Series AM

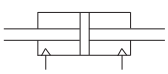
Air Cylinder/Double Acting

Non-lube · Air-hydro Type(mm) : Ø40, Ø50, Ø63, Ø80, Ø100

- BUILT-IN AIR CUSHION
- DESIGNED FOR LONG LIFE & HIGH SPEED
- AVAILABLE IN WIDE STROKE & BORE SIZES

Symbol

Double acting



How To Order

AM [L] [N] [50] – [150] [ ] [ ] – [ ] – [W3] [ ]

1 2 3 4 5 6 7 8 9 10

1 Air Cylinder
Standard
(Built-in magnet)

2 Mounting
B : Standard
L : Foot
F : Front flange
G : Rear flange
C : Single clevis
D : Double clevis
T : Center trunnion

3 Type
N : Non-lube
H : Air-hydro
F : Iron tube
(W/O Magnet)

4 Bore Size(mm)
40 : ϕ40
50 : ϕ50
63 : ϕ63
80 : ϕ80
100 : ϕ100

5 Stroke/(mm)
Bore Size : standard stroke
40 : 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
50 : 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
63 : 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
80 : 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700
100 : 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700

6 Rod Boot
Blank : None
J : Nylon tarpaulin
K : Neoprene cloth

7 Cushion
Blank : Both end
N : None
H : Head end
R : Rod end

※ When knuckles are ordered,
I : Single knuckle attached
Y : Double knuckle attached

8 Special Option
Blank : Standard type
XC16 : Copper-free

9 Auto Switch
Blank : None
W3 : Reed switch type, W3(AC100,200V,DC 24V)
Standard Auto Switch lead wire length is 0.5m.

※ Please suffix L at the end for lead wire of 3m(Option)
(Example) W3 - W3L

10 Number of Auto Switches
Blank : 2 pcs
S : 1 pc
N : N pcs

Model

Model	Type	Action	Seal
AM○N	Non-lube	Double	Special
AM○H	Air-hydro		Special

Parts No. Of Mounting Bracket

Bore size	ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
※ Foot	TCA2L40	TCA2L50	TCA2L63	TCA2L80	TCA2L100
Flange	TCA2F40	TCA2F50	TCA2F63	TCA2F80	TCA2F100
Single clevis	TCA2C40	TCA2C50	TCA2C63	TCA2C80	TCA2C100
Double clevis	TCA2D40	TCA2D50	TCA2D63	TCA2D80	TCA2D100

Specifications

Type	Non-lube	Air-hydro
Fluid	Air	L.P.Oil
Proof pressure	1.5MPa(213psi)	
Max. operating pressure	1.0MPa(140psi)	
Min. operating pressure	0.05MPa(7psi)	0.1MPa(14psi)
Ambient and fluid temperature	5~60°C(41~140°F)	
Piston speed	50~500mm/s	0.5~300mm/s
Cushion	Air Cushion	Not Available
Stroke tolerance	~250st : $^{+1.0}_{0}$,251~1,000st : $^{+1.4}_{0}$, 1,001~1,500st : $^{+1.8}_{0}$	
Mounting	Basic, Foot, Front flange, Rear flange, Single clevis, Double clevis, Center trunnion	

Weight/Aluminum Tube(Iron Tube) (kgf)

Bore size		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Basic Weight	Basic	0.89 (0.94)	1.37 (1.40)	2.01 (2.04)	3.48 (3.63)	4.87 (5.07)
	Foot	1.08 (1.13)	1.58 (1.62)	2.34 (2.38)	4.15 (4.30)	5.86 (6.06)
	Flange	1.26 (1.30)	1.81 (1.86)	2.79 (2.84)	4.93 (5.08)	6.79 (6.99)
	Single clevis	1.12 (1.17)	1.71 (1.74)	2.63 (2.67)	4.59 (4.74)	6.65 (6.68)
	Double clevis	1.16 (1.21)	1.79 (1.83)	2.79 (2.83)	4.88 (5.03)	7.18 (7.38)
	Trunnion	1.25 (1.35)	1.85 (1.94)	2.80 (3.00)	5.03 (5.32)	7.15 (7.54)
Additional weight per 2″ stroke	All mounting bracket (except trunnion iron tube)	0.22 (0.28)	0.28 (0.35)	0.37 (0.43)	0.52 (0.70)	0.65 (0.87)
	Trunnion of iron tube	(0.36)	(0.46)	(0.65)	(0.86)	(1.07)
Accessories	Single knuckle	0.23	0.27	0.27	0.60	0.83
	Double knuckle(with pin)	0.37	0.43	0.43	0.87	1.27

※ In parentheses are for Iron tube type.

Example

AML 40-100(Foot, ϕ40, 100st)
- Basic weight ····· 1.08kgf
- Additional weight ··· ··· 0.22/50st
- Cylinder stroke ····· 100st

1.08+0.22×100/50=1.52kgf

Accessaries

Description \ Mounting		Basic	Foot	Front Flange	Rear Flange	Single Clevis	Double Clevis	Center Trunnion
Standard	Rod End Nut	○	○	○	○	○	○	○
	Clevis Pin	—	—	—	—	—	○	—
Option	Single Knuckle Joint	○	○	○	○	○	○	○
	Double Knuckle Joint(With Pin)	○	○	○	○	○	○	○
	Gaiter	○	○	○	○	○	○	○

Parts No. Of Auto Switch Mounting Band

Switch Model	Parts No.	Applicable Bore Size(mm)
W3	TBT-04	ϕ40
	TBT-04	ϕ50
	TBT-06	ϕ63
	TBT-08	ϕ80
	TBT-08	ϕ100

Base Material And Surface Treatment

Description		Material	Note
Cover		Aluminum Alloy	Silver Paint
Cylinder Tube		Aluminum Alloy	Hard Alumite
		Carbon Steel Tube	Inside/Hard Chrome Plated
			Outside/Platinum Silver
Seals areal	Non-lube	NBR	PDU, NLP, OPA
	Air-hydro	NBR	SCB, SKY, SDA
Piston Rod		Carbon Steel	Hard Chrome Plated
Piston		Aluminum Alloy	Chromate

Gaiter/Material

Symbol	Material	Max.Ambient Temperature
J	Nylon Tarpaulin	60℃(140˚F)
K	Neoprene Cloth	※110℃(230˚F)

※ For gaiter itself

Precautions

① When mounting, completely flush the piping and be careful that dust and chips do not enter the cylinder.

② Load of piston rod should always be aligned parallel with the cylinder axis.

③ Avoid damaging(scratches, nicks) on the piston rod, which would lead to damage of rod seal, resulting in air leakage.

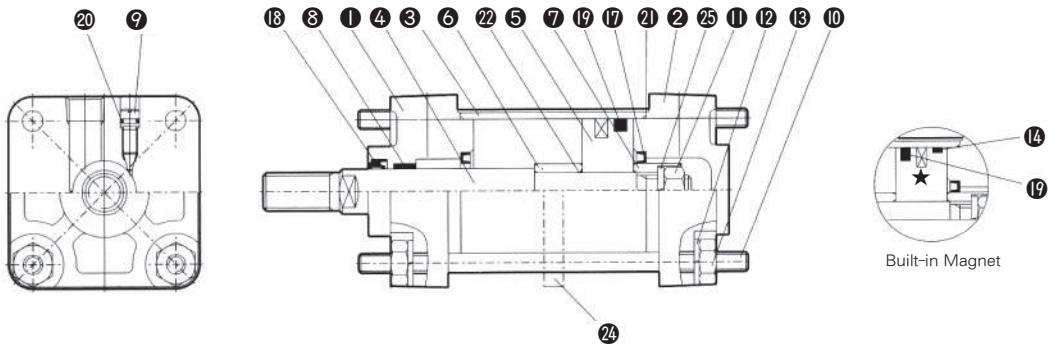
④〈Lubrication〉
Use non-additive turbine oil ISO-VG32.
Never use machine oil or spindle oil.

⑤〈L. P. Oil〉
Use ISO VG-22-46 or equivalent L. P. oil.
Never use machine oil or spindle oil.

