

# Series AG

## Compact Guide Cylinder

Bore Size(mm) :  $\phi$  12,  $\phi$  16,  $\phi$  20,  $\phi$  25,  $\phi$  32,  $\phi$  40,  $\phi$  50,  $\phi$  63,  $\phi$  80,  $\phi$  100



- COMPACT SLIM BODY GUIDE CYLINDER
- 10 BORE SIZES
- MULTIPLE MOUNTING OPTIONS
- FLUSH MOUNTING-AUTO SWITCH
- AVAILABLE WITH BALL BEARING BUSHINGS
- LOW BREAKAWAY
- DESIGNED FOR NON-LUBE APPLICATIONS
- HIGH LOAD BEARING CHARACTERISTICS

ACP

UACP

AX

AS

AM

AL

ALX

UARD

UAQ

AJ

AG

UAG

ADM

ADR

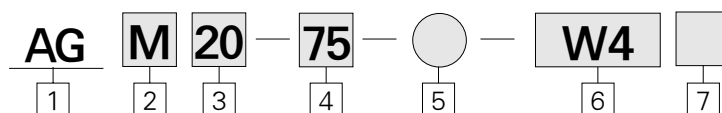
AMR

UAMR

AST

W~

### How to Order



**1 Compact Guide Cylinder**

XC16 : Copper-Free

**2 Type of Bearing**

M : Slide bearing(Suitable for Stopper)

L : Ball bush bearing (Suitable for Lifting/ Pushing)

**6 Type of Auto-switch**

Blank : Without Auto-Switch (Cylinder with built-in magnet)

**Reed switch**

W4 : W4(2 wire DC24V, AC100V) ( $\phi$  32 ~  $\phi$  100)

W13 : W13(z wire, DC24V, AC110V) ( $\phi$  12 ~  $\phi$  25)

**Solid State Switch**

W1H : W1H(3 wire system, DC24V) ( $\phi$  12 ~  $\phi$  25)

※ The standard, lead wire length is 0.5m "L" is added for 3m long lead wire (applicable to all models)

(Example) W4L

**3 Bore size**

- 12 :  $\phi$ 12mm
- 16 :  $\phi$ 16mm
- 20 :  $\phi$ 20mm
- 25 :  $\phi$ 25mm
- 32 :  $\phi$ 32mm
- 40 :  $\phi$ 40mm
- 50 :  $\phi$ 50mm
- 63 :  $\phi$ 63mm
- 80 :  $\phi$ 80mm
- 100 :  $\phi$ 100mm

**4 Cylinder Stroke(mm)**

Refer to Model/Standard Stroke Table.

**5 Option**

Blank : Standard

**7 Auto Switch**

Blank : 2 Pcs.

S : 1 Pc.

#### Model/Standard Stroke Table

Bore Size(mm)	Standard Stroke(mm)
$\phi$ 12, $\phi$ 16	10, 20, 30, 40, 50, 75, 100
$\phi$ 12, $\phi$ 25	20, 30, 40, 50, 100
$\phi$ 32, $\phi$ 40, $\phi$ 50, $\phi$ 63, $\phi$ 80, $\phi$ 100	25, 50, 75, 100, 125, 150

**• Intermediate stroke**

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

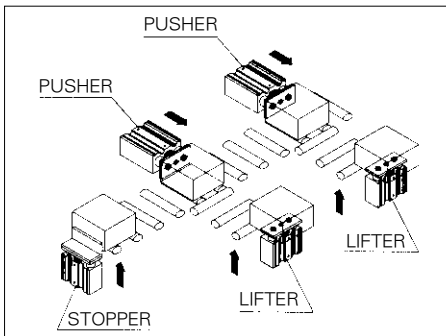
(Example)AGM50-10 is Produced by installing 15mm spacer in AGM 50-25.

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

## Specifications

Operation	Double Acting
Fluid	Air
Proof pressure	15.3kgf/cm <sup>2</sup> {1.5MPa}
Max. operating pressure	9.9kgf/cm <sup>2</sup> {1.0MPa}
Min. operating pressure	1.2kgf/cm <sup>2</sup> {0.12MPa}
Ambient and fluid temperature	-10~+60℃
Piston speed	50~500mm/s
Cushion	Rubber Cushion at Both Sides
Lubrication	Non-Lubrication
Stroke tolerance	$^{+1.5}_0$ mm

● **Space saving cylinder.**  
Provides Non-Rotating support for side loads. Suitable for conveyor lines where stopping and lifting are required.



● **2 kinds of bearings**

**Slide Bearing** - Strength against side load is more than 2 times that of conventional stopper cylinders.

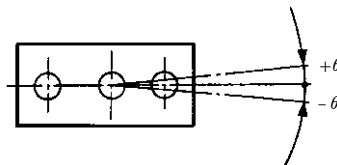
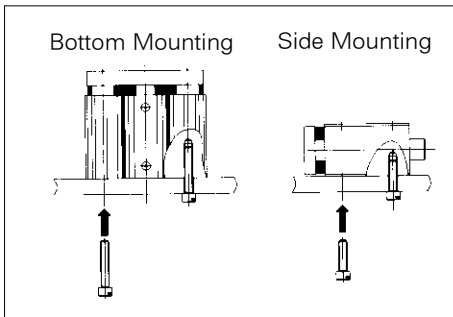
**Ball Bushing Bearing** - Smooth operation suitable for pushing, lifting and applications where high precision is required.



