

FASTEK

MINI CYLINDER



Criteria for Selection : Cylinder Thrust

Bore size mm	Rod size mm	Operation	Pressure Area mm ²	Operating Pressure kgf/cm ²								
				1	2	3	4	5	6	7	8	9
16	6	Single acting push type	201	—	—	2.01	4.02	6.03	8.04	10.05	—	—
		Double acting Push side	201	2.01	4.02	6.03	8.04	10.05	12.06	14.07	—	—
		type Pull side	181	1.81	3.62	5.43	7.24	9.05	10.86	12.67	—	—
20	8	Single acting push type	314	—	1.57	4.71	7.85	10.99	14.13	17.27	20.41	23.55
		Double acting Push side	314	3.14	6.28	9.42	12.56	15.70	18.84	21.98	25.12	28.26
		type Pull side	264	2.64	5.28	7.92	10.56	13.20	15.84	18.48	21.12	23.76
25	10	Single acting push type	490	—	2.45	7.35	12.25	17.15	22.05	26.95	31.85	36.75
		Double acting Push side	490	4.90	9.80	14.70	19.60	24.50	29.40	34.30	39.20	44.10
		type Pull side	412	4.12	8.24	12.36	16.48	20.60	24.72	28.84	32.96	37.08
32	12	Single acting push type	804	—	4.02	12.06	20.10	28.14	36.18	44.22	52.26	60.30
		Double acting Push side	804	8.04	16.08	24.12	32.16	40.20	48.24	56.28	64.32	72.36
		type Pull side	690	6.90	13.80	20.70	27.60	34.50	41.40	48.30	55.20	62.10
40	16	Single acting push type	1256	—	6.28	18.84	31.40	43.96	56.52	69.08	81.64	94.20
		Double acting Push side	1256	12.56	25.12	37.68	50.24	62.80	75.36	87.92	100.48	113.04
		type Pull side	1055	10.55	21.10	31.65	42.20	52.75	63.30	73.85	84.40	94.95

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SLIM CYLINDER - STAINLESS STEEL TYPE

Double Acting Type

Ordering code

MA — — 25X50 —

Cylinder bore size X Stroke

End cover type^{*}

Blank - Pivot type

U - Flat-end type

CM - Round-end type^{*}

Mounting type^{**}

Blank - Basic type

LB - Foot type

FA - Flange type

SDB - Pivot type with bracket



MA - Double acting slim cylinder - Standard type

MAC - Double acting slim cylinder - Cushion type

Note: ^{*} Round-end type is available only for 50 & 63 bore.

^{**} Only basic type available for 50 & 63 bore.

Specification

Bore size	mm	16	20	25	32	40	50	63
Action		Double acting type						
Fluid		Air						
Mounting type		Basic type, Foot type, Flange type, Pivot type						Basic type
Pressure range MPa (kgf/cm ²)	Standard type	0.04 ~ 0.9 (0.4 ~ 9.2)						
	Cushion type	0.1 ~ 0.9 (1.0 ~ 9.2)						
Proof pressure MPa (kgf/cm ²)		1.35 (13.5)						
Temperature range	°C	0 ~ 70						
Speed range	mm/s	50 ~ 800						50 ~ 500
Cushioning	Standard type	Bumper						Variable cushion
	Cushion type	Variable cushion						
Port size		M5*0.8	G 1/8"				G 1/4"	

Cylinder size and stroke (mm)

Bore size	Standard stroke	Maximum stroke	Available stroke
16	25 50 75 100 125 150 175 200	300	500
20	25 50 75 100 125 150 175 200 225 250 300	500	650
25	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	500	650
32	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	500	650
40	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	500	650
50	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	500	650
63	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	500	650

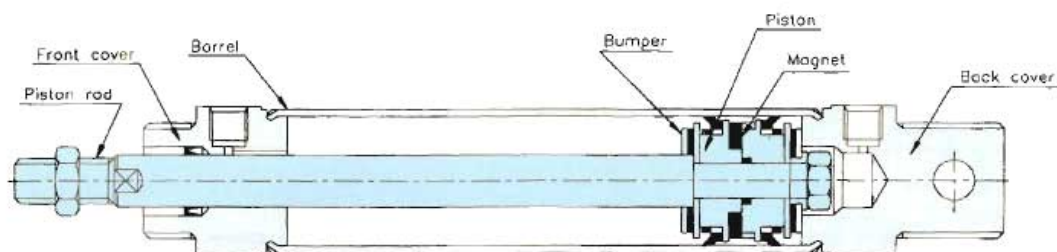
Note: 1. Stroke tolerance 0, +1.

2. Consult us for non-standard stroke and special piston rod.

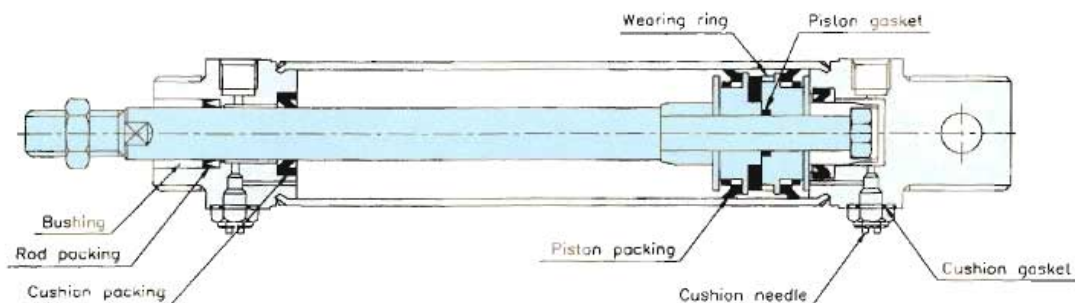
3. When the stroke exceeds the maximum stroke, minimum operating pressure is 0.2MPa.

Inner Construction and Major parts

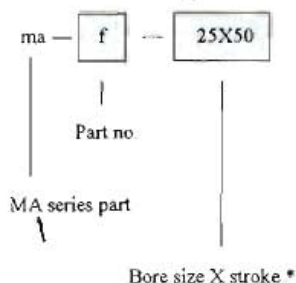
Standard Type : $\phi 16 \sim \phi 40$



Cushion Type : $\phi 25 \sim \phi 63$



How to order parts



Note. *. Bore size only for parts which strokes are not important.

Material of major parts

Item	Part no.	16	20	25	32	40	50	63
Barrel	b	Stainless steel						
Front cover	f	Aluminum alloy						
Back cover*	bp, br, bf	Aluminum alloy						
Cushion needle	cn	Copper						
Piston	p	Aluminum alloy						
Piston rod	pr	Hi-carbon steel with hard chrome plated						
Piston packing	pgy	NBR						
Rod packing	mya	NBR						
Piston gasket	pg	NBR						
Cushion packing	aei	NBR						
Cushion gasket	cg	NBR						
Bushing	bs	Copper						
Magnet	m	Plastic						
Wearing ring	w	Plastic						
Bumper	bu	PU						

Note : 1. No bumpers added in cushion type.

2. Detail part number of packing please refer to packing list.

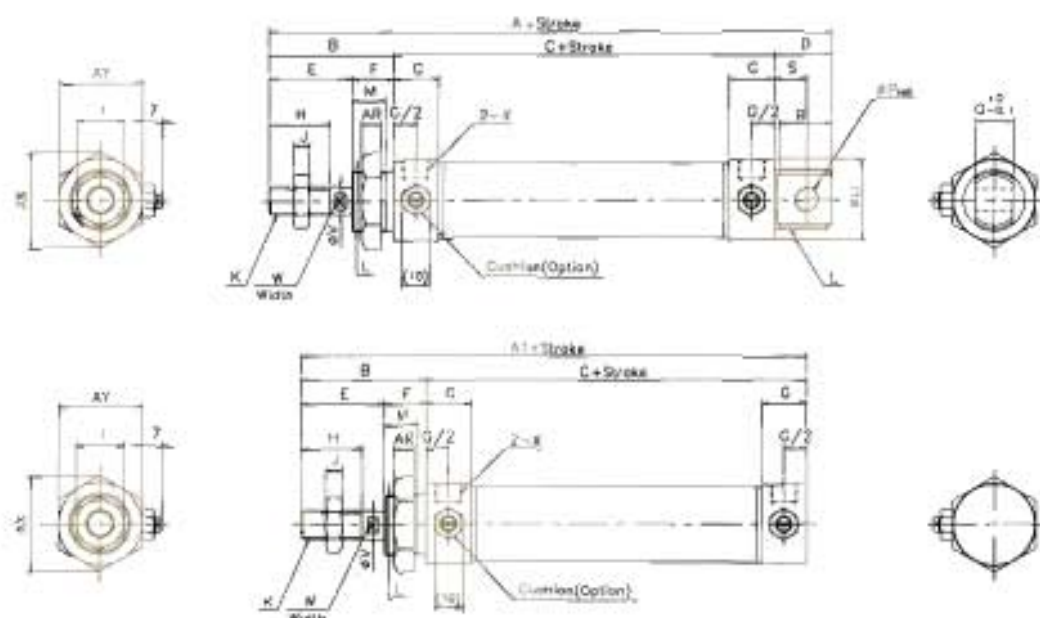
* For back cover : bp = pivot-end, bf = flat-end, br = round-end.

Packing list

Bore size	mm	Rod packing	Piston packing	Piston gasket	Cushion packing	Cushion gasket
16		mya-16*1	pgy-16*2	—	—	—
20		mya-20*1	pgy-20*2	—	—	—
25		mya-25*1	pgy-25*2	pg-25*1	aei-25*2	cg-1*2
32		mya-32*1	pgy-32*2	pg-32*1	aei-32*2	cg-1*2
40		mya-40*1	pgy-40*2	pg-40*1	aei-40*2	cg-1*2
50		mya-50*1	pgy-50*2	pg-50*1	aei-50*2	cg-2*2
63		mya-63*1	pgy-63*2	pg-63*1	aei-63*2	cg-2*2

Dimensions of Basic Type - MA & MAC

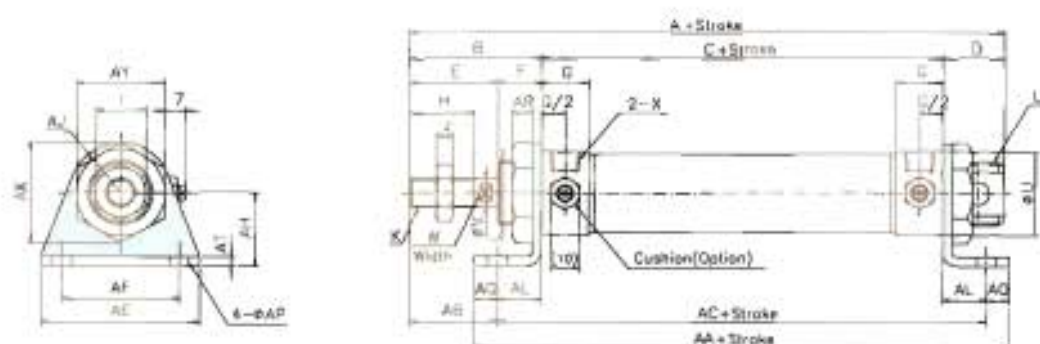
ø16~ø40



Bore size mm	A	A1	B	C	D	E	F	G	H	I	J	K	L	M	P	Q	R	S	U	V	W	X	AR	AX	AY
16	114	98	38	60	16	22	16	10	16	10	5	M6*1	M16*1.5	14	6	12	15	9	23	6	5	M5	6	25	22
20	137	116	40	76	21	28	12	16	20	13	5	M8*1.25	M22*1.5	10	8	16	19	12	27	8	6	G1/8"	7	33	29
25	141	120	44	76	21	30	14	16	22	17	6	M10*1.25	M22*1.5	12	8	16	19	12	30	10	8	G1/8"	7	33	29
32	147	120	44	76	27	30	14	16	22	17	6	M10*1.25	M24*2.0	12	10	16	25	15	35	12	10	G1/8"	8	37	32
40	149	122	46	76	27	32	14	16	24	19	7	M12*1.25	M30*2.0	12	12	20	25	15	42	16	14	G1/8"	9	47	41

Dimensions of Foot Mounting Type (LB)

ø16~ø40

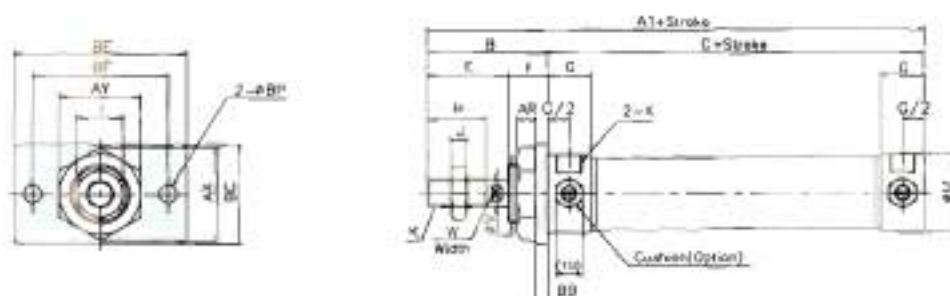


Bore size mm	A	B	C	D	E	F	G	H	I	J	K	L	M	U	V	W	X
16	114	38	60	16	22	16	10	16	10	5	M6*1	M16*1.5	14	23	6	5	M5
20	137	40	76	21	28	12	16	20	13	5	M8*1.25	M22*1.5	10	27	8	6	G1/8"
25	141	44	76	21	30	14	16	22	17	6	M10*1.25	M22*1.5	12	30	10	8	G1/8"
32	147	44	76	27	30	14	16	22	17	6	M10*1.25	M24*2.0	12	35	12	10	G1/8"
40	149	46	76	27	32	14	16	24	19	7	M12*1.25	M30*2.0	12	42	16	14	G1/8"

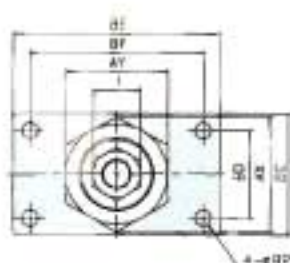
Bore size mm	AA	AB	AC	AE	AF	AH	AJ	AL	AP	AQ	AR	AT	AX	AY
16	98	25	86	44	32	20	13	13	5.5	6	6	3.2	25	22
20	122	25	106	54	40	25	17	15	6.5	8	7	3.2	33	29
25	122	29	106	54	40	25	17	15	6.5	8	7	3.2	33	29
32	142	19	126	59	45	32	19	25	6.5	8	8	4	37	32
40	142	21	126	64	50	36	23	25	6.5	8	9	4	47	41