⑥ Open air exhaust valve and completely let the inside air out before use.

⑦ In case you need cushion only on the air side, you don't have to specify the above. All you have to do is suffix R or H, and for others, follow "How to Order."

Construction



Parts List

NO.	Description	Material	Note
❶	Rod cover	Aluminum alloy	Silver paint
❷	Head cover	Aluminum alloy	Silver paint
❸	※Cylinder tube	Aluminum alloy	Hard alumite
❹	Piston rod	Carbon steel	Hard chrome plated
❺	Piston	Aluminum alloy	Chromate
❻	Cushion ring A	Aluminum	Chromate
❼	Cushion ring B	Aluminum	Chromate
❽	Bush	Lead bronze casting	–
❾	Cushion Valve	Rolled steel	Chromate
❿	Tie rod	Carbon steel	Zinc chromate
⓫	Piston nut	Rolled steel	Chromate
⓬	Spring washer	Steel wire	Black Zinc chromate
⓭	Tie rod nut	Rolled steel	Black Zinc chromate
⓮	Wearing	Resin	–
㉔	※Tie rod reinforcing ring	Cast iron	–
㉕	Spring washer	Steel wire	Zinc chromate

※ ㉔ Tie rod reinforcing ring : Available only for 1,000 stroke or more.
※ ③ In the case of Iron tube cylinder : Carbon steel tube, inside hard chrome plated.

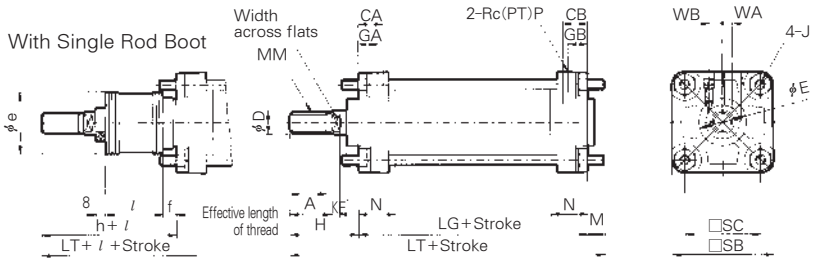
Seals List

NO.	Description	Material	Parts. No. 40	50	63	80	100
Non-lube Type							
⓱	Cushion seal	NBR	DSM-20	DSM-25	DSM-25	DSM-30	DSM-35
⓲	Rod seal		PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z
⓳	Piston seal		TPSA-40A	TPSA-50A	TPSA-63A	TPSA-80A	TPSA-100A
			P34	P44	P53	P70	P90
⓴	Cushion Valve seal		TC2A040-16A1486-PL		TC2A063-16A1488-PL		
㉑	Cylinder tube gasket		TC2A040-16-1486	TC2A050-16-1487	TC2A063-16-1488	TC2A080-16-1489	TC2A100-16-1490
㉒	Piston gasket		CA40-1608k-PL	CA63-1608k-PL	CA63-1608k-PL	CA80-1608k-PL	CA100-1610k-PL
Air-hydro Type			Same as lube type except ⓲, ⓳ and ㉓				
⓲	Rod seal	NBR	SKY-16	SKY-20	SKY-20	SKY-25	SKY-30
⓳	Piston seal		SDA-40	SDA-50	SDA-63	SDA-80	SDA-100
㉓	Scraper		SCB-16	SCB-20	SCB-20	SCB-25	SCB-30

★ Magnet (Built-in Magnet)

Basic Type/(B)

Non-Lube Type(AMBN), Air-Hydro Type(AMBH)

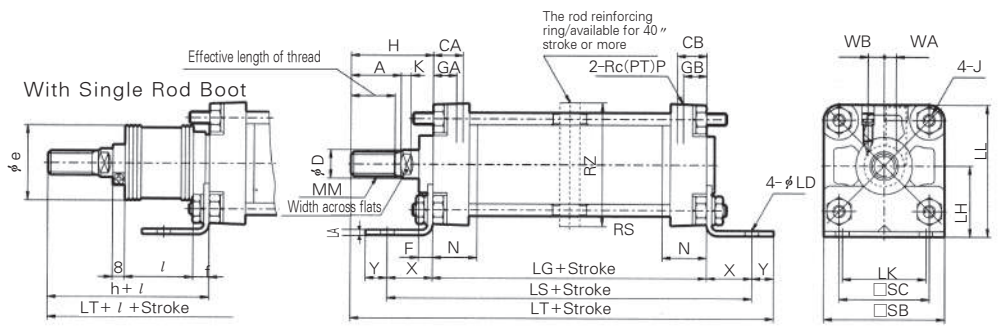


(unit:mm)

Bore size (mm)	Stroke range(mm) Without gaiter	With gaiter	Effective length of thread	Width across flats	A	□SB	□SC	CA	CB	φD	φE	F	GA	GB	J	K	M	MM	N	P	LG	WA	WB	Without Rod Boot H	Without Rod Boot LT	With Rod Boot φe	With Rod Boot f	With Rod Boot h	With Rod Boot l	With Rod Boot LT
φ40	~500	20~500	27	14	30	60	44	18	18	16	32	10	15	15	M8×1.25	6	11	M14×1.5	27	1/4	84	5	10.5	51	146	43	11.2	59	1/4 Stroke	154
φ50	~600	20~600	32	18	35	70	52	21	21	20	40	10	17	17	M8×1.25	7	11	M18×1.5	30	3/8	90	8	9.9	58	159	52	11.2	66		167
φ63	~600	20~600	32	18	35	85	64	21	21	20	40	10	17	17	M10×1.25	7	14	M18×1.5	31	3/8	98	9	11.5	58	170	52	11.2	66		178
φ80	~750	20~750	37	22	40	102	78	26	26	25	52	14	21	21	M12×1.75	11	17	M22×1.5	37	1/2	116	11	13	71	204	65	12.5	80		213
φ100	~750	20~750	37	26	40	116	92	28	28	30	52	14	21	21	M12×1.75	11	17	M26×1.5	40	1/2	126	13	14	72	215	65	14	81		224

Foot Type/(L)

Non-Lube Type(AMLN), Air-Hydro type(AMLH)



(unit:mm)

Bore size (mm)	Stroke range(mm) Without Rod Boot	With Rod Boot	Effective length of thread	A	□SB	□SC	CA	CB	φD	φE	F	GA	GB	J	K	MM	N	P	LG	WA	WB
φ40	~500	20~500	27	30	60	44	18	18	16	32	10	15	15	M8×1.25	6	M14×1.5	27	1/4	84	5	10.5
φ50	~600	20~600	32	35	70	52	21	21	20	40	10	17	17	M8×1.25	7	M18×1.5	30	3/8	90	8	9.9
φ63	~600	20~600	32	35	85	64	21	21	20	40	10	17	17	M10×1.25	7	M18×1.5	31	3/8	98	9	11.5
φ80	~750	20~750	37	40	102	78	26	26	25	52	14	21	21	M12×1.75	11	M22×1.5	37	1/2	116	11	13
φ100	~750	20~750	37	40	116	92	28	28	30	52	14	21	21	M12×1.75	11	M26×1.5	40	1/2	126	13	14

Bore size (mm)	X	Y	φLD	LH	LS	LA	LK	LL	Without Rod Boot H	Without Rod Boot LT	With Rod Boot φe	With Rod Boot f	With Rod Boot h	With Rod Boot l	With Rod Boot LT
φ40	27	13	9.0	40	138	3.2	42	70	51	175	43	11.2	59	1/4 Stroke	183
φ50	27	13	9.0	45	144	3.2	50	80	58	188	52	11.2	66		196
φ63	34	16	11.5	50	166	3.2	59	93	58	206	52	11.2	66		214
φ80	44	16	13.5	65	204	4.5	76	116	71	247	65	12.5	80		256
φ100	43	17	13.5	75	212	6.0	92	133	72	258	65	14.0	81		267

