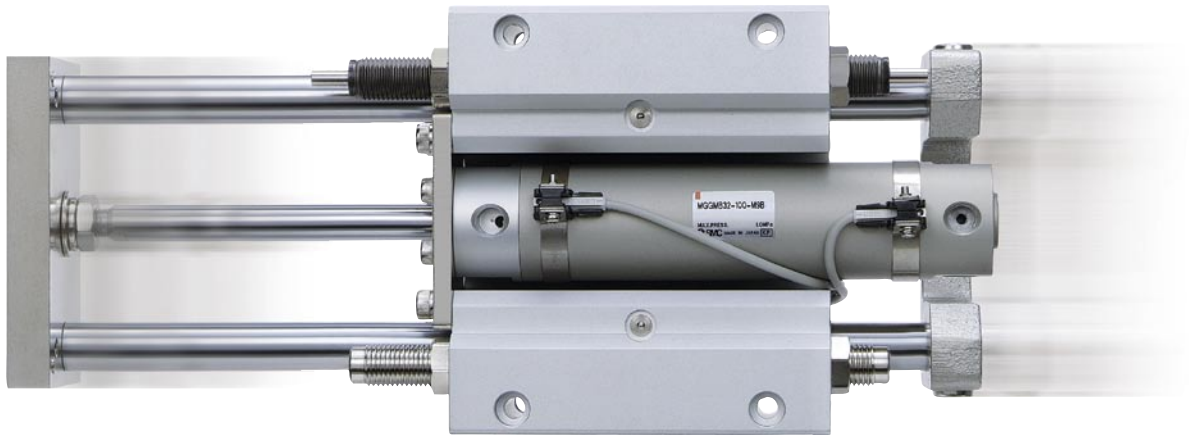


# Guide Cylinders

## *Linear Transfer Unit*



## Integration of a basic cylinder and guide rods



**Series MGG/MGC**

## Guide Cylinders

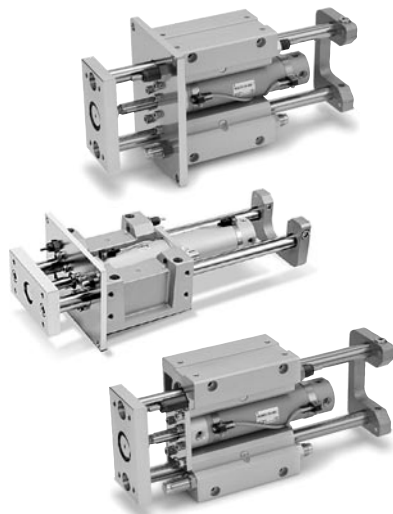
### Series **MGG**

#### 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            | ●                    | ●   | ●   | ●   | ●   | ●   | ●   |

#### 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            | ●                | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    | ●    | ●    | ●    |

P. 1

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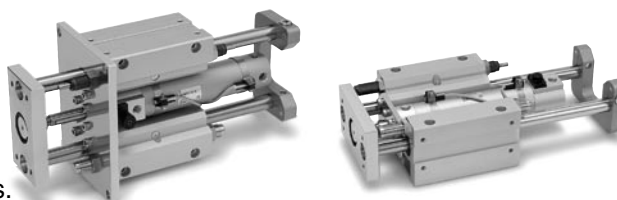
(End lock type)

#### 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

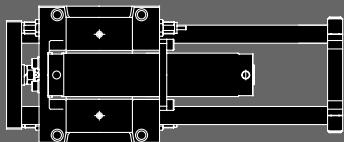


| Bore size (mm) | Standard stroke (mm) |     |     |     |     |     |     |
|----------------|----------------------|-----|-----|-----|-----|-----|-----|
|                | 75                   | 100 | 125 | 150 | 200 | 250 | 300 |
| 20             | ●                    | ●   | ●   | ●   | ●   | ●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

#### Long Stroke

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

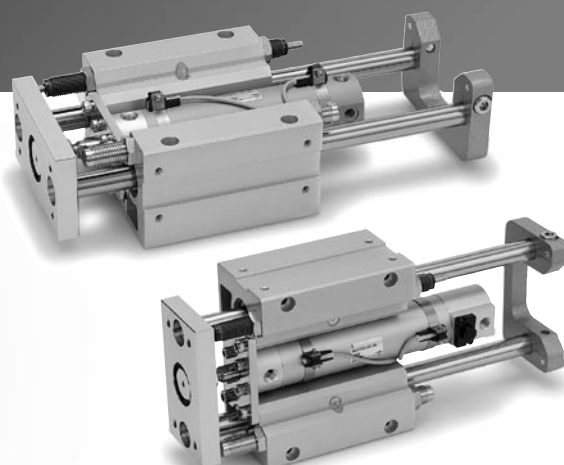
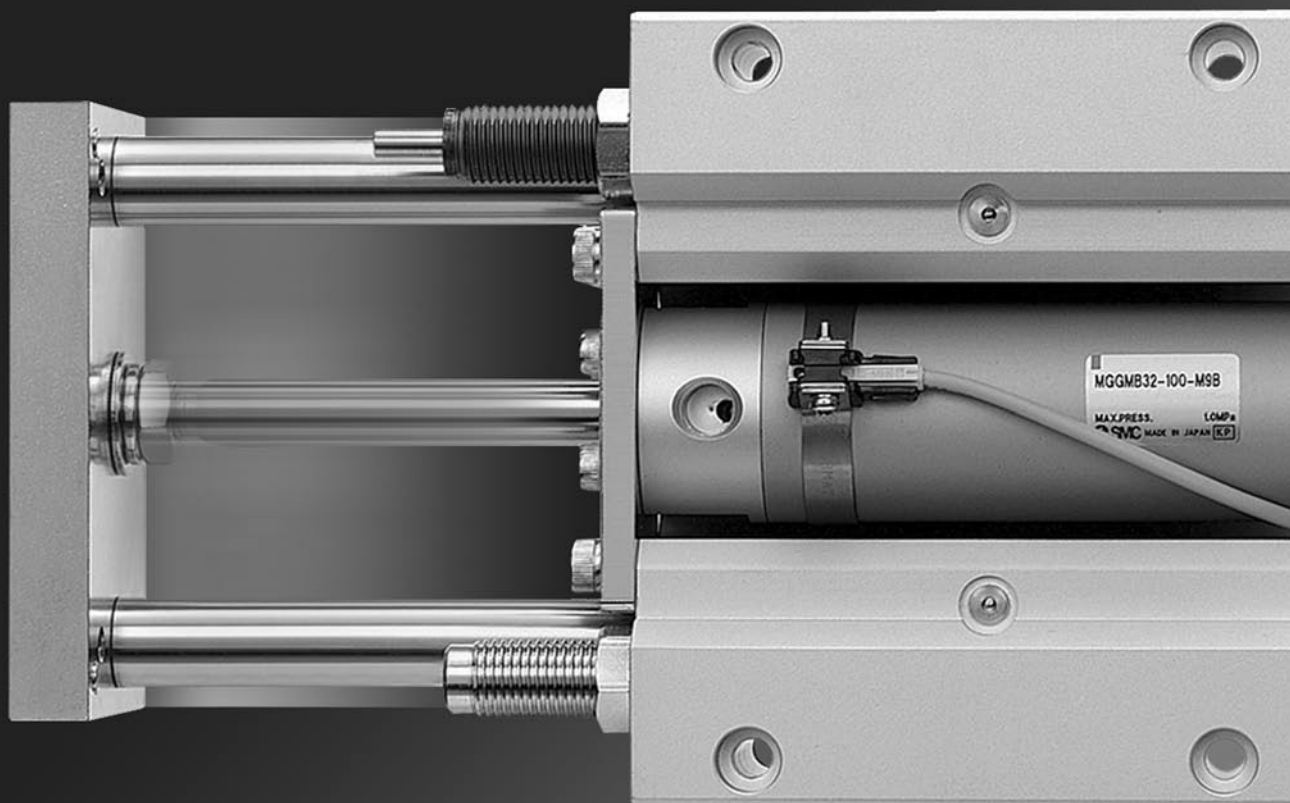
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# Guide Cylinder *Series MGG*

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

Integration of a basic cylinder and guide rods  
**Linear Transfer Unit**



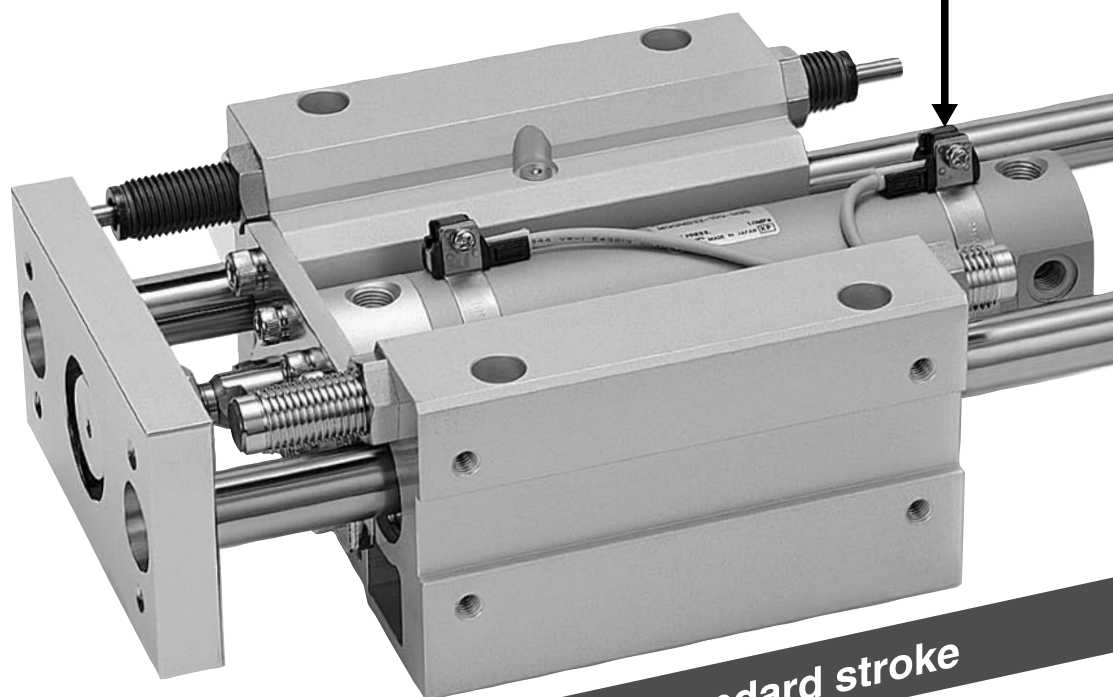
# Basic cylinder with integrated guide rods A linear transfer unit that achieves high lateral load

**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.

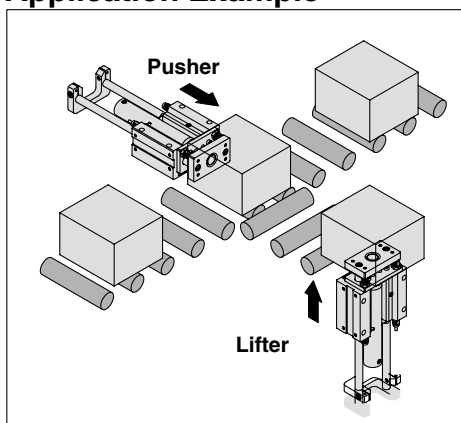


**Standard stroke**

## 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.

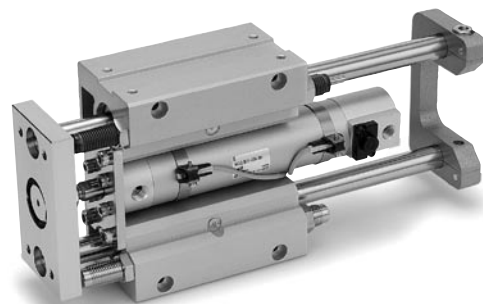
## A grease port is provided as standard.