Dimensions of Flange Mounting Type

φ16~φ25



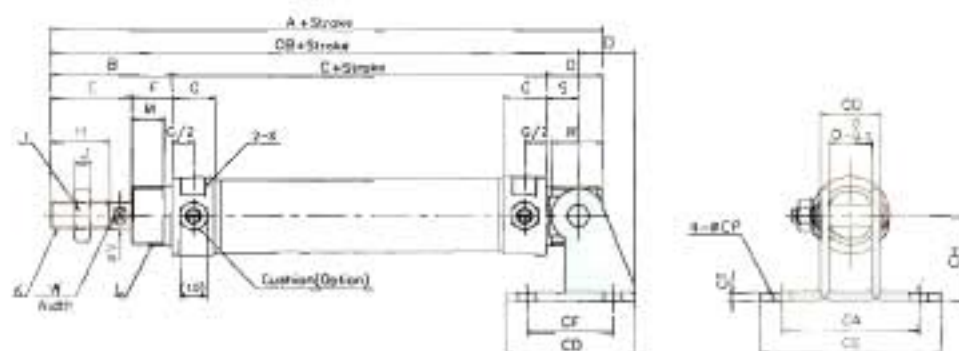
φ32~φ40



Bore size mm	AI	B	C	E	F	G	H	I	J	K	L	U	V	W	X	AR	AX	AY	BB	BC	BD	BE	BF	BP
16	98	38	60	22	16	10	16	10	5	M6*1	M16*1.5	23	6	5	M5	6	25	22	3.2	26	—	52	40	5.5
20	116	40	76	28	12	16	20	13	5	M8*1.25	M22*1.5	27	8	6	G1/8"	7	33	29	4	38	—	64	50	6.5
25	120	44	76	30	14	16	22	17	6	M10*1.25	M22*1.5	30	10	8	G1/8"	7	33	29	4	38	—	64	50	6.5
32	120	44	76	30	14	16	22	17	6	M10*1.25	M24*2.0	35	12	10	G1/8"	8	37	32	4	47	33	72	58	6.5
40	122	46	76	32	14	16	24	19	7	M12*1.25	M30*2.0	42	16	14	G1/8"	9	47	41	4.5	50	36	84	70	6.5

Dimensions of Pivot Type with Support Bracket

φ16~φ40

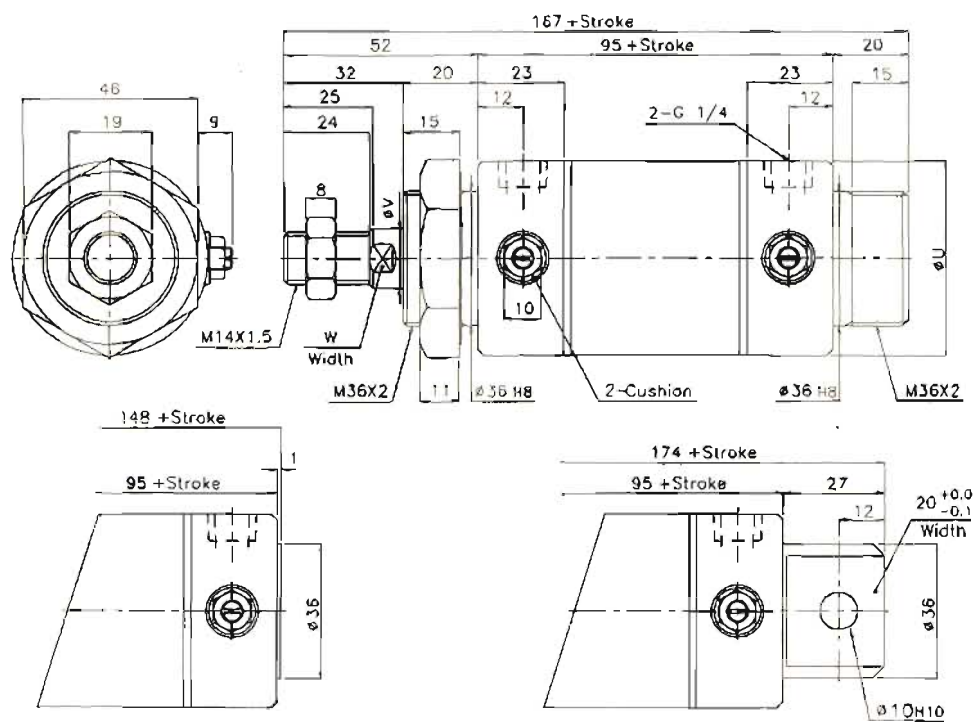


Bore size mm	A	B	C	D	E	F	G	H	I	J	K	L	M	Q	R	S	U	V	W	X
16	114	38	60	16	22	16	10	16	10	5	M6*1	M16*1.5	14	12	15	9	23	6	5	M5
20	137	40	76	21	28	12	16	20	13	5	M8*1.25	M22*1.5	10	16	19	12	27	8	6	G1/8"
25	141	44	76	21	30	14	16	22	17	6	M10*1.25	M22*1.5	12	16	19	12	30	10	8	G1/8"
32	147	44	76	27	30	14	16	22	17	6	M10*1.25	M24*2.0	12	16	25	15	35	12	10	G1/8"
40	149	46	76	27	32	14	16	24	19	7	M12*1.25	M30*2.0	12	20	25	15	42	16	14	G1/8"

Bore size mm	CA	CB	CD	CE	CF	CH	CP	CQ	CT
16	—	107	23	—	12	20	5.5	16.5	2.3
20	51	128	48	67	32	32	6.5	22	3
25	51	132	48	67	32	32	6.5	22	3
32	51	135	52	67	36	36	6.5	24	4
40	55	137	56	71	40	40	6.5	28	4

Dimensions of Basic Type - Large Bore Size

ø50~ø63



Bore size mm	U	V
32	52	16
40	65	16

SLIM CYLINDER - STAINLESS STEEL TYPE

Single Acting Type

Ordering code

MSA — — 25X50 —

Cylinder bore size X Stroke

End cover type :

Blank - Pivot type

U - Flat-end type

Mounting type :

Blank - Basic type

LB - Foot type

FA - Flange type

SDB - Pivot type with bracket



MSA - Single acting slim cylinder - Push type

MTA - Single acting slim cylinder - Pull type

Specification

Bore size	mm	16	20	25	32	40
Action		Single acting type				
Fluid		Air				
Mounting type		Basic type, Foot type, Flange type, Pivot type				
Pressure range	MPa { kgf/cm ² }	0.15 ~ 0.9 { 1.5 ~ 9.2 }				
Proof pressure	MPa { kgf/cm ² }	1.35 { 13.5 }				
Temperature range	°C	0 ~ 70				
Speed range	mm/s	50 ~ 800				
Cushioning		Bumper				
Port size		M5*0.8	G 1/8"			

Cylinder size and stroke (mm)

Bore size	Standard stroke	Maximum stroke	Available stroke
16	25 50 75	75	100
20	25 50 75 100	100	150
25	25 50 75 100	100	150
32	25 50 75 100	100	150
40	25 50 75 100	100	150

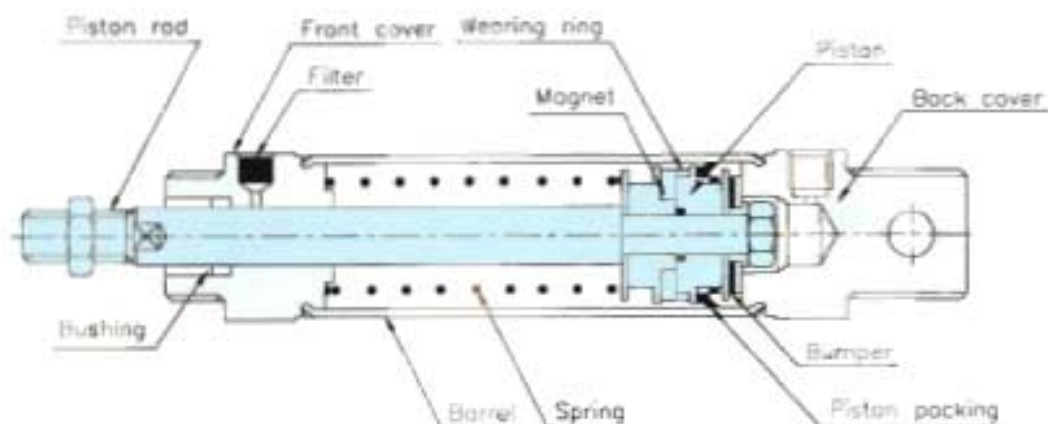
Note : 1. Stroke tolerance 0, +1.

2. Consult us for non-standard stroke and special piston rod.

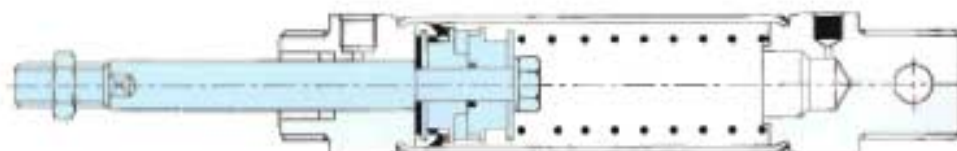
3. When the stroke exceeds the maximum stroke, minimum operating pressure is 0.3MPa.

Inner Construction and Major parts

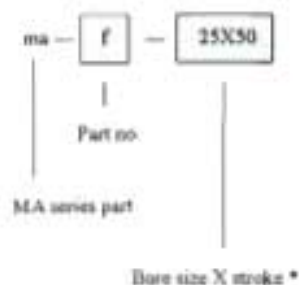
Push Type a16-a40



Pull Type a16-a40



How to order parts



Note: * Bore size only for parts which strokes are not important.

Material of major parts

Item	Part no.	16	20	25	32	40
Barrel	b	Stainless steel				
Front cover	f	Aluminum alloy				
Push type front cover	sf	Aluminum alloy				
Back cover*	bp, bf	Aluminum alloy				
Pull type back cover*	sbp, sbf	Aluminum alloy				
Piston	p	Aluminum alloy				
Piston rod	pr	Hi-carbon steel with hard chrome plated				
Piston packing	pgv	NBR				
Rod packing	mya	NBR				
Piston gasket	pg	NBR				
Bushing	bs	Copper				
Magnet	m	Plastic				
Spring	s	Stainless steel				
Wearing ring	w	Plastic				
Bumper	bu	PU				
Filter	fi	Copper				

Note: 1. No bumpers added in cushion type.

2. Detail part number of packing please refer to packing list

* For back cover: bf (sbf) = flat-end, bp (sbp) = pivot-end

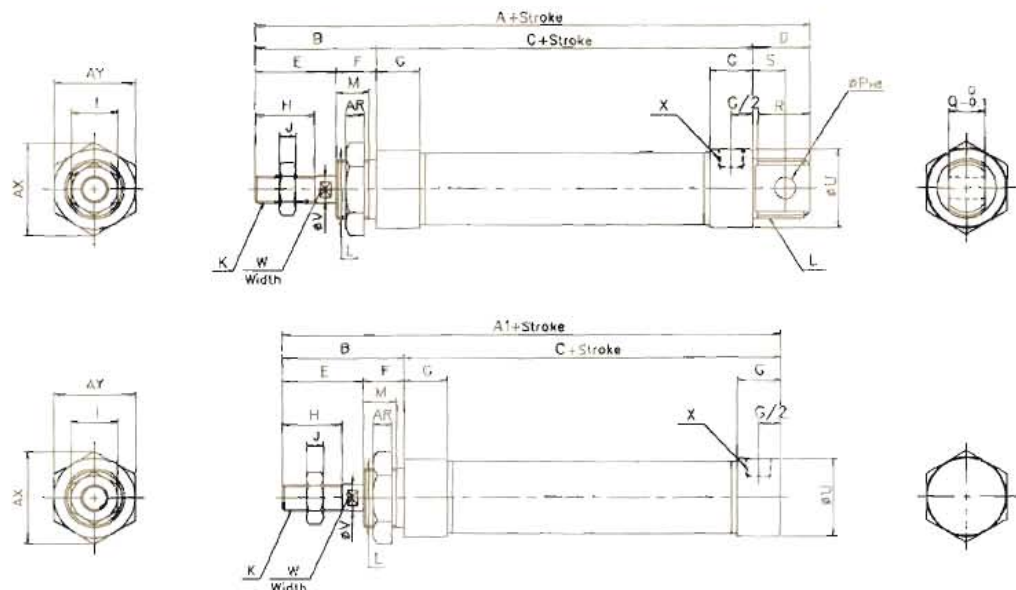
Packing list

Bore size	mm	Rod packing	Piston packing	Piston gasket
16		mya-16*1	pgv-16*1	—
20		mya-20*1	pgv-20*1	—
25		mya-25*1	pgv-25*1	pg-25*1
32		mya-32*1	pgv-32*1	pg-32*1
40		mya-40*1	pgv-40*1	pg-40*1

Note: Rod packing is used only at pull-type.

