

Series AG

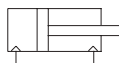
Compact Guide Cylinder

Bore size(mm) : $\phi 12(1/2 \text{ Nom})$, $\phi 16(5/8 \text{ Nom})$, $\phi 20(3/4 \text{ Nom})$, $\phi 25(1 \text{ Nom})$, $\phi 32(1 1/4 \text{ Nom})$, $\phi 40(1 1/2 \text{ Nom})$, $\phi 50(2 \text{ Nom})$, $\phi 63(2 1/2 \text{ Nom})$, $\phi 80(3 1/4 \text{ Nom})$, $\phi 100(4 \text{ Nom})$



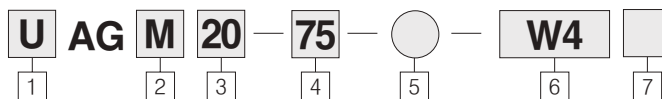
- COMPACT SLIM BODY GUIDE CYLINDER
- 10 BORE SIZES
- MULTIPLE MOUNTING OPTIONS
- FLUSH MOUNTING-AUTO SWITCH
- AVAILABLE WITH BALL BEARING BUSHINGS
- LOW BREAKAWAY
- DESIGNED FOR NON-LUBE APPLICATIONS
- HIGH LOAD BEARING CHARACTERISTICS

Symbol



- ACP
- APM
- AS
- AX
- AM2
- AM
- AL
ALX
- AQ
ADQ
- AQ2
ADQ2
- AJ
AJM
- ABK
- ACK1
- NSK
- AG
- NGQ
- AGX
GX
- NP
- ADR
- AMR
- NDM
- ARD
- NST
- AST
- ASTH
- NLCD
- NLCS

How to Order



1 Port

Blank : Rc(PT)
U : NPT

2 Type of Bearing

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

3 Bore Size

12 : $\phi 12\text{mm}(1/2 \text{ Nom.})$
16 : $\phi 16\text{mm}(5/8 \text{ Nom.})$
20 : $\phi 20\text{mm}(3/4 \text{ Nom.})$
25 : $\phi 25\text{mm}(1 \text{ Nom.})$
32 : $\phi 32\text{mm}(1 1/4 \text{ Nom.})$
40 : $\phi 40\text{mm}(1 1/2 \text{ Nom.})$
50 : $\phi 50\text{mm}(2 \text{ Nom.})$
63 : $\phi 63\text{mm}(2 1/2 \text{ Nom.})$
80 : $\phi 80\text{mm}(3 1/4 \text{ Nom.})$
100 : $\phi 100\text{mm}(4 \text{ Nom.})$

4 Cylinder Stroke(mm)

Refer to Model/Standard Stroke Table.

Model/Standard Stroke Table

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

5 Option

Blank : Standard (Copper-free type is basic for L type of $\phi 12 \sim \phi 40$)
XC16 : Copper-Free (Only L type can be in copper-free type)

• **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.

6 Auto Switch

Blank : None
Reed switch

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

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

Solid State Switch

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

※ The standard, lead wire

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

(Example) W4L

W2 : ($\phi 32 \sim \phi 63$)

7 Number of Auto Switches

Blank : 2 pcs

S : 1 pc

N : N pcs

Series AG


Part No. of Auto Switch		
Type	Mounting Parts	Bore Size
W4	BQ-4	32, 40
	BQ-4	50, 63
W2P	BQ-2	80, 100
	TGQ-32	32~63

Specifications	
Operation	Double Acting
Fluid	Air
Proof pressure	1.5MPa(217psi)
Max. operating pressure	1.0MPa(140psi)
Min. operating pressure	Ø12, 16 : 0.12MPa{1.2kgf/cm ² }
	Ø25~100 : 0.1MPa{1.0kgf/cm ² }
Ambient and fluid temperature	-10~+60°C(14°F~140°F)
Piston speed	50~500mm/s
Cushion	Rubber Cushion at Both Sides
Lubrication	Non-Lubrication
Stroke tolerance	^{+1.5} ₀ mm

Packing List / Exchangeing Parts

Part Name	Material	Part Number									
		φ 12	φ 16	φ 20	φ 25	φ 32	φ 40	φ 50	φ 63	φ 80	φ 100
Piston Packing	NBR	TPSA-12	TPSA-16	TPSA-20	TPSA-25	TPSA-32	TPSA-40	TPSA-50	TPSA-63	TPSA-80	TPSA-100
Rod Packing	NBR	DRY-6	DRY-8	DRY-10SK-K	DRT-12	DRY-16	PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z
Gasket	NBR	C-10	C-14	C-18	C-23	C-29	C-36	C-46	C-60	C-75	C-95
Head Cover Gasket	NBR	-	-	-	-	TMGQM032-18-1586	TMGQM040-18-1587	TMGQM050-18-1588	TMGQM063-18-1589	TMGQM080-18-1794	TMGQM100-18-1796

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



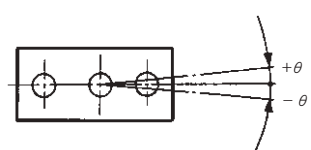
● 2 kinds of bearing

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.