This allows lubrication of the bearings.

in a compact configuration  
resistance and non-rotating precision

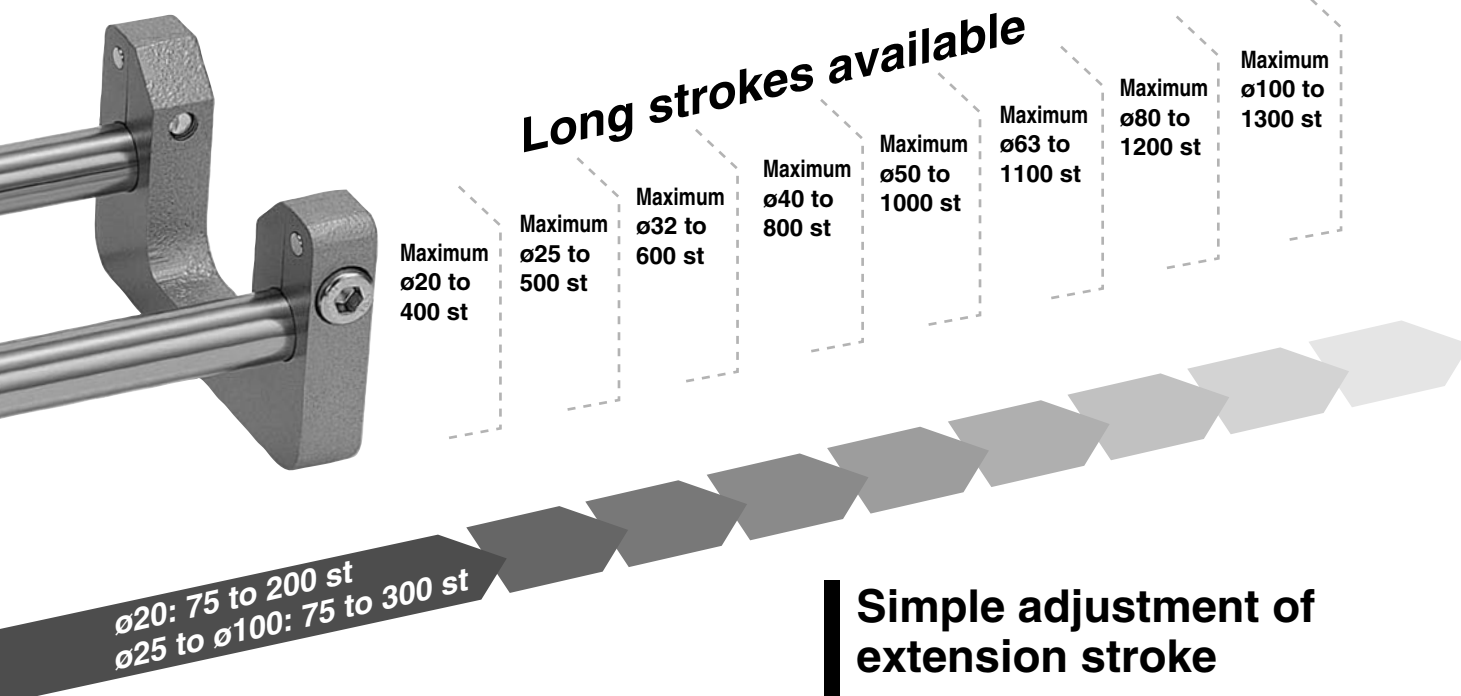
## Series MGG

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.

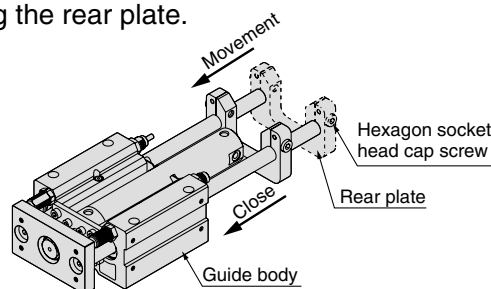


### Shock absorbers and adjusting bolts are standard.

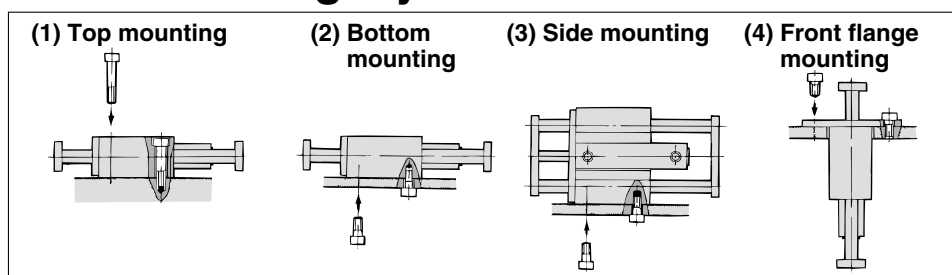
Stroke end shock absorption for high speed operation and fine stroke adjustment are possible.

### Simple adjustment of extension stroke

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



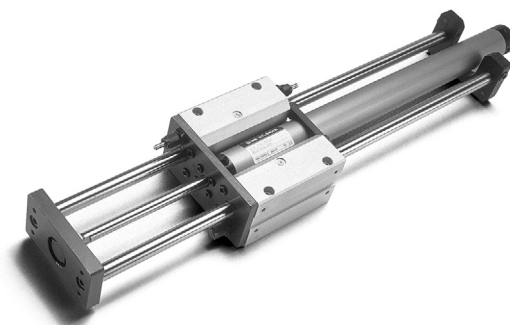
### Four mounting styles



**A full range of made-to-order specifications**



- 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

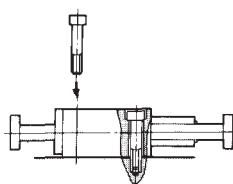


### Технические характеристики

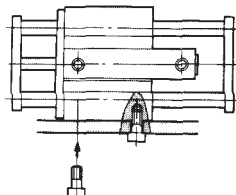
| Модель                                      | MGG**20                                     | MGG**25                                       | MGG**32  | MGG**40  | MGG**50  | MGG**63  | MGG**80  | MGG**100  |
|---------------------------------------------|---------------------------------------------|-----------------------------------------------|----------|----------|----------|----------|----------|-----------|
| 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°   | ±0.03°    |
|                                             | Направл. качения                            | ±0.06°                                        | ±0.06°   | ±0.04°   | ±0.04°   | ±0.04°   | ±0.03°   | ±0.02°    |
| Присоединение                               | 1/8                                         |                                               |          |          | 1/4      | 1/4      | 3/8      | 1/2       |

### Монтаж

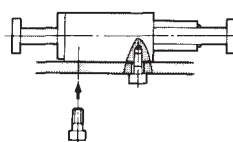
#### 1 Монтаж лицевой стороной вверх



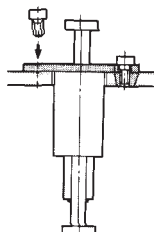
#### 3 Монтаж на левой или правой стороне



#### 2 Монтаж лицевой стороной вниз



#### 4 Монтаж на переднем фланце



### Макс. нагрузка для хода 300 мм (Н)



| 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  $\varnothing 20$

75, 100, 125, 150, 200, 250, 300

Цилиндры  $\varnothing 25 \sim 100$

Опции

XC8

Настр. штока при выдвижении

XC9

Настр. штока при втягивании

XB6

Высокотемпературное исполнение (макс. 150° C)

