Q**	**R***	**Y***
63	63	14 (16)	142 (154)	29	15	147
80	82	19 (23)	175 (189)	40	17	182
100	85	19 (23)	180 (194)	40	23	188

Note) ( ): Dimensions for long stroke.

Long Stroke

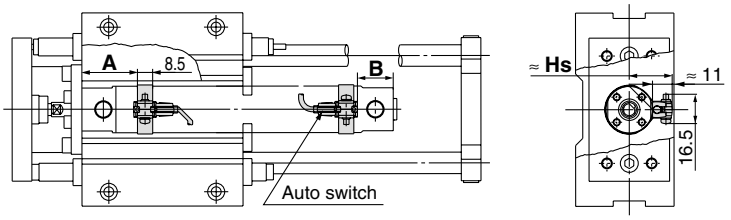
Bore size (mm)	Stroke range (mm)
63	350 to 1100
80	350 to 1200
100	350 to 1300

Long Stroke

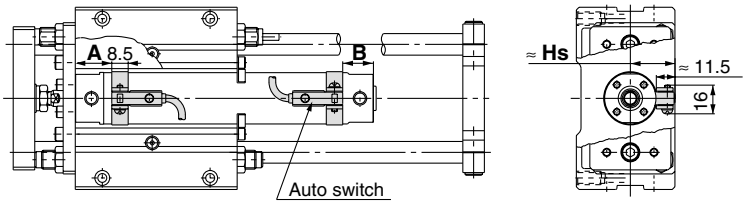
Bore size (mm)	Bracket mounting stroke
63	300 st or more
80	400 st or more
100	500 st or more

Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height

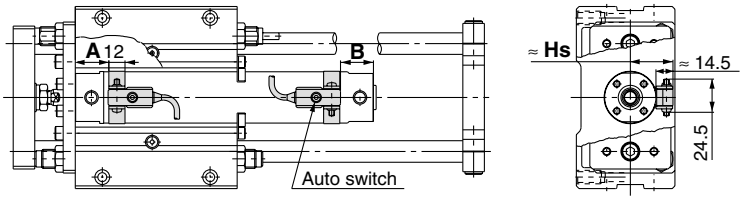
D-A9 type,
D-M9/M9□W type



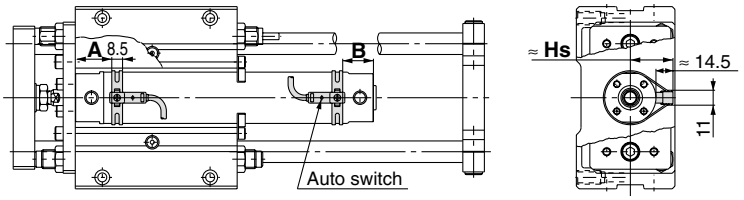
D-C7/C8 type,
D-H7 type



D-B5/B6 type,
D-G5/K5 type



D-B7/B8 type,
D-G7/K7 type



Auto Switch Proper Mounting Position

(mm)