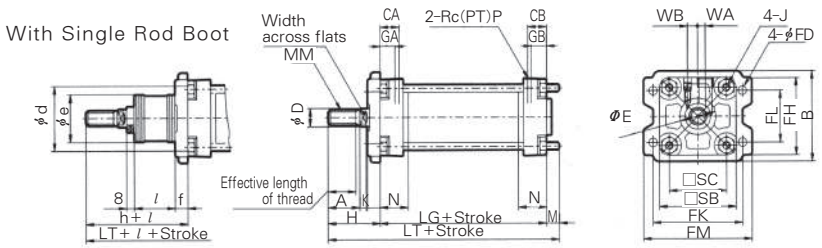
Long Stroke Type

Bore size (mm)	Stroke range (mm)	RS	RZ
φ40	501~800	–	–
φ50	601~1200	30	76
φ63	601~1200	40	92
φ80	751~1400	45	112
φ100	751~1500	50	136

Front Flange/(F)

Non-Lube Type(AMFN), Air-Hydro Type(AMFH)

With Single Rod Boot



(unit:mm)

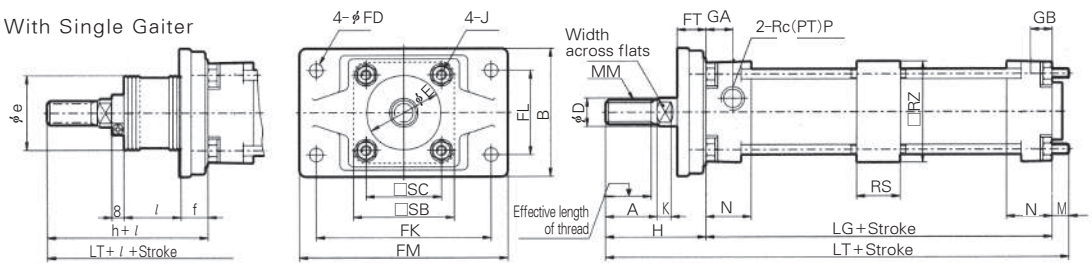
Bore size (mm)	Stroke range(mm) Without Rod Boot	Stroke range(mm) With Rod Boot	Effective length of thread	A	B	□SB	□SC	CA	CB	φD	φE	GA	GB	J	K	M	MM	N	P	LG	WA	WB
φ40	~800	20~800	27	30	71	60	44	18	18	16	32	15	15	M8×1.25	6	11	M14×1.5	27	1/4	84	5	10.5
φ50	~1,000	20~1,000	32	35	81	70	52	21	21	20	40	17	17	M8×1.25	7	11	M18×1.5	30	3/8	90	8	9.9
φ63	~1,000	20~1,000	32	35	101	85	64	21	21	20	40	17	17	M10×1.25	7	14	M18×1.5	31	3/8	98	9	11.5
φ80	~1,000	20~1,000	37	40	119	102	78	26	26	25	52	21	21	M12×1.75	11	17	M22×1.5	37	1/2	116	11	13
φ100	~1,000	20~1,000	37	40	133	116	92	28	28	30	52	21	21	M12×1.75	11	17	M26×1.5	40	1/2	126	13	14

Bore size (mm)	FH	φFD	FT	FK	FL	FM	Without Rod Boot H	Without Rod Boot LT	With Rod Boot ★φd	φe	f	h	l	LT
φ40	60	9.0	12	80	42	100	51	146	52	43	15	59	1/4 Stroke	154
φ50	70	9.0	12	90	50	110	58	159	58	52	15	66		167
φ63	86	11.5	15	105	59	130	58	170	58	52	17.5	66		178
φ80	102	13.5	18	130	76	160	71	204	80	65	21.5	80		213
φ100	116	13.5	18	150	92	180	72	215	80	65	21.5	81		224

★ Hole diameter of Rod Boot to mount Air-cylinder should be larger than the outside diameter of gaiter mounting bracket φd.

Long Stroke(1001 Stroke or more)

With Single Gaiter



(unit:mm)

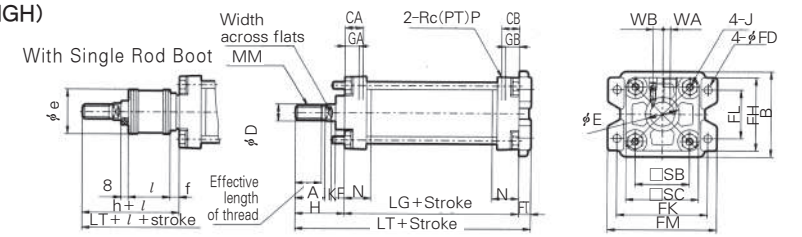
Bore size (mm)	Stroke range (mm)	Effective length of thread	A	B	□SB	□SC	φD	φE	GA	GB	J	K	M	MM	N	P	LG	WA	WB
φ50	1,001~1,200	32	35	88	70	52	20	40	17	17	M8×1.25	7	6	M18×1.5	30	3/8	90	8	9.9
φ63	1,001~1,200	32	35	105	85	64	20	40	17	17	M10×1.25	7	10	M18×1.5	31	3/8	98	9	11.5
φ80	1,001~1,400	37	40	124	102	78	25	52	21	21	M12×1.75	11	12	M22×1.5	37	1/2	116	11	13
φ100	1,001~1,500	37	40	140	116	92	30	52	21	21	M12×1.75	11	12	M26×1.5	40	1/2	126	13	14

Bore size (mm)	φFD	FT	FK	FL	FM	RS	RZ	Without Rod Boot H	Without Rod Boot LT	With Rod Boot ★φe	f	h	l	LT
φ50	9.0	20	120	58	144	30	76	67	163	52	19	66	1/4 Stroke	162
φ63	11.5	23	140	64	170	40	92	71	179	52	19	66		174
φ80	13.5	28	164	84	198	45	112	87	215	65	21	80		208
φ100	13.5	29	180	100	220	50	136	89	227	65	21	81		219

★ Hole diameter of rod boot to mount Air-cylinder should be larger than the outside diameter of rod boot mounting bracket φe.

Rear Flange/(G)

Non-Lube Type(AMGN),
Air-Hydro Type(AMGH)



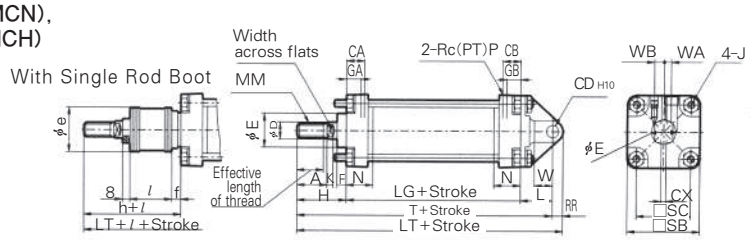
(unit:mm)

Bore size (mm)	Stroke range		Effective length of thread	A	B	□SB	□SC	CA	CB	φD	φE	F	GA	GB	J	K	MM	N	P	LG	WA	WB
	Without Rod Boot	With Rod Boot																				
φ40	~500	20~500	27	30	71	60	44	18	18	16	32	10	15	15	M8×1.25	6	M14×1.5	27	1/4	84	5	10.5
φ50	~600	20~600	32	35	81	70	52	21	21	20	40	10	17	17	M8×1.25	7	M18×1.5	30	3/8	90	8	9.9
φ63	~600	20~600	32	35	101	85	64	21	21	20	40	10	17	17	M10×1.25	7	M18×1.5	31	3/8	98	9	11.5
φ80	~750	20~750	37	40	119	102	78	26	26	25	52	14	21	21	M12×1.75	11	M22×1.5	37	1/2	116	11	13
φ100	~750	20~750	37	40	133	116	92	28	28	30	52	14	21	21	M12×1.75	11	M26×1.5	40	1/2	126	13	14

