

Series **AM**

Air Cylinder/Double Acting

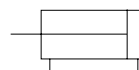
Lube · Non-Lube · Air-Hydro Type/ø 40, ø 50, ø 63, ø 80, ø 100



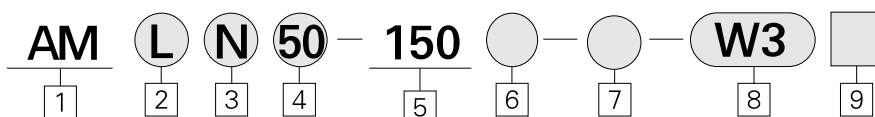
- BUILT-IN AIR CUSHION
- DESIGNED FOR LONG LIFE & HIGH SPEED
- AVAILABLE FOR THE WIDE STROKE & BORE SIZE

Symbol

Double acting



How To Order



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

4 Bore Size(mm)
40 : ø 40
50 : ø 50
63 : ø 63
80 : ø 80
100 : ø 100

5 Stroke/(mm)

6 Rod Boot Option
Rod Boot J : Nylon tarpaulin
K : Neoprene cloth
Cushion Blank : Both end
N : None
H : Head end
R : Rod end

※ Air-hydro type : Standard type is without cushion.
※ Suffix in alphabetical sequence when symbols more than double.

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

8 Applicable Auto Switch
Blank : Without Auto Switch
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(Optional)
(Example) W3 - W3L

9 Number of Switches
Blank : 2 pcs.
S : 1 pc.
2 : 2 pcs.
n : n pcs.

Model

Model	Type	Action	Seal
AM	Lubricated		O Ring
AMON	Non-lube	Double	Special
AMOH	Air-hydro		Special

Parts No. Of Mounting Bracket

Bore size	ø 40	ø 50	ø 63	ø 80	ø 100
※ 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

※ 2 pcs min for order of only one cylinder.

Specifications

Type	Lube, Non-lube	Air-hydro
Fluid	Air	L.P.Oil
Proof pressure	15kgf/cm ² {1.47MPa}	
Max. operating pressure	9.9kgf/cm ² {0.97MPa}	
Min. operating pressure	0.5kgf{0.05MPa}	1.0kgf{0.1MPa}
Ambient and fluid temperature	5~60°C	
Piston speed	50~500mm/s	0.5~300mm/s
Cushion	Air Cushion	Not Available
Stroke tolerance	~250 st : $\begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$, 251~1,000 st : $\begin{smallmatrix} +1.4 \\ 0 \end{smallmatrix}$, 1,001~1,500 st : $\begin{smallmatrix} +1.8 \\ 0 \end{smallmatrix}$	
Mounting	Basic, Foot, Front flange, Rear flange, Single clevis, Double clevis, Center trunnion	

Weight/Aluminum Tube(Iron Tube)

(kgf)

Bore size		ø 40	ø 50	ø 63	ø 80	ø 100
Basic Weight	Basic	0.89 (0.94)	1.36 (1.40)	2.00 (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)	1.70 (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)	7.17 (7.38)
	Trunnion	1.25 (1.35)	1.84 (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	0.26	0.26	0.60	0.83
	Double knuckle(with pin)	0.37	0.43	0.43	0.87	1.27

※ In parenthese are for Iron tube type.

Example

AML 40-100(Foot, ø 40, 100st)

- Basic weight 1.08kgf
 - Additional weight ... 0.22/50st
 - Cylinder stroke 100st
- $$1.08 + 0.22 \times 100/50 = 1.52\text{kgf}$$

Accessories

Mounting Description		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	ø 40
	TBT-04	ø 50
	TBT-06	ø 63
	TBT-08	ø 80
	TBT-08	ø 100

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	Lubricated	NBR	PDU JIS B2401 O-ring
	Non-lube	NBR	PDU, NLP
	Air-hydro	NBR	SCB, SKY, SDA
Piston rod		Carbon steel	Hard chrome plated
Piston		Aluminum alloy	Chromate

Gaiter/Material

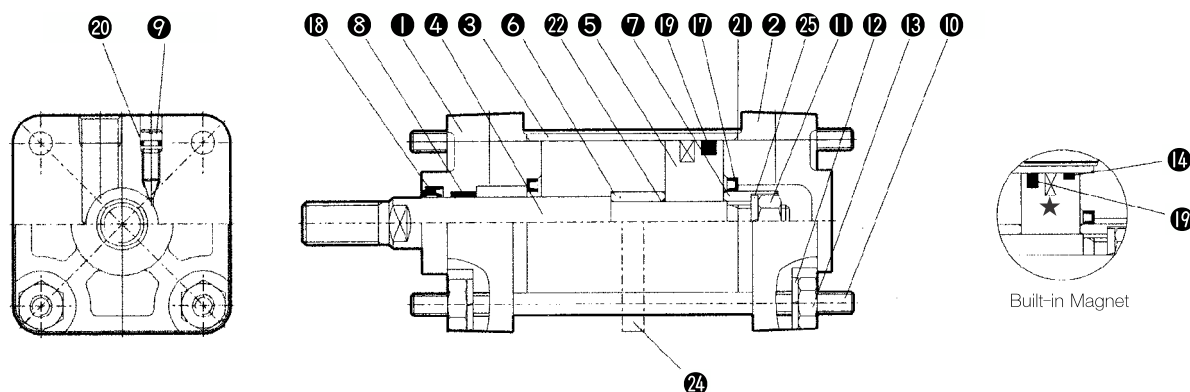
Symbol	Material	Max.ambient temperature
J	Nylon tarpaulin	60℃
K	Neoprene cloth	※110℃

※ 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 spindle oil.
- ⑤ <L. P. Oil>
Use ISO VG-22-46 or equivalent L. P. oil.
Never use machine oil nor 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
①	Rod cover	Aluminum alloy	Silver paint
②	Head cover	Aluminum alloy	Silver paint
③	※Cylinder tube	Aluminum alloy	Hard alumite
④	Piston rod	Carbon steel	Hard chrome plated
⑤	Piston	Aluminum alloy	Chromate
⑥	Cushion ring A	Rolled steel	Chromate
⑦	Cushion ring B	Rolled steel	Chromate
⑧	Bush	Lesd bronze casting	-
⑨	Cushion Valve	Rolled steel	Chromate
⑩	Tie rod	Carbon steel	Zinc chromate
⑪	Piston nut	Rolled steel	Chromate
⑫	Spring washer	Steel wire	Black Zinc chromate
⑬	Tie rod nut	Rolled steel	Black Zinc chromate
⑭	Wearing	Resin	-
⑮	※Tie rod reinforcing ring	Cast iron	-
⑯	Spring washer	Steel wire	Zinc chromate