XC22

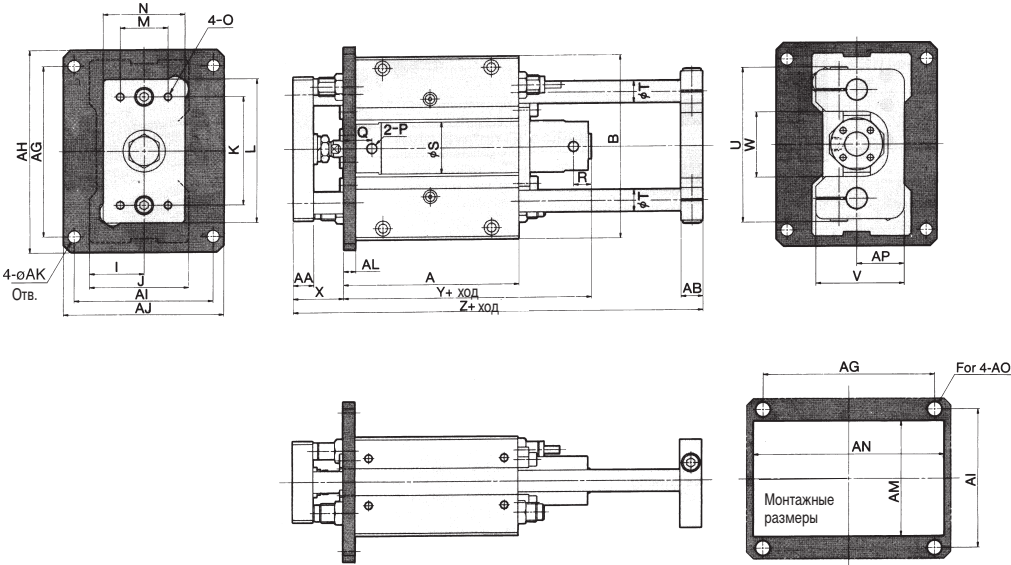
Фторсодержащее резиновое уплотнение

XC37

Увеличенное присоединительное отверстие

Размеры

Фланцевое крепление



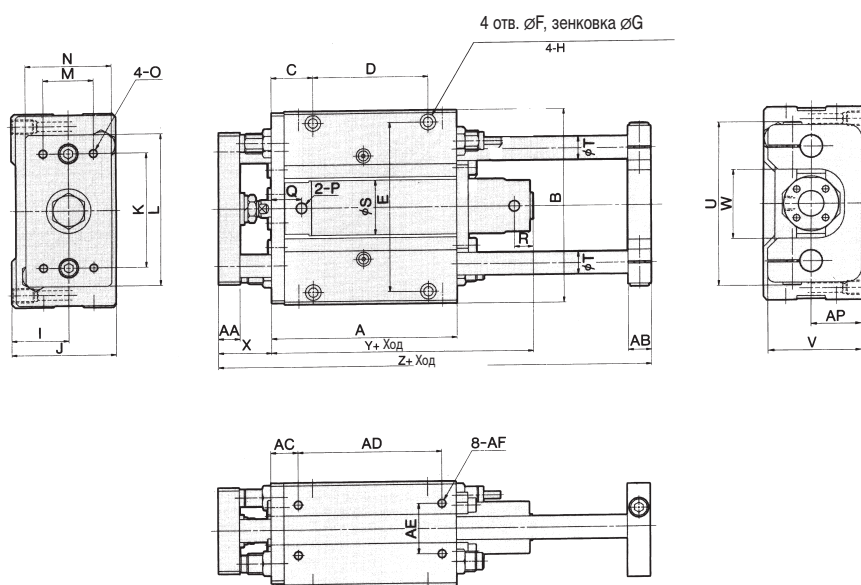
| Ø поршня | Стандартный ход                  | AG  | AH  | AI  | AJ  | AK  | AL | AM  | AN  | AO  |
|----------|----------------------------------|-----|-----|-----|-----|-----|----|-----|-----|-----|
| 20       | 75, 100, 125, 150, 200           | 112 | 125 | 82  | 95  | 6.6 | 9  | 65  | 115 | M6  |
| 25       | 75, 100, 125, 150, 200, 250, 300 | 134 | 150 | 92  | 108 | 9   | 9  | 75  | 135 | M8  |
| 32       |                                  | 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<br>глубина 10  | 25 | 108 | 24   | 60  | 92  | 5.5 | 9.5<br>глубина 6 | M8<br>глубина 14  |
| 25       | 75, 100, 125, 150, 200, 250, | 109 | 15 | 13 | 16.5 | 85  | 30 | M6<br>глубина 12  | 30 | 130 | 26.5 | 65  | 113 | 6.6 | 11<br>глубина 8  | M10<br>глубина 18 |
| 32       | 300                          | 129 | 15 | 16 | 19   | 100 | 35 | M6<br>глубина 12  | 35 | 135 | 29   | 80  | 118 | 6.6 | 11<br>глубина 8  | M10<br>глубина 18 |
| 40       |                              | 152 | 18 | 19 | 22   | 120 | 40 | M8<br>глубина 16  | 45 | 170 | 32   | 100 | 150 | 9   | 14<br>глубина 10 | M12<br>глубина 21 |
| 50       |                              | 182 | 23 | 21 | 22   | 150 | 45 | M10<br>глубина 20 | 50 | 194 | 37   | 120 | 170 | 11  | 17<br>глубина 12 | M14<br>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<br>глубина 9   | 1/8 | 21 | 14 | 26 | 12 | 86  | 48 | 36 | 30 | 80  | 157 |
| 25       | 75, 100, 125, 150, 200, 250, | 35 | 65  | 70  | 100 | 35 | 54 | M6<br>глубина 13  | 1/8 | 21 | 14 | 31 | 13 | 100 | 57 | 42 | 37 | 80  | 175 |
| 32       | 300                          | 40 | 73  | 80  | 106 | 35 | 60 | M6<br>глубина 13  | 1/8 | 21 | 13 | 38 | 16 | 114 | 65 | 4  | 37 | 82  | 201 |
| 40       |                              | 50 | 93  | 95  | 134 | 50 | 75 | M8<br>глубина 16  | 1/8 | 25 | 14 | 47 | 20 | 140 | 8  | 58 | 44 | 92  | 238 |
| 50       |                              | 55 | 103 | 115 | 152 | 56 | 90 | M10<br>глубина 21 | 1/4 | 26 | 15 | 58 | 25 | 164 | 9  | 70 | 55 | 104 | 285 |

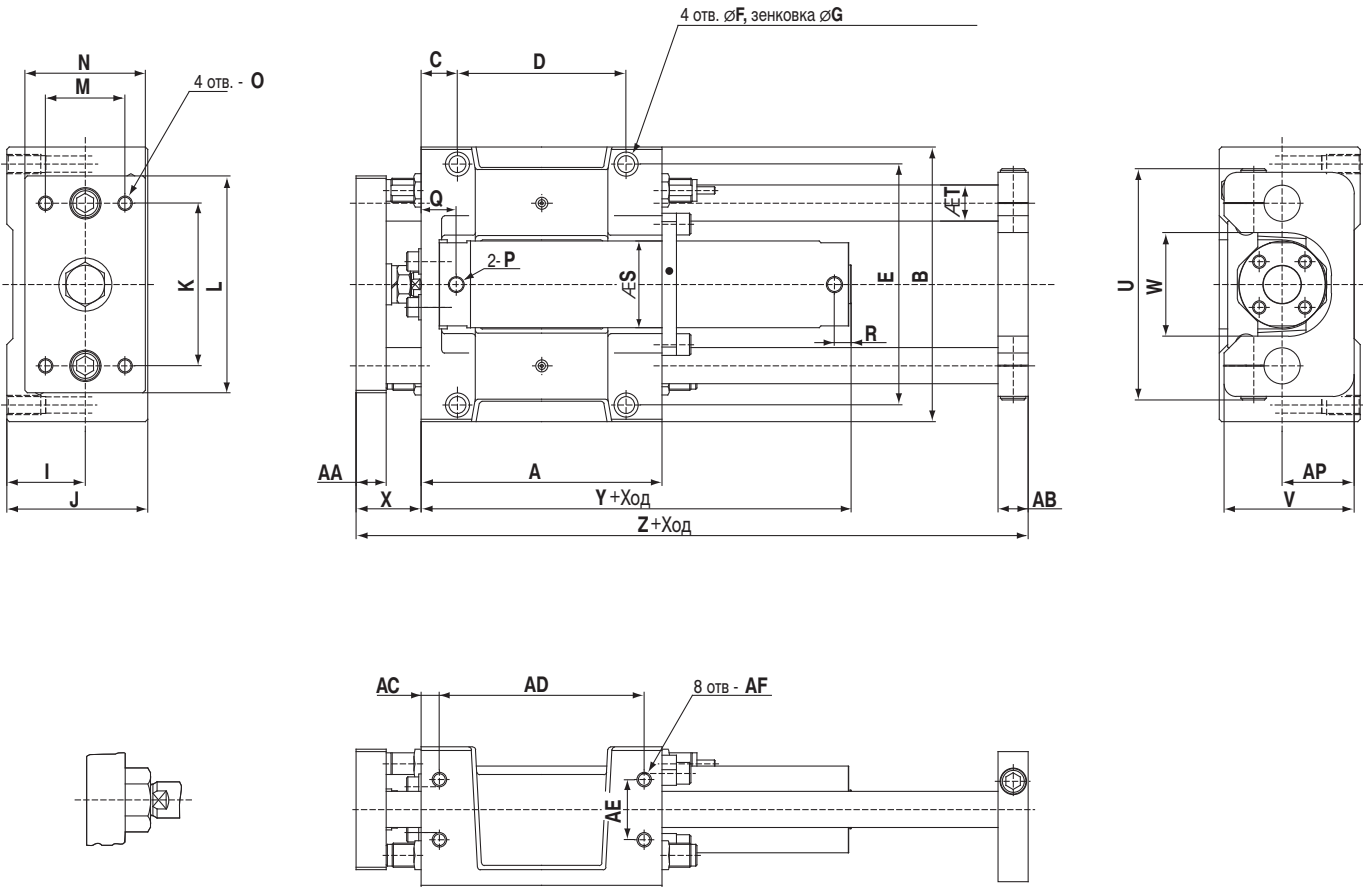


# Цилиндр с направляющей

## MGG

### Размеры

Базовое исполнение  
Ø63~100



Шток для цилиндров Ø100

| Ø   | Ход<br>(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         | 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  | 125, 150        | 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 | 200, 250<br>300 | 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 |

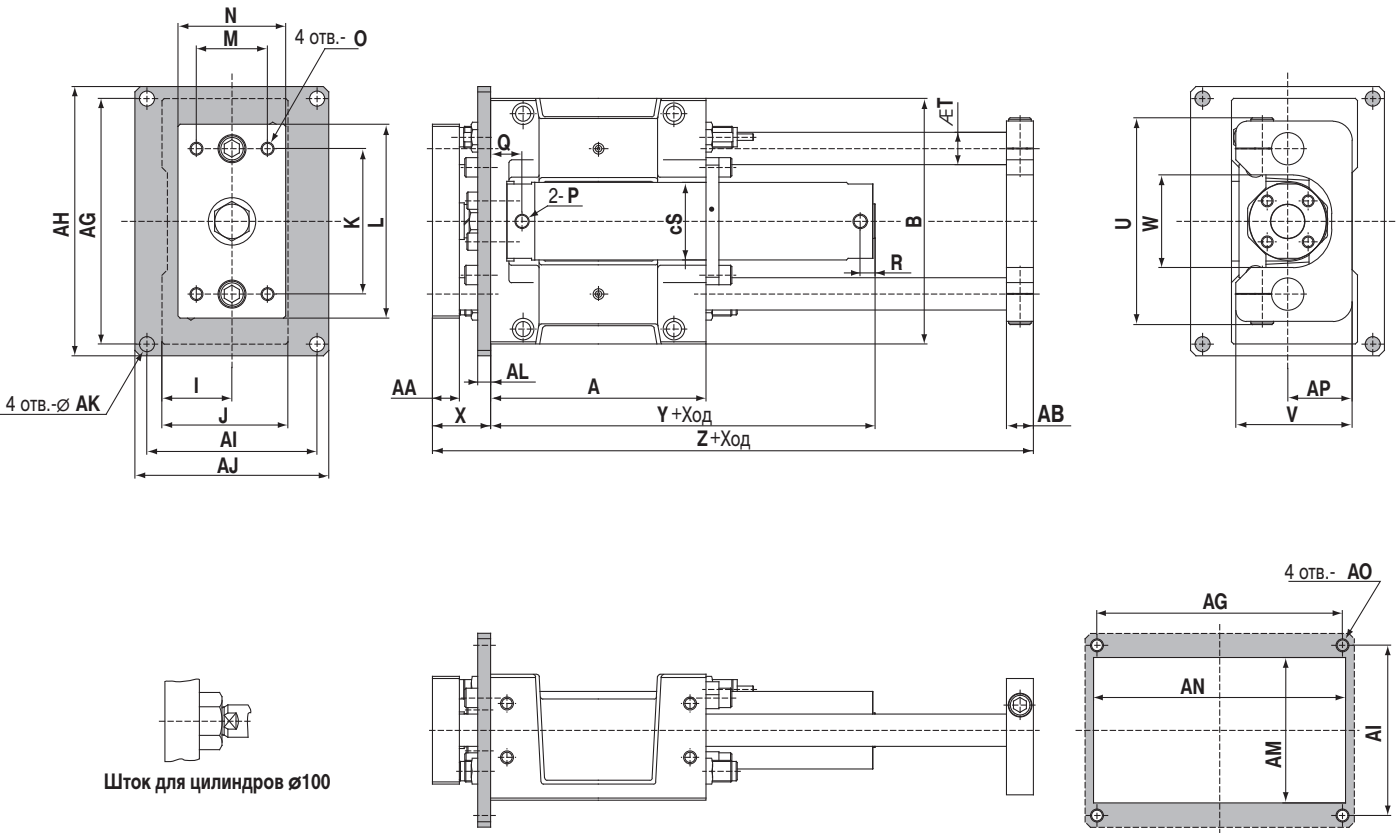
#### Длинный ход

| Ø   | Ход<br>(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<br>(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         | 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  | 125, 150        | 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 | 200, 250<br>300 | 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<br>(мм) | R  | Y   |
|-----|-------------|----|-----|
| 63  | 350 ~ 1100  | 16 | 119 |
| 80  | 350 ~ 1200  | 23 | 145 |
| 100 | 350 ~ 1300  | 23 | 145 |