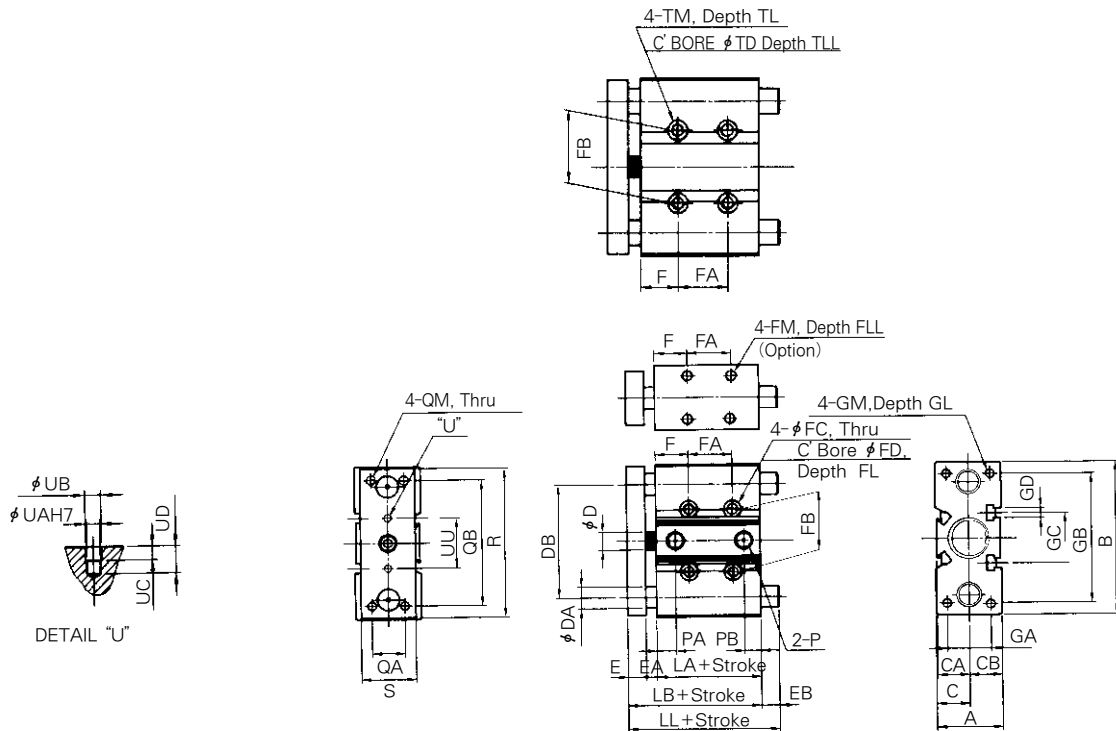
● **High Non - Rotating Load Capability**

Bore size	Non-Rotating Accuracy $\theta$	
	AGM	AGL
$\phi 12$	$\pm 0.07^\circ$	$\pm 0.10^\circ$
$\phi 16$	$\pm 0.07^\circ$	$\pm 0.10^\circ$
$\phi 20$	$\pm 0.06^\circ$	$\pm 0.09^\circ$
$\phi 25$	$\pm 0.06^\circ$	$\pm 0.09^\circ$
$\phi 32$	$\pm 0.06^\circ$	$\pm 0.08^\circ$
$\phi 40$	$\pm 0.06^\circ$	$\pm 0.08^\circ$
$\phi 50$	$\pm 0.05^\circ$	$\pm 0.06^\circ$
$\phi 63$	$\pm 0.05^\circ$	$\pm 0.06^\circ$
$\phi 80$	$\pm 0.04^\circ$	$\pm 0.05^\circ$
$\phi 100$	$\pm 0.04^\circ$	$\pm 0.05^\circ$

### MOUNTING FLEXIBILITY



φ 12~φ 25 / AGM · AGL



※ As to intermediate stroke, spacer will be used.

AGM · AGL Common Dimensions

(Units : mm)