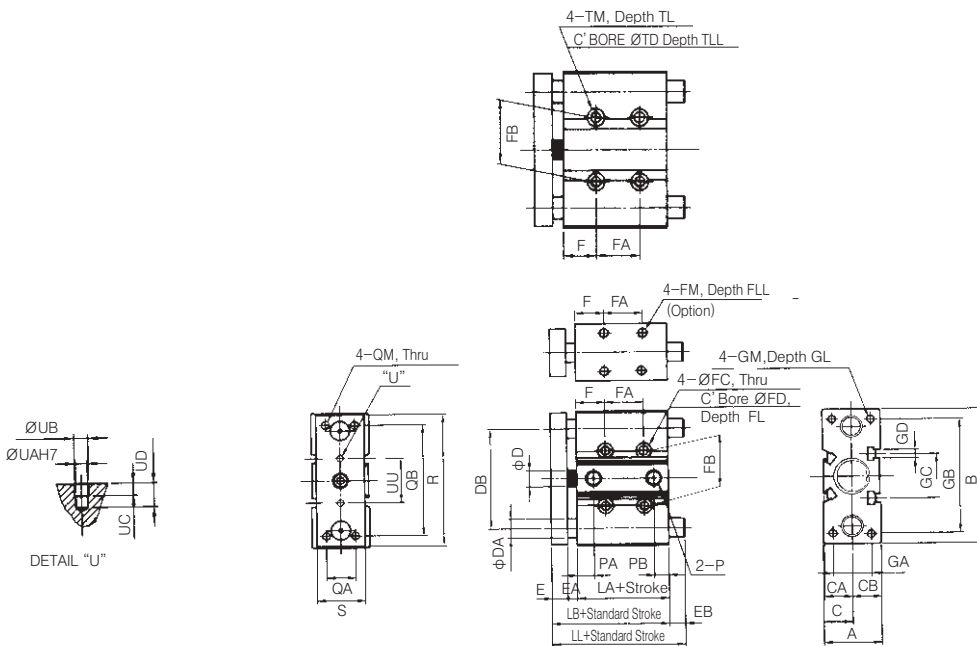
● High Non - Rotating Load Capability

Bore size	Non-Rotating Accuracy θ	
	AGM	AGL
φ 12	±0.07°	±0.10°
φ 16	±0.06°	±0.09°
φ 20	±0.06°	±0.08°
φ 25	±0.06°	±0.08°
φ 32	±0.05°	±0.06°
φ 40	±0.05°	±0.06°
φ 50	±0.04°	±0.05°
φ 63	±0.04°	±0.05°
φ 80	±0.04°	±0.05°
φ 100	±0.04°	±0.05°



Series AG

Ø12~Ø25 / AGM · AGL



※ As to intermediate stroke, spacer will be used.

AGM · AGL Common Dimensions

(Units : mm)

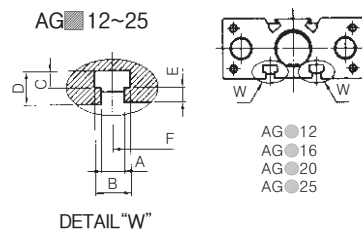
Bore Size (mm)	A	B	C	CA	CB	D	DA		DB	E	EA	EB						F	FA		FB	FC	FD	FL	FH	FM	FLL	GA	GB	GC	GD	GM	GL	LA	LB		
							AGM	AGL				AGM			AGL				30st Less	30st Above																	
							30st less	30-40st Between				40st Above	50st Above	10st	20st	30st	40-50st Above		30st Less	30st Above																	
Ø12	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
Ø16	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
Ø20	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
Ø25	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 Above	
Ø12	42	47	76	45	55	55	65	70	M5×0.8	11	8.5	14	48	M4×0.7	58	22	M5×0.8	Thru	6	4.3	23	3	3.5	3	6
Ø16	46	51	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
Ø20	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
Ø25	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(Ø12, Ø16, Ø20, Ø25)

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

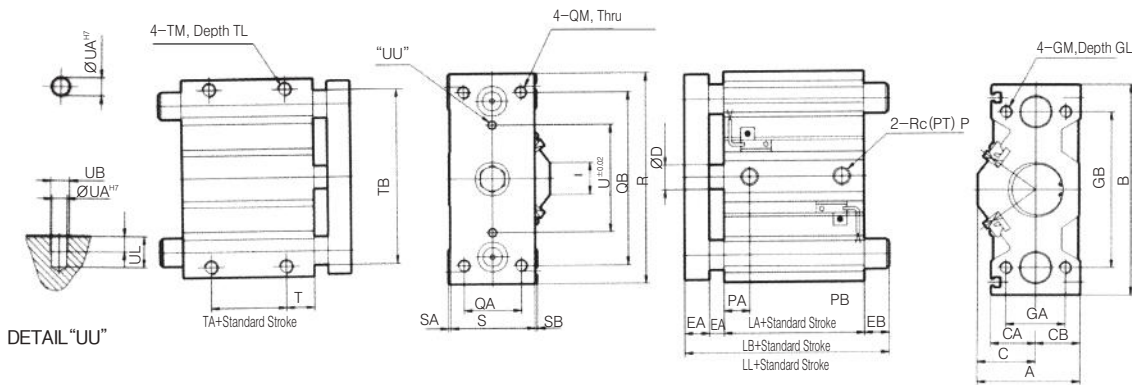
Model	(Unit : mm)						Applicable Bolt
	A	B	C	D	E	F	
AG□12	3.5	6	2	4.3	1.5	23	M3
AG□16	3.7	6.2	2	4.6	1.5	24	M3
AG□20	5.5	8.5	3.5	7.8	3	28	M5
AG□25	5.5	8.5	3.5	8	3	34	M5



- ACP
- APM
- AS
- AX
- AM2
- AM
- AL
- ALX
- AQ
- ADQ
- AQ2
- ADQ2
- AJ
- AJM
- ABK
- ACK1
- NSK
- AG**
- NGQ
- AGX
- GX
- NP
- ADR
- AMR
- NDM
- ARD
- NST
- AST
- ASTH
- NLCD
- NLCS

Series AG

Ø32~Ø63 / 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
Ø32	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
Ø40	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
Ø50	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
Ø63		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	UU	UA	UB	UC	UL
	AGM						AGL																									
	25ST	50ST	75ST	100ST	125ST	150ST	25ST	50ST	75ST	100ST	125ST	150ST																				
Ø32	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
Ø40	82.7	100.7	105.7	105.7	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	
Ø50	99.7	111.7	121.7	121.7	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	
Ø63	99.7	111.7	121.7	121.7	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	