## Цилиндр с направляющей MGG $\varnothing 20 \sim 100$ Датчики положения

## Электронные выключатели

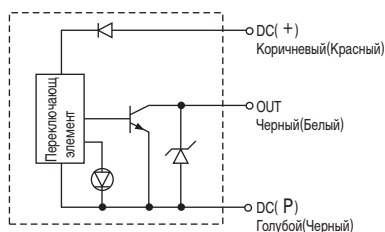
## Технические характеристики

|                                                                     |                             |                |
|---------------------------------------------------------------------|-----------------------------|----------------|
| D-G59L/D-G59PL (с индикатором рабочего состояния), длина кабеля 3 м |                             |                |
| <b>Номер для заказа</b>                                             | <b>D-G59L</b>               | <b>D-G59PL</b> |
| Тип вывода                                                          | 3 провода                   | 3 провода      |
| Выход                                                               | NPN                         | PNP            |
| Область применения                                                  | Управление на ИС, реле, SPS |                |
| Потребляемый ток                                                    | <10 mA                      |                |
| Напряжение питания                                                  | 4,5 ~ 28 VDC                |                |
| Макс. ток                                                           | 40 mA                       | 80 mA          |
| Внутреннее падение напряжения                                       | < 1.5 В                     | < 0.8 В        |
| Ток утечки                                                          | < 0.1 mA при 24 VDC         |                |

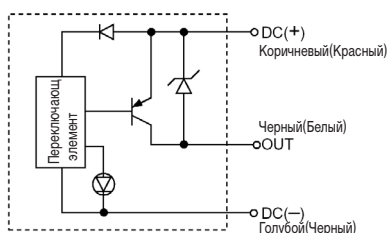
\* Хомуты для крепления датчиков заказываются отдельно



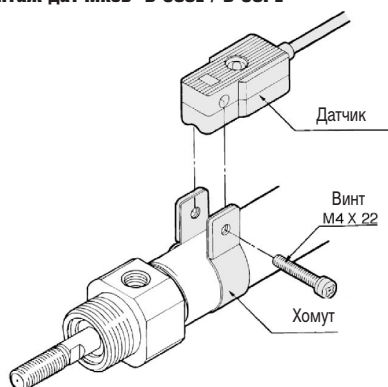
**D-G59L**



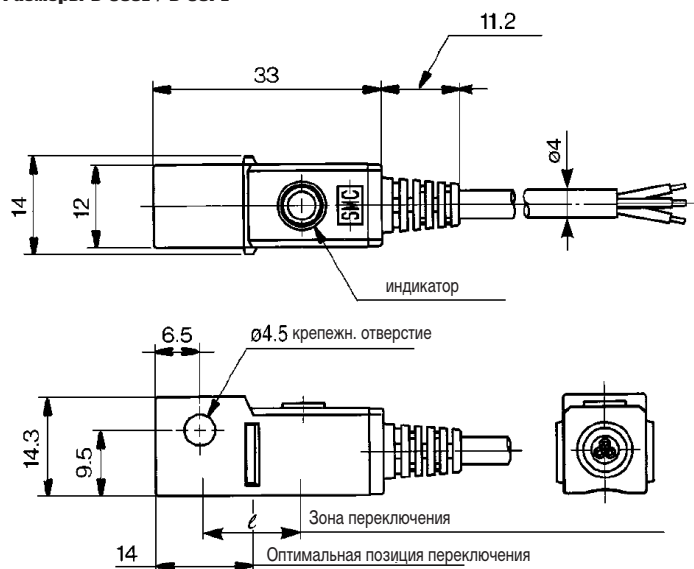
**D-G5PL**



## Монтаж датчиков D-G59L / D-G5PL



### Размеры D-G59L / D-G5PL



| Ø поршня | Зона переключения / |
|----------|---------------------|
| 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 | Ø 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 |

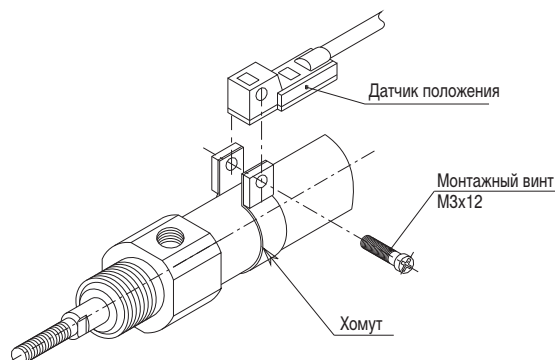
### Герконовые выключатели

#### 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<br>DC               | 110 V<br>AC | 24 V<br>AC /DC              | 48 V<br>AC /DC | 110 V<br>AC /DC |
| Макс.ток и диапазон токов    | 5~40 mA                  | 5~18 mA     | 50 mA                       | 40 mA          | 18 mA           |
| 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)

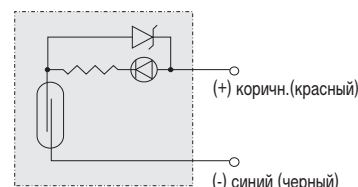
#### Монтаж датчиков D-C73L / D-C80L



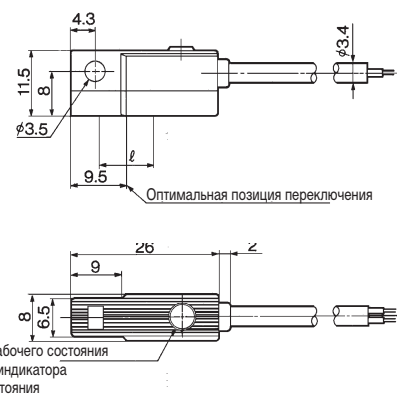
#### Номер для заказа хомута с винтом для датчиков D-C73L, D-C80L

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

#### D-C73L



#### Размеры D-C73L, D-C80L



### Меры предосторожности

#### Герконовые выключатели

##### Монтаж

- Несмотря на то, что герконовые выключатели могут выдерживать ударные нагрузки до 30 G, следует избегать ударов и механических повреждений.
- Не используйте датчики положения в зоне сильных магнитных полей, что позволит избежать ошибочных включений.
- 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.
- Соединительный кабель не должен подвергаться растягивающим нагрузкам. Не подвергайте кабель длительным изгибающим нагрузкам.
- 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

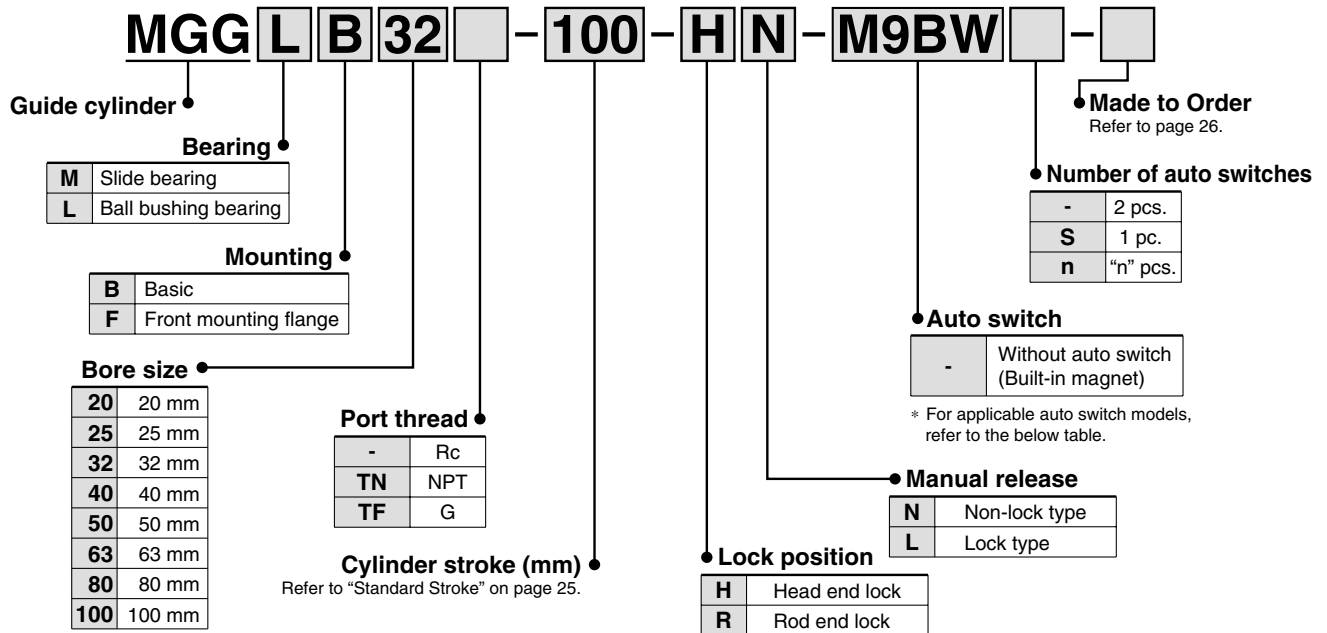
- Электрическая нагрузка не должна превышать допустимых значений по току и напряжению.
- Полностью произведите электрический монтаж схемы датчика положения, прежде чем он будет подключен к источнику тока.
- У датчиков сигналов с индикатором рабочего состояния следует учитывать полярность. Красный кабель подключайте к плюсу, черный - к минусу. При неправильном подключении датчик сигналов включается, однако ' индикатор рабочего состояния не горит.
- 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.
- При последовательном включении датчиков положения значения падения напряжений суммируются, что обусловлено сопротивлением светодиодов.
- Если напряжение питания недостаточно, внутреннее падение напряжения на светодиоде может привести к неправильному действию нагрузки.
- 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



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

\* Lead wire length symbols: 0.5 m ..... - (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWX  
None ..... N (Example) H7CN

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

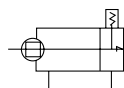
\* Since there are other applicable auto switches than listed, refer to page 36 for details.  
\* For details about auto switches with pre-wired connector, refer to SMC's "Best Pneumatics" catalogue.  
\* D-A9□, M9□, M9□W are shipped together (but not assembled).  
(Only switch mounting bracket is assembled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

#### Caution

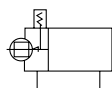
When using auto switches shown inside ( ), stroke end detection may not be possible depending on the one-touch fitting or speed controller model. Please contact SMC in this case.