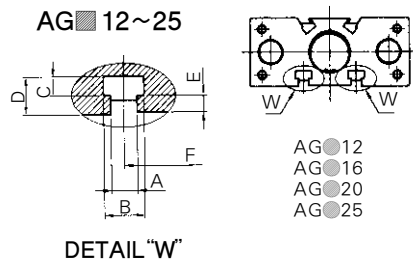
Bore Size (mm)	A	B	C	CA	CB	D	DA		DB	E	EA	EB										F	FA		FB	FC	FD	FL	FH	FM	FLL	GA	GB	GC	GD	GM	GL	LA	LB
							AGM	AGL				AGM					AGL						30ST Less	30ST Above															
							30st less	40st Between				50st Above	10st	20st	30st	40-50st	50st Above	10st	20st	30st	40-50st		50st Above																
φ 12	26	60	13	12.5	13	6	8	6	46	8	5	0	5	34	3	13	13	23	28	7	20	40	25	4.3	8	13.5	18	M5×0.8	12	18	50	23	M3	M4×0.7	10	29	42		
φ 16	30	67	15	14.5	15	8	10	8	50	8	5	0	5	34	5	20	20	30	35	7	24	44	27	4.3	8	12.5	22	M5×0.8	12	22	56	24	M3	M5×0.8	12	33	46		
φ 20	36	85	18	17.5	18	10	12	10	58	10	6	3	5	47	-	12	25	35	42	18	24	44	31	5.5	9.5	13.5	24	M5×0.8	13	24	72	28	M5	M5×0.8	13	37	53		
φ 25	42	95	21	20.5	21	12	16	13	68	10	6	3	5	47	-	18	18	37	48	18	24	44	35	5.5	9.5	14.5	30	M6×1.0	15	30	82	34	M5	M6×1.0	15	37.5	53.5		

Bore Size (mm)	LL										P	PA	PB	QA	QB	QM	R	S	TM	TL	TD	TLL	UU	UA	UB	UC	UD
	AGM		AGL																								
	30st less	40st Between	50st Above	10st	20st	30st	40-50st	50st Above																			
φ 12	42	47	76	45	55	55	65	70	M5×0.8	11	8.5	14	48	M4×0.7	58	22	M5×0.8	10	6	4.3	23	3	3.5	3	6		
φ 16	46	54	80	51	66	66	76	81	M5×0.8	11	8	16	54	M5×0.8	65	25	M5×0.8	10	6	4.3	24	3	3.5	3	6		
φ 20	56	58	100	-	65	78	88	95	Rc1/8	10.5	9	18	70	M5×0.8	83	30	M6×1.0	12	7	8	28	3	3.5	3	6		
φ 25	56.5	58.5	100.5	-	71.5	71.5	90.5	101.5	Rc1/8	11.5	9.5	26	78	M6×1.0	93	38	M6×1.0	12	7	8	34	4	4.5	3	6		

Grooves (φ 12, φ 16, φ 20, φ 25)

These grooves(W) can be used to firmly fix the terminal boards, etc to the main body of the cylinder.

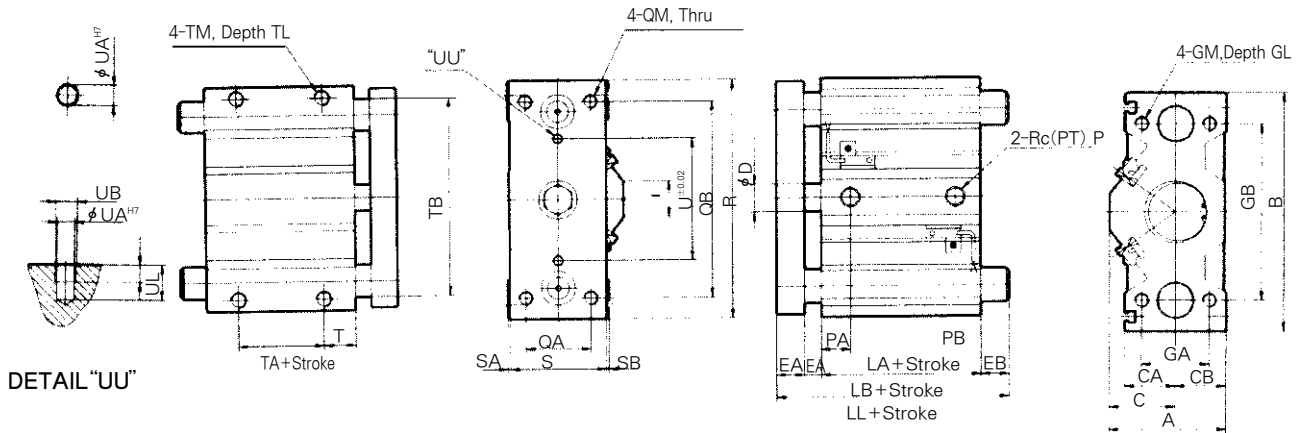
Model	(Unit : mm)						
	A	B	C	D	E	F	Applicable Bolt
AG□12	3.5	6	2	4.3	1.5	23	M3
AG□16	3.7	6.2	2	4.6	1.5	2.4	M3
AG□20	5.5	8.5	3.5	7.8	3	2.8	M5
AG□25	5.5	8.5	3.5	8	3	34	M5



- ACP
- UACP
- AX
- AS
- AM
- AL
- ALX
- UARD
- UAQ
- AJ
- AG**
- UAG
- ADM
- ADR
- AMR
- UAMR
- AST
- W~

# Series AG

φ 32~φ 63 / AGM · AGL



※ As to intermediate stroke, spacer will be used.