Bore size (mm)	FH	φFD	FT	FK	FL	FM	Without Rod Boot		With Rod Boot				
							H	LT	φe	f	h	l	LT
φ40	60	9.0	12	80	42	100	51	147	43	11.2	59	1/4 Stroke	155
φ50	70	9.0	12	90	50	110	58	160	52	11.2	66		168
φ63	86	11.5	15	105	59	130	58	171	52	11.2	66		179
φ80	102	13.5	18	130	76	160	71	205	65	12.5	80		214
φ100	116	13.5	18	150	92	180	72	216	65	14.0	81		225

Single Clevis/(C)

Non-Lube Type(AMCN),
Air-Hydro Type(AMCH)



(unit:mm)

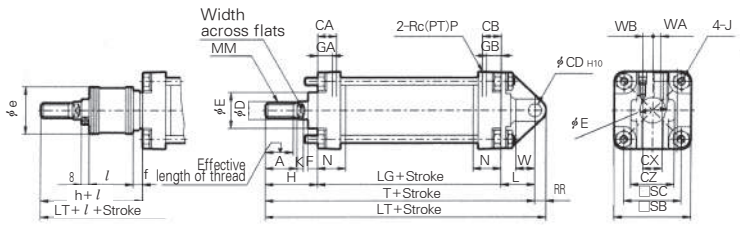
Bore size (mm)	Stroke range		Effective length of thread	A	□SB	□SC	CA	CB	φD	φE	F	GA	GB	J	K	L	MM	N	P	LG	WA	WB
	Without Rod Boot	With Rod Boot																				
φ40	~500	20~500	27	30	60	44	18	18	16	32	10	15	15	M8×1.25	6	30	M14×1.5	27	1/4	84	5	10.5
φ50	~600	20~600	32	35	70	52	21	21	20	40	10	17	17	M8×1.25	7	35	M18×1.5	30	3/8	90	8	9.9
φ63	~600	20~600	32	35	85	64	21	21	20	40	10	17	17	M10×1.25	7	40	M18×1.5	31	3/8	98	9	11.5
φ80	~750	20~750	37	40	102	78	26	26	25	52	14	21	21	M12×1.75	11	48	M22×1.5	37	1/2	116	11	13
φ100	~750	20~750	37	40	116	92	28	28	30	52	14	21	21	M12×1.75	11	58	M26×1.5	40	1/2	126	13	14

Bore size (mm)	RR	W	φCD H10	CX	Without Rod Boot			With Rod Boot					
					H	T	LT	φe	f	h	l	T	LT
φ40	10	16	10 +0.058 0	15.0 -0.1 -0.3	51	165	175	43	11.2	59	1/4 Stroke	173	183
φ50	12	19	12 +0.070 0	18.0 -0.1 -0.3	58	183	195	52	11.2	66		191	203
φ63	16	23	16 +0.070 0	25.0 -0.1 -0.3	58	196	212	52	11.2	66		204	220
φ80	20	28	20 +0.084 0	31.5 -0.1 -0.3	71	235	255	65	12.5	80		244	264
φ100	25	36	25 +0.084 0	35.5 -0.1 -0.3	72	256	281	65	14.0	81		265	290

Double Clevis Type/(D)

Non-Lube Type(AMDN),
Air-Hydro Type(AMDH)

With Single Rod Boot



(unit:mm)

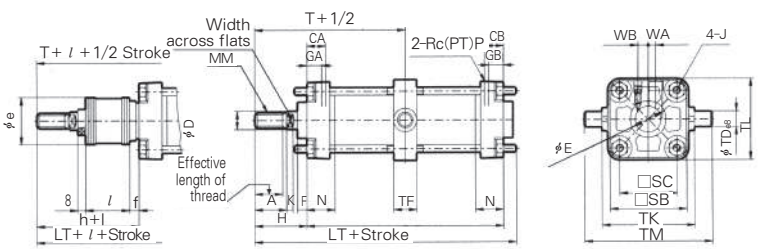
Bore size (mm)	Stroke range		Effective length of thread	A	□SB	□SC	CA	CB	φD	φE	F	GA	GB	J	K	L	MM	N	P	LG	WA	WB
	Without Rod Boot	With Rod Boot																				
φ40	~500	20~500	27	30	60	44	18	18	16	32	10	15	15	M8×1.25	6	30	M14×1.5	27	1/4	84	5	10.5
φ50	~600	20~600	32	35	70	52	21	21	20	40	10	17	17	M8×1.25	7	35	M18×1.5	30	3/8	90	8	9.9
φ63	~600	20~600	32	35	85	64	21	21	20	40	10	17	17	M10×1.25	7	40	M18×1.5	31	3/8	98	9	11.5
φ80	~750	20~750	37	40	102	78	26	26	25	52	14	21	21	M12×1.75	11	48	M22×1.5	37	1/2	116	11	13
φ100	~750	20~750	37	40	116	92	28	28	30	52	14	21	21	M12×1.75	11	58	M26×1.5	40	1/2	126	13	14

Bore size (mm)	RR	W	φCD H10	CX	CZ	Without Rod Boot			With Rod Boot					
						H	T	LT	φe	f	h	l	T	LT
φ40	10	16	10 +0.058 0	15.0 +0.3 +0.1	29.5	51	165	175	43	11.2	59	1/4 Stroke	173	183
φ50	12	19	12 +0.070 0	18.0 +0.3 +0.1	38	58	183	195	52	11.2	66		191	203
φ63	16	23	16 +0.070 0	25.0 +0.3 +0.1	49	58	196	212	52	11.2	66		204	220
φ80	20	28	20 +0.084 0	31.5 +0.3 +0.1	61	71	235	255	65	12.5	80		244	264
φ100	25	36	25 +0.084 0	35.5 +0.3 +0.1	64	72	256	281	65	14.0	81		265	290

Center Trunnion Type/(T)

Non-lube Type(AMTN),
Air-hydro type(AMTH)

With Single Rod Boot

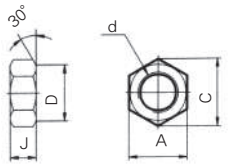


(unit:mm)

Bore size (mm)	Stroke range		Effective length of thread	A	□SB	□SC	CA	CB	φD	φE	F	GA	GB	J	K	MM	N	P	LG	WA	WB
	Without Rod Boot	With Rod Boot																				
φ40	~500	20~500	27	30	60	44	18	18	16	32	10	15	15	M8×1.25	6	M14×1.5	27	1/4	84	5	10.5
φ50	~600	20~600	32	35	70	52	21	21	20	40	10	17	17	M8×1.25	7	M18×1.5	30	3/8	90	8	9.9
φ63	~600	20~600	32	35	85	64	21	21	20	40	10	17	17	M10×1.25	7	M18×1.5	31	3/8	98	9	11.5
φ80	~750	20~750	37	40	102	78	26	26	25	52	14	21	21	M12×1.75	11	M22×1.5	37	1/2	116	11	13
φ100	~750	20~750	37	40	116	92	28	28	30	52	14	21	21	M12×1.75	11	M26×1.5	40	1/2	126	13	14

Bore size (mm)	φTDe8	TF	TK	TL	TM	Without Rod Boot			With Rod Boot					
						H	T	LT	φe	f	h	l	T	LT
φ40	15 -0.032 -0.059	22	85	62	117	51	93	140	43	11.2	59	1/4 Stroke	101	148
φ50	15 -0.032 -0.059	22	95	74	127	58	103	154	52	11.2	66		111	162
φ63	18 -0.032 -0.059	28	110	90	148	58	107	162	52	11.2	66		115	170
φ80	25 -0.040 -0.073	34	140	110	192	71	129	194	65	12.5	80		138	203
φ100	25 -0.040 -0.073	40	162	130	214	72	135	206	65	14.0	81		144	215

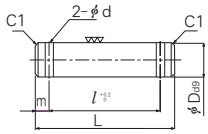
Rod End Nut(Standard Accessaries) (mm)



Material : Rolled steel

Part No.	Applicable bore	d	J	A	C	D
TNT-04	ϕ40	M14×1.5	8	22	25.4	21
TNT-05	ϕ50 · ϕ63	M18×1.5	11	27	31.2	26
TNT-08	ϕ80	M22×1.5	13	32	37.0	31
TNT-10	ϕ100	M26×1.5	16	41	47.3	39