Dimensions of Basic Type - MSA

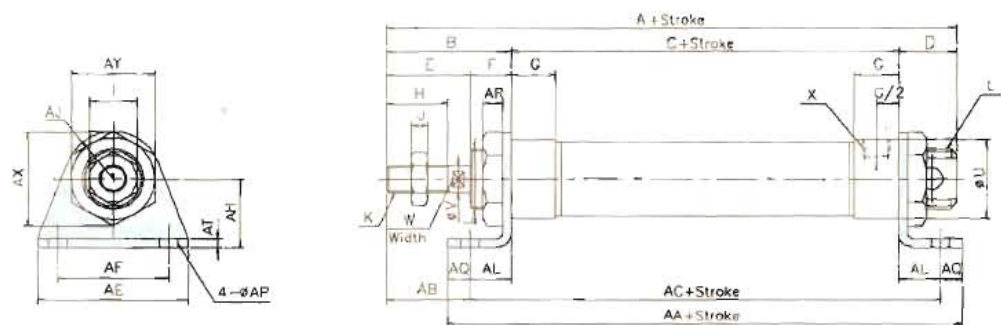
ø16~ø40



Symbol	A		A1		B	C		D	E	F	G	H	I	J	K	L	M	P	Q	R	S	U	V	W	X	A	A	A
Bore \ Stroke	0-50	51-100	0-50	51-100		0-50	51-100																			R	X	Y
16	114	139	98	133	38	60	85	16	22	16	10	16	10	5	M6*1	M16*1.5	14	6	12	15	9	23	6	5	M5	6	25	22
20	137	162	116	141	40	76	101	21	28	12	16	20	13	5	M8*1.25	M22*1.5	10	8	16	19	12	27	8	6	G1/8"	7	33	29
25	141	166	120	145	44	76	101	21	30	14	16	22	17	6	M10*1.25	M22*1.5	12	8	16	19	12	30	10	8	G1/8"	7	33	29
32	147	172	120	145	44	76	101	27	30	14	16	22	17	6	M10*1.25	M24*2.0	12	10	16	25	15	35	12	10	G1/8"	8	37	32
40	149	174	122	147	46	76	101	27	32	14	16	24	19	7	M12*1.25	M30*2.0	12	12	20	25	15	42	16	14	G1/8"	9	47	41

Dimensions of Foot Mounting Type (LB)

ø16~ø40

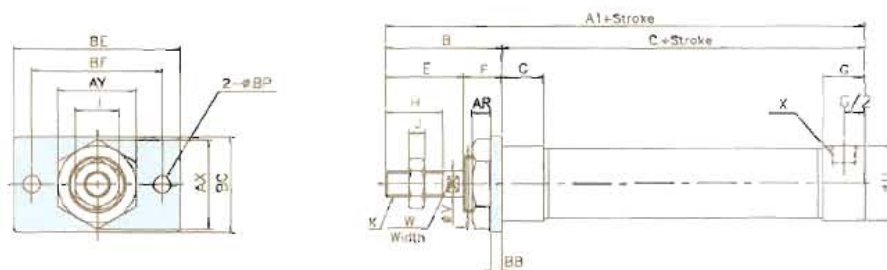


Symbol	A		B	C		D	E	F	G	H	I	J	K	L	U	V	W	X
Bore \ Stroke	0-50	51-100		0-50	51-100													
16	114	139	38	60	85	16	22	16	10	16	10	5	M6*1	M16*1.5	23	6	5	M5
20	137	162	40	76	101	21	28	12	16	20	13	5	M8*1.25	M22*1.5	27	8	6	G1/8"
25	141	166	44	76	101	21	30	14	16	22	17	6	M10*1.25	M22*1.5	30	10	8	G1/8"
32	147	172	44	76	101	27	30	14	16	22	17	6	M10*1.25	M24*2.0	35	12	10	G1/8"
40	149	174	46	76	101	27	32	14	16	24	19	7	M12*1.25	M30*2.0	42	16	14	G1/8"

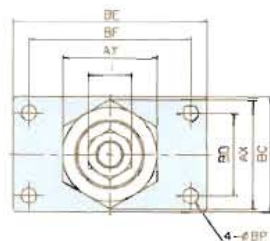
Symbol	AA		AB	AC		AE	AF	AH	AJ	AL	AP	AQ	AR	AT	AX	AY
Bore \ Stroke	0-50	51-100		0-50	51-100											
16	98	123	25	86	111	44	32	20	13	13	5.5	6	6	3.2	25	22
20	122	147	25	106	131	54	40	25	17	15	6.5	8	7	3.2	33	29
25	122	147	29	106	131	54	40	25	17	15	6.5	8	7	3.2	33	29
32	142	167	19	126	151	59	45	32	19	25	6.5	8	8	4	37	32
40	142	167	21	126	151	64	50	36	23	25	6.5	8	9	4	47	41

Dimensions of Flange Mounting Type (FA)

ø16~ø25



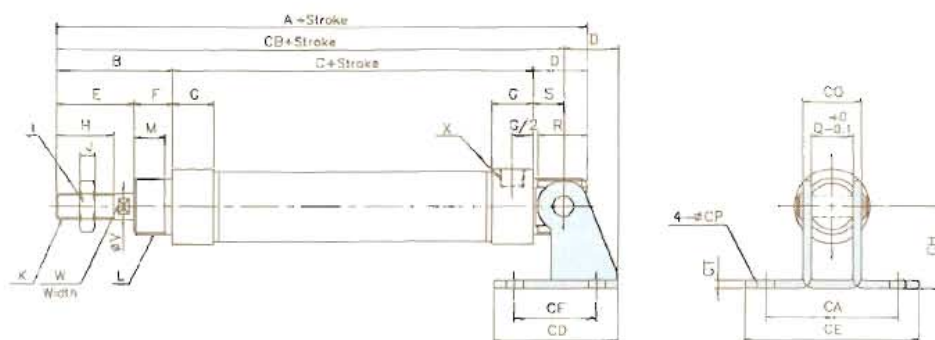
ø32~ø40



Symbol	A1		B	C		E	F	G	H	I	J	K	L	U	V	W	X	A	A	A	B	B	B	B	B	B
Bore \ Stroke	0-50	51-100		0-50	51-100													R	X	Y	B	C	D	E	F	P
16	98	123	38	60	85	22	16	10	16	10	5	M6*1	M16*1.5	23	6	5	M5	6	25	22	3.2	26	—	52	40	5.5
20	116	141	40	76	101	28	12	16	20	13	5	M8*1.25	M22*1.5	27	8	6	G1/8"	7	33	29	4	38	—	64	50	6.5
25	120	145	44	76	101	30	14	16	22	17	6	M10*1.25	M22*1.5	30	10	8	G1/8"	7	33	29	4	38	—	64	50	6.5
32	120	145	44	76	101	30	14	16	22	17	6	M10*1.25	M24*2.0	35	12	10	G1/8"	8	37	32	4	47	33	72	58	6.5
40	122	147	46	76	101	32	14	16	24	19	7	M12*1.25	M30*2.0	42	16	14	G1/8"	9	47	41	4.5	50	36	84	70	6.5

Dimensions of Pivot Type with Support Bracket (SDB)

ø16~ø40



Symbol	A		B	C		D	E	F	G	H	I	J	K	L	M	Q	R	S	U	V	W
Bore \ Stroke	0-50	51-100		0-50	51-100																
16	114	139	38	60	85	16	22	16	10	16	10	5	M6*1	M16*1.5	14	12	15	9	23	6	5
20	137	162	40	76	101	21	28	12	16	20	13	5	M8*1.25	M22*1.5	10	16	19	12	27	8	6
25	141	166	44	76	101	21	30	14	16	22	17	6	M10*1.25	M22*1.5	12	16	19	12	30	10	8
32	147	172	44	76	101	27	30	14	16	22	17	6	M10*1.25	M24*2.0	12	16	25	15	35	12	10
40	149	174	46	76	101	27	32	14	16	24	19	7	M12*1.25	M30*2.0	12	20	25	15	42	16	14

Symbol	X	CA	CB		CD	CE	CF	CH	CP	CQ	CT
Bore \ Stroke			0-50	51-100							
16	M5	—	107	132	23	—	12	20	5.5	16.5	2.3
20	G1/8"	51	128	153	48	67	32	32	6.5	22	3
25	G1/8"	51	132	157	48	67	32	32	6.5	22	3
32	G1/8"	51	135	158	52	67	36	36	6.5	24	4
40	G1/8"	55	137	162	56	71	40	40	6.5	28	4

SLIM CYLINDER - STAINLESS STEEL TYPE

Double Rod Type

Ordering code

MA — D — 25X50 —

Cylinder bore size X Stroke

D - Double-rod type

Mounting type *

Blank - Basic type

LB - Foot type

FA - Flange type



MA - Double acting slim cylinder - Standard type

MAC - Double acting slim cylinder - Cushion type

MSA - Single acting slim cylinder**

Note * Only basic type available for 50 & 63 bore.
** Single acting type is available from 16 to 40 mm bore.

Specification

Bore size		mm	16	20	25	32	40	50	63	
Action			Double acting type, Single acting type						Double acting type	
Fluid			Air							
Mounting type			Basic type, Foot type, Flange type						Basic type	
Pressure range MPa (kgf/cm ²)	Standard type		0.1 ~ 0.9 (1.0 ~ 9.2)							
	Cushion type		0.1 ~ 0.9 (1.0 ~ 9.2)							
	Single acting type		0.15 ~ 0.9 (1.5 ~ 9.2)							
Proof pressure MPa (kgf/cm ²)			1.35 (13.5)							
Temperature range °C			0 ~ 70							
Speed range mm/s			50 ~ 800						50 ~ 500	
Cushioning	Standard type		Bumper						Variable cushion	
	Cushion type		Variable cushion							
	Single acting type		Bumper						—	
Port size			M5*0.8		G 1/8"			G 1/4"		

Cylinder size and stroke (mm) - Double Acting Type

Bore size	16	20	25	32	40	50	63
Standard stroke	25 50 75	25 50 75 100	25 50 75 100	25 50 75 100	25 50 75 100	25 50 75 100	25 50 75 100
	100 125	125 150 175	125 150 175	125 150 175	125 150 175	125 150 175	125 150 175
	150	200	200 225 250	200 225 250	200 225 250	200 225 250	200 225 250
Maximum stroke	150	200	250	250	250	250	250
Available stroke	200	300	300	300	300	300	300

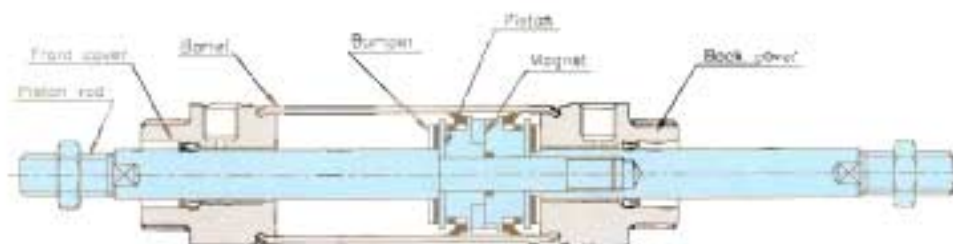
Cylinder size and stroke (mm) - Single Acting Type

Bore size	16	20	25	32	40	50	63
Standard stroke	25 50 75	25 50 75 100	25 50 75 100	25 50 75 100	25 50 75 100	25 50 75 100	25 50 75 100
Maximum stroke	75	100	100	100	100	100	100
Available stroke	100	150	150	150	150	150	150

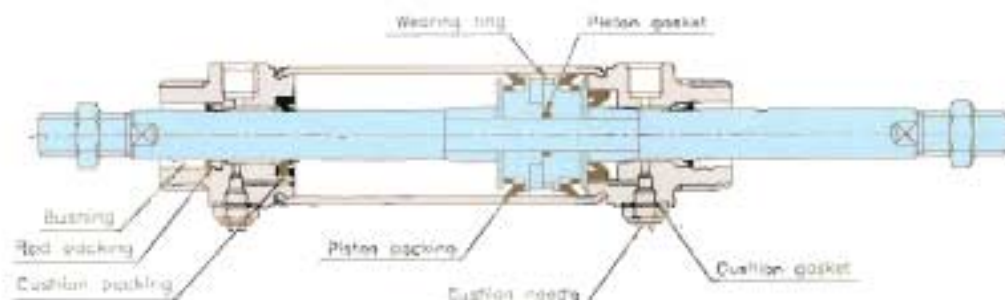
Note 1. Stroke tolerance 0, +1.
2. Consult us for non-standard stroke and special piston rod.
3. When the stroke exceeds the maximum stroke, minimum operating pressure is 0.2MPa (0.3MPa for single acting type).

Inner Construction and Major parts

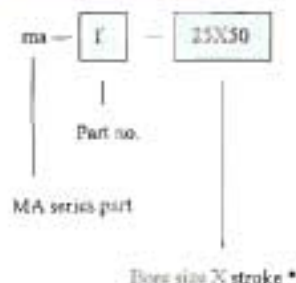
Standard type : $\phi 16 \sim \phi 40$



Cushion type : $\phi 25 \sim \phi 63$



How to order parts



Note : * Bore size only for parts which strokes are not important.

Material of major parts

Item	Part no.	16	20	25	32	40	50	63
Barrel	b	Stainless steel						
Front cover	f	Aluminum alloy						
Piston	p	Aluminum alloy						
Piston rod	pr	Hi-carbon steel with hard chrome plated						
Piston packing	pgy	NBR						
Rod packing	mya	NBR						
Piston gasket	pg	NBR						
Cushion packing	aci	NBR						
Cushion gasket	cg	NBR						
Bushing	bs	Copper						
Magnet	m	Plastic						
Spring	s	Stainless steel						
Wearing ring	w	Plastic						
Bumper	bu	PU						
Filter	fi	Copper						

Note : 1. No bumpers added in cushion type

2. Detail part number of packing please refer to packing list.

Packing list

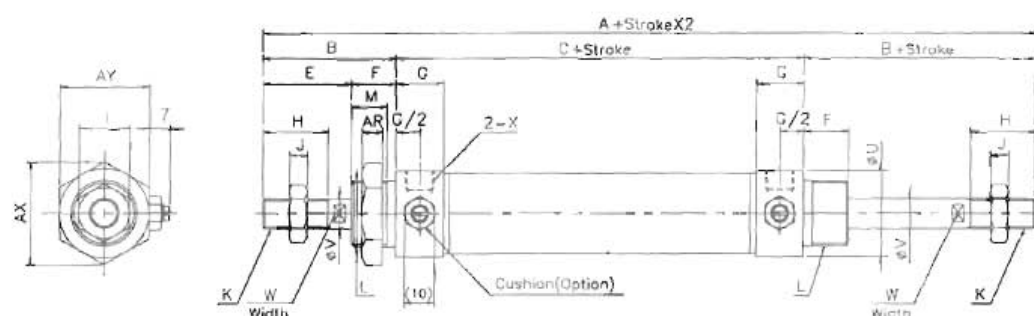
Bore size	mm	Rod packing	Piston packing	Piston gasket	Cushion packing	Cushion gasket
16		mya-16*2	pgy-16*2	—	—	—
20		mya-20*2	pgy-20*2	—	—	—
25		mya-25*2	pgy-25*2	pg-25*1	aci-25*2	cg-1*2
32		mya-32*2	pgy-32*2	pg-32*1	aci-32*2	cg-1*2
40		mya-40*2	pgy-40*2	pg-40*1	aci-40*2	cg-1*2
50		mya-50*2	pgy-50*2	pg-50*1	aci-50*2	cg-2*2
63		mya-63*2	pgy-63*2	pg-63*1	aci-63*2	cg-2*2

Note : 1. Cushion gasket and cushion packing used only in cushion type.