## Model / Specifications

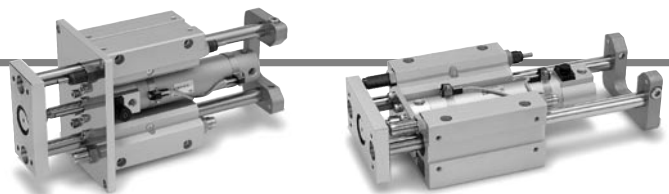
### JIS Symbol



Head end lock



Rod end lock



### Standard Stroke

| Model (Bearing type)                              | Bore size (mm) | Standard stroke (mm)                | Long stroke (mm)                                               |
|---------------------------------------------------|----------------|-------------------------------------|----------------------------------------------------------------|
| MGM (Slide bearing)<br>MGL (Ball bushing bearing) | 20             | 75, 100, 125, 150, 200              | 250, 300, 350, 400                                             |
|                                                   | 25             | 75, 100, 125, 150, 200,<br>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)<br>[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                                                  |                      | $+1.9$<br>$+0.2$ mm (1000 st or less), $+2.3$<br>$+0.2$ 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         |
|                                       | Retracted | 6.86        | 15.98           | 20.5         |

\* 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

| Bore size (mm) | Rod size (mm) | Operating direction | Piston area (mm <sup>2</sup> ) | Operating pressure (MPa) |      |      |      |      |      |      |      |      |
|----------------|---------------|---------------------|--------------------------------|--------------------------|------|------|------|------|------|------|------|------|
|                |               |                     |                                | 0.2                      | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  | 0.9  | 1.0  |
| 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<sup>2</sup>)

## Weight

| 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   |
|                                            |                                                        | Lock type (L)     | 0.07  | 0.08  | 0.1   | 0.21  | 0.3   | 0.48  | 0.88  |
|                                            | Rod end lock (R)                                       | Non-lock type (N) | 0.07  | 0.08  | 0.12  | 0.19  | 0.31  | 0.51  | 0.9   |
|                                            |                                                        | Lock type (L)     | 0.09  | 0.1   | 0.14  | 0.23  | 0.34  | 0.54  | 0.97  |

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

- 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)

## Moving Parts Weight

| 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.**



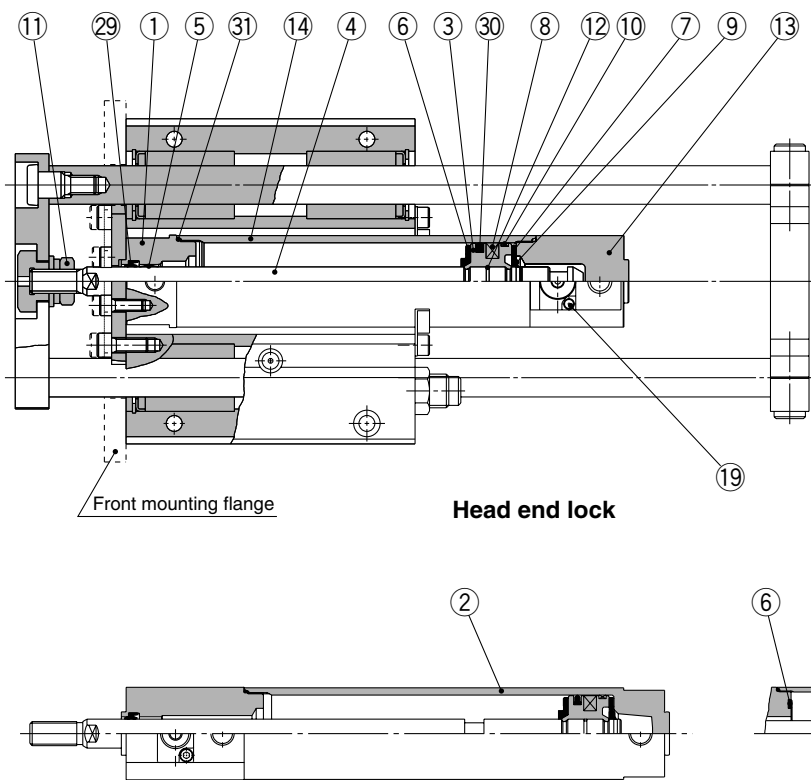
**Made to Order**  
 (For details, refer to page 71.)

| Symbol      | Specifications                                                   |
|-------------|------------------------------------------------------------------|
| <b>XC79</b> | Additional machining of tapped hole, drilled hole or pinned hole |

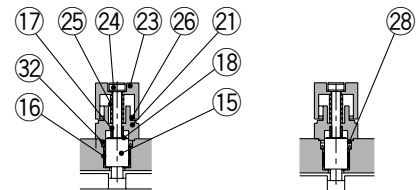
## Construction

MGG□□

ø20 to ø100



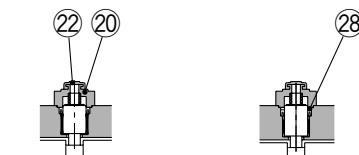
Manual release (Lock type)



ø20 to ø63

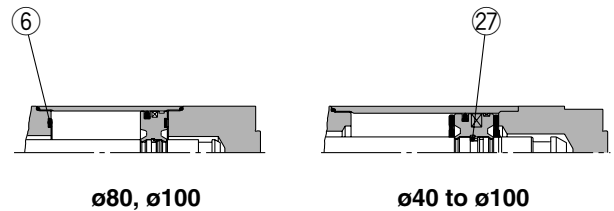
ø80, ø100

Manual release (Non-lock type)



ø20 to ø63

ø80, ø100



ø80, ø100

ø40 to ø100

With rod end locking (Base cylinder only)

\* 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 steel |

## 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<br>②⑨, 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

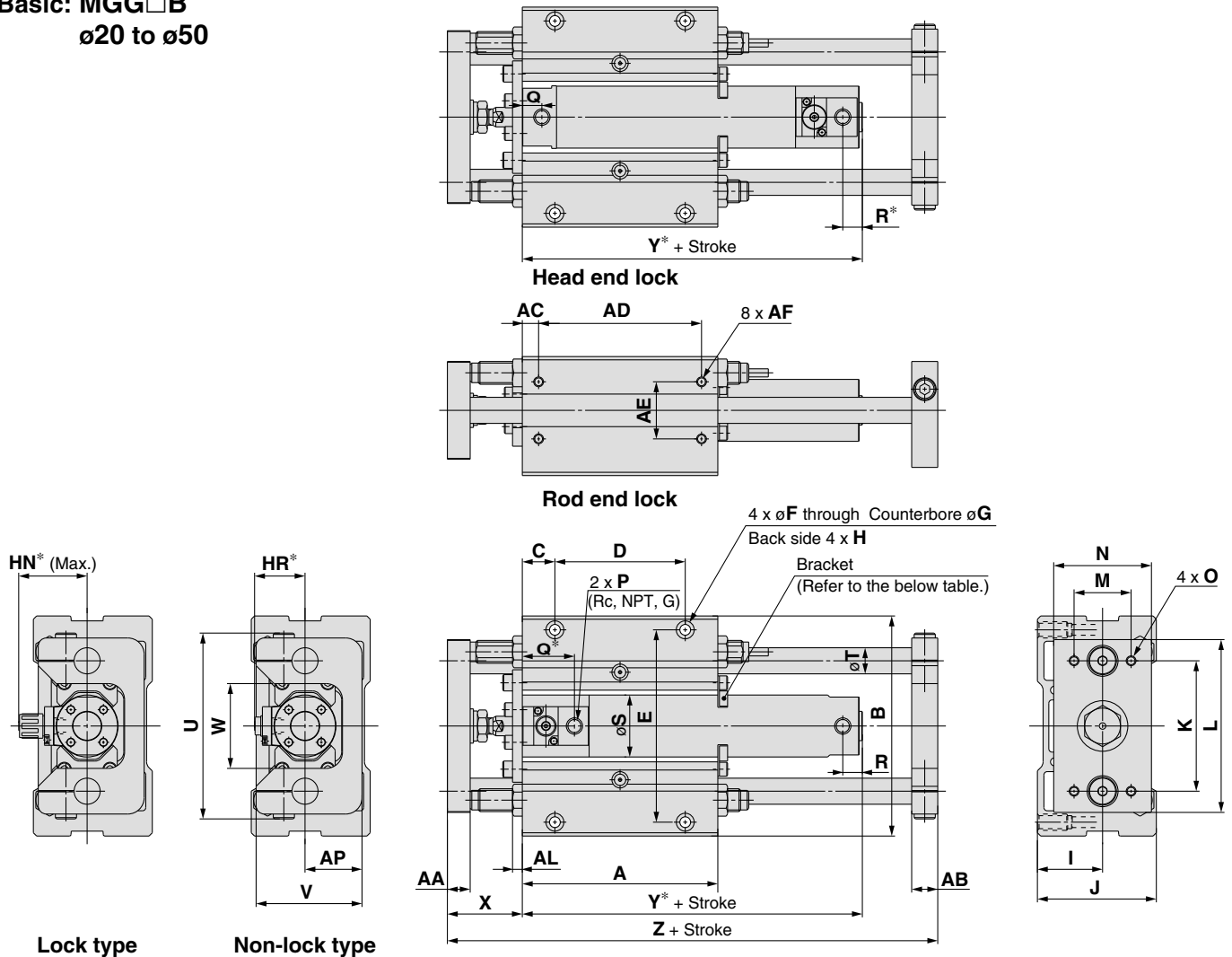
Basic cylinders with ø50 or larger bore sizes cannot be disassembled.

(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.)

# Series MGG

## Dimensions

Basic: MGG□B  
ø20 to ø50



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

| 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                | 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             | 125, 150               | 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             | 200, 250               | 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             | 300                    | 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 HN* | For non-lock type 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

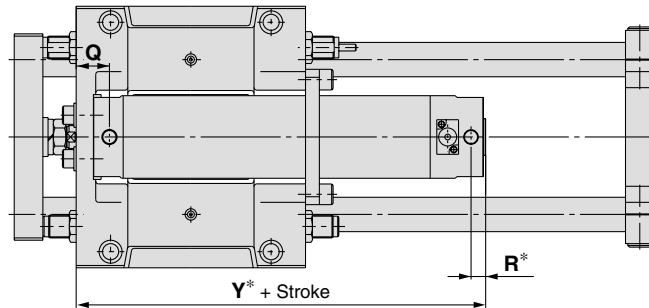
| Bore size (mm) | Stroke range (mm) |
|----------------|-------------------|
| 20             | 250 to 400        |
| 25             | 350 to 500        |
| 32             | 350 to 600        |
| 40             | 350 to 800        |
| 50             | 350 to 1000       |

### Bracket Mounting Stroke

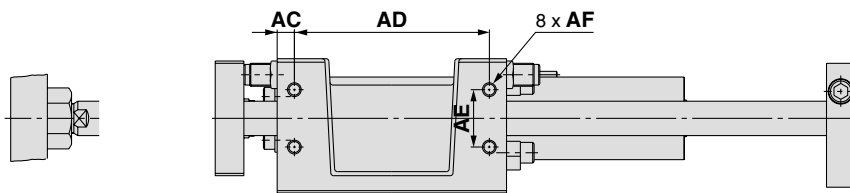
| Bore size (mm) | Bracket mounting stroke |
|----------------|-------------------------|
| 20             | 100 st or more          |
| 25             | 125 st or more          |
| 32             | 150 st or more          |
| 40             | 200 st or more          |
| 50             | 250 st or more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