Auto switch model / Bore size	D-A9□		D-M9□ D-M9□W		D-B7/B8 D-B73C D-B80C D-G7/K7 D-K79C		D-C7□ D-C80 D-C73C D-C80C		D-B5□ D-B64		D-B59W		D-H7□ D-H7C D-H7NF D-H7□W D-H7BAL		D-G59F D-G5□ D-K59 D-G5□W D-K59W D-G5NTL D-G5BAL	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
20	29	20 (28)	33	24 (32)	30.5	21.5 (29.5)	29.5	20.5 (28.5)	23.5	15.5 (22.5)	26.5	17.5 (25.5)	28.5	19.5 (27.5)	25	16 (24)
25	29	20 (28)	33	24 (32)	30.5	21.5 (29.5)	29.5	20.5 (28.5)	23.5	15.5 (22.5)	26.5	17.5 (25.5)	28.5	19.5 (27.5)	25	16 (24)
32	30	21 (29)	34	25 (33)	31.5	22.5 (30.5)	30.5	21.5 (29.5)	24.5	15.5 (23.5)	27.5	18.5 (26.5)	29.5	20.5 (28.5)	26	17 (25)
40	35	23 (32)	39	27 (36)	36.5	24.5 (33.5)	35.5	23.5 (32.5)	29.5	19 (26.5)	32	20.5 (29.5)	34.5	22.5 (31.5)	31	19 (28)
50	42	28 (40)	46	32 (36)	43.5	29.5 (41.5)	42.5	28.5 (40.5)	36.5	22.5 (34.5)	39.5	25.5 (37.5)	41.5	27.5 (39.5)	38	24 (36)
63	42	28 (40)	46	32 (36)	43.5	29.5 (41.5)	42.5	28.5 (40.5)	36.5	22.5 (34.5)	39.5	25.5 (37.5)	41.5	27.5 (39.5)	38	24 (36)
80	—	—	—	—	—	—	—	—	46.5	30.5 (44.5)	49.5	33.5 (47.5)	—	—	48	32 (46)
100	—	—	—	—	—	—	—	—	46.5	30.5 (44.5)	49.5	33.5 (47.5)	—	—	48	32 (46)

Auto Switch Mounting Height

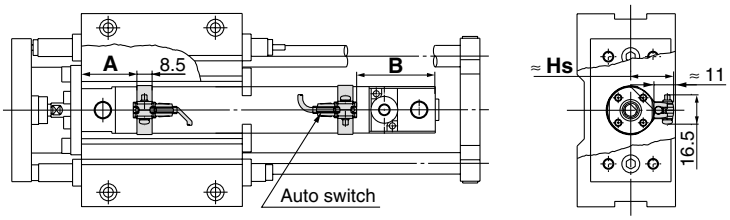
(mm)

Auto switch model / Bore size	D-A9□ D-M9□ D-M9□W	D-C7□ D-C80 D-H7□ D-H7□W D-H7NF 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-G5BAL D-G59F
	Hs	Hs	Hs	Hs	Hs
20	24	24.5	27	27.5	27.5
25	26.5	27	29.5	30	30
32	30	30.5	33	33.5	33.5
40	34.5	35	37.5	38	38
50	40	40.5	43	43.5	43.5
63	47	47.5	50	50.5	50.5
80	—	—	—	—	59
100	—	—	—	—	69.5

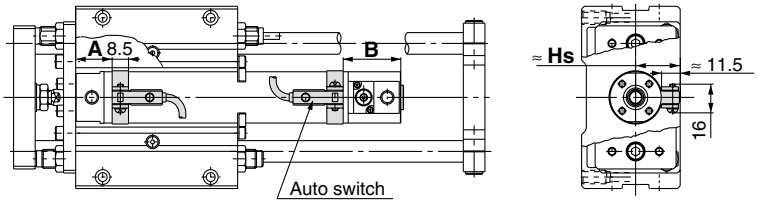
∗ ( ): Values for long strokes, double rods.
Note) When setting an auto switch, confirm the operation and adjust its mounting position.

Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height / End Lock Type: With Head End Lock

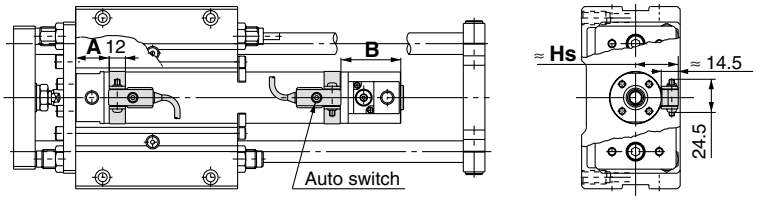
D-A9 type,
D-M9/M9□W type



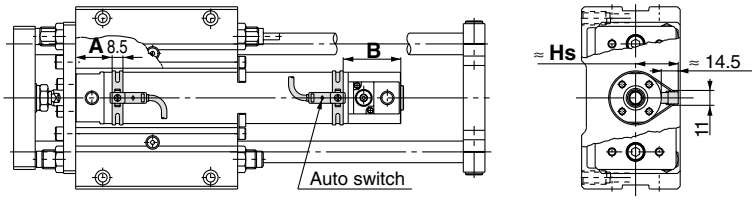
D-C7/C8 type,
D-H7 type



D-B5/B6 type,
D-G5/K5 type



D-B7/B8 type,
D-G7/K7 type



Auto Switch Proper Mounting Position

(mm)