2. One piece of rod packing and single piston packing are used in single acting type.

Dimensions of Basic Type - MAD & MAC-D

ø16~ø40

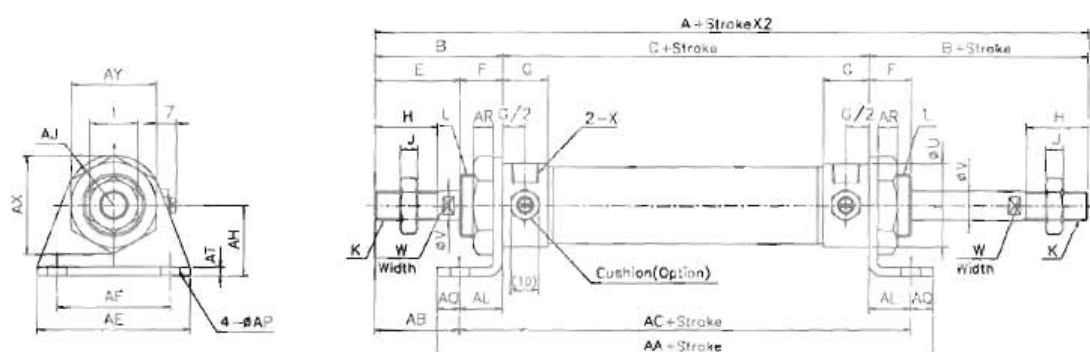


Note. Dimension A1 & C1 stands for single acting type.

Symbol	A	A1		B	C	C1		D	E	F	G	H	I	J	K	L	M	U	V	W	X	A	A	A
Bore \ Stroke		0-50	51-100			0-50	51-100																	
16	136	136	171	38	60	60	85	16	22	16	10	16	10	5	M6*1	M16*1.5	14	23	6	5	M5	6	25	22
20	156	156	181	40	76	76	101	21	28	12	16	20	13	5	M8*1.25	M22*1.5	10	27	8	6	G1/8"	7	33	29
25	164	164	189	44	76	76	101	21	30	14	16	22	17	6	M10*1.25	M22*1.5	12	30	10	8	G1/8"	7	33	29
32	164	164	189	44	76	76	101	27	30	14	16	22	17	6	M10*1.25	M24*2.0	12	35	12	10	G1/8"	8	37	32
40	168	168	193	46	76	76	101	27	32	14	16	24	19	7	M12*1.25	M24*2.0	12	42	16	14	G1/8"	9	47	41

Dimensions of Foot Mounting Type (LB)

ø16~ø40



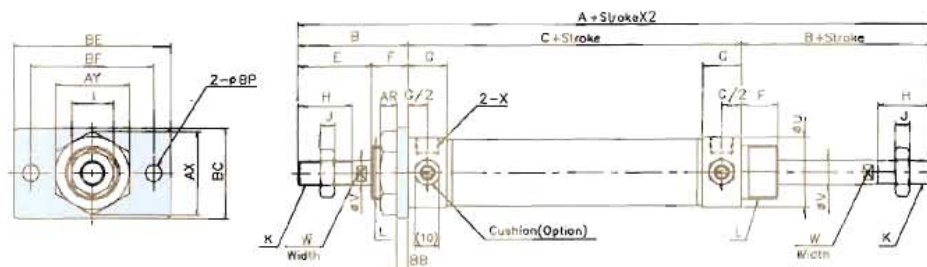
Note. Dimension A1, C1, AA1, & AC1 stands for single acting type.

Symbol	A	A1		B	C	C1		E	F	G	H	I	J	K	L	U	V	W	X
Bore \ Stroke		0-50	51-100			0-50	51-100												
16	114	114	139	38	60	60	85	22	16	10	16	10	5	M6*1	M16*1.5	23	6	5	M5
20	137	137	162	40	76	76	101	28	12	16	20	13	5	M8*1.25	M22*1.5	27	8	6	G1/8"
25	141	141	166	44	76	76	101	30	14	16	22	17	6	M10*1.25	M22*1.5	30	10	8	G1/8"
32	147	147	172	44	76	76	101	30	14	16	22	17	6	M10*1.25	M24*2.0	35	12	10	G1/8"
40	149	149	174	46	76	76	101	32	14	16	24	19	7	M12*1.25	M30*2.0	42	16	14	G1/8"

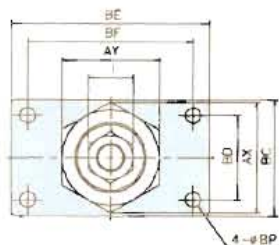
Symbol	AA	AA1		AB	AC	AC1		AE	AF	AH	AJ	AL	AP	AQ	AR	AT	AX	AY
Bore \ Stroke		0-50	51-100			0-50	51-100											
16	98	98	123	25	86	86	111	44	32	20	13	13	5.5	6	6	3.2	25	22
20	122	122	147	25	106	106	131	54	40	25	17	15	6.5	8	7	3.2	33	29
25	122	122	147	29	106	106	131	54	40	25	17	15	6.5	8	7	3.2	33	29
32	142	142	167	19	106	126	151	59	45	32	19	25	6.5	8	8	4	37	32
40	142	142	167	21	106	126	151	64	50	36	23	25	6.5	8	9	4	47	41

Dimensions of Flange Mounting Type

ø16~ø25



ø32~ø40

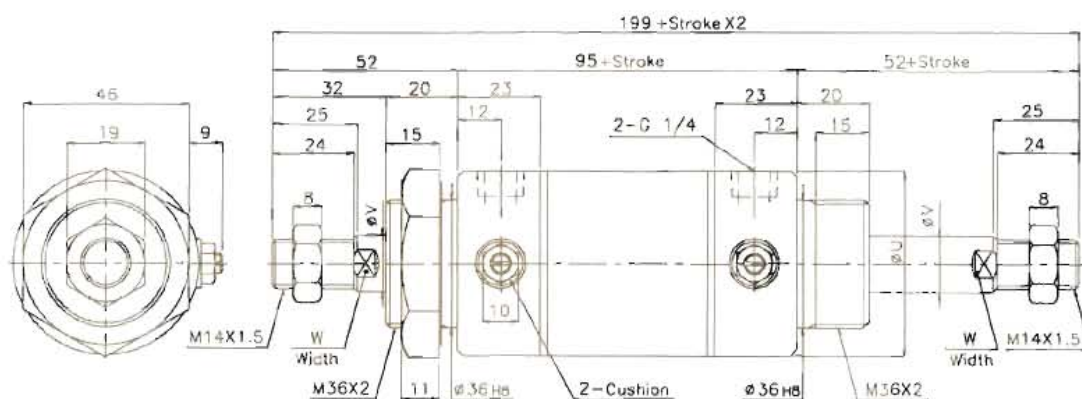


Note. Dimension A1 & C1 stands for single acting type.

Symbol	A	A1		B	C	C1		E	F	G	H	I	J	K	L	U	V	W	X	A	A	A	B	B	B	B	B	
Bore \ Stroke		0-50	51-100			0-50	51-100													R	X	Y	B	B	B	B	B	
16	136	136	161	38	60	60	85	22	16	10	16	10	5	M6*1	M16*1.5	23	6	5	M5	6	25	22	3.2	26	—	52	40	5.5
20	156	156	181	40	76	76	101	28	12	16	20	13	5	M8*1.25	M22*1.5	27	8	6	G1/8"	7	33	29	4	38	—	64	50	6.5
25	164	164	189	44	76	76	101	30	14	16	22	17	6	M10*1.25	M22*1.5	30	10	8	G1/8"	7	33	29	4	38	—	64	50	6.5
32	164	164	189	44	76	76	101	30	14	16	22	17	6	M10*1.25	M24*2.0	35	12	10	G1/8"	8	37	32	4	47	33	72	58	6.5
40	168	168	193	46	76	76	101	32	14	16	24	19	7	M12*1.25	M24*2.0	42	16	14	G1/8"	9	47	41	4.5	50	36	84	70	6.5

Dimensions of Basic Type - Large Bore Size

ø50 & ø63



Symbol	U	V
50	52	16
63	65.4	16

SLIM CYLINDER - STAINLESS STEEL TYPE

Double Rod Cylinder - Adjustable Stroke Type

Ordering code

MA — **J** — **25X50-20** — **□**

Cylinder bore size X Stroke - stroke

J : Adjustable stroke type Mounting type :
 Blank - Basic type
 LB - Foot type
 FA - Flange type



MA - Double acting slim cylinder - Standard type

MAC - Double acting slim cylinder - Cushion type

Note. * Only basic type available for 50 & 63 bore.
 ** Single acting type is available from 16 to 40 mm bore.

Specification

Bore size	mm	16	20	25	32	40	50	63
Action		Double acting type						
Fluid		Air						
Mounting type		Basic type, Foot type, Flange type						Basic type
Pressure range MPa { kgf/cm ² }	Standard type	0.1 ~ 0.9 { 1.0 ~ 9.2 }						
	Cushion type	0.1 ~ 0.9 { 1.0 ~ 9.2 }						
Proof pressure MPa { kgf/cm ² }		1.35 { 13.5 }						
Temperature range	°C	0 ~ 70						
Speed range	mm/s	50 ~ 800						50 ~ 500
Cushioning	Standard type	Bumper						Variable cushion
	Cushion type	Variable cushion						
Port size		M5*0.8	G 1/8"				G 1/4"	

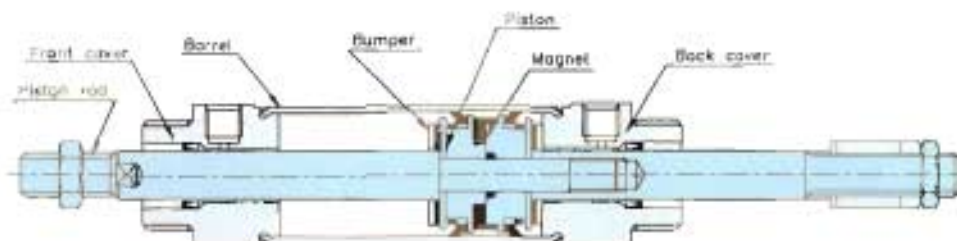
Cylinder size and stroke (mm)

Bore size	Standard stroke	Adjustable stroke	Maximum stroke	Available stroke
16	25 50 75 100 125 150	10 20 30 40 50	150	200
20	25 50 75 100 125 150 175 200	10 20 30 40 50	200	300
25	25 50 75 100 125 150 175 200 225 250	10 20 30 40 50	250	300
32	25 50 75 100 125 150 175 200 225 250	10 20 30 40 50	250	300
40	25 50 75 100 125 150 175 200 225 250	10 20 30 40 50	250	300
50	25 50 75 100 125 150 175 200 225 250	10 20 30 40 50	250	300
63	25 50 75 100 125 150 175 200 225 250	10 20 30 40 50	250	300

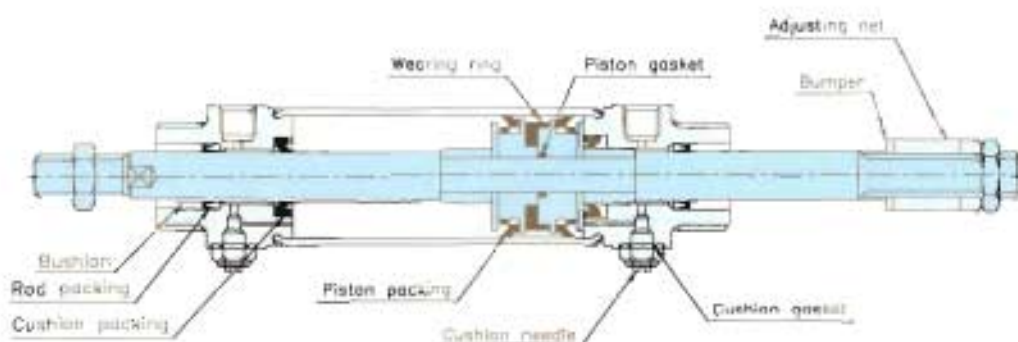
Note : 1. Stroke tolerance 0, +1.
 2. Consult us for non-standard stroke and special piston rod.
 3. When the stroke exceeds the maximum stroke, minimum operating pressure is 0.2MPa.

Inner Construction and Major parts

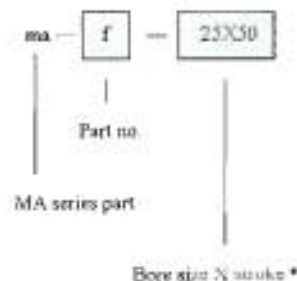
Standard Type : $\phi 16 \sim \phi 40$



Cushion Type : $\phi 25 \sim \phi 63$



How to order parts



Note * Bore size only for parts which strokes are not important.

Material of major parts

Item	Part no.	16	20	25	32	40	50	63
Barrel	b	Stainless steel						
Front cover	f	Aluminum alloy						
Piston	p	Aluminum alloy						
Piston rod	pr	Hi-carbon steel with hard chrome plated						
Piston packing	pgy	NBR						
Rod packing	mya	NBR						
Piston gasket	pg	NBR						
Cushion packing	aci	NBR						
Cushion gasket	cg	NBR						
Bushing	bs	Copper						
Magnet	m	Plastic						
Wearing ring	w	Plastic						
Bumper	bu	PU						
Adjusting nut	an	Hard steel						
Adjusting nut bumper	ab	PU						

Note : 1. No bumpers added in cushion type.