## Dimensions

Basic: MGG□B  
ø63 to ø100

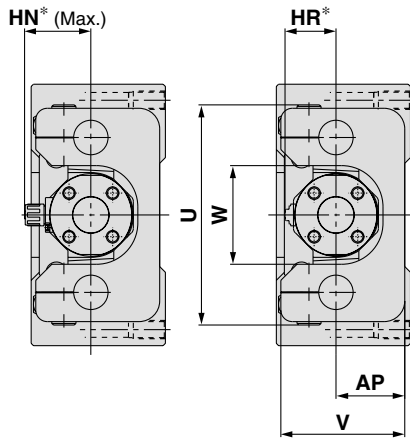


Head end lock



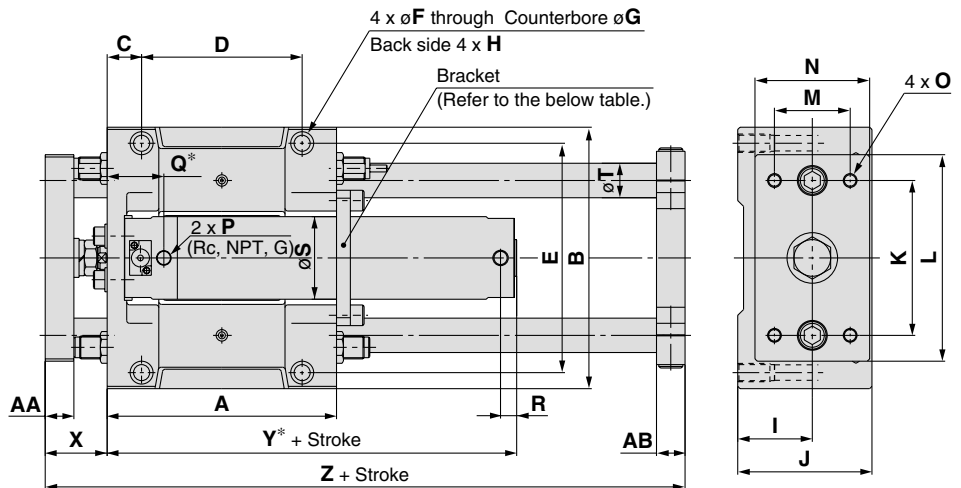
Rod end lock

ø100 piston rod end connection



Lock type

Non-lock type



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

| 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      | 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             | 150, 200          | 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            | 250, 300          | 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

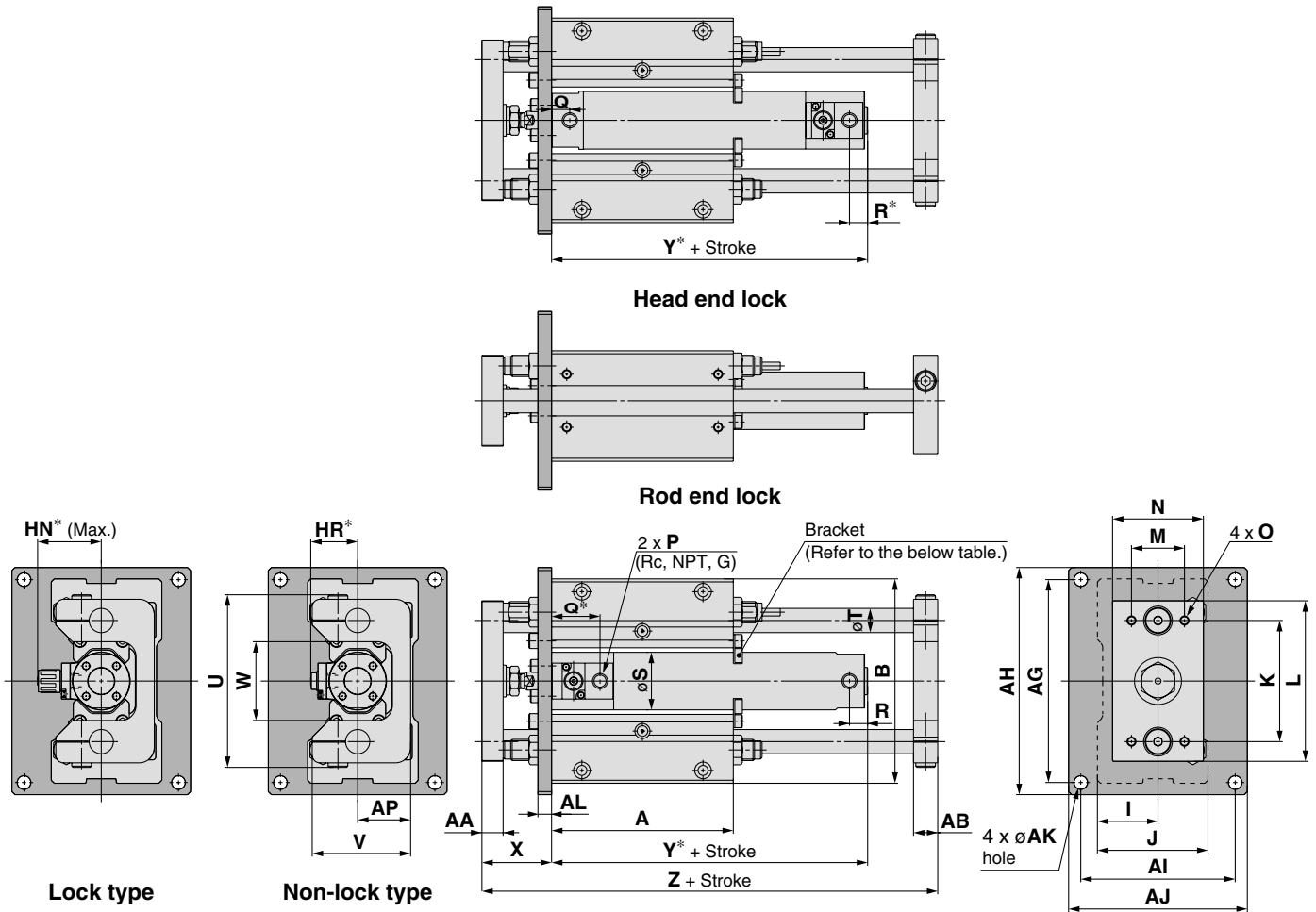
| Bore size (mm) | Stroke range (mm) |
|----------------|-------------------|
| 63             | 350 to 1100       |
| 80             | 350 to 1200       |
| 100            | 350 to 1300       |

### 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



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

| 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 <sup>Note)</sup> | 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                | 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             | 125, 150               | 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             | 200, 250               | 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             | 300                    | 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<br>HN* | For non-lock type<br>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) 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       |

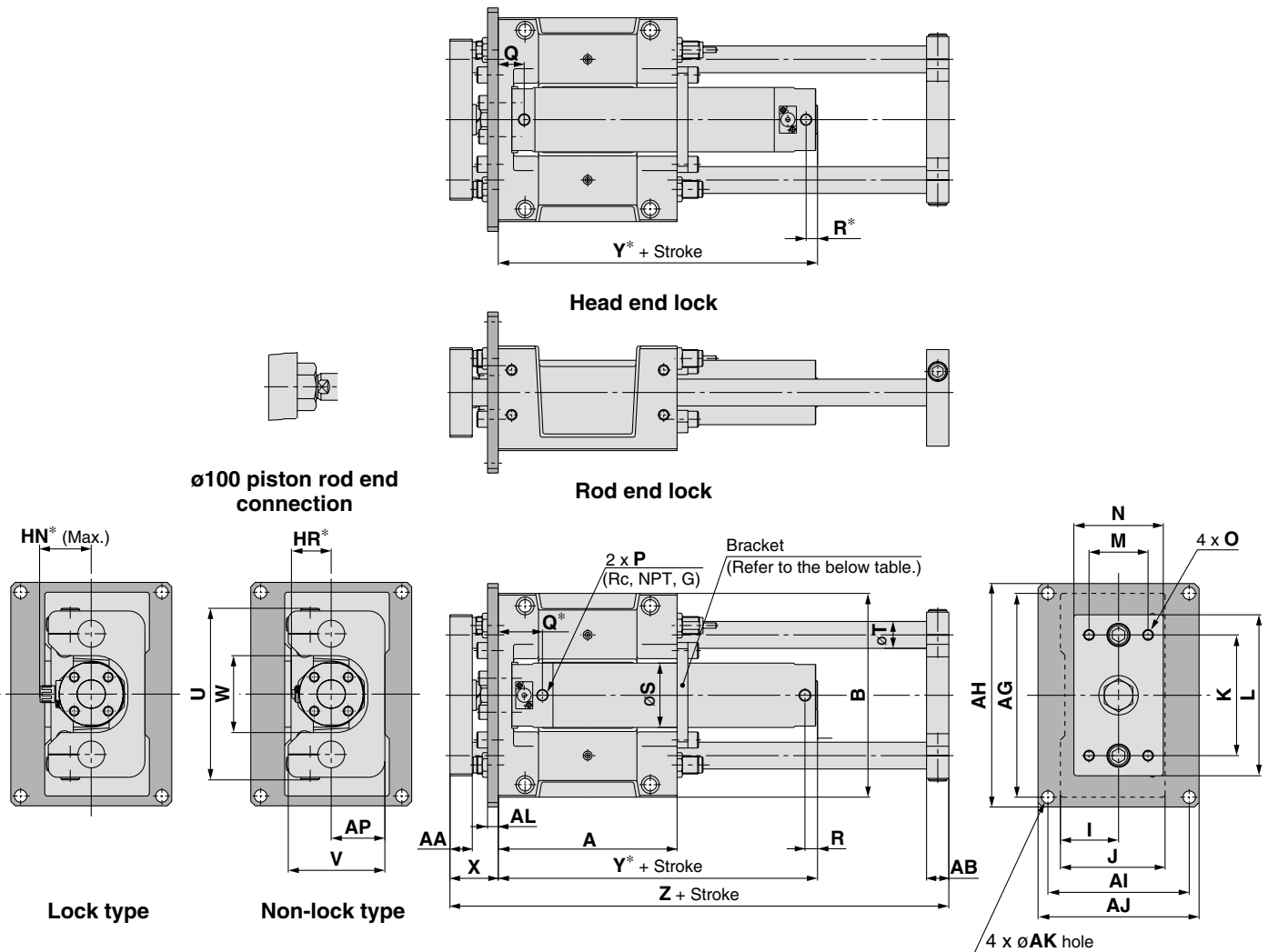
### Bracket Mounting Stroke

| 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          |

Note) ( ): Dimensions for long stroke.

## Dimensions

Front mounting flange: MGG□F  
ø63 to ø100



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

| 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      | 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             | 150, 200          | 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            | 250, 300          | 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 |

| 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) Rc, NPT, G ports are available.