Auto switch model / Bore size	D-A9□		D-M9□ D-M9□W		D-B7/B8 D-B73C D-B80C D-G7/K7 D-K79C		D-C7□ D-C80 D-C73C D-C80C		D-B5□ D-B64		D-B59W		D-H7□ D-H7C D-H7NF D-H7□W D-H7BAL		D-G59F D-G5□ D-K59 D-G5□W D-K59W D-G5NTL D-G5BAL	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
20	29	44	33	48	30.5	45.5	29.5	44.5	23.5	38.5	26.5	41.5	28.5	43.5	25	40
25	29	44	33	48	30.5	45.5	29.5	44.5	23.5	38.5	26.5	41.5	28.5	43.5	25	40
32	30	45	34	49	31.5	46.5	30.5	45.5	24.5	39.5	27.5	42.5	29.5	44.5	26	41
40	35	54	39	58	36.5	55.5	35.5	54.5	29.5	48.5	32	51.5	34.5	53.5	31	50
50	42	64	46	68	43.5	65.5	42.5	64.5	36.5	58.5	39.5	61.5	41.5	63.5	38	60
63	42	68	46	72	43.5	69.5	42.5	68.5	36.5	62.5	39.5	65.5	41.5	67.5	38	64
80	—	—	—	—	—	—	—	—	46.5	81.5	49.5	84.5	—	—	48	83
100	—	—	—	—	—	—	—	—	46.5	87.5	49.5	90.5	—	—	48	89

Auto Switch Mounting Height

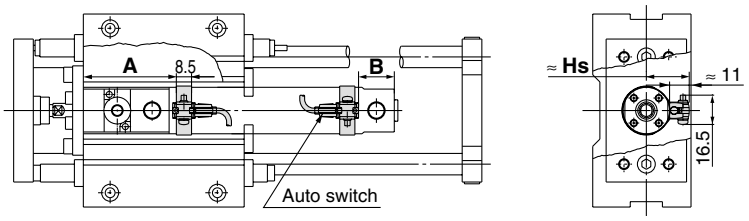
(mm)

Auto switch model / Bore size	D-A9□ D-M9□ D-M9□W	D-C7□ D-C80 D-H7□ D-H7□W D-H7HF 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-G5BAL D-G59F
	Hs	Hs	Hs	Hs	Hs
20	24	24.5	27	27.5	27.5
25	26.5	27	29.5	30	30
32	30	30.5	33	33.5	33.5
40	34.5	35	37.5	38	38
50	40	40.5	43	43.5	43.5
63	47	47.5	50	50.5	50.5
80	—	—	—	—	59
100	—	—	—	—	69.5

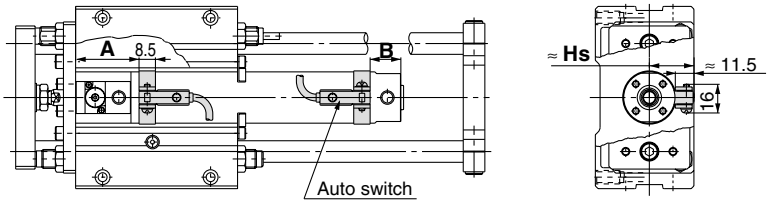
Note) When setting an auto switch, confirm the operation and adjust its mounting position.

Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height / End Lock Type: With Rod End Lock

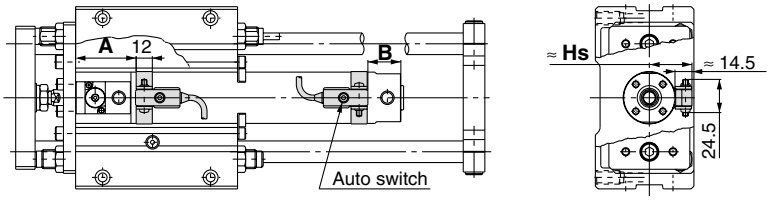
D-A9 type,
D-M9/M9□W type



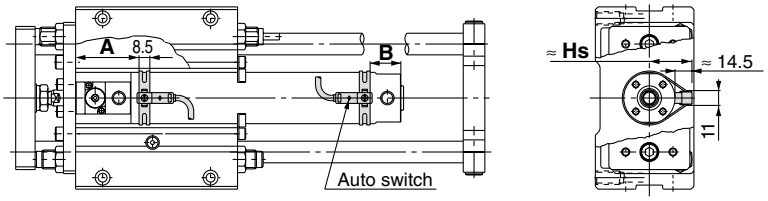
D-C7/C8 type,
D-H7 type



D-B5/B6 type,
D-G5/K5 type



D-B7/B8 type,
D-G7/K7 type



Auto Switch Proper Mounting Position

(mm)

Auto switch model / Bore size	D-A9□		D-M9□ D-M9□W		D-B7/B8 D-B73C D-B80C D-G7/K7 D-K79C		D-C7□ D-C80 D-C73C D-C80C		D-B5□ D-B64		D-B59W		D-H7□ D-H7C D-H7NF D-H7□W D-H7BAL		D-G59F D-G5□ D-K59 D-G5□W D-K59W D-G5NTL D-G5BAL	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
20	56	20 (28)	60	24 (32)	57.5	21.5 (29.5)	56.5	20.5 (28.5)	50.5	14.5 (22.5)	53.5	17.5 (25.5)	55.5	19.5 (27.5)	52	16 (24)
25	56	20 (28)	60	24 (32)	57.5	21.5 (29.5)	56.5	20.5 (28.5)	50.5	14.5 (22.5)	53.5	17.5 (25.5)	55.5	19.5 (27.5)	52	16 (24)
32	58	21 (29)	62	25 (33)	59.5	22.5 (30.5)	58.5	21.5 (29.5)	52.5	15.5 (23.5)	55.5	18.5 (26.5)	57.5	20.5 (28.5)	54	17 (25)
40	64	23 (32)	68	27 (36)	65.5	24.5 (33.5)	64.5	23.5 (32.5)	58.5	17.5 (26.5)	61	20.5 (29.5)	63.5	22.5 (31.5)	60	19 (28)
50	75	28 (40)	79	32 (36)	76.5	29.5 (41.5)	75.5	28.5 (40.5)	69.5	22.5 (34.5)	72.5	25.5 (37.5)	74.5	27.5 (39.5)	71	24 (36)
63	77	28 (40)	81	32 (36)	78.5	29.5 (41.5)	77.5	28.5 (40.5)	71.5	22.5 (34.5)	74.5	25.5 (37.5)	76.5	27.5 (39.5)	73	24 (36)
80	—	—	—	—	—	—	—	—	90.5	30.5 (44.5)	93.5	33.5 (47.5)	—	—	92	32 (46)
100	—	—	—	—	—	—	—	—	95.5	30.5 (44.5)	98.5	33.5 (47.5)	—	—	97	32 (46)

Auto Switch Mounting Height

(mm)

Auto switch model / Bore size	D-A9□ D-M9□ D-M9□W	D-C7□ D-C80 D-H7□ D-H7□W D-H7NF 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-G5BAL D-G59F
	Hs	Hs	Hs	Hs	Hs
20	24	24.5	27	27.5	27.5
25	26.5	27	29.5	30	30
32	30	30.5	33	33.5	33.5
40	34.5	35	37.5	38	38
50	40	40.5	43	43.5	43.5
63	47	47.5	50	50.5	50.5
80	—	—	—	—	59
100	—	—	—	—	69.5

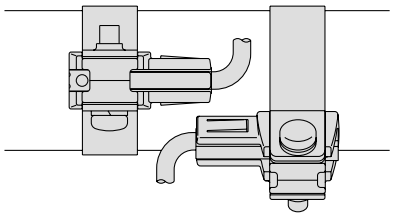
∗ ( ): Values for long strokes.
Note) When setting an auto switch, confirm the operation and adjust its mounting position.