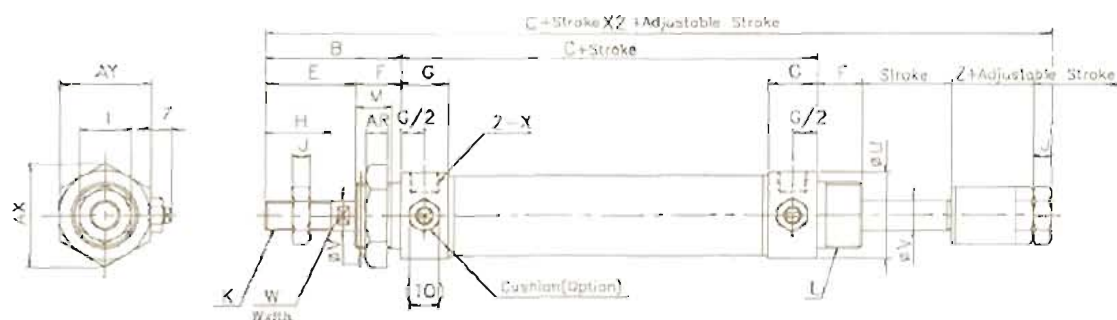
2. Detail part number of packing please refer to packing list

Packing list

Bore size	mm	Rod packing	Piston packing	Piston gasket	Cushion packing	Cushion gasket
16		mya-16*2	pgy-16*2	—	—	—
20		mya-20*2	pgy-20*2	—	—	—
25		mya-25*2	pgy-25*2	pg-25*1	aci-25*2	cg-1*2
32		mya-32*2	pgy-32*2	pg-32*1	aci-32*2	cg-1*2
40		mya-40*2	pgy-40*2	pg-40*1	aci-40*2	cg-1*2
50		mya-50*2	pgy-50*2	pg-50*1	aci-50*2	cg-2*2
63		mya-63*2	pgy-63*2	pg-63*1	aci-63*2	cg-2*2

Dimensions of Basic Type - MAJ & MAC-J

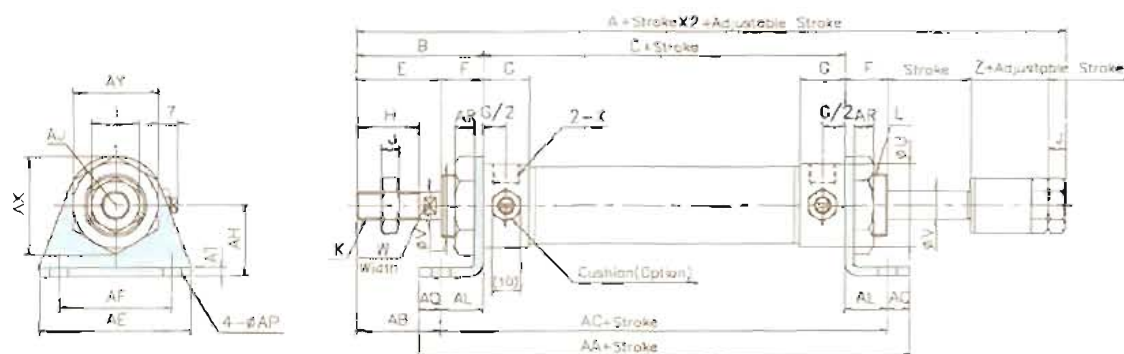
ø16~ø40



Bore size mm	A	B	C	E	F	G	H	I	J	K	L	M	U	V	W	X	AR	AX	AY	Z
16	139	38	60	22	16	10	16	10	5	M6*1	M16*1.5	14	23	6	5	M5	6	25	22	20
20	153	40	76	28	12	16	20	13	5	M8*1.25	M22*1.5	10	27	8	6	G1/8"	7	33	29	20
25	160	44	76	30	14	16	22	17	6	M10*1.25	M22*1.5	12	30	10	8	G1/8"	7	33	29	20
32	160	44	76	30	14	16	22	17	6	M10*1.25	M24*2.0	12	35	12	10	G1/8"	8	37	32	20
40	163	46	76	32	14	16	24	19	7	M12*1.25	M30*2.0	12	42	16	14	G1/8"	9	47	41	20

Dimensions of Foot Mounting Type (LB)

ø16~ø40

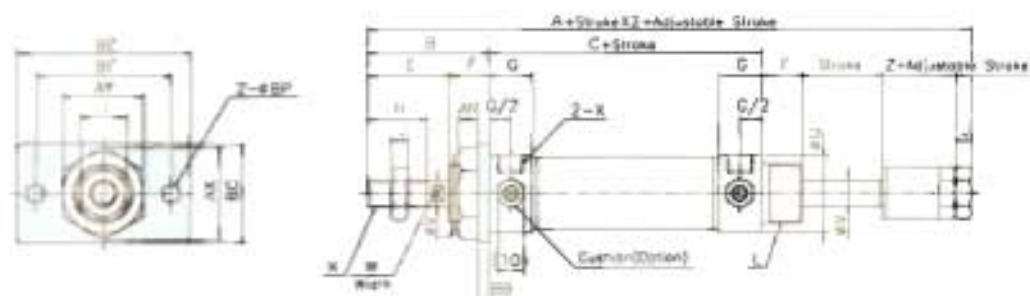


Bore size mm	A	B	C	D	E	F	G	H	I	J	K	L	M	U	V	W	X	Z
16	139	38	60	16	22	16	10	16	10	5	M6*1	M16*1.5	14	23	6	5	M5	20
20	153	40	76	21	28	12	16	20	13	5	M8*1.25	M22*1.5	10	27	8	6	G1/8"	20
25	160	44	76	21	30	14	16	22	17	6	M10*1.25	M22*1.5	12	30	10	8	G1/8"	20
32	160	44	76	27	30	14	16	22	17	6	M10*1.25	M24*2.0	12	35	12	10	G1/8"	20
40	163	46	76	27	32	14	16	24	19	7	M12*1.25	M30*2.0	12	42	16	14	G1/8"	20

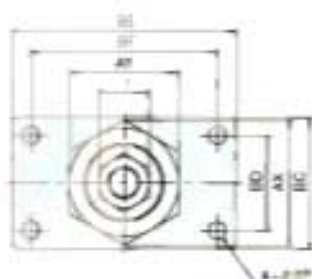
Bore size mm	AA	AB	AC	AE	AF	AH	AJ	AL	AP	AQ	AR	AT	AX	AY
16	98	25	86	44	32	20	13	13	5.5	6	6	3.2	25	22
20	122	25	106	54	40	25	17	15	6.5	8	7	3.2	33	29
25	122	29	106	54	40	25	17	15	6.5	8	7	3.2	33	29
32	142	19	126	59	45	32	19	25	6.5	8	8	4	37	32
40	142	21	126	64	50	36	23	25	6.5	8	9	4	47	41

Dimensions of Flange Mounting Type (FA)

ø16~ø25



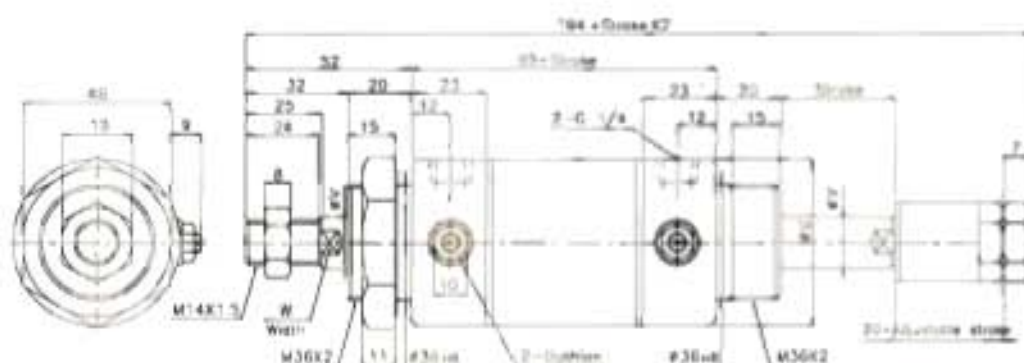
ø32~ø40



Bore size mm	A	B	C	E	F	G	H	I	J	K	L	U	V	W	X	Z	AR	AX	AY	BB	BC	BD	BE	BF	BP
16	139	38	60	22	16	10	16	10	5	M6*1	M16*1.5	23	6	5	M5	20	6	25	22	3.2	26	—	52	40	5.5
20	153	40	76	28	12	16	20	13	5	M8*1.25	M22*1.5	27	8	6	G1/8"	20	7	33	29	4	38	—	64	50	6.5
25	160	44	76	30	14	16	22	17	6	M10*1.25	M22*1.5	30	10	8	G1/8"	20	7	33	29	4	38	—	64	50	6.5
32	160	44	76	30	14	16	22	17	6	M10*1.25	M24*2.0	35	12	10	G1/8"	20	8	37	32	4	47	33	72	58	6.5
40	163	46	76	32	14	16	24	19	7	M12*1.25	M30*2.0	42	16	14	G1/8"	20	9	47	41	4.5	50	36	84	70	6.5

Dimensions of Basic Type - Large Bore Size

ø50 & ø 63

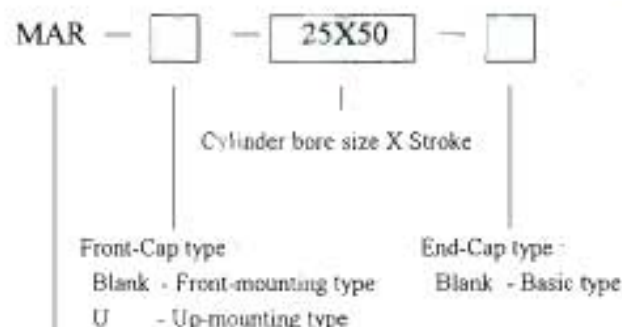


Bore size mm	U	V
50	52	16
63	65	16

SLIM CYLINDER - STAINLESS STEEL TYPE

Front-Cap Mounting Type

Ordering code



MAR - Double acting slim cylinder (Front-cap mounting) - Standard type

MARC - Double acting slim cylinder (Front-cap mounting) - Cushion type

Specification

Bore size	mm	16	20	25	32	40	50	63
Action		Double acting type						
Fluid		Air						
Mounting type		Front-mounting type, Up-mounting type						
Pressure range MPa { kgf/cm ² }	Standard type	0.04 ~ 0.9 { 0.4 ~ 9.2 }						
	Cushion type	0.1 ~ 0.9 { 1.0 ~ 9.2 }						
Proof pressure MPa { kgf/cm ² }		1.35 { 13.5 }						
Temperature range	°C	0 ~ 70						
Speed range	mm/s	50 ~ 800					50 ~ 500	
Cushioning	Standard type	Bumper					Variable cushion	
	Cushion type	—					Variable cushion	
Port size		M5*0.8		G 1/8"			G 1/4"	

Cylinder size and stroke (mm)

Bore size	Standard stroke	Maximum stroke	Available stroke
16	25 50 75 100 125 150 175 200	300	500
20	25 50 75 100 125 150 175 200 225 250 300	500	650
25	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	500	650
32	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	500	650
40	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	500	650
50	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	500	650
63	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	500	650

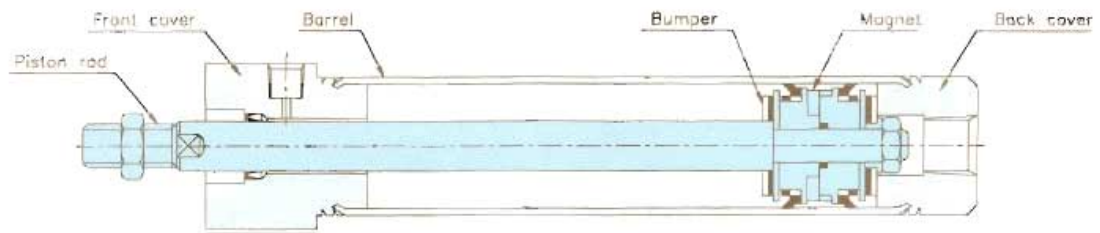
Note : 1. Stroke tolerance 0, +1.

2. Consult us for non-standard stroke and special piston rod.

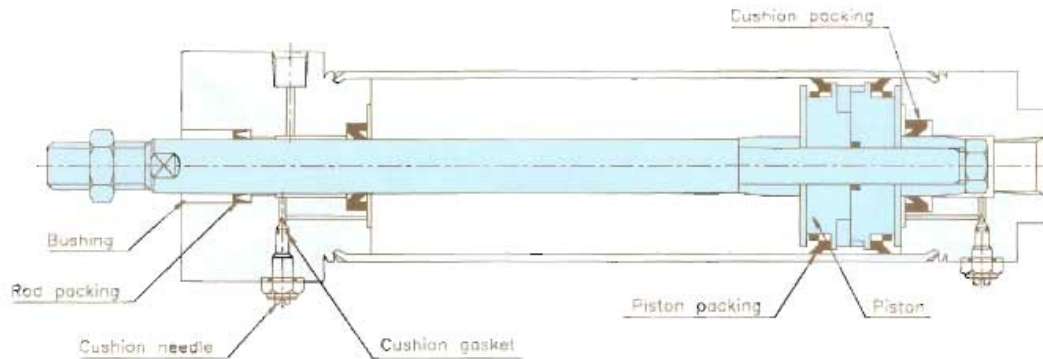
3. When the stroke exceeds the maximum stroke, minimum operating pressure is 0.2MPa.

Inner Construction and Major parts

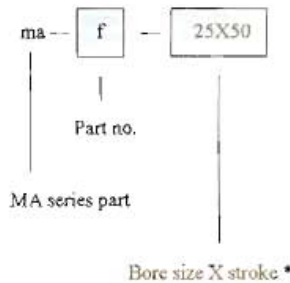
Standard Type : $\phi 16 \sim \phi 40$



Cushion Type : $\phi 25 \sim \phi 63$



How to order parts



Note. *. Bore size only for parts which strokes are not important.