### Long Stroke

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

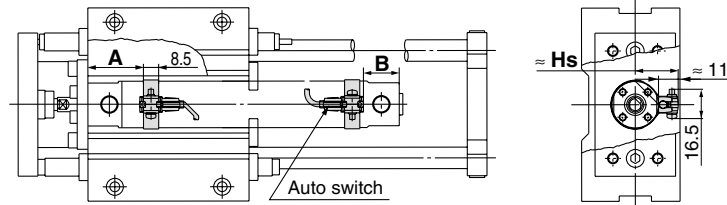
### Long Stroke

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

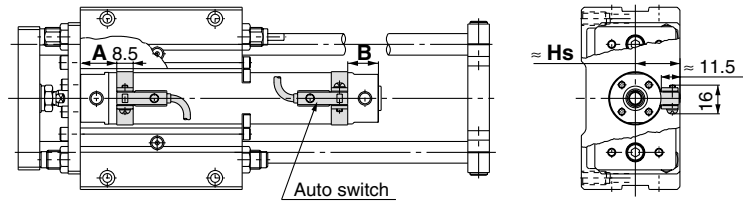
Note) ( ): Dimensions for long stroke.

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

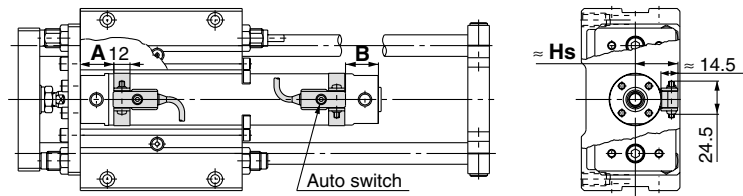
D-A9 type,  
D-M9/M9□W type



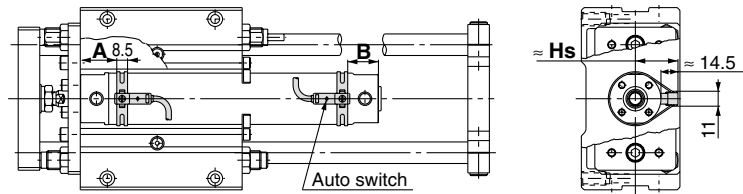
D-C7/C8 type,  
D-H7 type



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 | D-A9□ |         | D-M9□<br>D-M9□W |         | D-B7/B8<br>D-B73C<br>D-B80C<br>D-G7/K7<br>D-K79C |             | D-C7□<br>D-C80<br>D-C73C<br>D-C80C |             | D-B5□<br>D-B64 |             | D-B59W |             | D-H7□<br>D-H7C<br>D-H7NF<br>D-H7□W<br>D-H7BAL |             | D-G59F<br>D-G5□<br>D-K59<br>D-G5□W<br>D-K59W<br>D-G5NTL<br>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 (46) | 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) |

\* ( ): Values for long strokes, double rods.

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

### Auto Switch Mounting Height

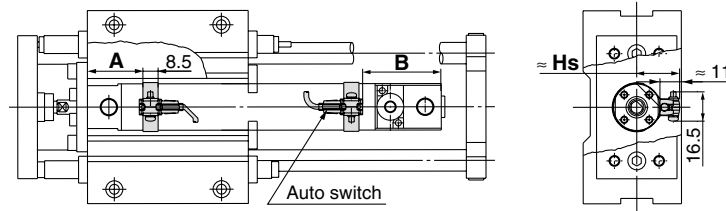
(mm)

| Auto switch model | D-A9□<br>D-M9□<br>D-M9□W |      | D-C7□<br>D-C80<br>D-H7□<br>D-H7□W<br>D-H7NF<br>D-H7BAL |      | D-C73C<br>D-C80C |      | D-B7/B8<br>D-B73C<br>D-B80C<br>D-G7/K7<br>D-K79C<br>D-H7C |      | D-G5/K5<br>D-G5□W<br>D-K59W<br>D-G5NTL<br>D-B5/B6<br>D-B59W<br>D-G5BAL<br>D-G59F |      |
|-------------------|--------------------------|------|--------------------------------------------------------|------|------------------|------|-----------------------------------------------------------|------|----------------------------------------------------------------------------------|------|
|                   | Hs                       | Hs   | Hs                                                     | Hs   | Hs               | Hs   | Hs                                                        | Hs   | Hs                                                                               | Hs   |
| 20                | 24                       | 24.5 | 27                                                     | 27.5 | 27.5             | 27.5 | 27.5                                                      | 27.5 | 27.5                                                                             | 27.5 |
| 25                | 26.5                     | 27   | 29.5                                                   | 30   | 30               | 30   | 30                                                        | 30   | 30                                                                               | 30   |
| 32                | 30                       | 30.5 | 33                                                     | 33.5 | 33.5             | 33.5 | 33.5                                                      | 33.5 | 33.5                                                                             | 33.5 |
| 40                | 34.5                     | 35   | 37.5                                                   | 38   | 38               | 38   | 38                                                        | 38   | 38                                                                               | 38   |
| 50                | 40                       | 40.5 | 43                                                     | 43.5 | 43.5             | 43.5 | 43.5                                                      | 43.5 | 43.5                                                                             | 43.5 |
| 63                | 47                       | 47.5 | 50                                                     | 50.5 | 50.5             | 50.5 | 50.5                                                      | 50.5 | 50.5                                                                             | 50.5 |
| 80                | —                        | —    | —                                                      | —    | —                | —    | —                                                         | —    | —                                                                                | 59   |
| 100               | —                        | —    | —                                                      | —    | —                | —    | —                                                         | —    | —                                                                                | 69.5 |

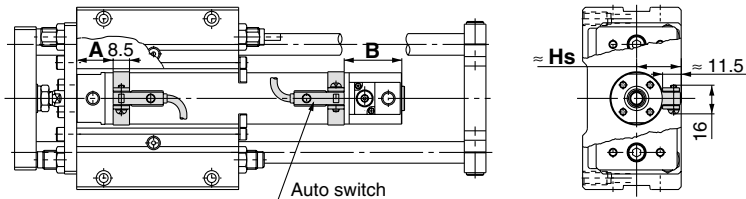


## Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height / End Lock Type: With Head End Lock

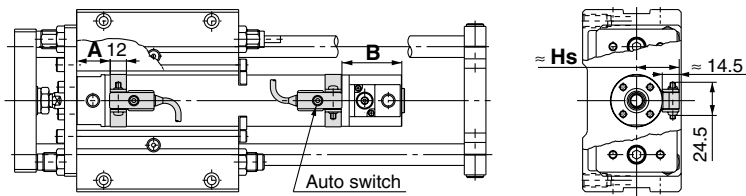
D-A9 type,  
D-M9/M9□W type



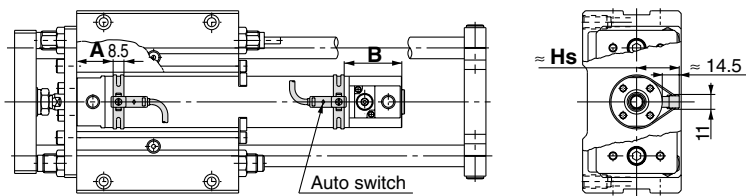
D-C7/C8 type,  
D-H7 type



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



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



Auto Switch Proper Mounting Position

| Auto switch model | D-A9□ |    | D-M9□<br>D-M9□W |    | D-B7/B8<br>D-B73C<br>D-B80C<br>D-G7/K7<br>D-K79C |      | D-C7□<br>D-C80<br>D-C73C<br>D-C80C |      | D-B5□<br>D-B64 |      | D-B59W |      | D-H7□<br>D-H7C<br>D-H7NF<br>D-H7□W<br>D-H7BAL |      | D-G59F<br>D-G5□<br>D-K59<br>D-G5□W<br>D-K59W<br>D-G5NTL<br>D-G5BAL |    |
|-------------------|-------|----|-----------------|----|--------------------------------------------------|------|------------------------------------|------|----------------|------|--------|------|-----------------------------------------------|------|--------------------------------------------------------------------|----|
|                   | A     | B  | A               | B  | A                                                | B    | A                                  | B    | A              | B    | A      | B    | A                                             | B    | A                                                                  | B  |
| Bore size         |       |    |                 |    |                                                  |      |                                    |      |                |      |        |      |                                               |      |                                                                    |    |
| 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

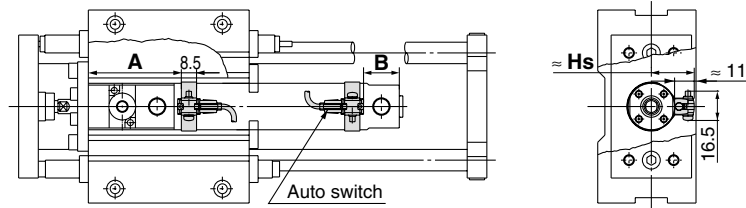
| Auto switch model | D-A9□<br>D-M9□<br>D-M9□W | D-C7□<br>D-C80<br>D-H7□<br>D-H7□W<br>D-H7HF<br>D-H7BAL | D-C73C<br>D-C80C | D-B7/B8<br>D-B73C<br>D-B80C<br>D-G7/K7<br>D-K79C<br>D-H7C | D-G5/K5<br>D-G5□W<br>D-K59W<br>D-G5NTL<br>D-B5/B6<br>D-B59W<br>D-G5BAL<br>D-G59F |
|-------------------|--------------------------|--------------------------------------------------------|------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------|
|                   |                          |                                                        |                  |                                                           |                                                                                  |
| Bore size         | 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.

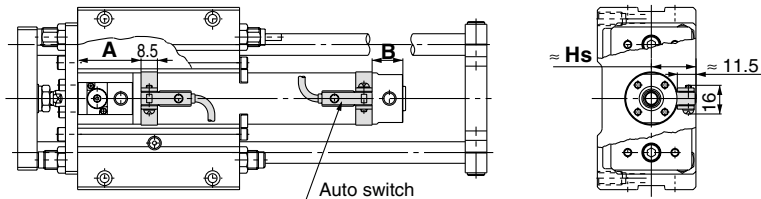
# Series MGG

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

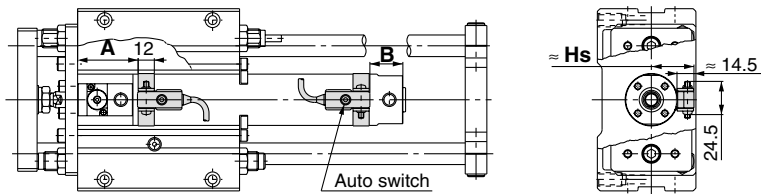
D-A9 type,  
D-M9/M9□W type



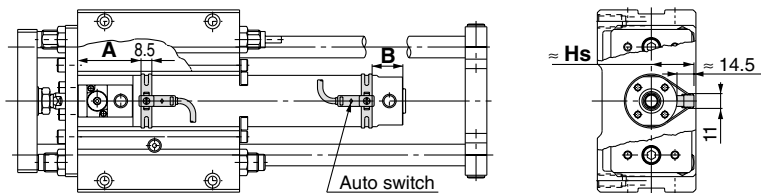
D-C7/C8 type,  
D-H7 type



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 | D-A9□ |         | D-M9□<br>D-M9□W |         | D-B7/B8<br>D-B73C<br>D-B80C<br>D-G7/K7<br>D-K79C |             | D-C7□<br>D-C80<br>D-C73C<br>D-C80C |             | D-B5□<br>D-B64 |             | D-B59W |             | D-H7□<br>D-H7C<br>D-H7NF<br>D-H7□W<br>D-H7BAL |             | D-G59F<br>D-G5□<br>D-K59<br>D-G5□W<br>D-K59W<br>D-G5NTL<br>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) |

\* ( ): Values for long strokes.