※ ⑮ 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
Lube Type							
17	Cushion seal	NBR	DSM-20	DSM-25	DSM-25	DSM-30	DSM-35
18	Rod seal		PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z
19	Piston seal		P34	P44	P53	P70	P90
20	Cushion Valve seal		P3	P3	P3	P5	P5
21	Cylinder tube gasket		TC2A040-16-1496	TC2A050-16-1497	TC2A063-16-1498	TC2A080-16-1499	TC2A100-16-1490
22	Piston gasket		TCA40-1606	TCA63-1608	TCA63-1608	TCA80-1609	TCA100-1610
Lube Type/Long Stroke							
19	Piston seal	NBR	NLP-40A	NLP-50A	NLP-63A	NLP-80A	NLP-100A
None-Lube Type			Same as lube type except 19				
19	Piston seal	NBR	NLP-40A	NLP-50A	NLP-63A	NLP-80A	NLP-100A
Air-hydro Type			Same as lube type except 18, 19 and 23				
18	Rod seal		SKY-16	SKY-20	SKY-20	SKY-25	SKY-30
19	Piston seal	NBR	SDA-40	SDA-50	SDA-63	SDA-80	SDA-100
23	Wiper ring		SCB-16	SCB-50	SCB-20	SCB-25	SCB-30

★ Magnet (Built-in Magnet)

ACP

AX

AS

AM

AM2

AL
ALX

ARD

AJ

AQ

AG

AGX
GX

ADM

ADR

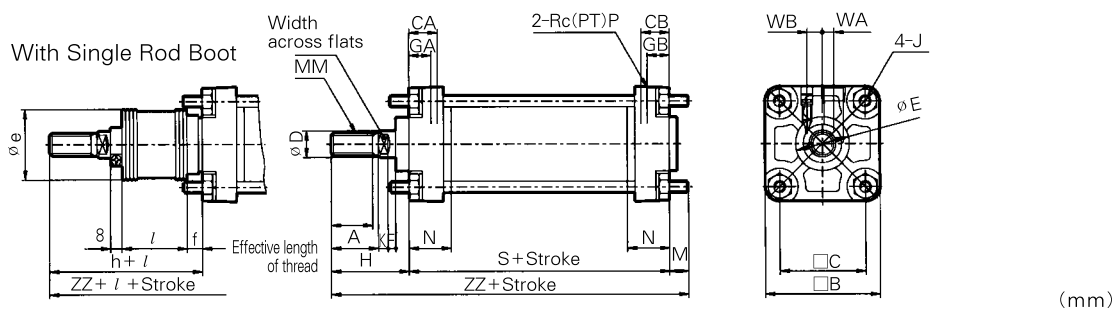
AMR

AST

NLCD

Basic Type/(B)

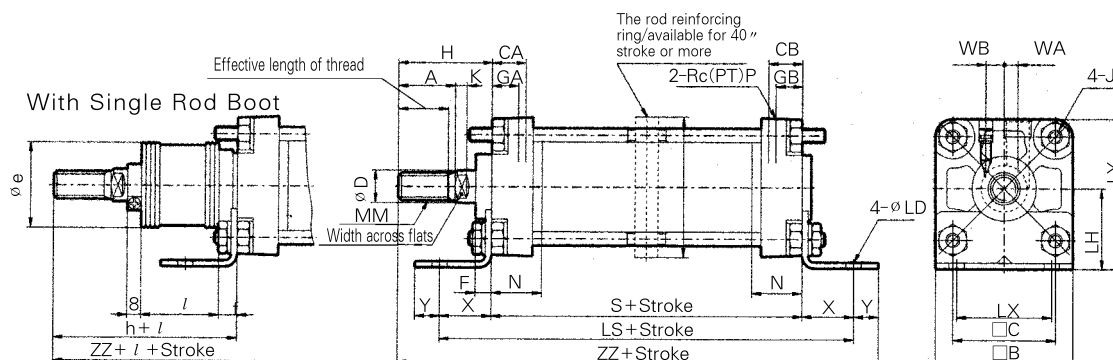
Lube Type(AMB, AMBF), Non-Lube Type(AMBN), Air-Hydro Type(AMBH)



Bore size (mm)	Stroke range(mm)		Effective length of thread	Width across flats	A			CA	CB	ø D	ø E	F	GA	GB	J	K	M	MM	N	P	S	WA	WB	Without Rod Boot		With Rod Boot				
	Without gaiter	With gaiter																						H	ZZ	ø e	f	h	l	ZZ
ø 40	~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
ø 50	~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
ø 63	~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
ø 80	~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
ø 100	~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)

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



Bore size (mm)	Stroke range(mm)		Effective length of thread	A	□B	□C	CA	CB	øD	øE	F	GA	GB	J	K	MM	N	P	S	WA	WB
	Without Rod Boot	With Rod Boot																			
ø40	~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
ø50	~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
ø63	~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
ø80	~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
ø100	~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

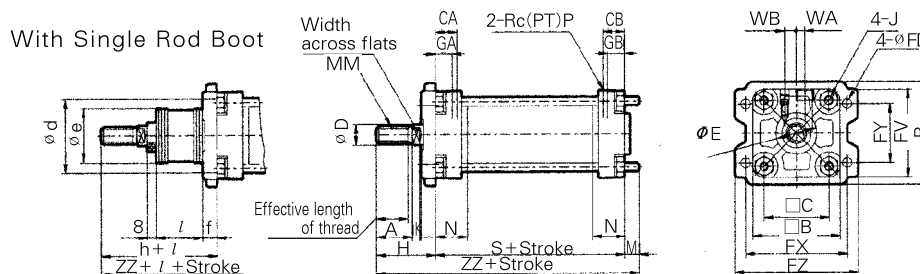
Bore size (mm)	X	Y	øLD	LH	LS	LT	LX	LY	Without Rod Boot		With Rod Boot					
									H	ZZ	øe	f	h	l	ZZ	
ø40	27	13	9.0	40	138	3.2	42	70	51	175	43	11.2	59	1/4 Stroke	183	
ø50	27	13	9.0	45	144	3.2	50	80	58	188	52	11.2	66		196	
ø63	34	16	11.5	50	166	3.2	59	93	58	206	52	11.2	66		214	
ø80	44	16	13.5	65	204	4.5	76	116	71	247	65	12.5	80		256	
ø100	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)	RT	RY
ø40	501~800	—	—
ø50	601~1200	30	76
ø63	601~1200	40	92
ø80	751~1400	45	112
ø100	751~1500	50	136

Front Flange/(F)

Long Type(AMF, AMFF), Non-Lube Type(AMFN), Air-Hydro Type(AMFH)