Material of major parts

Item	Part no.	16	20	25	32	40	50	63
Barrel	b	Stainless steel						
Front cover (MAR)	rf	Aluminum alloy						
Back cover (MAR)	rb	Aluminum alloy						
Cushion needle	cn	Copper						
Piston	p	Aluminum alloy						
Piston rod	pr	Hi-carbon steel with hard chrome plated						
Piston packing	pgy	NBR						
Rod packing	mya	NBR						
Piston gasket	pg	NBR						
Cushion packing	aci	NBR						
Cushion gasket	cg	NBR						
Bushing	bs	Copper						
Magnet	m	Plastic						
Wearing ring	w	Plastic						
Bumper	bu	PU						

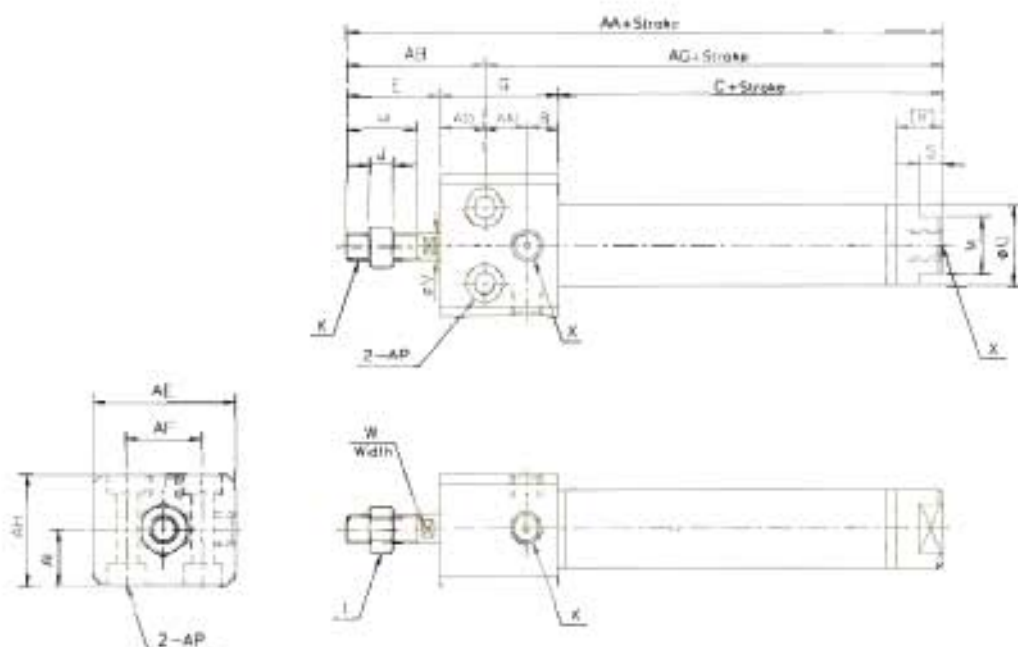
Note : 1. No bumpers added in cushion type.
2. Detail part number of packing please refer to packing list.

Packing list

Bore size	mm	Rod packing	Piston packing	Piston gasket	Cushion packing	Cushion gasket
16		mya-16*1	pgy-16*2	—	—	—
20		mya-20*1	pgy-20*2	—	—	—
25		mya-25*1	pgy-25*2	pg-25*1	aci-25*2	cg-1*2
32		mya-32*1	pgy-32*2	pg-32*1	aci-32*2	cg-1*2
40		mya-40*1	pgy-40*2	pg-40*1	aci-40*2	cg-1*2
50		mya-50*1	pgy-50*2	pg-50*1	aci-50*2	cg-2*2
63		mya-63*1	pgy-63*2	pg-63*1	aci-63*2	cg-2*2

Dimensions of Up-Mounting Type - MAR-F

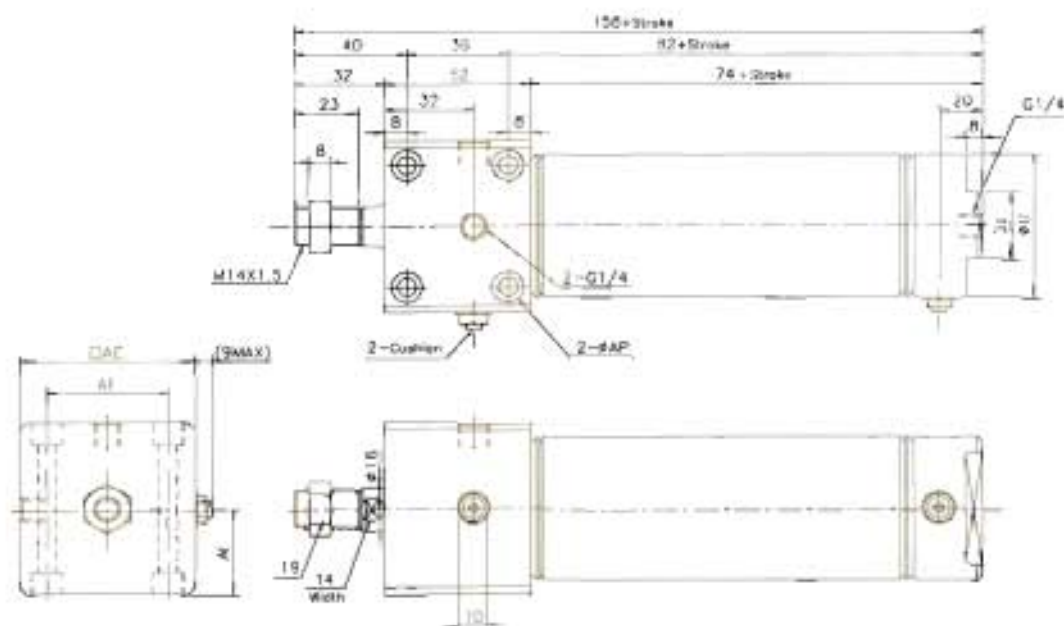
016-040



Bore size mm	C	E	G	H	I	J	K	M	R	S	U	V	W	X	AA	AB	AD	AE	AF	AG	AH	AI	AN	AP	AQ	AR
16	45	20	25	15	10	5	M6*1	14	10	5	17	6	5	M5	90	28	8	30	20	62	24	12	9	4.5	8	4.5
20	53	23	28	15	13	5	M8*1.25	17	10	5	27	8	6	G1/8"	104	34	11	38	22	70	28	14	9	6.6	11	6.5
25	53	26	30	18	17	6	M10*1.25	19	10	5	30	10	8	G1/8"	109	38	12	42	26	71	30	15	10	6.6	11	6.5
32	54	31	36	23	17	6	M10*1.25	22	11	6	35	12	10	G1/8"	121	45	14	54	34	76	36	18	14	9	14	8.6
40	60	31	44	23	19	7	M12*1.25	22	13	6	42	16	14	G1/8"	135	48	17	68	46	87	44	22	19	11	17.5	10

Dimensions of Up-Mounting Type - Large Bore Size

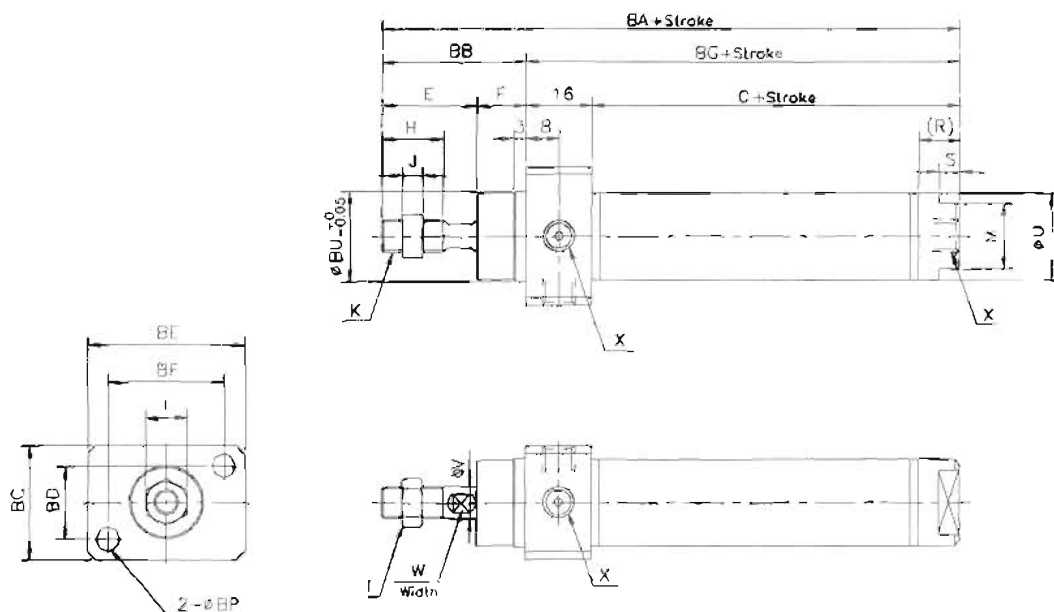
050~063



Bore size mm	U	AE	AF	AI	AP	AQ	AR
50	53	62	44	31	6.6	11	6.5
63	66	75	48	37.5	9	14	8.6

Dimensions of Front-Mounting Type - MAR-U

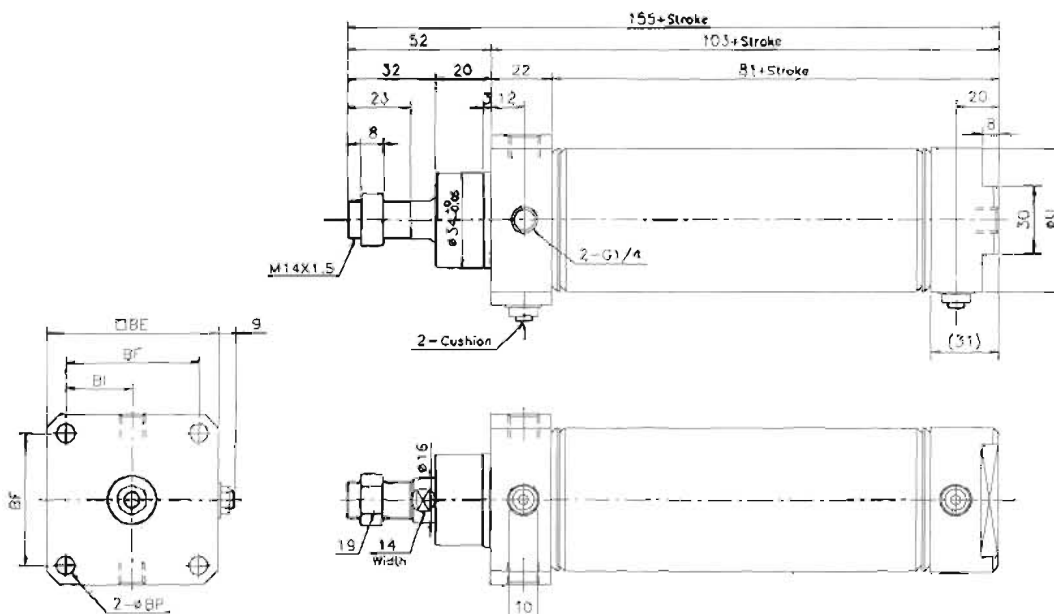
ø16~ø40



Bore size	mm	C	E	F	H	I	J	K	M	R	S	U	V	W	X	BA	BB	BC	BD	BE	BF	BG	BP	BU
16		45	20	9	15	10	5	M6*1	14	10	5	17	6	5	M5	90	29	24	16	30	22	61	4.5	18
20		53	23	12	15	13	5	M8*1.25	17	10	5	27	8	6	G1/8"	104	35	28	18	38	28	69	5.5	22
25		53	26	14	18	17	6	M10*1.25	19	10	5	30	10	8	G1/8"	109	40	30	20	42	32	69	5.5	24
32		54	31	14	23	17	6	M10*1.25	22	11	6	35	12	10	G1/8"	115	45	36	24	54	42	70	6.6	28
40		60	31	14	23	19	7	M12*1.25	22	13	6	42	16	14	G1/8"	121	45	44	28	68	52	76	9	34

Dimensions of Front-Mounting Type - Large Bore Size

ø50~ø63



Bore size	mm	U	BE	BF	BI	BP
50		53	62	44	24	6.6
63		66	75	58	29	9

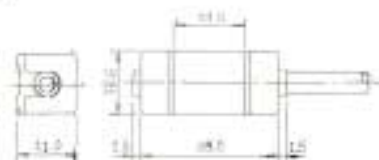
SLIM CYLINDER - STAINLESS STEEL TYPE

Sensor Switch and Switch Band

Ordering code

CSI	—	
Sensor switch		Sensor type :
		F : Lamp in front position
		U : Lamp in up position
		S : Mini type
B	—	20
MA series sensor switch band		Band size :
		16 : 16mm bore band 32 : 32mm bore band
		20 : 20mm bore band 40 : 40mm bore band
		25 : 25mm bore band

CSI-F



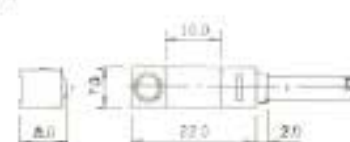
CSI-U



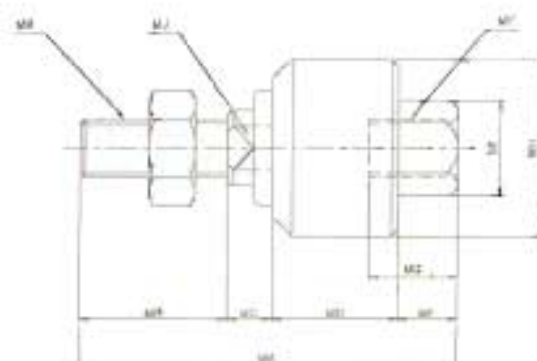
Specification

Sensor Switch Type		F.U	S
Operating voltage range (DC)		DC5-12V	
Operating voltage range (AC)		AC24V-AC220V	AC24V-AC110V
Operating current range (mA)		5 ~ 100	
Switching	Response time	0.3ms max.	
Characteristic	Bouncing time	0.3ms max.	
	Releasing time	0.05ms max.	
	Frequency range	3-250Hz	
Withstand voltage of contact point		200VDC min.	
Temperature		0 ~ 60 °C (32 ~ 140 °F)	
Shock resistance		30G (Non-repeated shock)	
Vibration resistance		7g max. (10-55Hz)	
Indicator lamp		Green LED goes on when in ON position	
Lead wire		Gray φ4 X 2M	
Electrical life		5X10 ⁶ times min.	