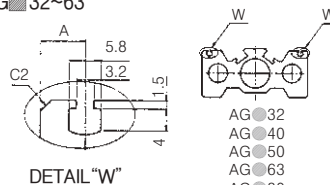
Grooves (Ø32, Ø40, Ø50, Ø63, Ø80, Ø100)

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

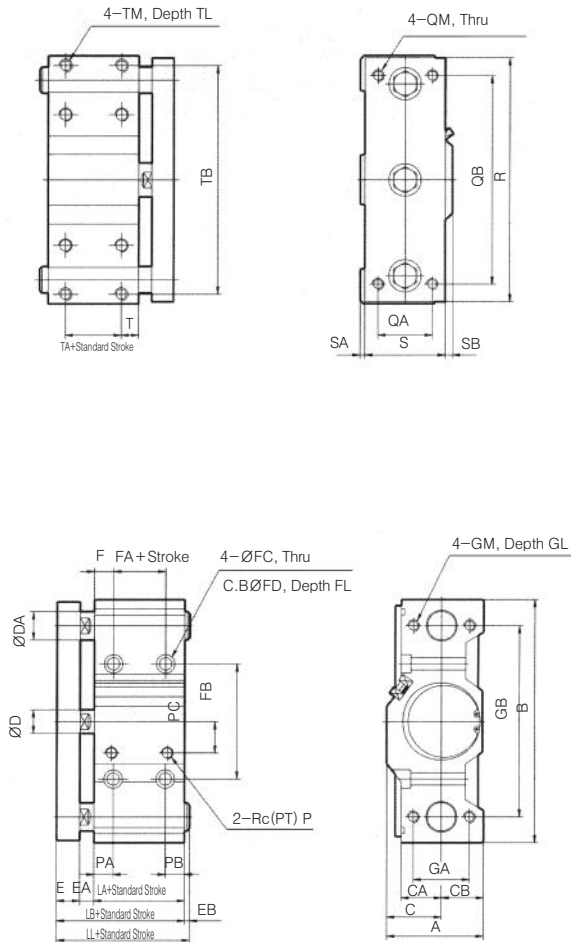


DETAIL "W"

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

Series AG

Ø80~Ø100 / AGM · AGL



※ As to intermediate stroke, spacer will be used.

AGM · AGL Common Dimensions

(Unit : mm)

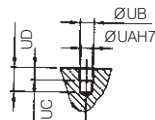
Bore Size (mm)	Standard Stroke (mm)	A	B	C	CA	CB	D	DA		E	EA	EB						F	FA	FB	FC	FD	FL	GA	GB	GL
								AGM	AGL			AGM			AGL											
												25ST	50ST	75,100ST	125,150ST	25,50ST	75,100,125,150ST									
Ø80	25,50,75	96.5	204	50	38.5	46.5	25	30	25	22	18	23.3	25.3	53.3	58.3	8.5	72.5	20.5	15.5	100	11	17.5	11	56	155	30
Ø100	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																
Ø80	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
Ø100	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

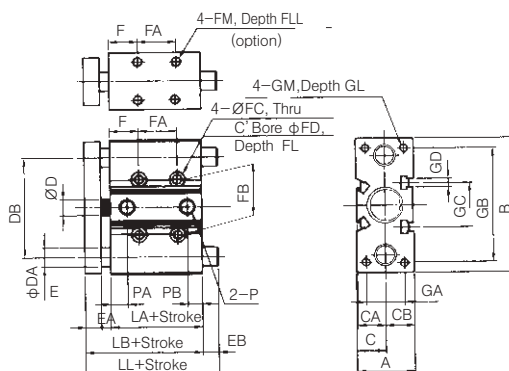
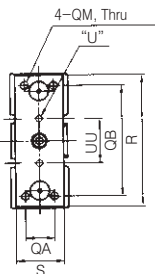
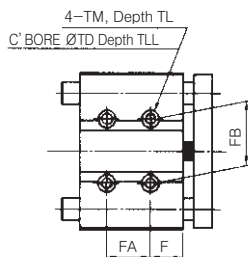
- ACP
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- AJ
- AJM
- ABK
- ACK1
- NSK
- AG
- NGQ
- AGX
- GX
- NP
- ADR
- AMR
- NDM
- ARD
- NST
- AST
- ASTH
- NLCD
- NLCS

Series AG

Ø12(0.47)~Ø25(0.98)/UAGM · UAGL (inch)



DETAIL "U"



UAGM · UAGL Common Dimensions

※ As to intermediate stroke, spacer will be used. (inch)

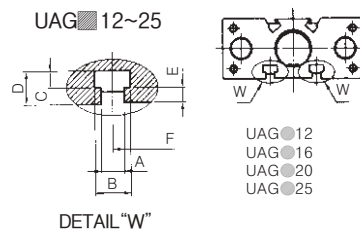
Bore mm (inch)	A	B	C	CA	CB	D	DA		DB	E	EA	EB								F	FA		FB	FC	FD	FL	FH	FM	FLL	GA	GB	GC	GD	GM	GL	LA	LB
							UAGM	UAGL				UAGM				UAGL					Less	Above															
												30ST	40-30ST	50ST	10ST	20ST	30ST	40-30ST	50ST																		
Ø12(1/2 Nom.)	1.02	2.36	0.51	0.49	0.51	0.24	0.32	0.24	1.81	0.32	0.20	0	0.20	1.34	0.12	0.51	0.51	0.91	1.10	0.28	0.79	1.58	0.98	0.17	0.32	0.53	0.71	M5×0.8	0.47	0.71	1.97	0.91	M3	M4×0.7	0.39	1.14	1.65
Ø16(5/8 Nom.)	1.18	2.64	0.59	0.57	0.59	0.32	0.39	0.32	1.97	0.32	0.20	0	0.20	1.34	0.20	0.79	0.79	1.18	1.38	0.28	0.95	1.73	1.06	0.17	0.32	0.49	0.87	M5×0.8	0.47	0.87	2.21	0.95	M3	M5×0.8	0.47	1.30	1.81
Ø20(3/4 Nom.)	1.42	3.35	0.71	0.69	0.71	0.39	0.47	0.39	2.28	0.39	0.24	0.12	0.20	1.85	-	0.47	0.98	1.38	1.65	0.71	0.95	1.73	1.22	0.22	0.37	0.53	0.95	M5×0.8	0.51	0.95	2.84	1.10	M5	M5×0.8	0.51	1.46	2.09
Ø25(1 Nom.)	1.65	3.74	0.83	0.81	0.83	0.47	0.63	0.51	2.68	0.39	0.24	0.12	0.20	1.85	-	0.71	0.71	1.46	1.89	0.71	0.95	1.73	1.38	0.22	0.37	0.57	1.18	M6×1.0	0.59	1.18	3.23	1.34	M5	M6×1.0	0.59	1.48	2.11