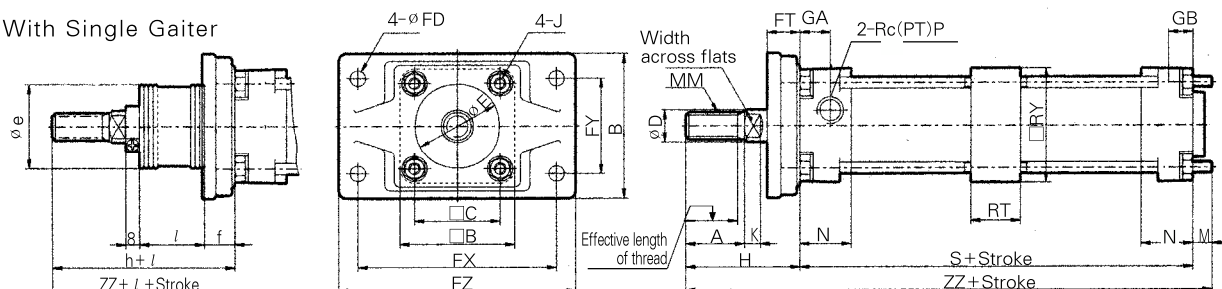
Bore size (mm)	Stroke range(mm)		Effective length of thread	A	B	□B	□C	CA	CB	øD	øE	GA	GB	J	K	M	MM	N	P	S	WA	WB
	Without Rod Boot	With Rod Boot																				
ø40	~800	20~800	27	30	71	60	44	18	18	16	32	15	15	M8×1.25	6	11	M14×1.5	27	1/4	84	5	10.5
ø50	~1,000	20~1,000	32	35	81	70	52	21	21	20	40	17	17	M8×1.25	7	11	M18×1.5	30	3/8	90	8	9.9
ø63	~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
ø80	~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
ø100	~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)	FV	øFD	FT	FX	FY	FZ	Without Rod Boot		With Rod Boot							
							H	ZZ	★ød	øe	f	h	l	ZZ		
ø40	60	9.0	12	80	42	100	51	146	52	43	15	59	1/4 Stroke	154		
ø50	70	9.0	12	90	50	110	58	159	58	52	15	66		167		
ø63	86	11.5	15	105	59	130	58	170	58	52	17.5	66		178		
ø80	102	13.5	18	130	76	160	71	204	80	65	21.5	80		213		
ø100	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 ød.

Long Stroke(1001 Stroke or more)

With Single Gaiter



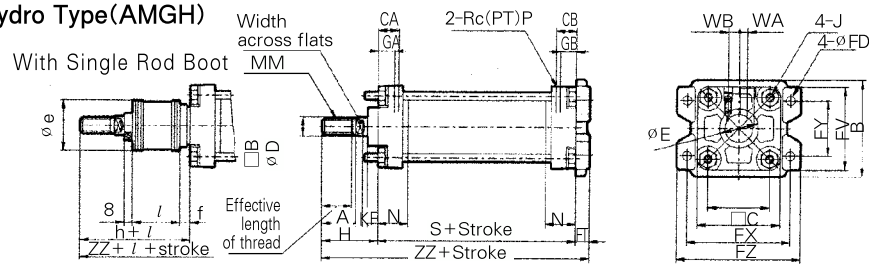
Bore size (mm)	Stroke range (mm)	Effective length of thread	A	B	□B	□C	øD	øE	GA	GB	J	K	M	MM	N	P	S	WA	WB
ø50	1,001~1,200	32	35	88	70	52	20	40	17	17	M8×1.25	7	6	M18×1.5	30	3/8	90	8	9.9
ø63	1,001~1,200	32	35	105	85	64	20	40	17	17	M10×1.25	7	10	M18×1.5	31	3/8	98	9	11.5
ø80	1,001~1,400	37	40	124	102	78	25	52	21	21	M12×1.75	11	12	M22×1.5	37	1/2	116	11	13
ø100	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)	øFD	FT	FX	FY	FZ	RT	RY	Without Rod Boot		With Rod Boot					
								H	ZZ	★ø _e	f	h	<i>l</i>	ZZ	
ø 50	9.0	20	120	58	144	30	76	67	163	52	19	66	1/4 Stroke	162	
ø 63	11.5	23	140	64	170	40	92	71	179	52	19	66		174	
ø 80	13.5	28	164	84	198	45	112	87	215	65	21	80		208	
ø 100	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 øe.

Rear Flange/(G)

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

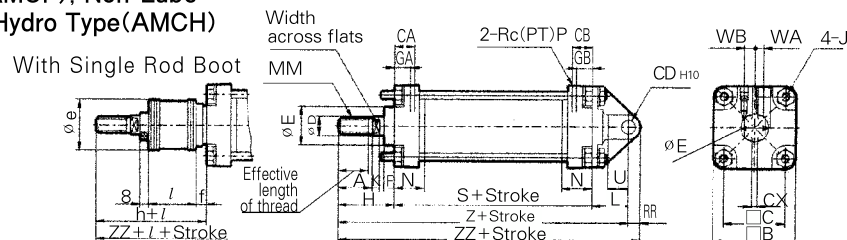


Bore size (mm)	Stroke range		Effective length of thread	A	B	□B	□C	CA	CB	øD	øE	F	GA	GB	J	K	MM	N	P	S	WA	WB
	Without Rod Boot	With Rod Boot																				
ø40	~500	20~500	27	30	71	60	44	18	18	16	32	10	15	15	M8×1.25	6	M14×1.5	27	1/4	84	5	10.5
ø50	~600	20~600	32	35	81	70	52	21	21	20	40	10	17	17	M8×1.25	7	M18×1.5	30	3/8	90	8	9.9
ø63	~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
ø80	~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
ø100	~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)	FV	øFD	FT	FX	FY	FZ	Without Rod Boot		With Rod Boot			
							H	ZZ	øe	f	h	l
ø40	60	9.0	12	80	42	100	51	147	43	11.2	59	155
ø50	70	9.0	12	90	50	110	58	160	52	11.2	66	168
ø63	86	11.5	15	105	59	130	58	171	52	11.2	66	179
ø80	102	13.5	18	130	76	160	71	205	65	12.5	80	214
ø100	116	13.5	18	150	92	180	72	216	65	14.0	81	225

Single Clevis/(C)