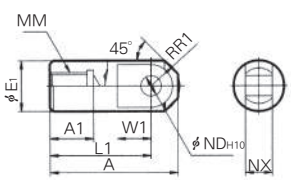
Knuckle Joint Pin/Clevis Pin (mm)



Material : Carbon steel

Part No	Bore Size		ϕDd9	L	l	m	ϕd	Applicable split pin ϕ × l
	CLEVIS	KNUCKLE						
TCDP-2	ϕ40	–	$10^{-0.040}_{-0.076}$	45.2	37.2	4	ϕ3	ϕ3×18l
TCDP-3	ϕ50	ϕ40·50·63	$12^{-0.050}_{-0.093}$	54.3	46.3	4	ϕ3	ϕ3×18l
TCDP-4	ϕ63	–	$16^{-0.050}_{-0.093}$	70	60	5	ϕ4	ϕ4×24 l
TCDP-5	–	ϕ80	$18^{-0.040}_{-0.076}$	76	66	5	ϕ4	ϕ4×25l
TCDP-6	ϕ80	ϕ100	$20^{-0.065}_{-0.117}$	82	72	5	ϕ4	ϕ4×36 l
TCDP-7	ϕ100	–	$25^{-0.065}_{-0.117}$	87.5	77.5	5	ϕ4	ϕ4×36 l

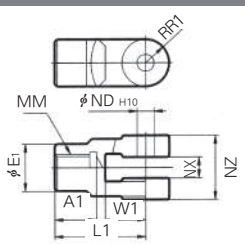
I Type Single Knuckle Joint (mm)



Material : Free cutting sulfur steel

Part No.	Applicable bore	A	A1	ϕE1	L1	MM	R1	W1	ϕND H10	NX
TI-04	ϕ40	69	22	24	55	M14×1.5	15.5	20	$12^{-0.070}_{-0}$	$16^{-0.1}_{-0.3}$
TI-05	ϕ50 · ϕ63	74	27	28	60	M18×1.5	15.5	20	$12^{-0.070}_{-0}$	$16^{-0.1}_{-0.3}$
TI-08	ϕ80	91	37	36	71	M22×1.5	22.5	26	$18^{-0.070}_{-0}$	$28^{-0.1}_{-0.3}$
TI-10	ϕ100	105	37	40	83	M26×1.5	24.5	28	$20^{-0.084}_{-0}$	$30^{-0.1}_{-0.3}$

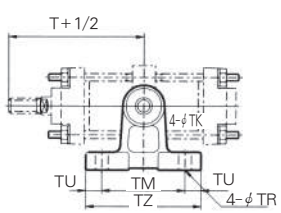
Y Type Double Knuckle Joint (mm)

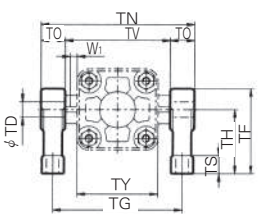


Cast iron

Part No.	Applicable bore	A1	ϕE1	L1	MM	R1	W1	ϕND H10	NX	NZ
TY-04A	ϕ40	22	24	55	M14×1.5	13	25	$12^{+0.070}_{+0}$	$16^{+0.3}_{+0.1}$	38
TY-05A	ϕ50 · ϕ63	27	28	60	M18×1.5	15	27	$12^{+0.070}_{+0}$	$16^{+0.3}_{+0.1}$	38
TY-08A	ϕ80	37	36	71	M22×1.5	19	28	$18^{+0.070}_{+0}$	$28^{+0.3}_{+0.1}$	55
TY-10A	ϕ100	37	40	83	M26×1.5	21	38	$20^{+0.084}_{+0}$	$30^{+0.3}_{+0.1}$	61

Trunnion Bracket





※ The order makes special for trunnion type bracket.

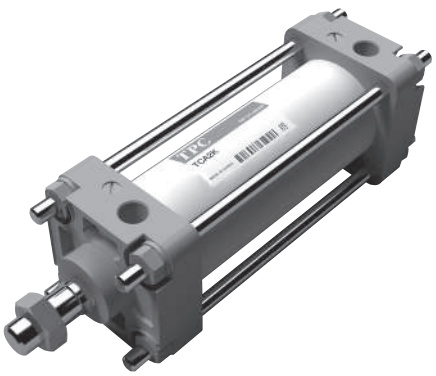
(mm)

Part No.	Applicable bore	TZ	TM	TU	TG	TV	TN	TO	ϕTR	ϕTK	TS	TH	TF	TY	W1	T	ϕTD-H10
TCA1-S04	ϕ40	80	60	10	102	85	119	17	9	17	12	45	60	62	10	93	$15^{+0.070}_{0}$
	ϕ50	80	60	10	112	95	129	17	9	17	12	45	60	74	10	103	$15^{+0.070}_{0}$
TCA1-S06	ϕ63	100	70	15	130	110	150	20	11	22	14	55	73	90	10	107	$18^{+0.070}_{0}$
TCA1-S08	ϕ80	120	90	15	166	140	192	26	13.5	24	17	75	100	110	12	129	$25^{+0.084}_{0}$
	ϕ100	120	90	15	188	162	214	26	13.5	24	17	75	100	130	12	135	$25^{+0.084}_{0}$

Series AMK

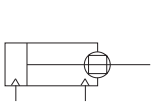
Non-Rotating Piston Rod Type

Non-lube Type : Ø40, Ø50, Ø63



- HIGH NON-ROTATING ACCURACY/±0.5°
- SAME MOUNTING DIMENSION AS OUR STANDARD TYPE
- AUTO SWITCH CAN BE MOUNTED (TIE ROD MOUNT TYPE)
- NON-LUBRICATED OPERATION POSSIBLE

Symbol



Piston Rod cross section

How to Order

AMK L 40 200 J ○ W3 □

1 2 3 4 5 6 7 8

1 Non-Rotating Piston-Rod Type Series (Built-in Magnet)

2 Mounting

3 Bore Size

4 Stroke

5 With Rod Boot

6 Order Made Option

7 Auto Switch

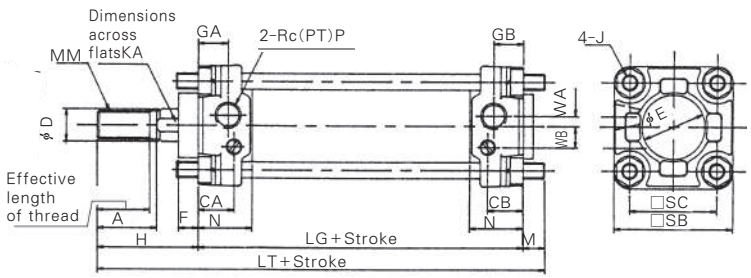
8 Number of Auto Switches

※ For details, please refer to page 186

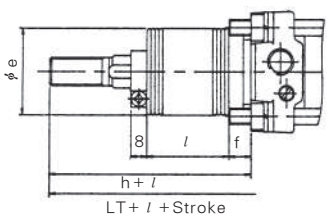
Specification

Fluid	Air
Proof pressure	1.5MPa(213psi)
Max.operating pressure	1.0MPa(140psi)
Min.operating pressure	0.5MPa(7psi)
Ambient and fluid temperature	5~60℃(41~140°F)
Piston speed	50~500mm/s
Cushion	Air Cushion
Stroke tolerance	φ40:25~500st:$^{+1.4}_{0}$, φ50, φ63:25~600st:
Allowable rotational torque	±0.5°
Lubication	Not required
Bore size(mm)	φ40, φ50, φ63,
Basic, Foot, front flange Mounting	Basic, Foot, Front flange, Rear flange, Single clevis, Double clevis, Center trunnion

Basic Type(B)