## AGM · AGL Common Dimensions

(Unit : mm)

Bore Size (mm)	Standard Stroke (mm)	A	B	C	CA	CB	D	DA		E	EA	EB										GA	GB	GL	GM	I	LA	LB		
								AGM	AGL			AGM					AGL													
												25ST	50ST	75ST	100ST	125ST	150ST	25ST	50ST	75ST	100ST								125ST	150ST
φ 32	25, 50	53	114	27	25	26	16	20	16	12	10	23.2	41.2	46.2	46.2	51.2	51.2	4.4	41.4	46.4	46.4	66.4	66.4	38	80	20	M8×1.25	22	37.5	59.5
φ 40	75, 100	57	124	31	25	26	16	20	16	12	10	16.7	34.7	39.7	39.7	44.7	44.7	0	34.9	39.9	39.9	59.9	59.9	38	90	20	M8×1.25	22	44	66
φ 50	125, 150	69	140	39	29	30	20	25	20	16	12	27.7	39.7	49.7	49.7	54.7	54.7	2.9	44.9	49.9	49.9	69.9	69.9	44	100	25	M10×1.5	22	44	72
φ 63		82	150	45.5	29	36.5	20	25	20	16	12	22.7	34.7	44.7	44.7	49.7	49.7	0	39.9	44.9	44.9	64.9	64.9	44	110	25	M10×1.5	31	49	77

Bore Size (mm)	LL												P	PA	PB	QA	QB	QM	R	S	SA	SB	T	TA	TB	TL	TM	U	UA	UB	UC	UL
	AGM						AGL																									
	25ST	50ST	75ST	100ST	125ST	150ST	25ST	50ST	75ST	100ST	125ST	150ST																				
φ 32	82.7	100.7	105.7	105.7	110.7	63.9	63.9	100.9	105.9	105.9	125.9	125.9	1/8	12.5	9	30	96	M8×1.25	112	48	2	1	16	5	100	11	M8×1.25	42	4	4.5	3	6
φ 40	82.7	100.7	105.7	105.7	110.7	110.7	63.9	100.9	105.9	105.9	125.9	125.9	1/8	14	10.5	30	106	M8×1.25	122	48	2	1	17	10	110	11	M8×1.25	50	4	4.5	3	6
φ 50	99.7	111.7	121.7	121.7	126.7	126.7	74.9	116.9	121.9	121.9	141.9	141.9	1/4	14	11	40	120	M10×1.5	138	56	2	1	17	10	124	12.5	M10×1.5	56	5	6	4	8
φ 63	99.7	111.7	121.7	121.7	126.7	126.7	74.9	116.9	121.9	121.9	141.9	141.9	1/4	16.5	13.5	50	130	M10×1.5	148	69	2	0	19	10	132	15	M10×1.5	66	5	6	4	8

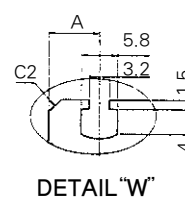
## Grooves (φ 32, φ 40, φ 50, φ 63, φ 80, φ 100)

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

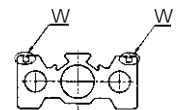
(Unit : mm)

Model	A
AG□32	8
AG□40	8
AG□50	8
AG□63	8
AG□80	10
AG□100	10

### AG■32~63

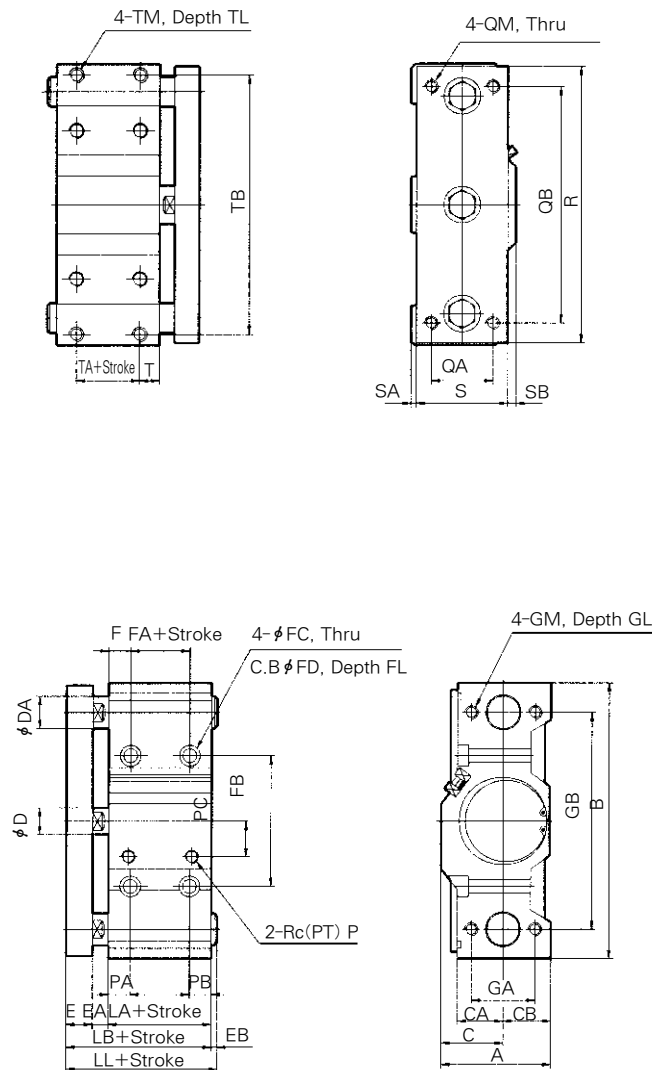


DETAIL "W"



- AG●32
- AG●40
- AG●50
- AG●63
- AG●80
- AG●100

φ 80~φ 100 / AGM · AGL



※ As to intermediate stroke, spacer will be used.