Bore mm (inch)	LL														PA	PB	QA	QB	QM	R	S	TM	TL	TD	TLL	UU	UA	UB	UC	UD	P
	UAGM		UAGL																												
Ø12(1/2 Nom.)	1.65	1.85	2.99	1.77	2.17	2.17	2.56	2.76	0.43	0.33	0.55	1.89	M4×0.7	2.28	0.87	M5×0.8	Through	0.24	0.17	0.91	0.12	0.14	0.12	0.24							10-32UNF
Ø16(5/8 Nom.)	1.81	2.13	3.15	2.00	2.60	2.60	2.99	3.19	0.43	0.32	0.63	2.13	M5×0.8	2.56	0.98	M5×0.8	0.39	0.24	0.17	0.95	0.12	0.14	0.12	0.24							10-32UNF
Ø20(3/4 Nom.)	2.09	2.28	3.94	-	2.56	3.07	3.46	3.74	0.41	0.35	0.71	2.76	M5×0.8	3.27	1.18	M6×1.0	0.47	0.28	0.32	1.10	0.12	0.14	0.12	0.24							NPT1/8
Ø25(1 Nom.)	2.22	2.30	3.96	-	2.81	2.81	3.56	4.0	0.45	0.37	1.02	3.07	M6×1.0	3.66	1.50	M6×1.0	0.47	0.28	0.32	1.34	0.16	0.18	0.12	0.24							NPT 1/8

Grooves(Except for Ø12, Ø16, Ø20, Ø25)

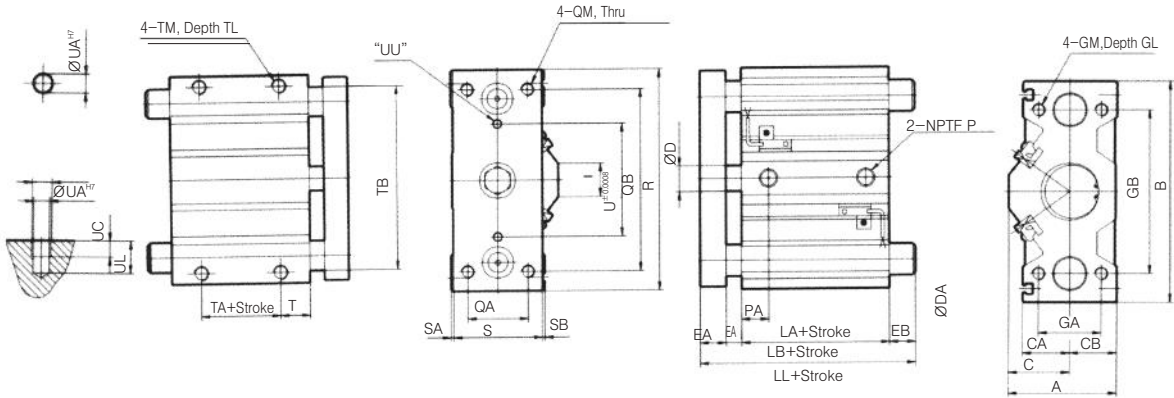
These grooves can be used to firmly fix the lead wires of the auto switch, and also terminal boards, etc., to the main body of the cylinder.

Model	(inch)							Applicable Bolt
	A	B	C	D	E	F		
UAG + 12	0.14	0.24	0.08	0.17	0.06	0.91	M3	
UAG + 16	0.15	0.24	0.08	0.18	0.06	0.95	M3	
UAG + 20	0.22	0.33	0.14	0.31	0.12	1.10	M5	
UAG + 25	0.22	0.33	0.14	0.32	0.12	1.34	M5	



Series AG

∅32(Nom. 1¹/₄)~∅63(Nom. 2¹/₂)/UAGM · UAGL (inch)



※ For intermediate strokes. Spacers will be used.

UAGM · UAGL Common Dimensions

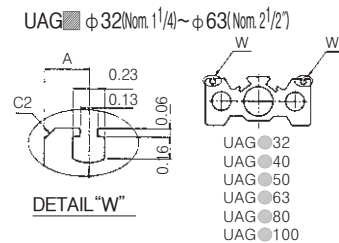
Bore Size mm (inch)	Standard Stroke (mm)	EB																				GA	GB	GL	GM	I	LA	LB		
		UAGM										UAGL																		
		A	B	C	CA	CB	D	UAGM	UAGL	E	EA	25ST	50ST	75ST	100ST	125ST	150ST	25ST	50ST	75ST	100ST								125ST	150ST
∅32(1 ¹ / ₄ Nom)	25, 50	2.09	4.49	1.06	0.98	1.02	0.63	0.79	0.63	0.47	0.39	0.91	1.62	1.82	1.82	2.02	2.02	0.17	1.63	1.83	1.83	2.61	2.61	1.50	3.15	0.79	M8×1.25	0.87	1.48	2.34
∅40(1 ¹ / ₂ Nom)	75, 100	2.24	4.88	1.22	0.98	1.02	0.63	0.79	0.63	0.47	0.39	0.66	1.37	1.56	1.56	1.76	1.76	-	1.37	1.57	1.57	2.36	2.36	1.50	3.54	0.79	M8×1.25	0.87	1.73	2.60
∅50(2Nom)	125, 150	2.72	5.51	1.54	1.14	1.18	0.79	0.98	0.79	0.63	0.47	1.09	1.56	1.96	1.96	2.15	2.15	0.11	1.77	1.96	1.96	2.75	2.75	1.73	3.94	0.98	M10×1.5	0.87	1.73	2.84
∅63(2 ¹ / ₂ Nom)		3.23	5.91	1.79	1.14	1.44	0.79	0.98	0.79	0.63	0.47	0.89	1.37	1.76	1.76	1.96	1.96	-	1.57	1.77	1.77	2.56	2.56	1.73	4.33	0.98	M10×1.5	1.22	1.93	3.03