CSI-S



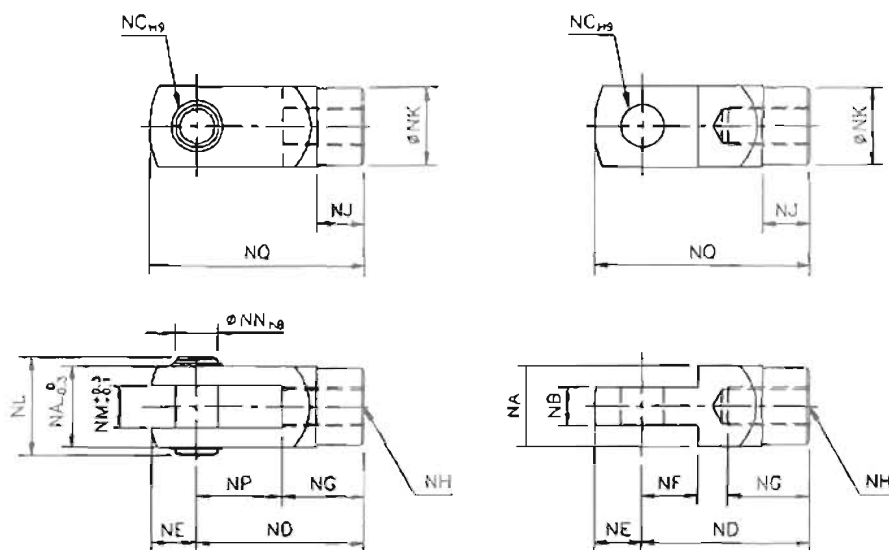
Dimensions of Floating Joint



Symbol	mm	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK
20		51	20	6	17	8	M8*1.25	12	24	13	8	M8*1.25
25 32		58	22	7	21	8	M10*1.25	12	26	17	10	M10*1.25
40		58	22	8	21	7	M12*1.25	12	28	19	12	M12*1.25
50 63		70	22.5	7	29.5	1	M14*1.5	13	35	22	15	M14*1.5

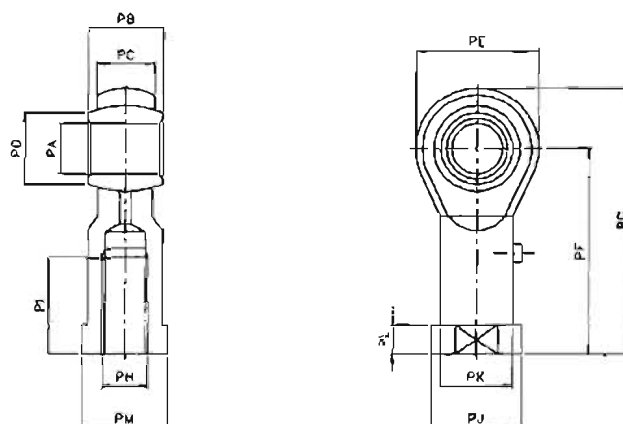
Dimensions of Knuckles — Y & I

Y & I



Bore size mm	NA	NB	NC	ND	NE	NF	NG	NH	NJ	NK	NL	NM	NN	NP	NQ
16	12	6.4	5	21	7	8.5	8	M6*1	—	12	17	6	5	8.5	28
20	16	8	8	30	10	11	15	M8*1.25	10	14	21	8	8	15	42
25	19	10	10	40	12	15	20	M10*1.25	12	18	25	10	10	20	52
32	19	10	10	40	12	15	20	M10*1.25	12	18	25	10	10	20	52
40	24	14	10	45	12	15	25	M12*1.25	15	23	31	14	10	20	57
50	32	16	16	64	19	32	32	M16*1.5	22	30	16	38	16	32	83
63	32	16	16	64	19	32	32	M16*1.5	22	30	16	38	16	32	83

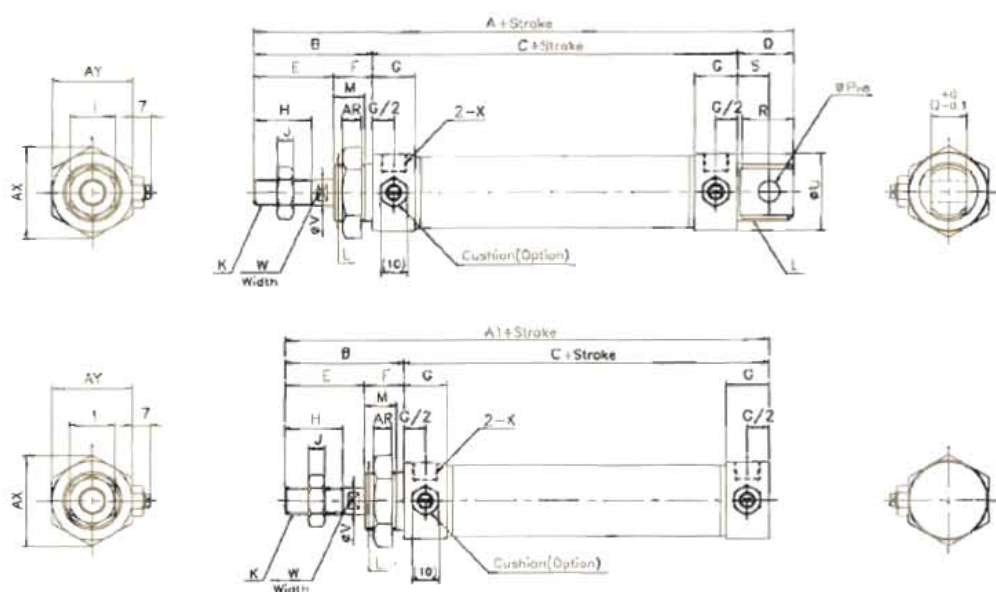
Dimensions of Universal Joint (Fish-Eye Joint)



Bore size mm	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM
20	8	12	9	10.4	22	36	47	M8*1.25	17	16	12.5	5	14
25	10	14	11	12.9	26	43	56	M10*1.25	21	19	15	6.5	17
32	10	14	11	12.9	26	43	56	M10*1.25	21	19	15	6.5	17
40	12	16	12	15.4	30	50	65	M12*1.25	24	22	17.5	6.5	19
50	16	21	15	19.3	38	64	83	M14*1.25	33	27	22	8	22
63	16	21	15	19.3	38	64	83	M14*1.25	33	27	22	8	22

Dimensions of Standard Type - JIS Dimension

ø16~ø40

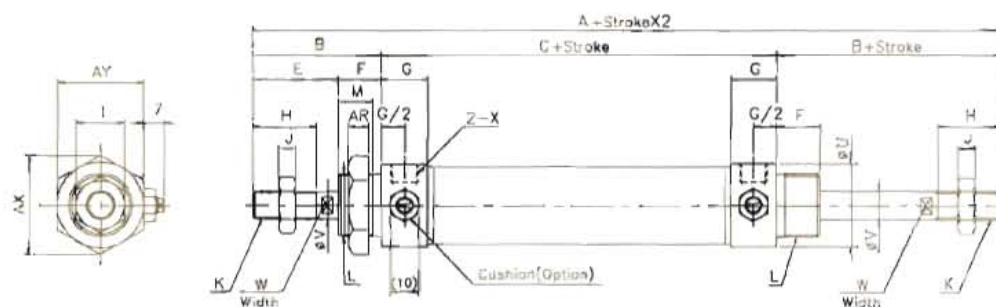


Bore size mm	A	A1	B	C	D	E	F	G	H	I	J	K	L	M	P	Q	R	S	U	V	W	X	AR	AX	AY
16	114	98	38	60	16	22	16	10	16	10	5	M6*1	M16*1.5	14	6	12	15	9	23	6	5	M5	6	25	22
20	132	111	35	76	21	23	12	16	15	13	5	M8*1	M20*1.5	10	8	12	19	12	27	8	6	G1/8"	7	33	29
25	137	116	40	76	21	26	14	16	18	17	6	M10*1.25	M22*1.5	12	8	12	19	12	30	10	8	G1/8"	7	33	29
32	148	121	45	76	27	31	14	16	23	17	6	M10*1.25	M27*2.0	12	10	20	25	15	35	12	10	G1/8"	8	37	32
40	148	121	45	76	27	31	14	14.5	23	19	7	M14*1.5	M33*2.0	12	10	20	25	15	42	16	14	G1/8"	9	47	41

Note. 1. Only basic type available for JIS Dimension, no mountings available.
2. Consult us for special modifications.

Dimensions of Double-Rod Type - JIS Dimension

ø16~ø40



Bore size mm	A	B	C	E	F	G	H	I	J	K	L	M	U	V	W	X	AR	AX	AY
16	136	38	60	22	16	10	16	10	5	M6*1	M16*1.5	14	23	6	5	M5	6	25	22
20	146	35	76	23	12	16	15	13	5	M8*1	M20*1.5	10	27	8	6	G1/8"	7	33	29
25	156	40	76	26	14	16	18	17	6	M10*1.25	M22*1.5	12	30	10	8	G1/8"	7	33	29
32	166	45	76	31	14	16	23	17	6	M10*1.25	M27*2.0	12	35	12	10	G1/8"	8	37	32
40	166	45	76	31	14	14.5	23	19	7	M14*1.5	M33*2.0	12	42	16	14	G1/8"	9	47	41

Note. 1. Only basic type available for JIS Dimension, no mountings available.
2. Consult us for special modifications.

Criteria for Selection : Cylinder Thrust

Bore size mm	Rod size mm	Operation	Pressure Area mm ²	Operating Pressure kgf/cm ²								
				1	2	3	4	5	6	7	8	9
20	8	Single acting push type	314	—	1.57	4.71	7.85	10.99	14.13	17.27	20.41	23.55
		Double acting type	Push side	314	3.14	6.28	9.42	12.56	15.70	18.84	21.98	25.12
			Pull side	264	2.64	5.28	7.92	10.56	13.20	15.84	18.48	21.12
25	10	Single acting push type	490	—	2.45	7.35	12.25	17.15	22.05	26.95	31.85	36.75
		Double acting type	Push side	490	4.90	9.80	14.70	19.60	24.50	29.40	34.30	39.20
			Pull side	412	4.12	8.24	12.36	16.48	20.60	24.72	28.84	32.96
32	12	Single acting push type	804	—	4.02	12.06	20.10	28.14	36.18	44.22	52.26	60.30
		Double acting type	Push side	804	8.04	16.08	24.12	32.16	40.20	48.24	56.28	64.32
			Pull side	690	6.90	13.80	20.70	27.60	34.50	41.40	48.30	55.20
40	16	Single acting push type	1256	—	6.28	18.84	31.40	43.96	56.52	69.08	81.64	94.20
		Double acting type	Push side	1256	12.56	25.12	37.68	50.24	62.80	75.36	87.92	100.48
			Pull side	1055	10.55	21.10	31.65	42.20	52.75	63.30	73.85	84.40

Standard Type — Double Acting Type. P 27

Standard Type — Single Acting Type P 31

Double-Rod Type — Double Acting Type, Single Acting Type P 35

Knuckle - Y&I P 38

Double-Rod Adjustable Stroke Type — Double Acting Type P 39

Universal-Joint. P 42

Sensor switch & Band P 43

Floating-Joint P 43

SLIM CYLINDER - ALUMINUM TYPE

Double Acting Type

Ordering code

MAL — — 25X50 — —

Cylinder bore size X Stroke

Blank - Without magnet

S - With magnet

End cover type :

Blank - Pivot type

U - Flat-end type

CM - Round-end type

Mounting type :

Blank - Basic type

LB - Foot type

FA - Flange type

SDB - Pivot type with bracket

MAL - Double acting slim cylinder - Standard type



Specification

Bore size	mm	20	25	32	40
Action		Double acting type			
Fluid		Air			
Mounting type		Basic type, Foot type, Flange type, Pivot type			
Pressure range	MPa (kgf/cm ²)	0.04 ~ 0.9 (0.4 ~ 9.2)			
Proof pressure	MPa (kgf/cm ²)	1.35 (13.5)			
Temperature range	°C	0 ~ 70			
Speed range	mm/s	50 ~ 800			
Cushioning		Bumper			
Port size		G 1/8"			G 1/4"

Cylinder size and stroke (mm)

Bore size	Standard stroke	Maximum stroke	Available stroke
20	25 50 75 100 125 150 175 200 225 250 300	500	800
25	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	800	1200
32	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	800	1200
40	25 50 75 100 125 150 175 200 225 250 300 350 400 450 500	1000	1500

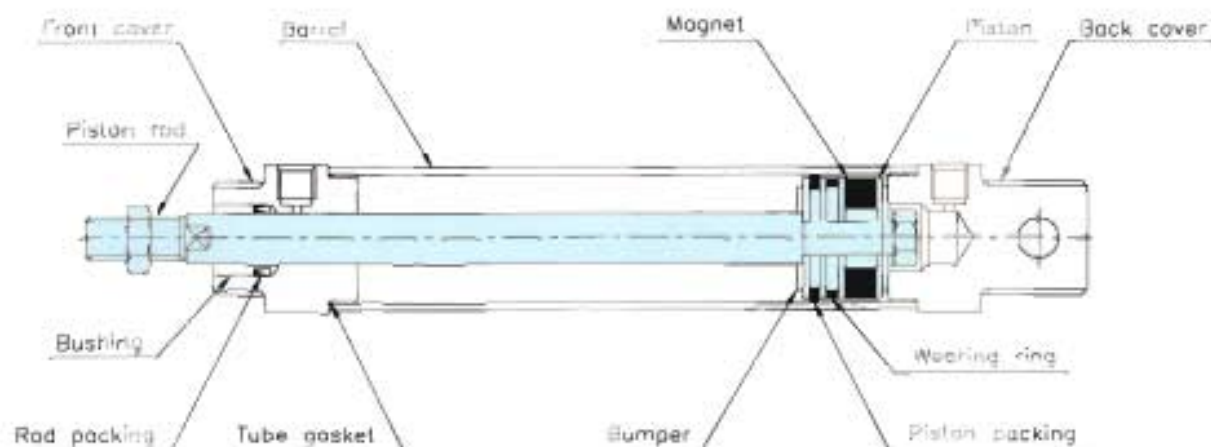
Note : 1. Stroke tolerance 0, +1.

2. Consult us for non-standard stroke and special piston rod.

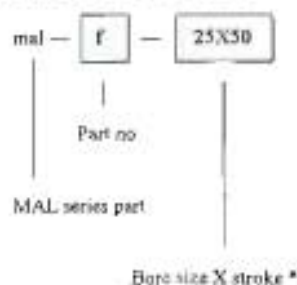
3. When the stroke exceeds the maximum stroke, minimum operating pressure is 0.2MPa

Inner Construction and Major parts

Standard Type : $\phi 20 \sim \phi 40$



How to order parts



Note : * Bore size only for parts which strokes are not important.

Material of major parts

Item	Part no.	20	25	32	40
Barrel	b	Aluminum alloy			
Front cover	f	Aluminum alloy			
Back cover*	bp, br, bf	Aluminum alloy			
Piston	p	Aluminum alloy			
Piston rod	pr	Hi-carbon steel with hard chrome plated			
Tube gasket	tg	NBR			
Piston packing	apa	NBR			
Rod packing	mya	NBR			
Piston gasket	pg	NBR			
Bushing	bs	Copper			
Magnet	m	Plastic			
Wearing ring	w	Plastic			
Bumper	bu	PU			

Note : 1. No bumpers added in cushion type.