AGM · AGL Common Dimensions

(Unit : mm)

Bore Size (mm)	Standard Stroke (mm)	A	B	C	CA	CB	D	DA		E	EA	EB						F	FA	FB	FC	FD	FL	GA	GB	GL
								AGM	AGL			AGM			AGL											
												25ST	50ST	75,100ST	125,150ST	25,50ST	75,100,125,150ST									
φ 80	25,50,75	96.5	204	50	38.5	46.5	25	30	25	22	18	23.3	25.3	53.3	58.3	8.5	72.5	20.5	15.5	100	11	17.5	11	56	155	30
φ 100	100,125,150	114.5	238	58	41	56.5	30	36	30	25	20	18.8	23.8	48.8	53.8	4.0	73.0	20.5	25	120	13	20	13	62	184	35

Bore Size (mm)	GM	LA	LB	LL						P	PA	PB	PC	QA	QB	QM	R	S	SA	SB	T	TA	TB	TL	TM
				AGM			AGL																		
				25ST	50ST	75,100ST	125,150ST	25,50ST	75,100,125,150ST																
φ 80	M12×1.75	56.5	96.5	119.8	121.8	149.8	154.8	105	169	3/8	19	15.2	28	60	174	M12×1.75	198	80	6.5	10	20.5	15.5	182	18	M12×1.75
φ 100	M14×2	66	111	129.8	134.8	159.8	164.8	115	184	3/8	22.5	18.8	35	64	200	M14×2	231	95	9	10.5	20.5	25	211	21	M14×2

- ACP
- UACP
- AX
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# Series AG

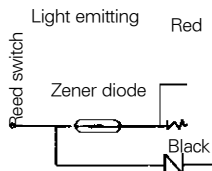


## Auto Switch Specifications

Auto Switch Model	W4	
Application	Relay, Sequence Control	
Voltage	DC24V	AC110V
Range of Load Current	5~40mA	5~20mA
Protection Circuit for Contact Breaker Point	None	
Internal Voltage Drop	2.4V or less	
Indicator Lamp	ON:Red light emitting diode	

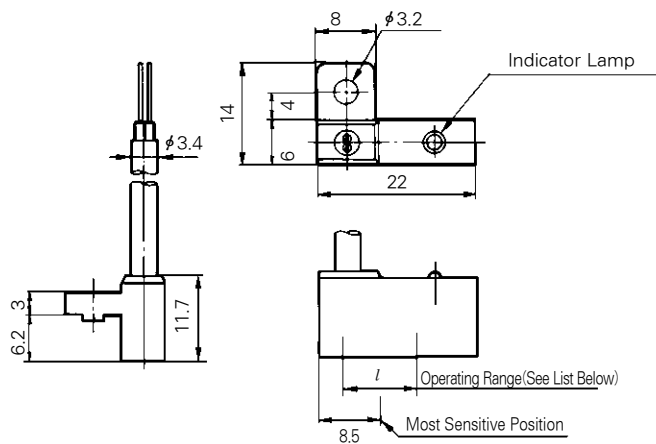
- Leakage current - None
  - Response time - 1.2 ms
  - Lead Wire - Oil proof vinyl  $\phi 3.4$ , 0.2mm<sup>2</sup>, 2 wire(red, black), 0.5 m
  - Impact Resistance - 30G
  - Insulation Resistance - 50M $\Omega$  or more under the test voltage 500VDC (Between case and cable)
  - Breakdown Voltage - 1500VAC 1min(between case and cable)
  - Ambient Temperature - 5~60 $^{\circ}$ C
  - Protection Structure - IEC spec IP67, Water-proof(JISC 0920), oil-proof.
- ※ If 3m lead wire is required, L is put at end of model numbers.  
(Example) W4L

## Auto Switch/Internal Circuit



## Auto Switch Dimensions

Units : mm



## Operating Range ( l Dimensions)

Units : mm

Series	Bore Size (mm)					
	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
AG	11	11	10	12	12	13

Solid State Switch Reed Switch



Auto Switch Specifications

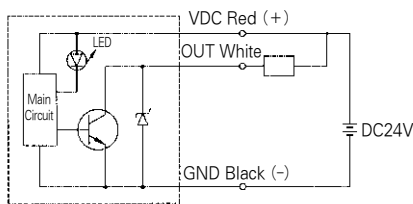
Auto Switch No.	W1H□	W13□
Type of Auto Switch	Solid State Switch	Reed Switch
Application	Relay, Sequence Control	
Wiring Method	3 Wire System	2 Wire System
Power Source	DC10~28V	—
Load Voltage	DC28V Less	DC24V, AC100V
Current Consumption	100mA Less	DC24V : 5~40mA AC100V : 5~20mA
Internal Voltage Drop	100mA~0.5V Less	40mA~2.4V Less
Leakage Current	10 $\mu$ A Less(DC24V)	
Load Current	OFF: 5mA or Less ON : 35mA or Less	—