With Single Rod Boot



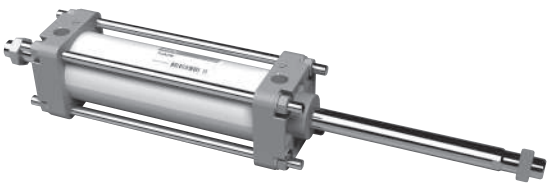
Bore size (mm)	Stroke range		Effective length of thread	A	□SB	□SC	CA	CB	φD	φE	F	GA	GB	J	KA	MM	N	P	LG	WA	WB
	Without Rod Boot	With Rod Boot																			
φ40	~500	20~500	27	30	60	44	18	18	16	32	10	15	15	M8×1.25	14	M14×1.5	27	1/4	84	5	10.5
φ50	~600	20~600	32	35	70	52	21	21	20	40	10	17	17	M8×1.25	18	M18×1.5	30	3/8	90	8	9.9
φ63	~600	20~600	32	35	85	64	21	21	20	40	10	17	17	M10×1.25	18	M18×1.5	31	3/8	98	9	11.5

Bore size (mm)	Without Rod Boot		With Rod Boot				
	H	LT	φe	f	h	l	LT
φ40	51	146	43	11.2	59	1/4 Stroke	154
φ50	58	159	52	11.2	66		167
φ63	58	170	52	11.2	66		178

Series AMW

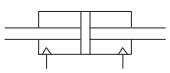
Double Rod End Type

Bore Size(mm) : Ø40, Ø50, Ø63, Ø80, Ø100



- DOUBLE ROD END TYPE CYLINDER
- LONG LIFE, HIGH SPEED OPERATION POSSIBLE
- NON-LUBRICATED OPERATION POSSIBLE
- AUTO SWITCH CAN BE MOUNTED (TIE ROD MOUNT TYPE)

Symbol



How to Order

AMW [1] L [2] N [3] 40 [4] 200 [5] JJ [6] [7] W3 [8] [9]

[1] Double Rod End Cylinder Built-in Magnet

[2] Mounting

[3] Type
N : Non-lube
H : Air-hydro

[4] Bore Size

[5] Stroke
ϕ40 : 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
ϕ50 : 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
ϕ63 : 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
ϕ80 : 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
ϕ100 : 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500

[6] Rod Boot
J : Nylon tarpaulin(Single gaiter)
JJ : Nylon tarpaulin(Double gaiter)
K : Neoprene cloth(Single gaiter)
KK : Neoprene cloth(Double gaiter)

[7] Order Made Option

[8] Auto Switch

[9] Number of Auto Switches

※ For details, please refer to page 186

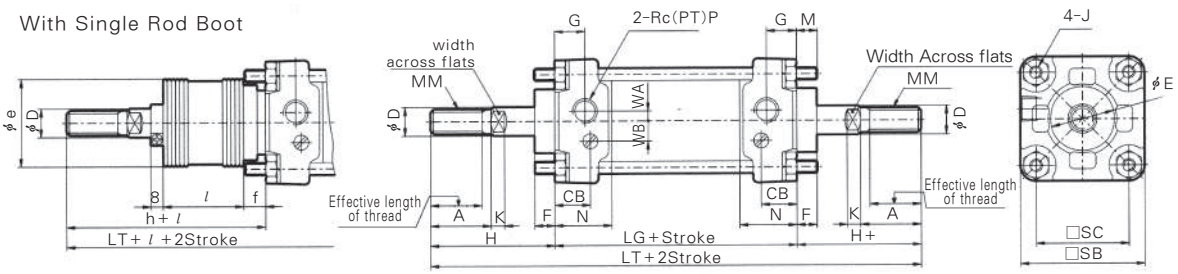
Specifications

Type	Non-lube	Air-hydro
Fluid	Air	L.P.Oil
Proof pressure	1.5Mpa(213psi)	
Max.operating pressure	1.0Mpa(140psi)	
Min.operating pressure	0.08MPa(1psi)	0.16MPa(22psi)
Piston speed	50~500mm/s	0.5~300mm/s
Ambient and fluid temperature	5~60℃(41~140°F)	
Cushion	Both side	None
Stroke tolerance	~250st : $^{+1.0}_{0}$, 251~750st : $^{+1.4}_{0}$	
Mounting	Basic, Foot, Flange, Center trunnion	

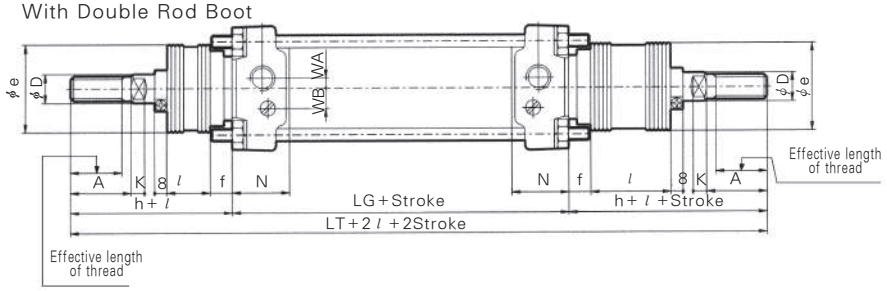
Basic Type/(B)

Non-Lube Type(AMWBN), Air-Hydro Type(AMWBH)

With Single Rod Boot



With Double Rod Boot



Bore size (mm)	Stroke range(mm) Without Rod Boot	Stroke range(mm) With Rod Boot	Effective length of thread	A	□SB	□SC	CA	CB	ϕD	ϕE	F	G	J	K	M	MM	N	P	LG	WA	WB
ϕ40	~500	20~500	27	30	60	44	18	18	16	32	10	15	M8×1.25	6	11	M14×1.5	27	1/4	84	5	10.5
ϕ50	~600	20~600	32	35	70	52	21	21	20	40	10	17	M8×1.25	7	11	M18×1.5	30	3/8	90	8	9.9
ϕ63	~600	20~600	32	35	85	64	21	21	20	40	10	17	M10×1.25	7	14	M18×1.5	31	3/8	98	9	11.5
ϕ80	~750	20~750	37	40	102	78	26	26	25	52	14	21	M12×1.75	11	17	M22×1.5	37	1/2	116	11	13
ϕ100	~750	20~750	37	40	116	92	28	28	30	52	14	21	M12×1.75	11	17	M26×1.5	40	1/2	126	13	14

Bore size	Without Rod Boot		With Rod Boot(Single)				(Double)	
(mm)	H	LT	ϕe	f	h	l	LT	LT
ϕ40	51	186	43	11.2	59	1/4 Stroke	194	202
ϕ50	58	206	52	11.2	66		214	222
ϕ63	58	214	52	11.2	66		222	230
ϕ80	71	258	65	12.5	80		267	276
ϕ100	72	270	65	14.0	81		279	288

Adjustable Stroke Cylinder/Extension adjustable Type

AM | Mounting | Type | Bore size | Stroke | Rod Boot | Stroke Additional symbol — XC8

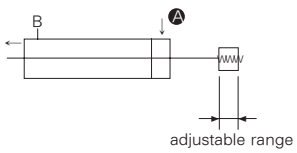
ROD BOOT●
Blank—Without Rod Boot
J —With Rod Boot(Nylon tarpaulin)
K —With Rod Boot(Neoprene cloth)

●Stroke Additionnal symbol
A—Stroke adjusting range 0~-25mm
B—Stroke adjusting range 0~-50mm

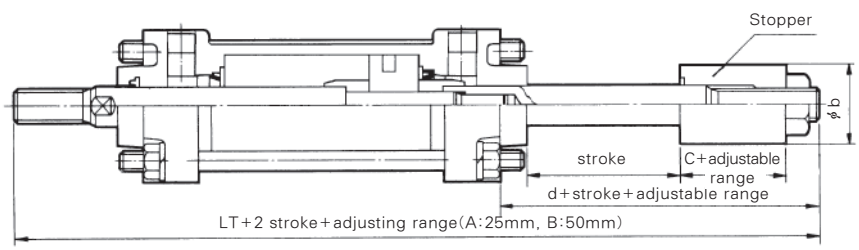
The stroke at the extended end of the cylinder can be adjusted by the stopper in the head side from full stroke 0~-25mm or 0~-50mm

※ If you want lubrication types, inquire with us.