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



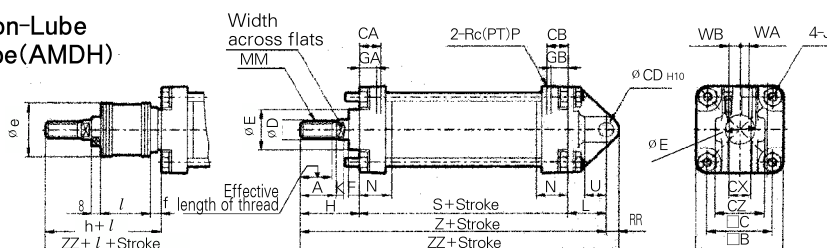
Bore size (mm)	Stroke range		Effective length of thread	A	□B	□C	CA	CB	øD	øE	F	GA	GB	J	K	L	MM	N	P	S	WA	WB
	Without Rod Boot	With Rod Boot																				
ø40	~500	20~500	27	30	60	44	18	18	16	32	10	15	15	M8×1.25	6	30	M14×1.5	27	1/4	84	5	10.5
ø50	~600	20~600	32	35	70	52	21	21	20	40	10	17	17	M8×1.25	7	35	M18×1.5	30	3/8	90	8	9.9
ø63	~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
ø80	~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
ø100	~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	U	øCD _{H10}	CX	Without Rod Boot		With Rod Boot			
					H	Z	ZZ	øe	f	h
ø40	10	16	10 ^{+0.058} ₀	15.0 ^{-0.1} _{-0.3}	51	165	175	43	11.2	59
ø50	12	19	12 ^{+0.070} ₀	18.0 ^{-0.1} _{-0.3}	58	183	195	52	11.2	66
ø63	16	23	16 ^{+0.070} ₀	25.0 ^{-0.1} _{-0.3}	58	196	212	52	11.2	66
ø80	20	28	20 ^{+0.084} ₀	31.5 ^{-0.1} _{-0.3}	71	235	255	65	12.5	80
ø100	25	36	25 ^{+0.084} ₀	35.5 ^{-0.1} _{-0.3}	72	256	281	65	14.0	81

Double Clevis Type/(D)

Lube type(AMD, AMDF), Non-Lube Type(AMDN), Air-Hydro Type(AMDH)

With Single Rod Boot



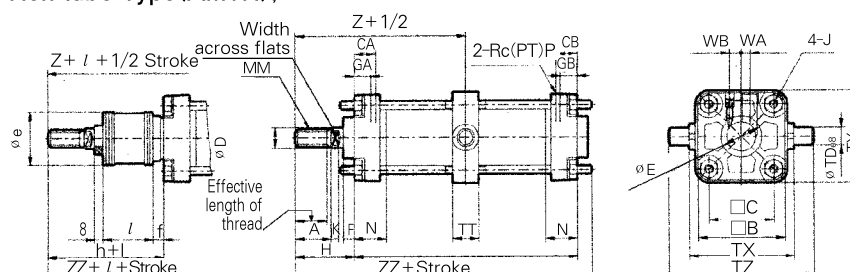
Bore size (mm)	Stroke range		Effective length of thread	A			CA	CB	ø D	ø E	F	GA	GB	J	K	L	MM	N	P	S	WA	WB
	Without Rod Boot	With Rod Boot																				
ø 40	~500	20~500	27	30	60	44	18	18	16	32	10	15	15	M8×1.25	6	30	M14×1.5	27	1/4	84	5	10.5
ø 50	~600	20~600	32	35	70	52	21	21	20	40	10	17	17	M8×1.25	7	35	M18×1.5	30	3/8	90	8	9.9
ø 63	~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
ø 80	~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
ø 100	~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	U	φCD H10	CX	CZ	Without Rod Boot			With Rod Boot					
						H	Z	ZZ	φe	f	h	l	Z	ZZ
φ40	10	16	10	15.0 ^{+0.3} ₀	29.5	51	165	175	43	11.2	59	1/4 Stroke	173	183
φ50	12	19	12	18.0 ^{+0.3} ₀	38	58	183	195	52	11.2	66		191	203
φ63	16	23	16	25.0 ^{+0.3} ₀	49	58	196	212	52	11.2	66		204	220
φ80	20	28	20	31.5 ^{+0.3} ₀	61	71	235	255	65	12.5	80		244	264
φ100	25	36	25	35.5 ^{+0.3} ₀	64	72	256	281	65	14.0	81		265	290

Center Trunnion Type/(T)

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

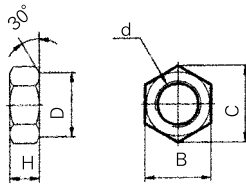
With Single Rod Boot



Bore size (mm)	Stroke range		Effective length of thread	A			CA	CB	ø D	ø E	F	GA	GB	J	K	MM	N	P	S	WA	WB
	Without Rod Boot	With Rod Boot																			
ø 40	~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
ø 50	~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
ø 63	~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
ø 80	~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
ø 100	~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	TT	TX	TY	TZ	Without Rod Boot			With Rod Boot					
						H	Z	ZZ	φe	f	h	l	Z	ZZ
φ40	15	-0.032 -0.059	22	85	62	51	93	140	43	11.2	59	1/4 Stroke	101	148
φ50	15	-0.032 -0.059	22	95	74	58	103	154	52	11.2	66		111	162
φ63	18	-0.032 -0.059	28	110	90	58	107	162	52	11.2	66		115	170
φ80	25	-0.040 -0.073	34	140	110	71	129	194	65	12.5	80		138	203
φ100	25	-0.040 -0.073	40	162	130	72	135	206	65	14.0	81		144	215

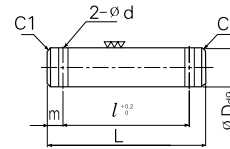
Rod End Nut(Standard accessories)



Material : Rolled steel

Part No.	Applicable bore	d	H	B	C	D
TNT-04	ø 40	M14×1.5	8	22	25.4	21
TNT-05	ø 50 · ø 60	M18×1.5	11	27	31.2	26
TNT-08	ø 80	M22×1.5	13	32	37.0	31
TNT-10	ø 100	M26×1.5	16	41	47.3	39

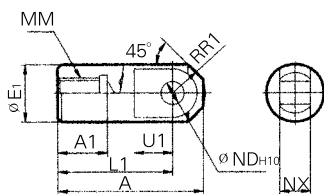
Knuckle Joint Pin/Clevis Pin



Material : Carbon steel

Part No	Bore Size		ø Dd9	L	l	m	ø d	Applicable split pin ø × l
	CLEVIS	KNUCKLE						
TCDP-2	ø 40	—	10 ^{+0.040/-0.076}	45.2	37.2	4	ø 3	ø 3×18l
TCDP-3	ø 50	ø 40 · ø 60	12 ^{+0.050/-0.093}	54.3	46.3	4	ø 3	ø 3×18l
TCDP-4	ø 63	—	16 ^{+0.050/-0.093}	70	60	5	ø 4	ø 4×24l
TCDP-5	—	ø 80	18 ^{+0.040/-0.076}	76	66	5	ø 4	ø 4×25l
TCDP-6	ø 80	ø 100	20 ^{+0.065/-0.117}	82	72	5	ø 4	ø 4×36l
TCDP-7	ø 100	—	25 ^{+0.065/-0.117}	87.5	77.5	5	ø 4	ø 4×36l