- Operating Time : Max. 1ms
- Lead Wire : Oil resistant vinyl cord.  $\phi$  0.13, 0.2mm<sup>2</sup>, 3 cores(red white, black), cores(red, black), 3m long
- Shock Resistance : 1000m/S<sup>2</sup> (102G)
- Insulation Resistance : 50M $\Omega$  or more under the test voltage 500V DC between case and cable.
- Withstand Voltage : 1000VAC for 1min.(between lead wire and the case)
- Ambient Temperature : -10~60 $^{\circ}$ C
- Protection Structure : IEC Standard, water-tight and oil resistant structure

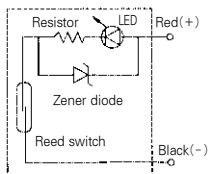
※ "L" is added to the end when the lead is 3m long.  
(ex) W1□L

Auto Switch Internal Circuit

W1H□

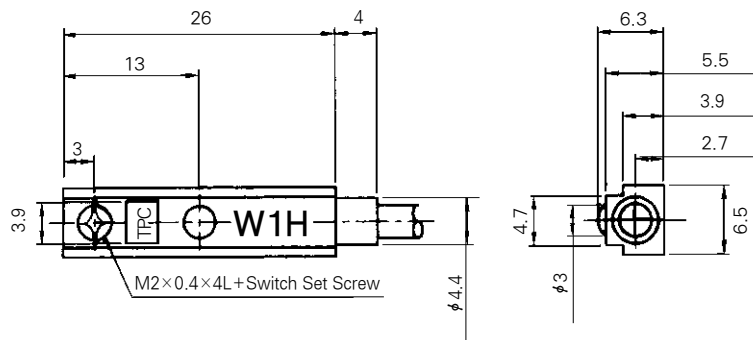


W13□



Auto Switch Dimensions

Units : mm



Units : mm

Stations	W1H□	W13□
L	10	15
Operating Range	4~10	4~10

ACP

UACP

AX

AS

AM

AL  
ALX

UARD

UAQ

AJ

AG

UAG

ADM

ADR

AMR

UAMR

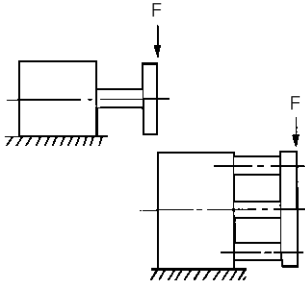
AST

W~

## Operating Conditions

### Permissible Lateral Load (F)

Units : N



Bore Size	Model	Stroke(mm)						
		10	20	30	40	50	75	100
φ 12	AGM	26	20	18	18	17	29	25
	AGL	24	36	29	40	34	26	20
φ 16	AGM	42	34	30	28	26	39	34
	AGL	36	54	43	58	51	37	30
φ 20	AGM	—	53	47	45	42	88	76
	AGL	—	39	64	112	100	75	62
φ 25	AGM	—	70	61	60	54	116	100
	AGL	—	61	50	134	120	98	81

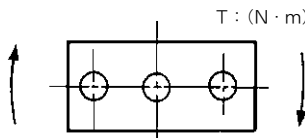
1N≐0.102kgf  
Units : N

Bore Size	Model	Stroke(mm)					
		25	50	75	100	125	150
φ 32	AGM	196	167	137	108	91	76
	AGL	88	59	275	216	239	223
φ 40	AGM	196	167	137	108	91	76
	AGL	88	59	275	216	239	293
φ 50	AGM	294	255	215	176	151	130
	AGL	137	88	392	313	313	294
φ 63	AGM	294	255	215	176	151	130
	AGL	137	88	392	313	313	294
φ 80	AGM	353	304	255	206	—	—
	AGL	235	157	863	686	—	—
φ 100	AGM	539	470	412	343	—	—
	AGL	470	313	1370	1070	—	—

1N≐0.102kgf

### Permissible Rotary Torque of Plate(T)

Units : N · m



Bore Size	Model	Stroke(mm)						
		10	20	30	40	50	75	100
φ 12	AGM	0.42	0.34	0.28	0.31	0.27	0.48	0.42
	AGL	0.51	0.88	0.75	1.06	0.96	0.78	0.64
φ 16	AGM	0.76	0.64	0.54	0.52	0.47	0.73	0.62
	AGL	0.82	1.43	1.23	1.64	1.52	1.23	1.06
φ 20	AGM	—	1.14	1.02	0.98	0.80	1.90	1.65
	AGL	—	1.14	2.03	3.40	3.19	2.65	2.32
φ 25	AGM	—	1.79	1.58	1.53	1.38	2.96	2.57
	AGL	—	2.10	1.86	4.74	4.46	4.01	3.53