Bore Size mm (inch)	LL															P	PA	PB	QA	QB	QM	R	S	SA	SB	T	TA	TB	TL	TM	U	UA	UB	UC	UL
	UAGM					UAGL																													
	25ST	50ST	75ST	100ST	125ST	150ST	25ST	50ST	75ST	100ST	125ST	150ST																							
∅32(1 ¹ / ₄ Nom)	3.26	3.96	4.16	4.16	4.36	4.36	2.52	3.97	4.17	4.17	4.96	4.96	NPT1/8	0.49	0.35	1.18	3.78	M8×1.25	4.41	1.89	0.08	0.04	0.63	0.20	3.94	0.43	M8×1.25	1.65	0.16	0.18	0.12	0.24			
∅40(1 ¹ / ₂ Nom)	3.26	3.96	4.16	4.16	4.36	4.36	2.52	3.97	4.17	4.17	4.96	4.96	NPT1/8	0.55	0.41	1.18	4.17	M8×1.25	4.80	1.89	0.08	0.04	0.67	0.39	4.33	0.43	M8×1.25	1.97	0.16	0.18	0.12	0.24			
∅50(2Nom)	3.93	4.40	4.79	4.79	4.99	4.99	2.95	4.60	4.80	4.80	5.59	5.59	NPT1/4	0.55	0.43	1.58	4.72	M10×1.5	5.43	2.21	0.08	0.04	0.67	0.39	4.88	0.49	M10×1.5	2.21	0.20	0.24	0.16	0.31			
∅63(2 ¹ / ₂ Nom)	3.93	4.40	4.79	4.79	4.99	4.99	2.95	4.60	4.80	4.80	5.59	5.59	NPT1/4	0.65	0.53	1.97	5.12	M10×1.5	5.83	2.72	0.08	-	0.75	0.39	5.20	0.59	M10×1.5	2.60	0.20	0.24	0.16	0.31			

Grooves(Except for ∅32, ∅40, ∅50, ∅63)

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

Model	(inch)
UAG□32	0.32
UAG□40	0.32
UAG□50	0.32
UAG□63	0.32
UAG□80	0.39
UAG□100	0.39



ACP

APM

AS

AX

AM2

AM

AL

ALX

AQ

ADQ

AQ2

ADQ2

AJ

AJM

ABK

ACK1

NSK

AG

NGQ

AGX

GX

NP

ADR

AMR

NDM

ARD

NST

AST

ASTH

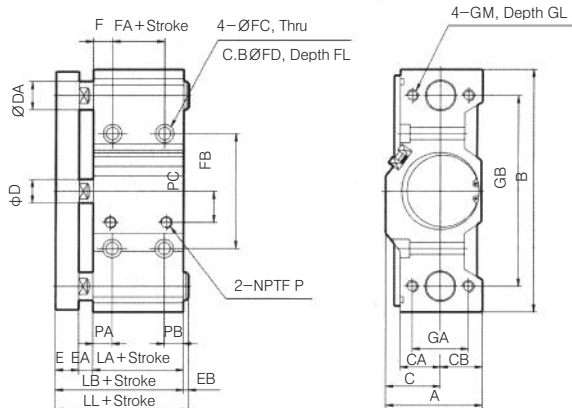
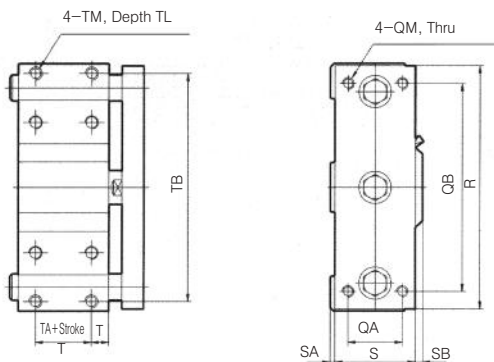
NLCD

NLCS

Series AG

Ø80(3.15)~Ø100(3.94)/UAGM · UAGL

(inch)



* For intermediate strokes, spacers will be used.

UAGM · UAGL Common Dimensions

(inch)

Bore Size mm(inch)	Standard Stroke mm	A	B	C	CA	CB	D	DA		E	EA	EB						F	FA	FB	FC	FD	FL	GA	GB	GL
								UAGM	UAGL			UAGM				UAGL										
												25	50	75,100	125,150	25,50	75,100,125,150									
Ø80(3.15)Nom	20, 50, 75, 100	3.80	8.03	1.97	1.52	1.83	0.98	1.18	0.98	0.87	0.71	0.91	1.00	2.10	2.30	0.33	2.85	0.81	0.61	3.94	0.43	0.69	0.43	2.20	6.10	1.18
Ø100(4)Nom	125, 150	4.51	9.37	2.28	1.61	2.22	1.18	1.42	1.18	0.98	0.79	0.74	0.94	1.92	2.12	0.16	2.87	0.81	0.98	4.72	0.51	0.79	0.51	2.44	7.24	1.38