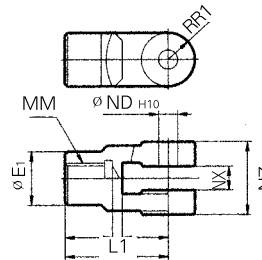
I Type Single Knuckle Joint



Material : Free cutting sulfur steel

Part No.	Applicable bore	A	A1	ø E1	L1	MM	R1	U1	ø NDH10	NX
TI-04	ø 40	69	22	24	55	M14×1.5	15.5	20	12	16 ^{+0.1/-0.3}
TI-05	ø 50 · ø 63	74	27	28	60	M18×1.5	15.5	20	12	16 ^{+0.1/-0.3}
TI-08	ø 80	91	37	36	71	M22×1.5	22.5	26	18	28 ^{+0.1/-0.3}
TI-10	ø 100	105	37	40	83	M26×1.5	24.5	28	20	30 ^{+0.1/-0.3}

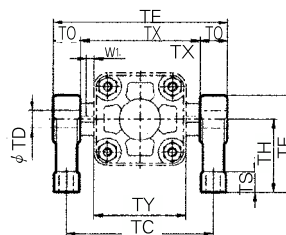
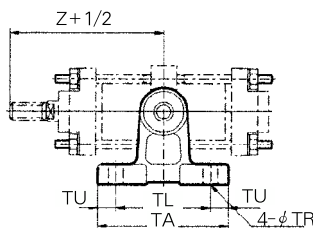
Y Type Double Knuckle Joint



Cast iron

Part No.	Applicable bore	A1	ø E1	L1	MM	R1	U1	ø NDH10	NX	NZ
TY-04A	ø 40	22	24	55	M14×1.5	13	25	12	16 ^{+0.3/+0.1}	38
TY-05A	ø 50 · ø 63	27	28	60	M18×1.5	15	27	12	16 ^{+0.3/+0.1}	38
TY-08A	ø 80	37	36	71	M22×1.5	19	28	18	28 ^{+0.3/+0.1}	55
TY-10A	ø 100	37	40	83	M26×1.5	21	38	20	30 ^{+0.3/+0.1}	61

Trunnion Bracket



Part No.	Applicable bore	TA	TL	TU	TC	TX	TE	TO	ø TR	ø TT	TS	TH	TF	TY	W1	Z	ø TD-H10
TCA2-S04	ø 40	80	60	10	102	85	119	17	9	17	12	45	60	62	10	93	15 ^{+0.070/0}
	ø 50	80	60	10	112	95	129	17	9	17	12	45	60	74	10	103	15 ^{+0.070/0}
TCA2-S06	ø 63	100	70	15	130	110	150	20	11	22	14	55	73	90	10	107	18 ^{+0.070/0}
TCA2-S08	ø 80	120	90	15	166	140	192	26	13.5	24	17	75	100	110	12	129	25 ^{+0.084/0}
	ø 100	120	90	15	188	162	214	26	13.5	24	17	75	100	130	12	135	25 ^{+0.084/0}

Series **AMK**

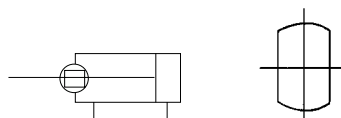
Non-Rotating Piston Rod Type

Non-Lube Type / $\phi 40$, $\phi 50$, $\phi 63$



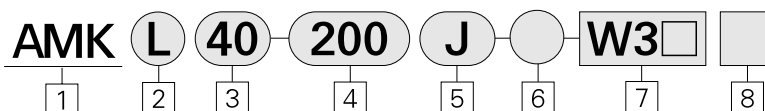
- HIGH NON-ROTATING ACCURACY/ $\pm 0.5^\circ$
- SAME MOUNTING DIMENSION AS OUR STANDARD TYPE
- AUTO SWITCH CAN BE MOUNTED (TIE ROD MOUNT TYPE)
- NON-LUBRICATED OPERATION POSSIBLE

Symbol



Piston Rod cross section

How to Order



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 Applicable Auto Switch

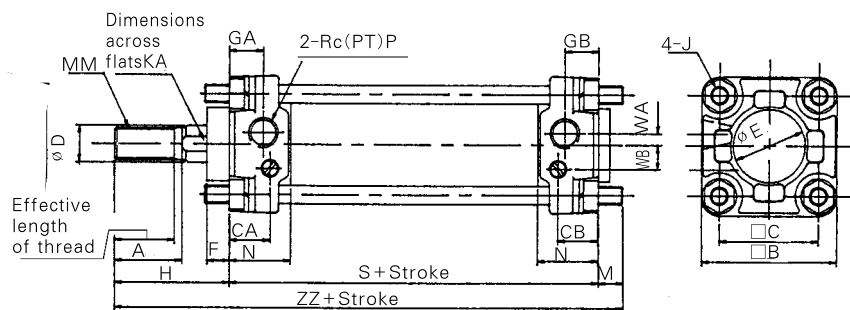
8 Number of Switch

Specification

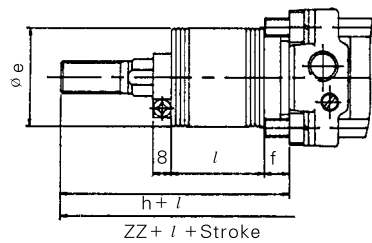
Fluid	Air
Proof pressure	15kgf/cm ² {1.47MPa}
Max.operating pressure	9.9kgf/cm ² {0.97MPa}
Min.operating pressure	0.5kgf/cm ² {0.5MPa}
Ambient and fluid temperature	5~60℃
Piston speed	50~500mm/s
Cushion	Air Cushion
Stroke tolerance	$\phi 40: 25 \sim 500^{st: +1.4}_0$, $\phi 50$, $\phi 63: 25 \sim 600^{st: +1.4}_0$
Allowable rotational torque	$\pm 0.5^\circ$
Lubrication	Not required
Bore size(mm)	$\phi 40$, $\phi 50$, $\phi 63$,
Basic, Foot, front flange, Mounting	Basic, Foot, front flange, Rear flange, single clevis, Double clevis, Center trunnion

※ Other how to Order:
Same as that of Series AM/How to Order(Refer to page A-108)

Basic Type(B)



With Single Rod Boot



Bore size (mm)	Stroke range		Effective length of thread	A	☐ B	☐ C	CA	CB	ϕD	ϕE	F	GA	GB	J	KA	MM	N	P	S	WA	WB
	Without Rod Boot	With Rod Boot																			
$\phi 40$	~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
$\phi 50$	~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
$\phi 63$	~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	ZZ	ϕe	f	h	l	ZZ		
$\phi 40$	51	146	43	11.2	59		154		
$\phi 50$	58	159	52	11.2	66	1/4 Stroke	167		
$\phi 63$	58	170	52	11.2	66		178		