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

### Auto Switch Mounting Height

(mm)

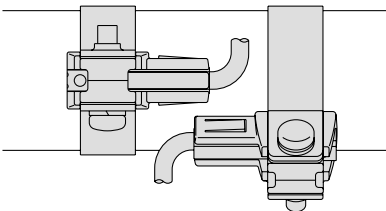
| Auto switch model | D-A9□<br>D-M9□<br>D-M9□W |      | D-C7□<br>D-C80<br>D-H7□<br>D-H7□W<br>D-H7NF<br>D-H7BAL |      | D-C73C<br>D-C80C |      | D-B7/B8<br>D-B73C<br>D-B80C<br>D-G7/K7<br>D-K79C<br>D-H7C |      | D-G5/K5<br>D-G5□W<br>D-K59W<br>D-G5NTL<br>D-B5/B6<br>D-B59W<br>D-G5BAL<br>D-G59F |      |
|-------------------|--------------------------|------|--------------------------------------------------------|------|------------------|------|-----------------------------------------------------------|------|----------------------------------------------------------------------------------|------|
|                   | Hs                       | Hs   | Hs                                                     | Hs   | Hs               | Hs   | Hs                                                        | Hs   | Hs                                                                               | Hs   |
| 20                | 24                       | 24.5 | 27                                                     | 27.5 | 27.5             | 27.5 | 27.5                                                      | 27.5 | 27.5                                                                             | 27.5 |
| 25                | 26.5                     | 27   | 29.5                                                   | 30   | 30               | 30   | 30                                                        | 30   | 30                                                                               | 30   |
| 32                | 30                       | 30.5 | 33                                                     | 33.5 | 33.5             | 33.5 | 33.5                                                      | 33.5 | 33.5                                                                             | 33.5 |
| 40                | 34.5                     | 35   | 37.5                                                   | 38   | 38               | 38   | 38                                                        | 38   | 38                                                                               | 38   |
| 50                | 40                       | 40.5 | 43                                                     | 43.5 | 43.5             | 43.5 | 43.5                                                      | 43.5 | 43.5                                                                             | 43.5 |
| 63                | 47                       | 47.5 | 50                                                     | 50.5 | 50.5             | 50.5 | 50.5                                                      | 50.5 | 50.5                                                                             | 50.5 |
| 80                | —                        | —    | —                                                      | —    | —                | —    | —                                                         | —    | —                                                                                | 59   |
| 100               | —                        | —    | —                                                      | —    | —                | —    | —                                                         | —    | —                                                                                | 69.5 |

## 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□<br>D-M9□<br>D-M9□W          | 10                              | 45 <sup>Note)</sup> | 45 + 45 (n-2) |
| D-C7□<br>D-C80                    | 10                              | 50                  | 50 + 45 (n-2) |
| D-H7□<br>D-H7□W<br>D-H7BAL/H7NF   | 10                              | 60                  | 60 + 45 (n-2) |
| D-C73C<br>D-C80C<br>D-H7C         | 10                              | 65                  | 65 + 50 (n-2) |
| D-B5□/B64<br>D-G5□/K59□<br>D-B59W | 10                              | 75                  | 75 + 55 (n-2) |
| D-B7□/B80<br>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                                                                                                                                                                                                                                                                      |  |
|                   |  <p>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.</p> |  |
| D-A93             | Less than 50 stroke                                                                                                                                                                                                                                                            |  |
| D-M9□<br>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<br>D-B73C/B80C | 8         | 10  | 9  | 10  | 10  | 11 | —  | —   |
| D-C7□/C80<br>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 | —  | —   |

| Auto switch model                         | Bore size |     |     |    |     |      |     |     |
|-------------------------------------------|-----------|-----|-----|----|-----|------|-----|-----|
|                                           | 20        | 25  | 32  | 40 | 50  | 63   | 80  | 100 |
| D-H7□/H7□W<br>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<br>D-G5□W/K59W<br>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□<br>D-M9□<br>D-M9□W                                                              | Note)<br>①BMA2-020<br>②BJ3-1 | Note)<br>①BMA2-025<br>②BJ3-1 | Note)<br>①BMA2-032<br>②BJ3-1 | Note)<br>①BMA2-040<br>②BJ3-1 | Note)<br>①BMA2-050<br>②BJ3-1 | Note)<br>①BMA2-063<br>②BJ3-1 | —     | —     |
| D-C7□/C80<br>D-C73C<br>D-C80C<br>D-H7□/H7C<br>D-H7□W<br>D-H7BAL<br>D-H7NF             | BMA2-020                     | BMA2-025                     | BMA2-032                     | BMA2-040                     | BMA2-050                     | BMA2-063                     | —     | —     |
| D-B5□/B64<br>D-B59W<br>D-G5□/K59<br>D-G5□W/K59W<br>D-G5BAL/G59F<br>D-G5NTL<br>D-G5NBL | BA-01                        | BA-02                        | BA-32                        | BA-04                        | BA-05                        | BA-06                        | BA-08 | BA-10 |
| D-B7□/B80<br>D-B73C/B80C<br>D-G79/K79<br>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]

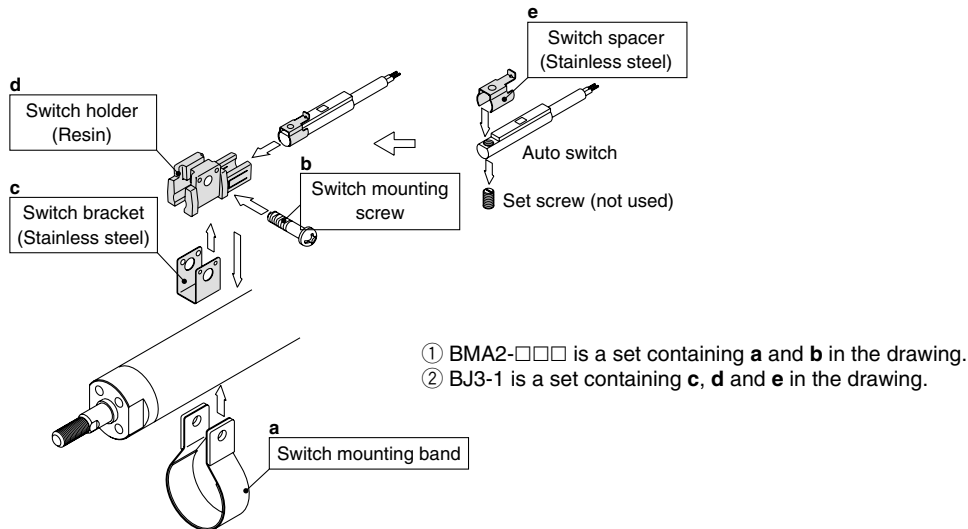
The following set of mounting screws made of stainless steel are also available. Use it in accordance with the operating environment. (Please order the switch mounting bracket separately, since it is not included.)

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.



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

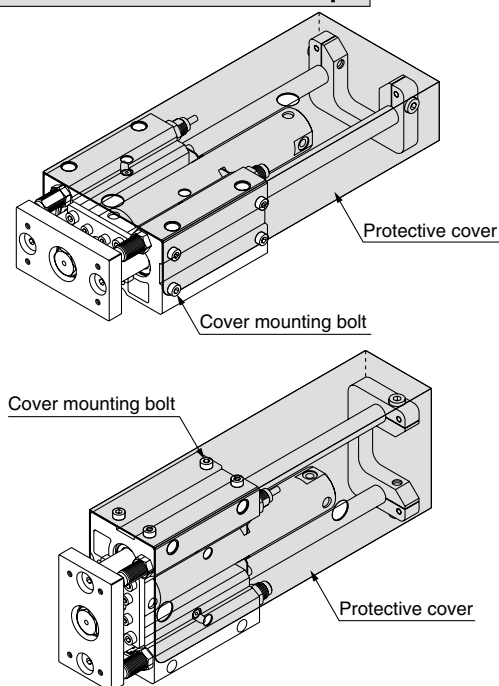
#### ⚠ Warning

##### 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.

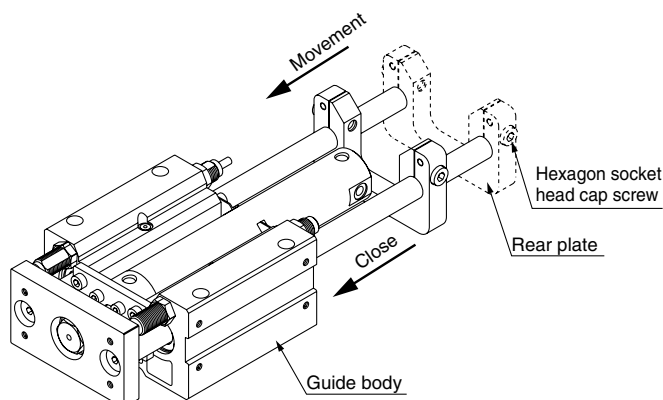
If the guide rod has twisted, operation resistance will become abnormally higher and the bearing will wear at an early stage, thereby resulting in poor performance.

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

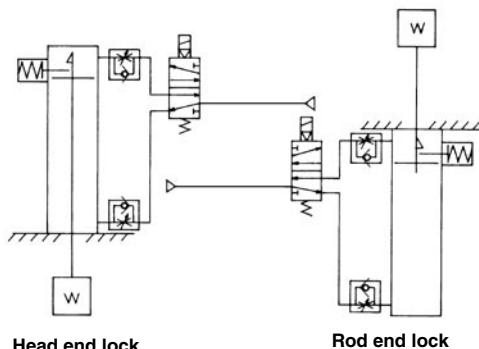
Be sure to read this before handling. For Safety Instructions, Actuators Common Precautions, refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A).

### With End Lock Type

#### Use the Recommended Pneumatic Circuit

#### ⚠ Caution

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



#### Operating Precautions

#### ⚠ Caution

- 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.
- 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.)
- 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.
- 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.
- 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.
- Use a speed controller with meter-out control.**  
The lock may not be released occasionally with meter-in control.
- 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.
- Do not use an air cylinder as an air-hydro cylinder. This will cause leakage of hydraulic fluid.**
- 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

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

#### Operating Pressure

#### ⚠ Caution

- 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

- 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

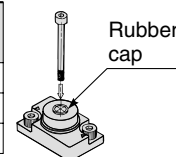
- Before releasing the lock, be sure to supply air to the side without the lock mechanism, so that there is no load applied to the lock mechanism when it is released. (Refer to the recommended pneumatic circuits.) If the lock is released when the port on the other side is in an exhaust state, and with 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

- 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.

- 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.