Minimum Stroke for Auto Switch Mounting

n: Number of auto switches (mm)

Auto switch model	Number of auto switches mounted		
	With 1 pc.	With 2 pcs.	With n pcs.
		Same side	Same side
D-A9□ **D-M9□** **D-M9□W**	10	45 Note)	45 + 45 (n-2)
D-C7□ **D-C80**	10	50	50 + 45 (n-2)
D-H7□ **D-H7□W** **D-H7BAL/H7NF**	10	60	60 + 45 (n-2)
D-C73C **D-C80C** **D-H7C**	10	65	65 + 50 (n-2)
D-B5□/B64 **D-G5□/K59□** **D-B59W**	10	75	75 + 55 (n-2)
D-B7□/B80 **D-G79/K79**	10	45	50 + 45 (n-2)

Note) Caution when two D-A93, M9□, M9□W auto switches are used.

Auto switch model	With two auto switches Same side
	 The auto switches are offset (one auto switch is displaced more around the outside of the cylinder tube) so that the auto switches and lead wires do not interfere with each other.
D-A93	Less than 50 stroke
D-M9□ **D-M9□W**	Less than 55 stroke

Operating Range

Auto switch model	Bore size							
	20	**25**	**32**	**40**	**50**	**63**	**80**	**100**
D-A9□	7	6	8	8	8	9	—	—
D-M9□	3	3	4	3.5	4	4	—	—
D-M9□W	5	5.5	5	5.5	6.5	7	—	—
D-B7□/B80 **D-B73C/B80C**	8	10	9	10	10	11	—	—
D-C7□/C80 **D-C73C/C80C**	8	10	9	10	10	11	—	—
D-B5□/B64	8	10	9	10	10	11	11	11
D-B59W	13	13	14	14	14	17	16	18
D-G79/K79/K79C	8	10	9	10	10	11	—	—

(mm)

Auto switch model	Bore size							
	20	**25**	**32**	**40**	**50**	**63**	**80**	**100**
D-H7□/H7□W **D-H7BAL/H7NF**	4	4	4.5	5	6	6.5	—	—
D-H7C	7	8.5	9	10	9.5	10.5	—	—
D-G5□/K59 **D-G5□W/K59W** **D-G5NTL/G5BAL**	4	4	4.5	5	6	6.5	6.5	7
D-G59F	5	5	5.5	6	7	7.5	7.5	8
D-G5NBL	35	40	40	45	45	45	45	50

∗ This is a guideline including hysteresis, and is not meant to be guaranteed. (Assuming approximately ±30% dispersion.)
Therefore it may vary substantially depending on an ambient environment.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)							
	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
D-A9□ **D-M9□** **D-M9□W**	Note) ①BMA2-020 ②BJ3-1	Note) ①BMA2-025 ②BJ3-1	Note) ①BMA2-032 ②BJ3-1	Note) ①BMA2-040 ②BJ3-1	Note) ①BMA2-050 ②BJ3-1	Note) ①BMA2-063 ②BJ3-1	—	—
D-C7□/C80 **D-C73C** **D-C80C** **D-H7□/H7C** **D-H7□W** **D-H7BAL** **D-H7NF**	BMA2-020	BMA2-025	BMA2-032	BMA2-040	BMA2-050	BMA2-063	—	—
D-B5□/B64 **D-B59W** **D-G5□/K59** **D-G5□W/K59W** **D-G5BAL/G59F** **D-G5NTL** **D-G5NBL**	BA-01	BA-02	BA-32	BA-04	BA-05	BA-06	BA-08	BA-10
D-B7□/B80 **D-B73C/B80C** **D-G79/K79** **D-K79C**	BM1-01	BM1-02	BM1-32	BM1-04	BM1-05	BM1-06	—	—

Note) Two types of brackets are used as a set.