Symbol



Construction/Dimensions



(mm)

Bore size	ϕb	c	d	LT
ϕ40	ϕ32	22	46	181
ϕ50	ϕ42	28	58.5	206.5
ϕ63		28	54	210
ϕ80	ϕ55	35	70	257
ϕ100		35	70	268

※ Other dimensions are the same for standard type

Order Made Option

Adjustable Stroke Cylinder/Retraction adjustable Type

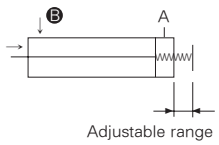
AM | Mounting | Type | Bore size | Stroke | Rod Boot | Stroke Additional symbol — XC9

Additional symbol
Blank—Without Rod Boot
J —With Rod Boot (Nylon tarpaulin)
K —With Rod Boot (Neoprene cloth)

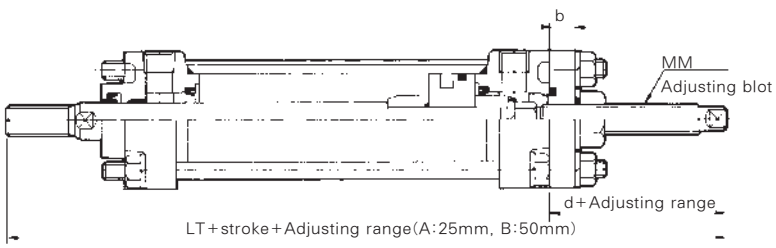
Stroke Additional symbol
A—Stroke adjusting range 0~-25mm
B—Stroke adjusting range 0~-50mm

The stroke at retraction of the cylinder can be adjusted from 0~-25mm or 0~-50mm by the adjusting bolt.

Symbol



Construction/Dimensions



※ Other dimensions are the same for standard type

(mm)

Bore Size	MM	b	d	LT
ϕ40	M16×1.5	9	43	178
ϕ50	M16×1.5	11	44	192
ϕ63	M20×1.5	11	48	204
ϕ80	M24×1.5	15	59	246
ϕ100	M24×1.5	15	57	255

Dual Stroke Cylinder/Double Rod Type

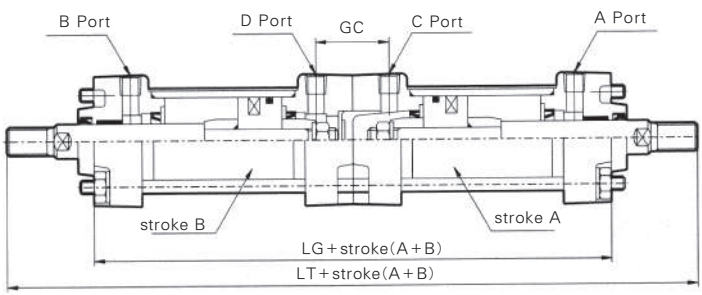
AM | Mounting | Type | Bore size | Stroke A | Rod Boot | + | Stroke B | Rod Boot — XC10

Additional symbol
Blank—Without Rod Boot
J—With Rod Boot (Nylon tarpaulin)
K—With Rod Boot (Neoprene cloth)

Two cylinders are constructed as one cylinder in a back-to-back configuration allowing the cylinder stroke to be controlled in three steps.

※ If you want lubrication types, inquire with us

Construction/Dimensions



※ Other dimensions are the same for standard type.

(mm)

Bore size	GC	LG	LT
ϕ40	29	167	269
ϕ50	33	179	295
ϕ63	33	195	311
ϕ80	41	231	373
ϕ100	41	251	395

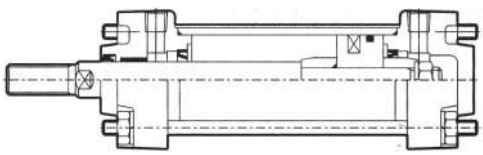
With Scraper

AM Mounting Type Bore size Stroke — XC4

Specifications

Type	Lube, Non-Lube
Applicable cylinder bore size	ϕ40, ϕ50, ϕ63, ϕ80, ϕ100
Max.operating pressure	1.0MPa(140psi)
Min.operating pressure	0.05MPa(7psi)
Cushion	Air cushion(Standard)
Wiper ring	Material:SCB
Mounting	Basic type, Axial foot type, Rod side flange type, head side flange type, Single clevis type, Double clevis type, center trunnion

Construction



※ Dimensions are the same for standard type.

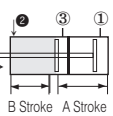
Dual Stroke Cylinder/Single Rod Type

AM Mounting Type Bore Size — Stroke A Additional Symbol + Stroke B-A Additional Symbol — XC11

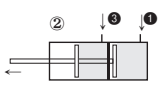
Two cylinders are unificated into one cylinder in series.
Cylinder stroke can be controlled not only back and forth, but also 2 steps.
Also, output can be two times.
ex) AMB50-50+50-XC11 : S_1=50mm, S_2=100mm

Symbol

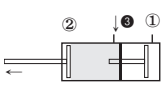
Function



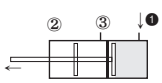
If air is supplied into ❷port, A stroke, and B stroke move backward.



If air is supplied into ❶port, and ❸ port, output can be two times in a range of A stroke.

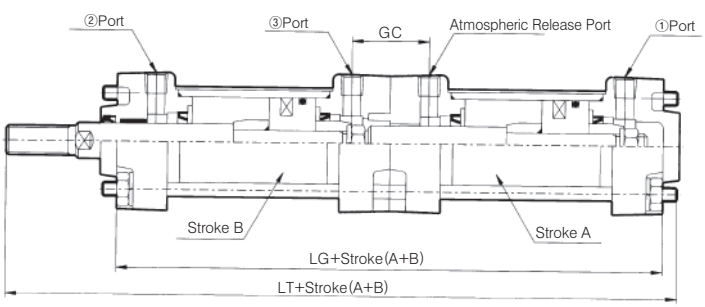


If air is supplied into ❸port, a rod and B stroke are operated.



If air is supplied into ❶port, a rod and A stroke are operated.

Construction/Dimensions



(Unit : mm)

Bore Size(mm)	GC	LG	LT
40	29	168	230
50	33	180	249
63	33	196	268
80	41	232	320
100	41	252	341

Order Made Option

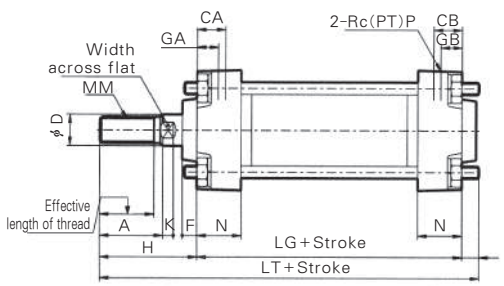
Over Sized Rod

AM Mounting Type Bore size Stroke Suffix – XB5

The Piston Rod for the cylinder has larger diameter and increased intensity. In addition the stroke is long and this cylinder can be used in the cases of existing applications for bent Piston Rods.

Type	Lube, Non-lube				
Bore size(mm)	ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Piston rod diameter(mm)	ϕ20	ϕ25	ϕ25	ϕ30	ϕ36

Construcion/Dimensions



(mm)

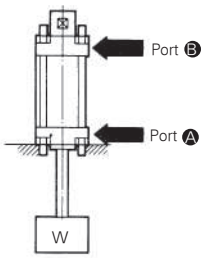
Bore size(mm)	A	ϕD	K	MM	P	H	LT
40	35	20	7	M18×1.5	1/4	58	153
50	40	25	11	M22×1.5	3/8	71	172
63	40	25	11	M22×1.5	3/8	71	183
80	40	30	11	M26×1.5	1/2	72	205
100	50	36	15	M30×1.5	1/2	85	228

※ Other dimensions are the same for Series AM standard type.