Bore Size mm(inch)	GM	LA	LB	LL						P	PA	PB	PC	QA	QB	QM	R	S	SA	SB	T	TA	TB	TL	TM
				UAGM			UAGL																		
				25	50	75,100	125,150	25,50	75,100,125,150																
Ø80(3.15)Nom	M12×1.75	2.22	3.80	4.72	4.80	5.90	6.09	4.13	6.65	NPT3/8	0.75	0.60	1.10	2.36	6.85	M12×1.75	7.80	3.15	0.26	0.39	0.81	0.61	7.17	0.71	M12×1.75
Ø100(4)Nom	M14×2	2.60	4.37	5.11	5.31	6.29	6.49	4.53	7.24	NPT3/8	0.89	0.74	1.38	2.52	7.87	M14×2	9.09	3.74	0.35	0.41	0.81	0.98	8.31	0.83	M14×2

Series AG

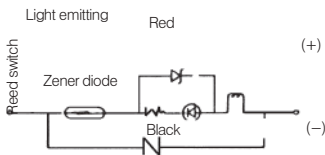


Auto Switch Specifications

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	

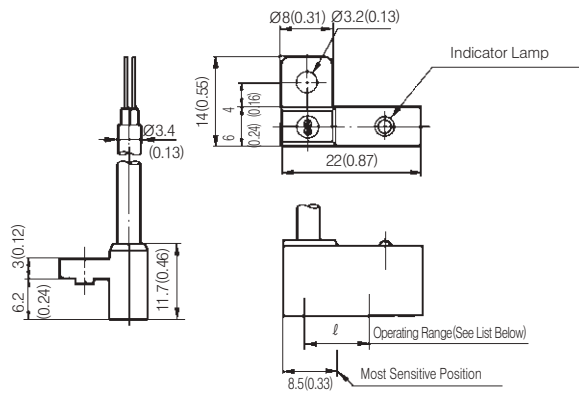
- Leakage current - None
 - Response time - 1.2 ms
 - Lead Wire - Oil proof vinyl Ø3.4, 0.2mm², 2 wire(red, black), 0.5 m
 - Impact Resistance - 30G
 - Insulation Resistance - 50MΩ or more under the test voltage 500VDC (Between case and cable)
 - Breakdown Voltage - 1500VAC 1min(between case and cable)
 - Ambient Temperature - 5~60°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

mm(inch)



Operating Range (ℓ Dimensions)

mm(inch)

Series	Bore Size inch(mm)					
	Ø32(4 ¹ / ₄ Nom)	Ø40(1 ¹ / ₂ Nom)	Ø50(2Nom)	Ø63(2 ¹ / ₂ Nom)	Ø80(3 ¹ / ₄ Nom)	Ø100(4Nom)
UAG	12 (0.47)	11 (0.43)	10 (0.39)	12 (0.47)	12 (0.47)	13 (0.51)

ACP

APM

AS

AX

AM2

AM

AL
ALX

AQ
ADQ

AQ2
ADQ2

AJ
AJM

ABK

ACK1

NSK

AG

NGQ

AGX
GX

NP

ADR

AMR

NDM

ARD

NST

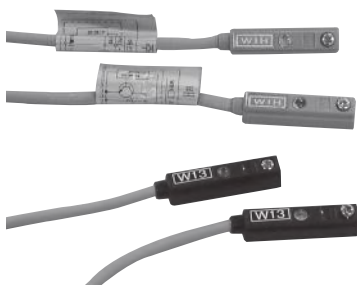
AST

ASTH

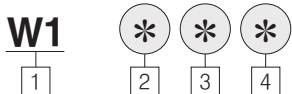
NLCD

NLCS

Series AG

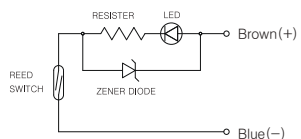


How to Order

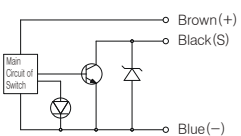


- 1 TPC Auto Switch Model
- 2 3 : Reed 2 wire AUTO S/W
H : Solid State 3 wire AUTO S/W
- 3 N : 3 wire(NPN)
P : 3 wire(PNP)
- 4 Blank : LEAD WIRE(0.5m)
M : LEAD WIRE(1m)
L : LEAD WIRE(3m)

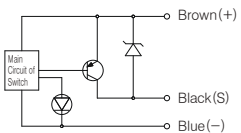
Internal Circuit



2 wire reed circuit



3 wire NPN solid state circuit



3 wire PNP solid state circuit

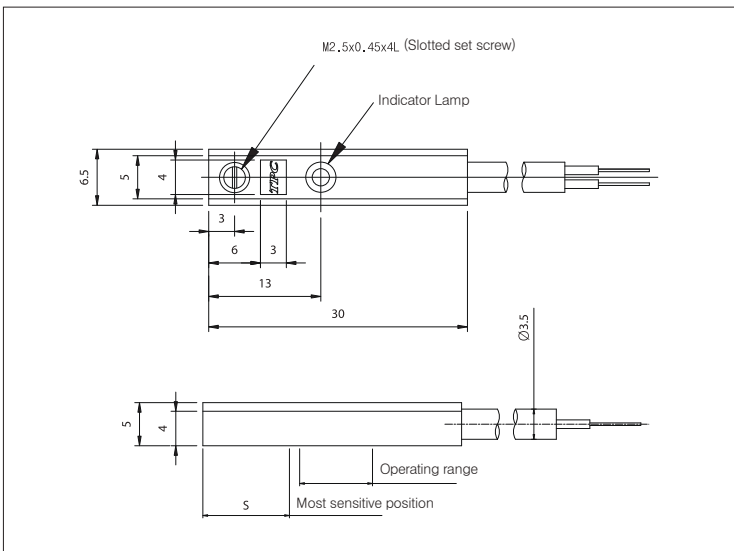
Caution

Please read and understand the instructions before use. Refer to the auto switch precautions before using auto switches.