[Mounting screws set made of stainless steel]

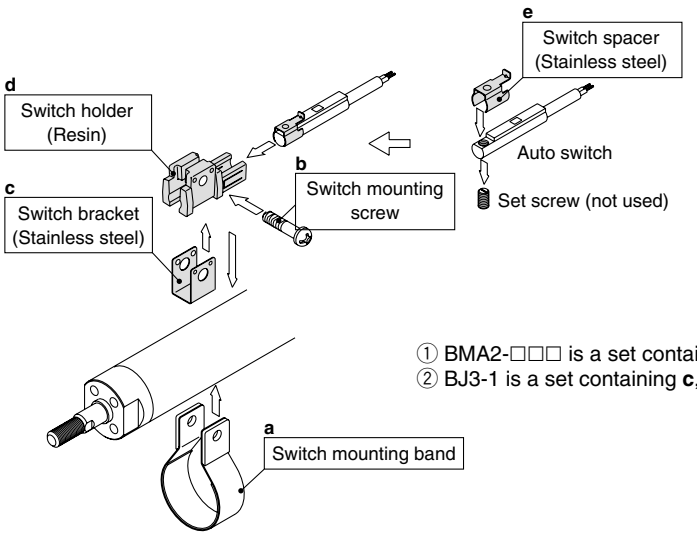
The following set of mounting screws made of stainless steel are also available. Use it in accordance with the operating environment. (Please order the switch mounting bracket separately, since it is not included.)

BBA3: For D-B5, B6, G5, K5 type

BBA4: For D-C7, C8, H7 type

"D-H7BAL/G5BAL" switch is set on the cylinder with the stainless steel screws above when shipped.

When only a switch is shipped independently, "BBA3" or "BBA4" screws are attached.



① BMA2-□□□ is a set containing **a** and **b** in the drawing.
② BJ3-1 is a set containing **c**, **d** and **e** in the drawing.

Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted.
For detailed specifications, refer to SMC's "Best Pneumatics" catalogue, etc.

Type	Model	Electrical entry (Direction)	Features	Applicable bore size
Reed switch	D-C73, C76, B73, B73C, B76	Grommet (in-line)	—	ø20 to ø63
	D-C80, B80C		Without indicator light	
	D-B53		—	ø20 to ø100
Solid state switch	D-H7A1, H7A2, H7B, G79, K79, K79C		—	ø20 to ø63
	D-H7NW, H7PW, H7BW		Diagnostic indication (2-colour indication)	
	D-G5NTL		With timer	ø20 to ø100

∗ With pre-wired connector is available for solid state auto switches. For details, refer to SMC's "Best Pneumatics" catalogue.
∗ Normally closed (NC = b contact), solid state switches (D-F9G, F9H type) are also available. For details, refer to SMC's "Best Pneumatics" catalogue.
∗ Wide range detection type, solid state auto switch (D-G5NBL type) is also available. For details, refer to SMC's "Best Pneumatics" catalogue.

Series MGG
Specific Product Precautions 1

Be sure to read this before handling. For Safety Instructions, Actuators Common Precautions, refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A).

Mounting and Adjustment

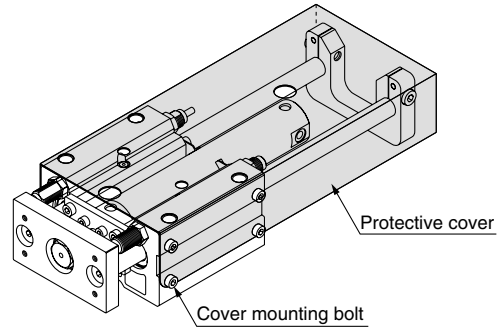
⚠ Warning

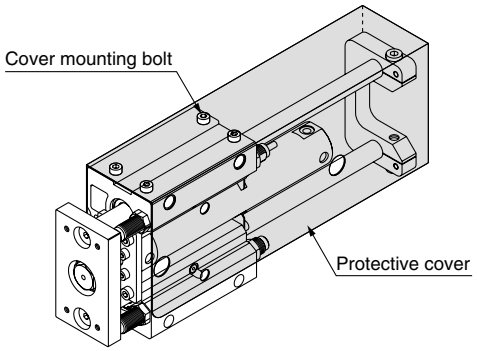
1. Installing a protective cover

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.