End Lock Cylinder

AM Mounting Type Bore size Stroke Suffix – X105

※ If you want lubrication types, inquire with us

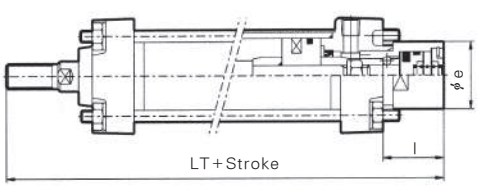


When the port B is the status of evacuation, the lock will be unlocked automatically if the piston rod reach the end of the head side stroke.
Moreover the lock will be unlocked automatically if the air goes into the port B.

Specifications

Type	Lube, Non-lube
Bore size	ϕ40, ϕ50, ϕ63, ϕ80, ϕ100
Cushion	Air Custion
Action	Double Acting
Retaining force	ϕ40:20kgf, ϕ50~ϕ100:150kgf
Lock start pressure	0.05MPa(7psi)
Lock release pressure	0.2MPa(28psi)
Mounting	Basic, Foot, Flange, Center trunnion

Construction/Dimensions



(mm)

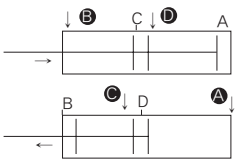
Bore size	ϕe	l	LT
ϕ40	34	31	166.0
ϕ50	48	47.5	195.5
ϕ63	48	47.5	203.5
ϕ80	50	47.0	234.0
ϕ100	50	49.0	247.0

Tandem Type Air Cylinder

AM (Mounting)(Type)(Bore size)–(Stroke)(Suffix)– XC12

This cylinder is produced with two air cylinders in line allowing double the output force.

Symbol



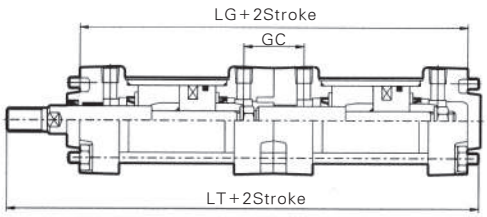
When air pressure is supplied to ports Ⓑ and Ⓓ,the output force is doubled in the return stroke.

When air pressure is supplied to ports Ⓐ and Ⓒ, the output force is doubled in the extend stroke.

Specifications

Type	Lube, Non-lube
Bore size	ϕ40, ϕ50, ϕ63, ϕ80, ϕ100
Max.operating pressure	1.0MPa(140psi)
Min.operating pressure	0.1MPa(14psi)
Cushion	Air cushion(Standard)
Action	Double Acting
Mounting	Basic type, Foot type, Rod side flange type, Head side flange type, Single clevis type, Double clevis type

Construction



(mm)

Bore size	GC	LG	LT
ϕ40	29	169	231
ϕ50	33	181	250
ϕ63	33	197	269
ϕ80	41	233	321
ϕ100	41	253	342

High Temperature Cylinder

AM (Mounting) N (Bore size)–(Stroke)(Suffix)– XB6

Can be used at high temperature up to 150°C

Specifications

Type	Non-lube
Bore size	ϕ40, ϕ50, ϕ63, ϕ80, ϕ100
Ambient and media temperature	-20~+150℃(-4~302°F)
Seal material	FPM

※ Auto-switch is not available

Stainless Steel Rod

AM (Mounting)(Type)(Bore size)–(Stroke)(Suffix)– XC6

Suffix-Cushion ●
Blank – Both End Cushion
R – Rod End Cushion
H – Rod Head Cushion
N – Non-Cushion

Stainless steel piston rod is used to protect in harsh or wet environment.
Auto-switch mounting available

Specifications

Type	Lube, Non-lube, Air-hydro
Bore size	ϕ40, ϕ50, ϕ63, ϕ80, ϕ100
Piston rod nut material	Stainless steel(SUS 304)

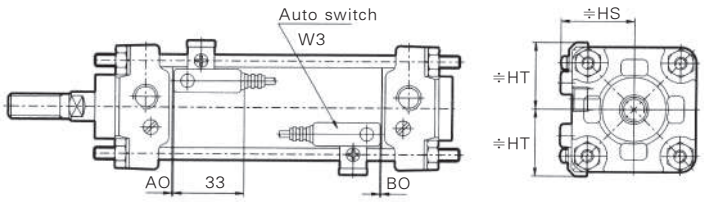
With Coil Scraper

AM (Mounting)(Type)(Bore size)–(Stroke)(Suffix)– X104

Cushion ●
Blank – Both End
R – Rod End
H – Head End
N – Without cushion

Auto Switch Mounting Position(At stroke End)

W3



Auto s/w model	Auto s/w mounting position	Auto s/w placement dimensions(mm)				
		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
W3	AO	0(0)	0(0)	0(2.5)	2(6)	4(7.5)
	BO	1(0)	1(0)	5(1.5)	8(4)	10(6.5)
	HS	40	43.5	49	55.5	63
	HT	31	35	42	50	57.5

※ ( ):in parenthesis are for long stroke, non-lube type and air-hydro type, but long stroke is available only for foot type and front flange type in the series AM

Minimum Auto Switch Mountable Stroke

Minimum auto switch mountable stroke is as follows.

n:No. of auto switch

Auto switch model	No. of Auto switch	Mounting bracket except trunnion	Center trunnion			
			ϕ40, ϕ50	ϕ63	ϕ80	ϕ100
W3	With 2 switch (different, same surface) with 1 switch	15	90	100	110	120
	With n switches (same surface)	$15+55\left(\frac{n-2}{2}\right)$ n=1, 2, 3, 4,···	$90+100\left(\frac{n-4}{2}\right)$ n=4, 8, 12, 16, ···	$100+55\left(\frac{n-4}{2}\right)$ n=4, 8, 12, 16, ···	$110+55\left(\frac{n-4}{2}\right)$ n=4, 8, 12, 16, ···	$120+55\left(\frac{n-4}{2}\right)$ n=4, 8, 12, 16, ···

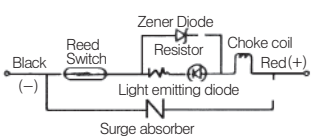
Auto Switch Specifications

Auto Swich Model	W3		
Application	Relay, Sequence Control		
Load Voltage	DC24V	AC100V	AC200V
Max. Load Current / Range of Load Current	5~50mA	5~25mA	5~12.5mA
Protection Circuit Contact Breaker Point	Built-in		
Internal Voltage Drop	2.4V		
Indicator Lamp	ON:Red Light Emitting Diode		

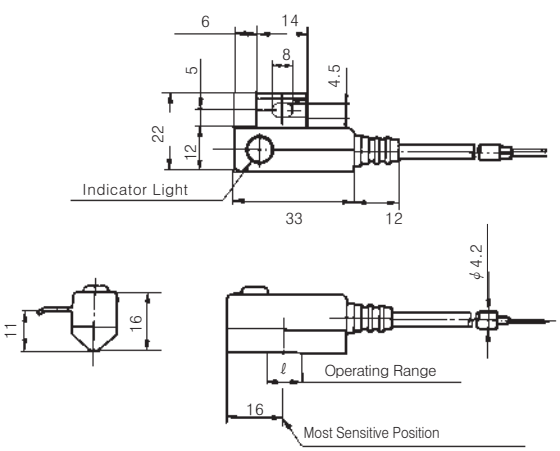
- Leakage current – None
- Response time – 1.2ms
- Lead Wire – Oil proof vinyl. ϕ4, (0.3)mm^2, 2 wire(red, black), 0.5m
- Impact Resistance – 30G
- Insulation Resistance – 50MΩ or more under the test voltage 500VDC (Between case and cable)
- Withstand Voltage – 1500VAC 1min(between case and cable)
- Ambient Temperature – −10~60℃
- Protection Structure – IEC spec IP67, Water-proof(JISCO920), oil-proof.

※ If 3m lead wire is required, L is put at end of model numbers.
(Example) W3L

Auto Switch/Internal Circuit



Auto Switch Dimensions (mm)



Operating Range (ℓ Dimensions) (mm)

Series	Bore Size(mm)				
	ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
AM	9	10	11	11	11