Specifications

Part No.	W13	W1HN(P)
Contact wiring	Contact 2 wire	Without contact 3 wire
Application	Relay, Sequence Control	
Voltage	DC24V	AC100V DC24V
Current	5~40mA	5~20mA ≤40mA
Contact Protection Circuit	None	Built-in
Internal Voltage Drop	≤2.4V	≤1.5V
Indicator Lamp	ON : When Red LED	
Output	-	NPN(PNP)
Current Consumption	-	≤5mA
Current Leakage	None	≤100μA
Operation Time	≤1ms	≤2ms
Lead Wire	Oil Resistant Vinyl Code	
Shock Resistance	30G 100G	
Insulation Resistance	100MΩ or more (500DVC Mega) between lead wire and case	
Voltage Resistance	For 1 min. (in AC1500V/between a lead wire case)	
Temperature	-10 ~ 60°C	
Protection Structure	IEC Standard IP67, Water Proof, and (JISCO920), Oil Structure	

Protection Structure



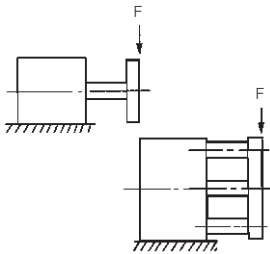
Operating Range

Section	W13	W1HN(P)
Most sensitive position(S)	10mm	1 ~ 2mm
Operation range(L)	6 ~ 12mm	4 ~ 10mm

Series AG

Operating Conditions

Permissible Lateral Load (F)



Units : N

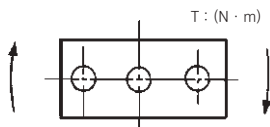
Bore Size	Model	Stroke(mm)						
		10	20	30	40	50	75	100
Ø12	AGM	26	20	18	18	17	29	25
	AGL	24	36	29	40	34	26	20
Ø16	AGM	42	34	30	28	26	39	34
	AGL	36	54	43	58	51	37	30
Ø20	AGM	-	53	47	45	42	88	76
	AGL	-	39	64	112	100	75	62
Ø25	AGM	-	70	61	60	54	116	100
	AGL	-	61	50	134	120	98	81

1N≐0.102kgf
Units : N

Bore Size	Model	Stroke(mm)					
		25	50	75	100	125	150
Ø32	AGM	196	167	137	108	91	76
	AGL	88	59	275	216	239	223
Ø40	AGM	196	167	137	108	91	76
	AGL	88	59	275	216	239	293
Ø50	AGM	294	255	215	176	151	130
	AGL	137	88	392	313	313	294
Ø63	AGM	294	255	215	176	151	130
	AGL	137	88	392	313	313	294
Ø80	AGM	353	304	255	206	-	-
	AGL	235	157	863	686	-	-
Ø100	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
Ø12	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
Ø16	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
Ø20	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
Ø25	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
Ø32	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
Ø40	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
Ø50	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
Ø63	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
Ø80	AGM	11.76	9.80	7.84	6.86	-	-
	AGL	9.31	5.88	31.36	24.50	-	-
Ø100	AGM	22.54	19.60	16.66	14.70	-	-
	AGL	21.56	13.72	63.70	49.00	-	-

1N≐0.102kgf

ACP

APM

AS

AX

AM2

AM

AL
ALX

AQ
ADQ

AQ2
ADQ2

AJ
AJM

ABK

ACK1

NSK

AG

NGQ

AGX
GX

NP

ADR

AMR

NDM

ARD

NST

AST

ASTH

NLCD

NLCS

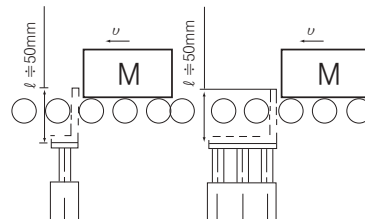
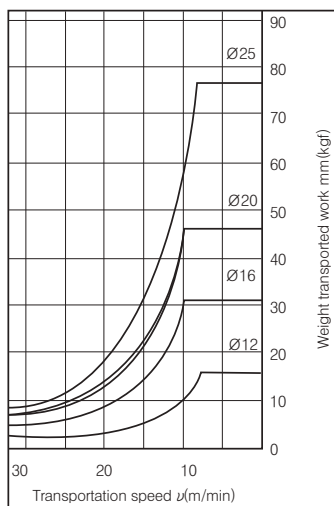
Series AG

Operating Range When Used as Stopper

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

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

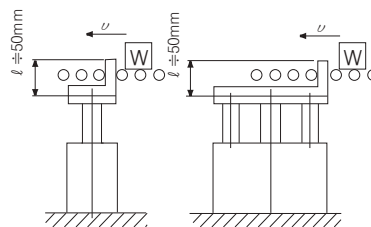
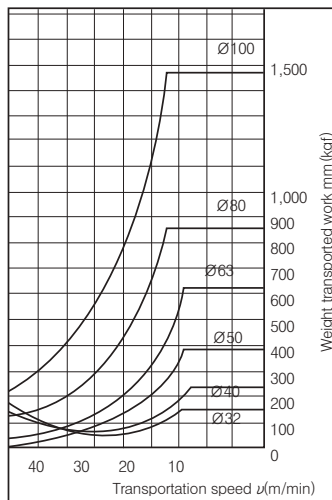
AGM12~25



- ※ When selecting the machine type, if the dimension gets longer, select a certain cylinder having a sufficient bore.
- Note 1) When a stopper is used for the cylinder, use at 50 strokes or less.
- Note 2) AGL(Ball bush bearing) should not be used as stopper.