Series **AMW**

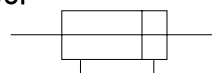
Double Rod End Type

Bore size / $\varnothing 40$, $\varnothing 50$, $\varnothing 63$, $\varnothing 80$, $\varnothing 100$

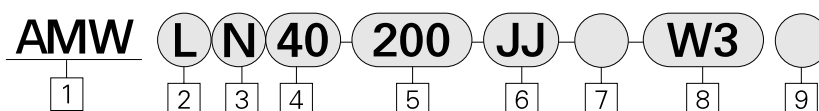


- DOUBLE ROD END TYPE CYLINDER
- LONG LIFE, HIGH SPEED OPERATION POSSIBLE
- NON-LUBRICATED OPERATION POSSIBLE
- AUTO SWITCH CAN BE MOUNTED (TIE ROD MOUNT TYPE)

Symbol



How to Order



1 Double Rod End Cylinder Built-in Magnet

2 Mounting

3 Type

Blank : Lubricated
N : Non-lube
H : Air-hydro

4 Bore Size

5 Stroke

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 Applicable Auto Switch

9 Number of Switch

Cylinder Stroke

(mm)

Bore Size	Standard Stroke
$\varnothing 40$	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
$\varnothing 50$	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
$\varnothing 63$	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
$\varnothing 80$	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700
$\varnothing 100$	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700

※ Other how to Order:

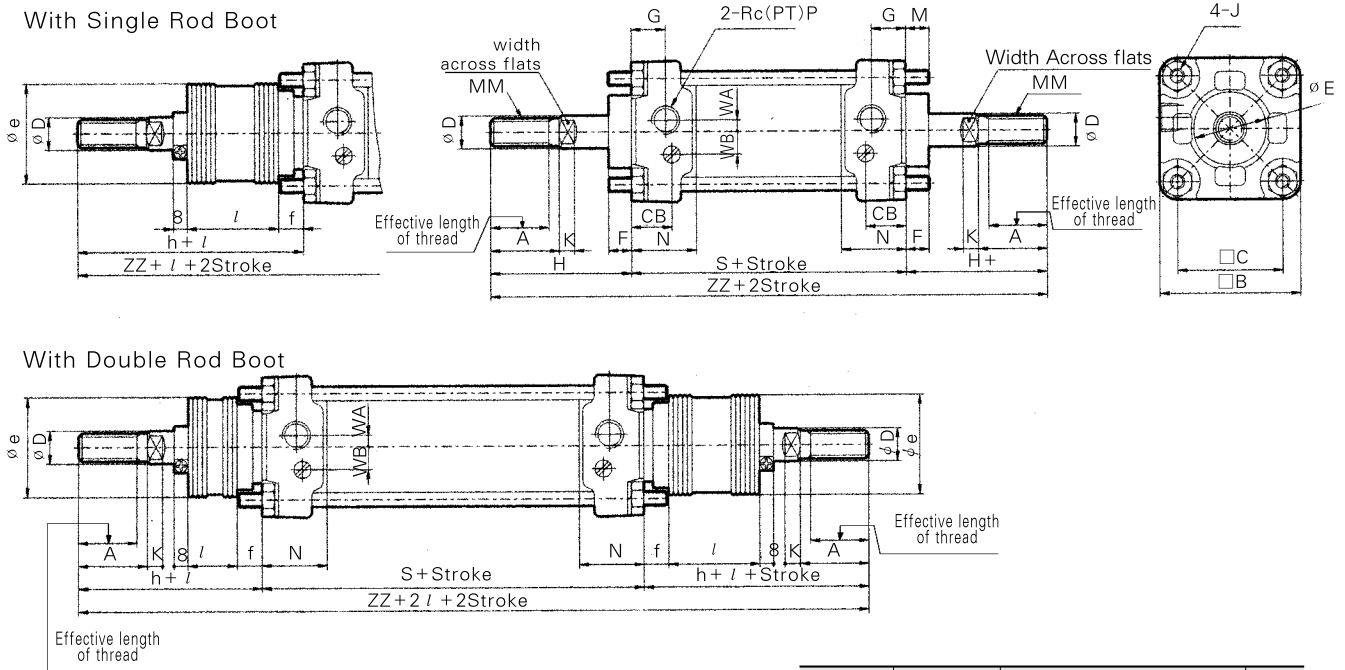
Same as that of Series AM/How to Order(Refer to page A-108)

Specifications

Type	Lube-Non-lube	Air-hydro
Fluid	Air	
Proof pressure	15kgf/cm ² {1,500kPa}	
Max.operating pressure	9.9kgf/cm ² {990kPa}	
Min.operating pressure	0.8kgf/cm ² {80kPa}	1.6kgf/cm ² {160kPa}
Piston speed	50~500mm/s	0.5~300mm/s
Ambient and fluid temperature	5~60℃	
Cushion	Both side	None
Stroke tolerance	~250 st : ^{+1.0} ₀ , 251~750 st : ^{+1.4} ₀	
Mounting	Basic, Foot, Flange, Center trunnion	

Basic Type/(B)

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



Bore size (mm)	Without Rod Boot		With Rod Boot(Single)					(Double)	
	H	ZZ	ø e	f	h	l	ZZ	ZZ	
ø40	51	186	43	11.2	59	1/4 Stroke	194	202	
ø50	58	206	52	11.2	66		214	222	
ø63	58	214	52	11.2	66		222	230	
ø80	71	258	65	12.5	80		267	276	
ø100	72	270	65	14.0	81		279	288	

Bore size (mm)	Stroke range(mm)		Effective length of thread	A	□B	□C	CA	CB	øD	øE	F	G	J	K	M	MM	N	P	S	WA	WB
	Without Rod Boot	With Rod Boot																			
ø 40	~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
ø 50	~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
ø 63	~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
ø 80	~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
ø 100	~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

Adjustable Stroke Cylinder/Extension adjustable Type

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

ROD BOOT●

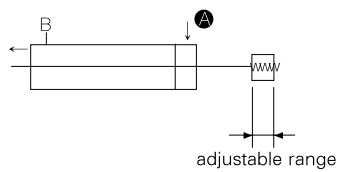
Blank—Without Rod Boot
J —With Rod Boot(Nylon tarpaulin)
K —With Rod Boot(Neoprene cloth)

● Stroke Additional symbol

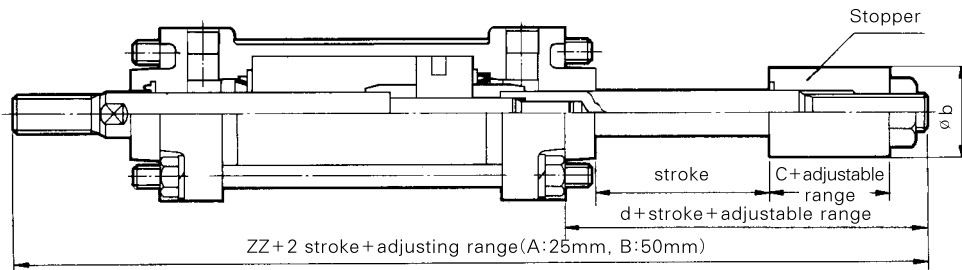
A—Stroke adjusting range 0~~25mm
B—Stroke adjusting range 0~~50mm