Protective cover installation example





Caution on Handling the Shock Absorber

⚠ Caution

1. For details, make sure to refer to "Shock Absorber (RB series)" in SMC's "Best Pneumatics" catalogue.

⚠ Caution

1. Use caution not to scratch or dent the sliding part of the guide rod.

Because the outer circumference of the guide rod is manufactured with precise tolerances, even a slight deformation, scratch, or gouge can lead to faulty operation or reduced durability.

2. When fitting the guide body, use the guide body with a fitting surface that has a high level of flatness.

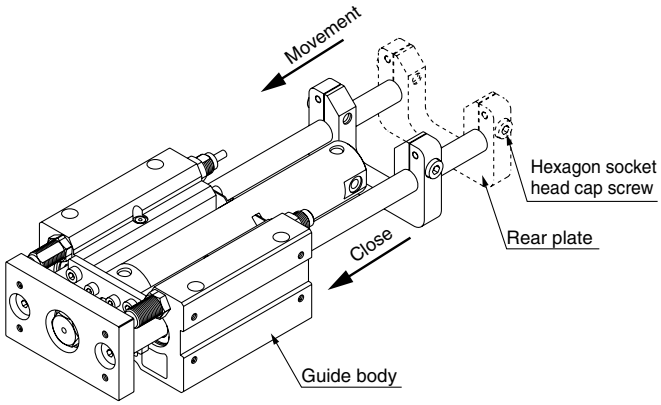
If the guide rod has twisted, operation resistance will become abnormally higher and the bearing will wear at an early stage, thereby resulting in poor performance.

3. Allow an ample space around the cylinder.

Ensure enough clearance around the cylinder to allow for unobstructed maintenance and inspection work.

4. Extension stroke adjustment

To adjust the extension stroke by moving the rear plate, loosen the hexagon socket head screws on the left and right sides of the plate, move the rear plate to the desired stroke position in proximity to the guide body, and retighten the hexagon socket head screws on the left and right.



5. Lubrication

To prevent foreign particles from mixing with the grease, use a grease applicator that has a check valve. Use a high-quality lithium soap-based no. 2 grease.

6. Mounting orientation

For ceiling mount (opening of the rear plate face downwards), the base cylinder head end and the rear plate may interfere due to the deflection of the guide rod.

Series MGG
Specific Product Precautions 2

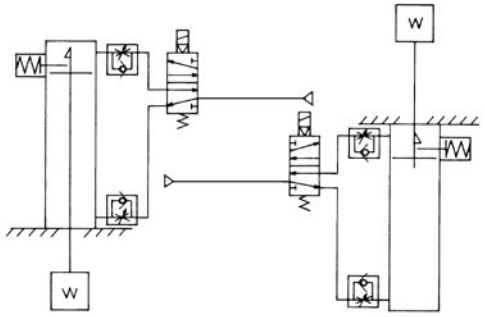
Be sure to read this before handling. For Safety Instructions, Actuators Common Precautions, refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A).