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

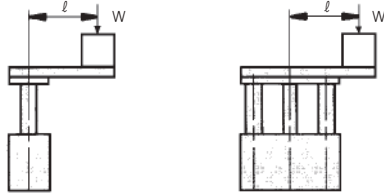
AGM32~100



- ※ When selecting the machine type, if the dimension gets longer, select a certain cylinder having a sufficient bore.
- Note 1) When a stopper is used for the cylinder, use at 50 strokes or less.
- Note 2) AGL(Ball bush bearing) should not be used as stopper.

Series AG

Operating Range When Used as Lifter

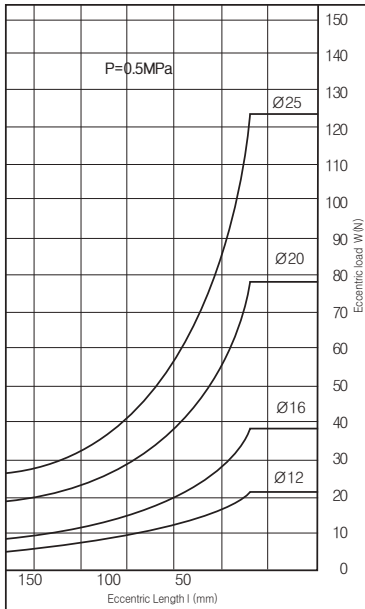


● Be sure to select a proper bore size so that the mass remains at or below the theoretical output (refer to the chart below)

Bore Size	Theoretical Output
Ø12, Ø16	40% or Below
Ø20, Ø25	50% or Below
Ø32, Ø100	60% or Below

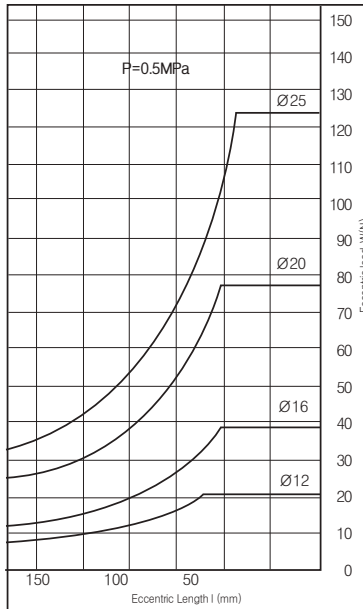
AGM/Slide Bearing

AGM Ø12~Ø25-□

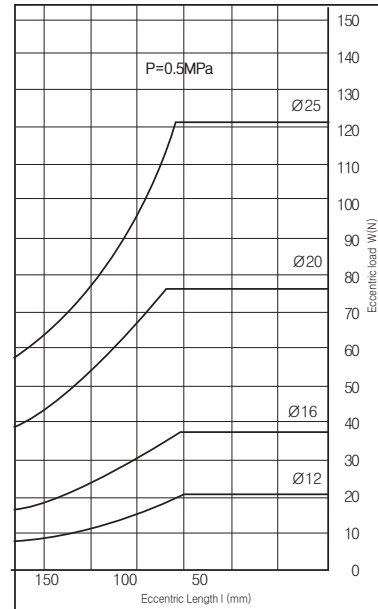


AGL/Ball Bush Bearing

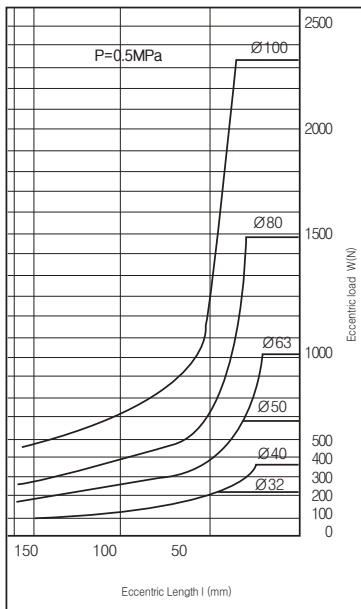
AGL Ø12~Ø25-¹⁰/₂₀³⁰



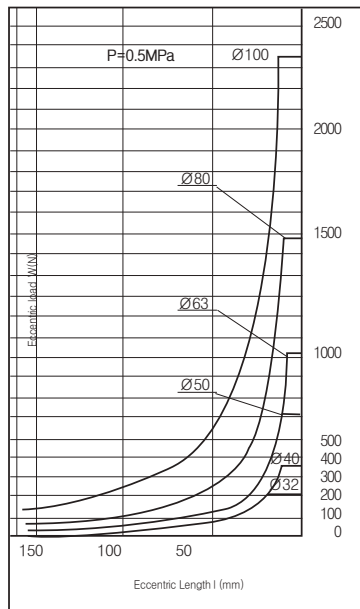
AGL Ø12~Ø25-30 more stroke



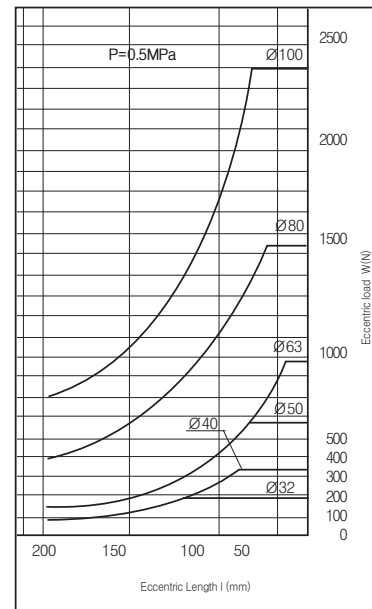
AGM Ø32~Ø100



AGL Ø32~Ø100-²⁵/₅₀



AGL Ø32~Ø105-⁷⁵/₁₀₀



ACP

APM

AS

AX

AM2

AM

AL

ALX

AQ

ADQ

AQ2

ADQ2

AJ

AJM

ABK

ACK1

NSK

AG

NGQ

AGX

GX

NP

ADR

AMR

NDM

ARD

NST

AST

ASTH

NLCD

NLCS