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

Symbol



Construction/Dimensions



Bore size	øb	c	d	ZZ
ø 40	ø 32	22	46	181
ø 50	ø 42	28	58.5	206.5
ø 63		28	54	210
ø 80	ø 55	35	70	257
ø 100		35	70	268

※ Other dimensions are the same as for standard type

ACP

AX

AS

AM

AM2

AL
ALX

ARD

AJ

AQ

AG

AGX
GX

ADM

ADR

AMR

AST

NLCD

Order Made Option

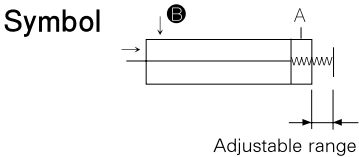
Adjustable Stroke Cylinder/Retraction adjustable Type

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

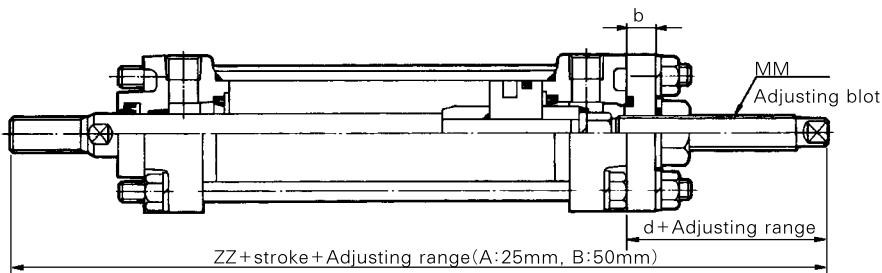
Additional symbol ●
Blank—Without Rod Boot
J —With Rod Boot (Nylon tarpaulin)
K —With Rod Boot (Neoprene cloth)

● 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.



Construction/Dimensions



Bore Size	MM	b	d	ZZ
ø 40	M16×1.5	9	43	178
ø 50	M16×1.5	11	44	192
ø 63	M20×1.5	11	48	204
ø 80	M24×1.5	15	59	246
ø 100	M24×1.5	15	57	255

※ Other dimensions are the same as for standard type

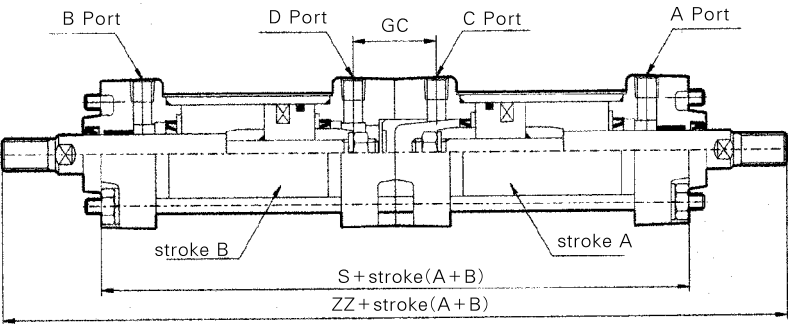
DUAL Stroke Cylinder/Double Rod Type

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.

Construction/Dimensions



Bore size	GC	S	ZZ
ø 40	29	167	269
ø 50	33	179	295
ø 63	33	195	311
ø 80	41	231	373
ø 100	41	251	395

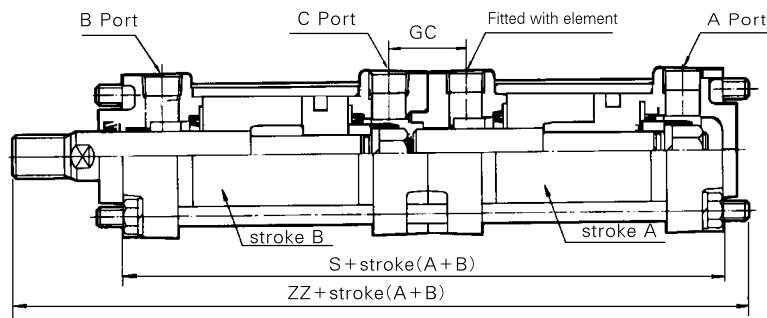
※ Other dimensions are the same as for standard type.

DUAL Stroke Cylinder/Single Rod Type

AM Mounting Type Bore size Stroke A + StrokeB-A Rod Boot - XC11

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

Construction/Dimensions



※ Other dimensions are the same as for standard type.

Bore size	GC	S	ZZ
ø 40	29	168	230
ø 50	33	180	249
ø 63	33	196	268
ø 80	41	232	320
ø 100	41	252	341

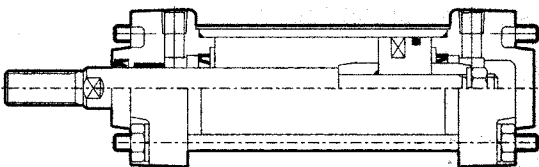
With Scraper

AM Mounting Type Bore size Stroke - XC4

Specifications

Type	Lube, Non-Lube
Applicable cylinder bore size	ø 40, ø 50, ø 63, ø 80, ø 100
Max.operating pressure	9.9kgf/cm ² {990kPa}
Min.operating pressure	0.5kgf/cm ² {50kPa}
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 as for standard type.

ACP

AX

AS

AM

AM2

AL
ALX

ARD

AJ

AQ

AG

AGX
GX

ADM

ADR

AMR

AST

NLCD

Order Made Option

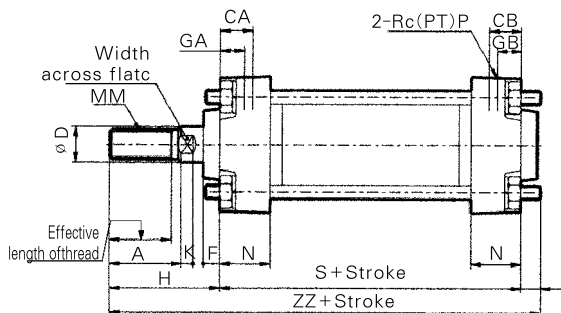
Over sized Rod

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 apprehensions for the crooked Piston Rod.