With End Lock Type

Use the Recommended Pneumatic Circuit

⚠ Caution

● **This is necessary for proper operation and release of the lock.**



Head end lock **Rod end lock**

Operating Precautions

⚠ Caution

1. **Do not use 3 position solenoid valves.**
   Avoid use in combination with 3 position solenoid valves (especially closed center metal seal types). If pressure is trapped in the port on the lock mechanism side, the cylinder cannot be locked. Furthermore, even after being locked, the lock may be released after some time, due to air leaking from the solenoid valve and entering the cylinder.
2. **Back pressure is required when releasing the lock.**
   Before starting operation, be sure to control the system so that air is supplied to the side without the lock mechanism as shown in the figure above. There is a possibility that the lock may not be released. (→ Refer to the section on releasing the lock.)
3. **Release the lock when mounting or adjusting the cylinder.**
   If mounting or other work is performed when the cylinder is locked, the lock unit may be damaged.
4. **Operate with a load ratio of 50% or less.**
   If the load ratio exceeds 50%, this may cause problems such as failure of the lock to release, or damage to the lock unit.
5. **Do not operate multiple cylinders in synchronisation.**
   Avoid applications in which two or more end lock cylinders are synchronised to move one workpiece, as one of the cylinder locks may not be able to release when required.
6. **Use a speed controller with meter-out control.**
   The lock may not be released occasionally with meter-in control.
7. **Be sure to operate completely to the cylinder stroke end on the side with the lock.**
   If the cylinder piston does not reach the end of the stroke, locking and unlocking may not be possible. Therefore, do not adjust the stroke with the adjustment bolts or shock absorbers.
8. **Do not use an air cylinder as an air-hydro cylinder. This will cause leakage of hydraulic fluid.**
9. **Adjust an auto switch's position so that it operates for movement to both the stroke end and backlash (2 mm) positions.**
   When a 2-colour indication switch is adjusted for green indication at the stroke end, it may change to red for the backlash return, but this is not abnormal.

⚠ Warning

1. **Operate within the specified cylinder speed.**
   Otherwise, cylinder and seal damage may occur.

Operating Pressure

⚠ Caution

1. Use air pressure of at least 0.15 MPa for the port on the lock mechanism side. This is necessary to release the lock.

Exhaust Speed

⚠ Caution

1. Locking will occur automatically if the pressure applied to the port on the lock mechanism side falls to 0.05 MPa or less. In cases where the piping on the lock mechanism side is long and thin, or the speed controller is separated by some distance from the cylinder port, the exhaust speed will be reduced. Take note that some time may be required for the lock to engage. In addition, clogging of a silencer mounted on the solenoid valve exhaust port can produce the same effect.

Releasing the Lock

⚠ Warning

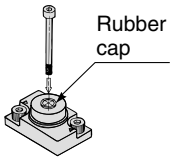
1. Before releasing the lock, be sure to supply air to the side without the lock mechanism, so that there is no load applied to the lock mechanism when it is released. (Refer to the recommended pneumatic circuits.) If the lock is released when the port on the other side is in an exhaust state, and with a load applied to the lock unit, the lock unit may be subjected to an excessive force and be damaged. Furthermore, sudden movement of the piston rod is very dangerous.

Manual Release

⚠ Caution

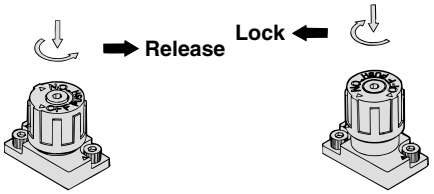
1. **Manual release (Non-lock type)**
   Insert the accessory bolt from the top of the rubber cap (it is not necessary to remove the rubber cap), and after screwing it into the lock piston, pull it to release the lock. If you stop pulling the bolt, the lock will return to an operational state.
   Thread sizes, pulling forces and strokes are as shown below.

Bore size (mm)	Thread size	Pulling force (N)	Stroke (mm)
20, 25, 32	M2.5 x 25 ℓ or more	4.9	2
40, 50, 63	M3 x 30 ℓ or more	10	3
80, 100	M5 x 40 ℓ or more	24.5	3



Remove the bolt for normal operation.
It can cause lock malfunction or faulty release.

2. **Manual release, Lock type**
   While pushing the M/O knob, turn it 90° counterclockwise. The lock is released (and remains in a released state) by aligning the ▲ mark on the cap with the ▼ OFF mark on the M/O knob.
   When locking is desired, turn M/O button clockwise 90° while pushing fully, correspond ▲ on cap and ▼ ON mark on M/O button. The correct position is confirmed by a "click" sound. If not confirmed, locking is not function.



Locked condition **Released condition**