1N · m≐10.2kgf.cm  
Units : N · m

Bore Size	Model	Stroke(mm)					
		25	50	75	100	125	150
φ 32	AGM	3.92	2.94	2.45	1.96	1.47	1.03
	AGL	1.96	0.98	5.88	4.41	5.76	5.12
φ 40	AGM	4.41	3.43	2.94	2.45	1.84	1.35
	AGL	2.45	1.47	6.37	5.39	6.87	6.17
φ 50	AGM	7.35	5.88	4.90	4.41	3.31	2.41
	AGL	3.43	2.45	10.78	8.33	9.63	8.63
φ 63	AGM	7.84	6.37	5.39	4.90	3.60	2.59
	AGL	3.92	2.45	11.76	9.31	9.61	8.51
φ 80	AGM	11.76	9.80	7.84	6.86	—	—
	AGL	9.31	5.88	31.36	24.50	—	—
φ 100	AGM	22.54	19.60	16.66	14.70	—	—
	AGL	21.56	13.72	63.70	49.00	—	—

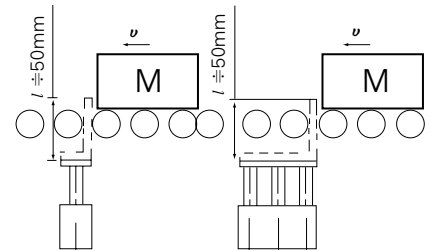
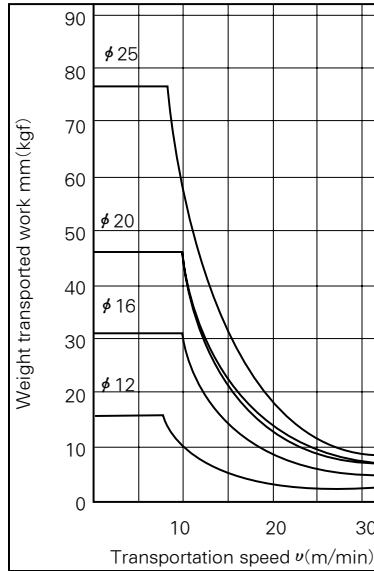
1N≐0.102kgf

Operating Range When Used as Stopper

Bore Size  $\phi 12 \sim \phi 25$  / AGM12~25(Slide Bearing)

Bore Size	Non-Rotation Accuracy	
	AGM	AGL
$\phi 12$	$\pm 0.07^\circ$	$\pm 0.10^\circ$
$\phi 16$		
$\phi 20$	$\pm 0.06^\circ$	$\pm 0.09^\circ$
$\phi 25$		
$\phi 32$	$\pm 0.06^\circ$	$\pm 0.08^\circ$
$\phi 40$		
$\phi 50$	$\pm 0.05^\circ$	$\pm 0.06^\circ$
$\phi 63$		
$\phi 80$	$\pm 0.04^\circ$	$\pm 0.05^\circ$
$\phi 100$		

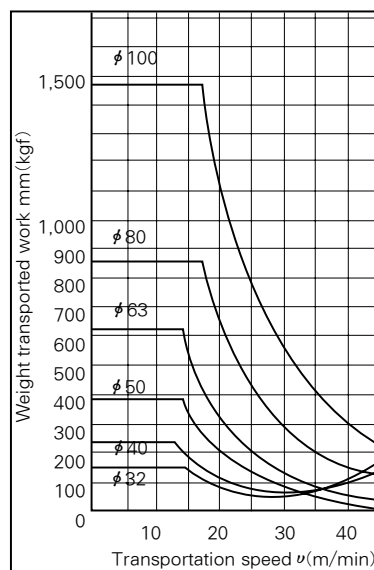
AGM12~25



※ In the machine type selection when the dimension becomes longer, select the cylinder having a sufficient I.D. of the tube.  
 Note 1) When the cylinder is to be used as a stopper use at 30 stroke or less.  
 Note 2) AGL(Ball bush bearing) cannot be used as stopper.

Bore Size  $\phi 32 \sim \phi 100$  / AGM32~100(Slide Bearing)

AGM32~100



※ In the machine type selection when the dimension becomes longer, select the cylinder having a sufficient bore.  
 Note 1) When the cylinder is to be used as a stopper use at 50 stroke or less.  
 Note 2) AGL(Ball bushing bearing) cannot be used as stopper.

ACP

UACP

AX

AS

AM

AL

ALX

UARD

UAQ

AJ

AG

UAG

ADM

ADR

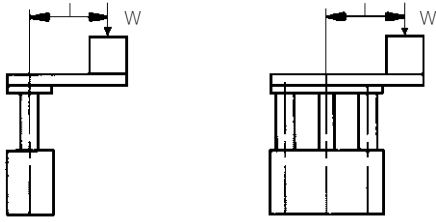
AMR

UAMR

AST

W~

## Operating Range When Used as Lifter



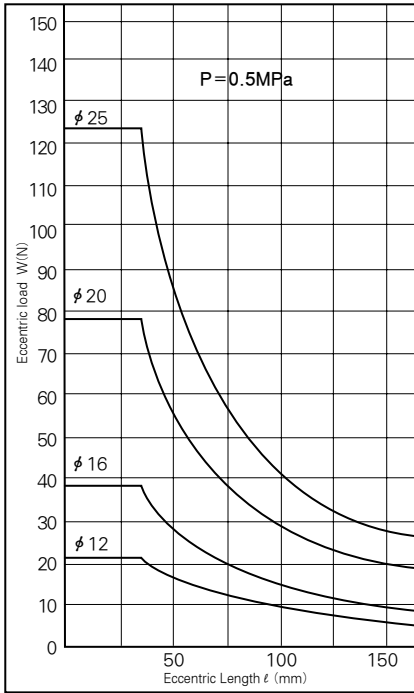
● Select the bore size so that the mass remains at or below the theoretical output (See the chart below)