Type	Lube, Non-lube				
Bore size(mm)	ø 40	ø 50	ø 63	ø 80	ø 100
Piston rod diameter(mm)	ø 20	ø 25	ø 25	ø 30	ø 36

Construcion/Dimensions

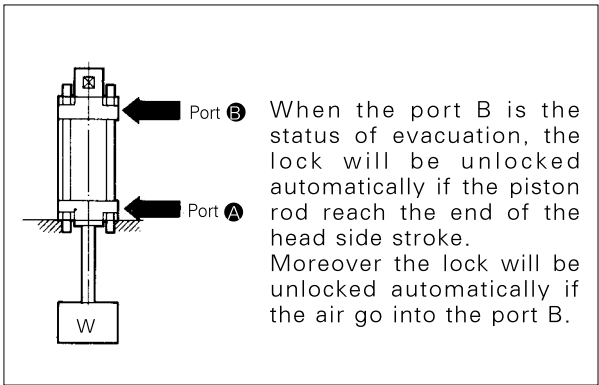


Bore size(mm)	A	ø D	K	MM	P	H	ZZ
40	35	20	7	M18×1.5	1/4	58	153
50	40	25	11	M22×1.5	3/8	71	172
63	40	25	11	M22×1.5	3/8	71	183
80	40	30	11	M26×1.5	1/2	72	205
100	50	36	15	M30×1.5	1/2	85	228

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

End Lock Cylinder

AM Mounting Type Bore size Stroke Suffix X105

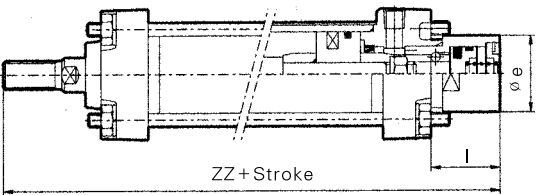


When the port B is the status of evacuation, the lock will be unlocked automatically if the piston rod reach the end of the head side stroke. Moreover the lock will be unlocked automatically if the air go into the port B.

Specifications

Type	Lube, Non-lube
Bore size	ø 40, ø 50, ø 63, ø 80, ø 100
Cushion	Air Cushion
Action	Double Acting
Retaining force	ø 40:20kgf, ø 50~ø 100:150kgf
Lock start pressure	0.5kgf/cm ² {0.05MPa}
Lock release pressure	2kgf/cm ² {0.2MPa}
Mounting	Basic, Foot, Flange, Center trunnion

Construction/Dimensions



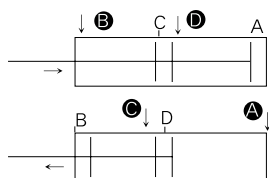
Bore size	ø e	I	ZZ
ø 40	34	31	166.0
ø 50	48	47.5	195.5
ø 63	48	47.5	203.5
ø 80	50	47.0	234.0
ø 100	50	49.0	247.0

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



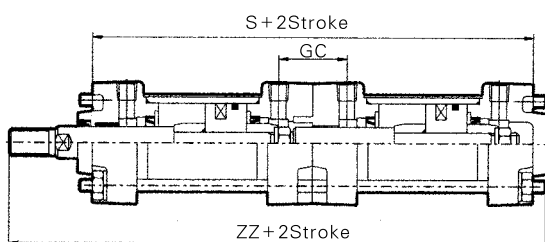
When air pressure is supplied to ports B and D, the output force is doubled in the return stroke.

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

Specifications

Type	Lube, Non-lube
Bore size	ø 40, ø 50, ø 63, ø 80, ø 100
Max. operating pressure	9.9kgf/cm ² {0.97MPa}
Min. operating pressure	1kgf/cm ² {0.1MPa}
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



Bore size	GC	S	ZZ
ø 40	29	169	231
ø 50	33	181	250
ø 63	33	197	269
ø 80	41	233	321
ø 100	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	ø 40, ø 50, ø 63, ø 80, ø 100
Ambient and media temperature	-20~+150°C
Seal material	FPM

* Auto-switch capable not available

Stainless Steel Rod

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

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	ø 40, ø 50, ø 63, ø 80, ø 100
Piston rod nut material	Stainless steel (SUS 304)

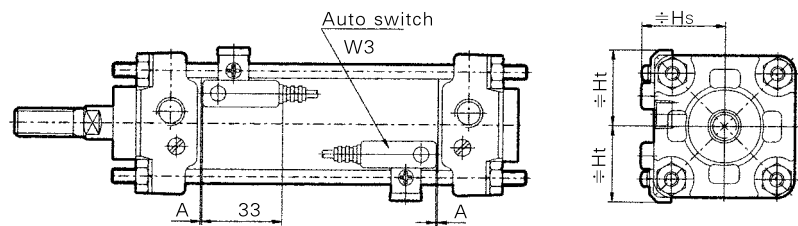
With Coil Scraper

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)				
		ø 40	ø 50	ø 63	ø 80	ø 100
W3	A	0(0)	0(0)	0(2.5)	2(6)	4(7.5)
	B	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 parentheses 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.

Auto switch model	No. of Auto switch	Mounting bracket except trunnion	Center trunnion			
			ø 40, ø 50	ø 63	ø 80	ø 100
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, ...

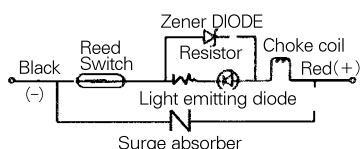
Auto Switch Specifications

Auto Switch 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 Light	ON:Red Light Emitting Diode		



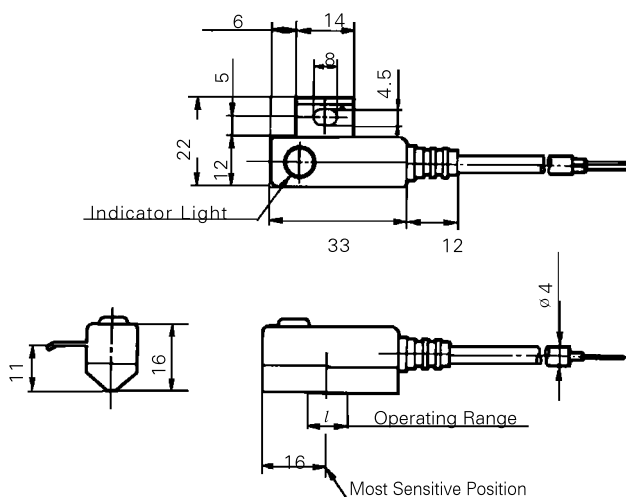
- Leakage current - None
 - Response time - 1.2ms
 - Lead Wire - Oil proof vinyl. $\phi 4$, (0.3)mm², 2 wire(red, black), 0.5m
 - Impact Resistance - 30G
 - Insulation Resistance - 50M Ω or more under the test voltage 500VDC (Between case and cable)
 - Withstand Voltage - 1500VAC 1min(between case and 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 (/ Dimensions)

(mm)

Series	Bore Size(mm)				
	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
AM	9	10	11	11	11