Bore Size	Theoretical Output
φ 12, φ 16	40% or Below
φ 20, φ 25	50% or Below
φ 32, φ 100	60% or Below

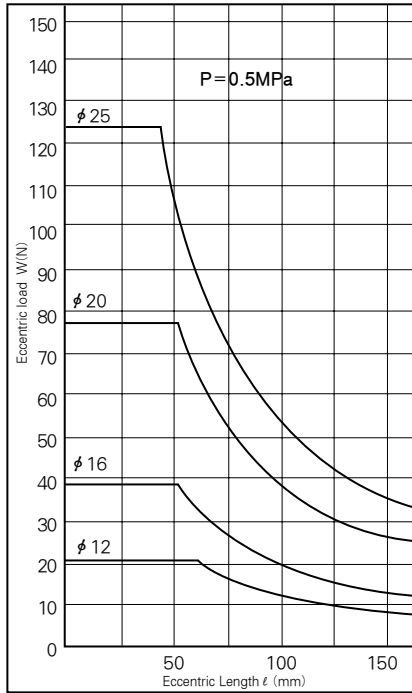
### AGM/Slide Bearing

### AGL/Ball Bush Bearing

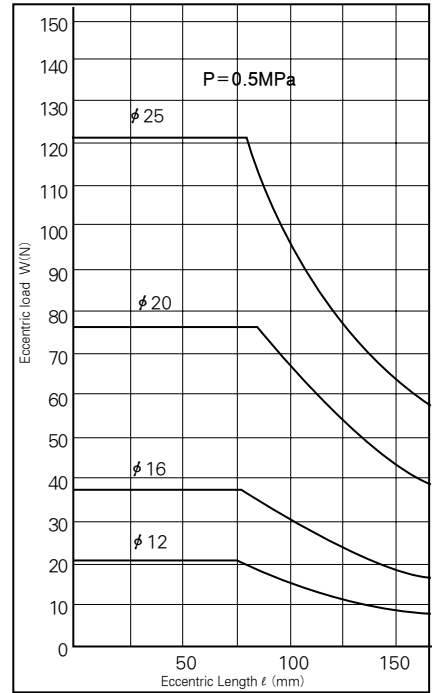
#### AGM φ 12~φ 25 □



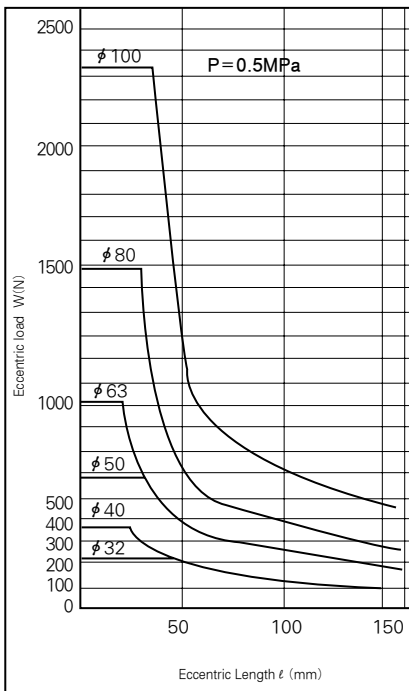
#### AGL φ 12~φ 25-<sup>10</sup>/<sub>20</sub>-<sup>30</sup>/<sub>50</sub>



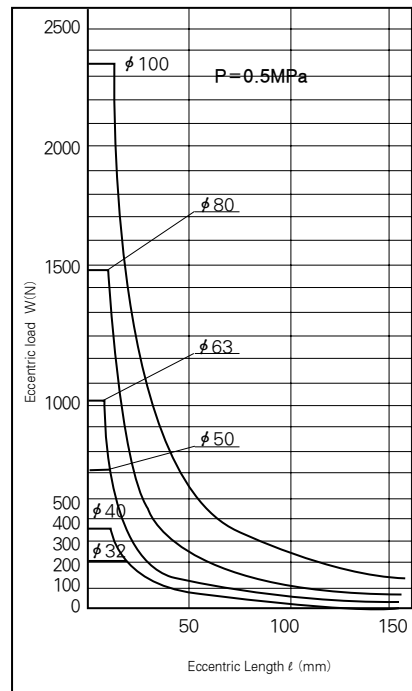
#### AGL φ 12~φ 25-30 more stroke



#### AGM φ 32~φ 100



#### AGL φ 32~φ 100-<sup>25</sup>/<sub>50</sub>



#### AGL φ 32~φ 105-<sup>75</sup>/<sub>100</sub>