2. Detail part number of packing please refer to packing list.

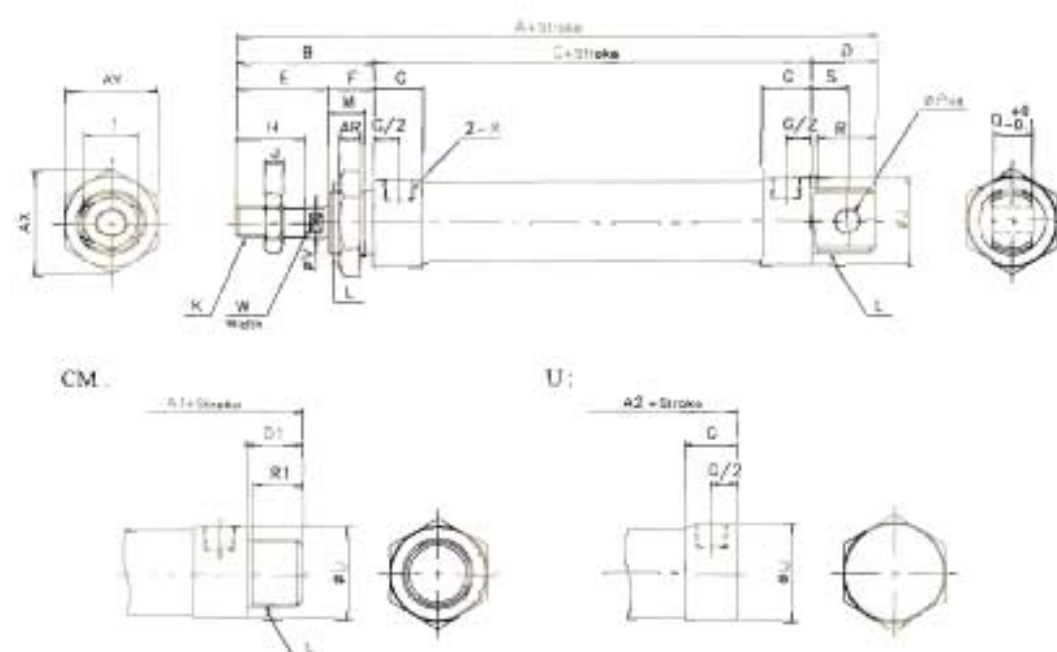
* For back cover : bp = pivot-end, bf = flat-end, br = round-end.

Packing list

Bore size	mm	Rod packing	Piston packing	Piston gasket	Tube gasket
20		mya-20*1	apa-20*1	—	tg-25*2
25		mya-25*1	apa-25*1	pg-25*1	tg-25*2
32		mya-32*1	apa-32*1	pg-32*1	tg-32*2
40		mya-40*1	apa-40*1	pg-40*1	tg-40*2

Dimensions of Basic Type - MAL

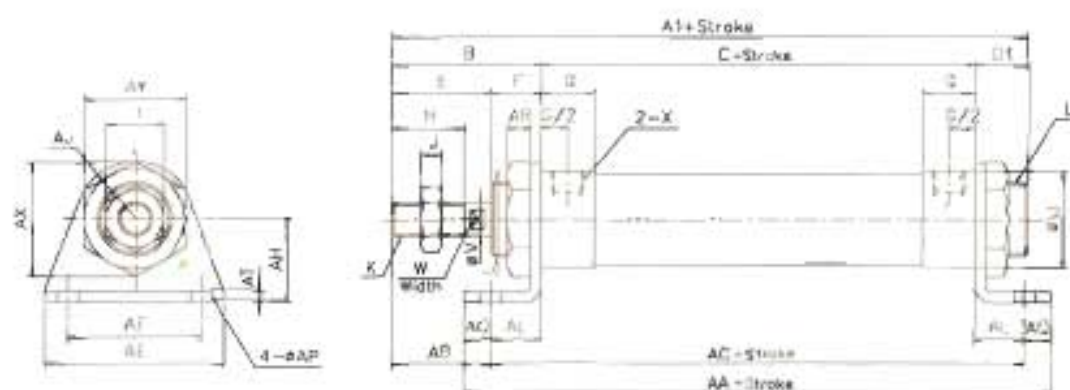
$\varnothing 20 \sim \varnothing 40$



Bore size mm	A	A1	A2	B	C	D	D1	E	F	G	H	I	J	K	L	M	P	Q	R	S	U	V	W	X	AR	AX	AY
20	131	122	110	40	70	21	12	28	12	16	20	13	5	M8*1.25	M22*1.5	10	8	16	19	12	30	8	6	G1/8"	7	33	29
25	135	128	114	44	70	21	14	30	14	16	22	17	6	M10*1.25	M22*1.5	12	8	16	19	12	34	10	8	G1/8"	7	33	29
32	141	128	114	44	70	27	14	30	14	16	22	17	6	M10*1.25	M24*2.0	12	10	16	25	15	39	12	10	G1/8"	8	37	32
40	165	152	138	46	92	27	14	32	14	22	24	19	7	M12*1.25	M30*2.0	12	12	20	25	15	49	16	14	G1/4"	9	47	41

Dimensions of Foot Mounting Type (LB)

$\varnothing 20 \sim \varnothing 40$

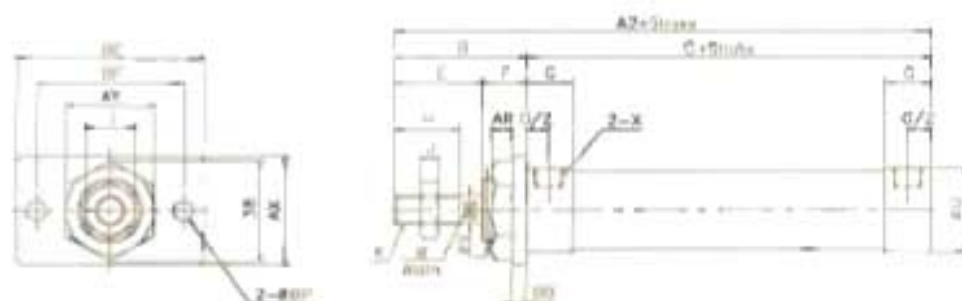


Bore size mm	A1	B	C	D1	E	F	G	H	I	J	K	L	M	U	V	W	X
20	122	40	70	12	28	12	16	20	13	5	M8*1.25	M22*1.5	10	30	8	6	G1/8"
25	128	44	70	14	30	14	16	22	17	6	M10*1.25	M22*1.5	12	34	10	8	G1/8"
32	128	44	70	14	30	14	16	22	17	6	M10*1.25	M24*2.0	12	39	12	10	G1/8"
40	152	46	92	14	32	14	22	24	19	7	M12*1.25	M30*2.0	12	49	16	14	G1/4"

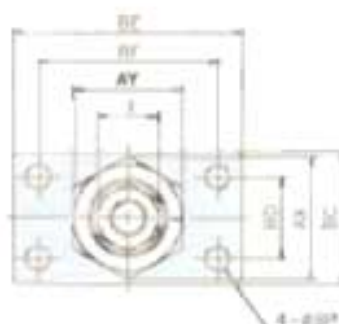
Bore size mm	AA	AB	AC	AE	AF	AH	AJ	AL	AP	AQ	AR	AT	AX	AY
20	116	25	100	54	40	25	17	15	6.5	8	7	3.2	33	29
25	116	29	100	54	40	25	17	15	6.5	8	7	3.2	33	29
32	136	19	120	59	45	32	19	25	6.5	8	8	4	37	32
40	158	21	142	64	50	36	23	25	6.5	8	9	4	47	41

Dimensions of Flange Mounting Type (FA)

ø20~ø25



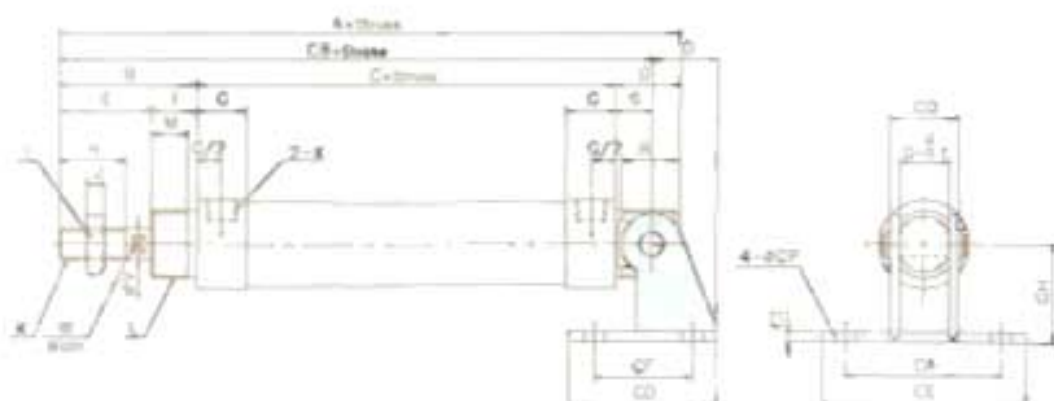
ø32~ø40



Bore size mm	A2	B	C	E	F	G	H	I	J	K	L	M	U	V	W	X	AR	AX	AY	BD	BC	BE	BF	BP	
20	110	40	70	28	12	16	20	13	5	M10*1.25	M22*1.5	10	30	8	6	Ø1/8"	7	33	29	4	38	—	64	50	6.5
25	114	44	70	30	14	16	22	17	6	M10*1.25	M22*1.5	12	34	10	8	Ø1/8"	7	33	29	4	38	—	64	50	6.5
32	114	44	70	30	14	16	22	17	6	M10*1.25	M24*2.0	12	39	12	10	Ø1/8"	8	37	32	4	47	33	72	58	6.5
40	118	46	92	32	14	22	24	19	7	M12*1.25	M30*2.0	12	49	16	14	Ø1/4"	9	47	41	4.5	50	36	84	40	6.5

Dimensions of Pivot Type with Support Bracket (SDB)

ø20~ø40



Bore size mm	A	B	C	D	E	F	G	H	I	J	K	L	M	Q	R	S	U	V	W	X
20	131	49	70	21	28	12	16	20	13	5	M8*1.25	M22*1.5	10	16	19	12	30	8	6	Ø1/8"
25	133	48	70	21	30	14	16	22	17	6	M10*1.25	M22*1.5	12	16	19	12	34	10	8	Ø1/8"
32	141	44	70	27	30	14	16	22	17	6	M10*1.25	M24*2.0	12	16	25	13	39	12	10	Ø1/8"
40	163	46	92	27	32	14	22	24	19	7	M12*1.25	M30*2.0	12	20	25	13	49	16	14	Ø1/4"

Bore size mm	CA	CB	CD	CE	CF	CH	CI	CQ	CT
20	51	122	48	67	32	32	6.5	22	3
25	51	126	48	67	32	32	6.5	22	3
32	51	129	52	67	36	36	6.5	24	4
40	55	133	56	71	40	40	6.5	28	4

SLIM CYLINDER - ALUMINUM TYPE

Single Acting Type

Ordering code

MSAL	—		—	25X50	—		—	
				Cylinder bore size X Stroke				Blank - Without magnet S - With magnet
				End cover type :				Mounting type :
				Blank - Pivot type				Blank - Basic type
				U - Flat-end type				LB - Foot type
				CM - Round-end type				FA - Flange type
								SDB - Pivot type with bracket
MSAL				- Single acting slim cylinder - Push type				
MTAL				- Single acting slim cylinder - Pull type				



Specification

Bore size	mm	20	25	32	40
Action		Single acting type			
Fluid		Air			
Mounting type		Basic type, Foot type, Flange type, Pivot type			
Pressure range	MPa (kgf/cm ²)	0.04 ~ 0.9 (0.4 ~ 9.2)			
Proof pressure	MPa (kgf/cm ²)	1.35 (13.5)			
Temperature range	℃	0 ~ 70			
Speed range	mm/s	100 ~ 800			
Cushioning		Humper			
Port size		G 1/8"			G 1/4"

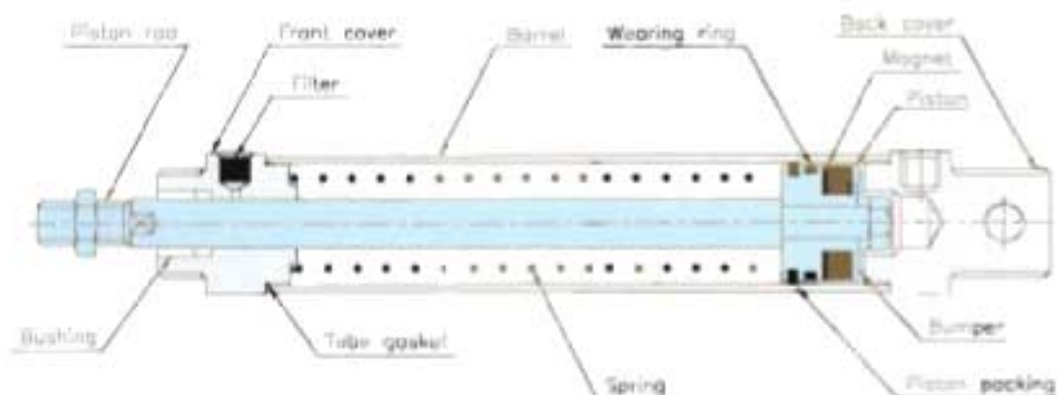
Cylinder size and stroke (mm)

Bore size	Standard stroke	Maximum stroke	Available stroke
20	25 50 75 100	100	150
25	25 50 75 100	100	150
32	25 50 75 100	100	150
40	25 50 75 100	100	150

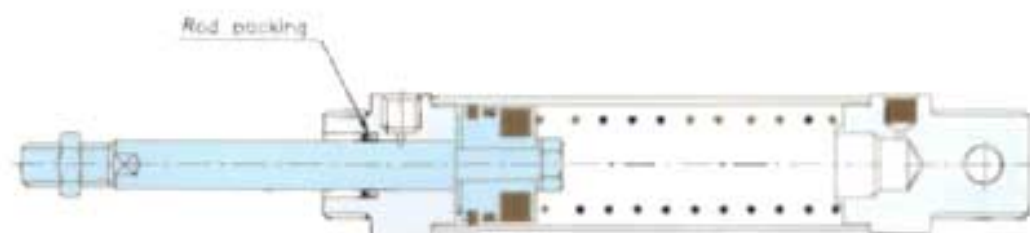
- Note : 1. Stroke tolerance 0, +1.
2. Consult us for non-standard stroke and special piston rod.
3. When the stroke exceeds the maximum stroke, minimum operating pressure is 0.2MPa.

Inner Construction and Major parts

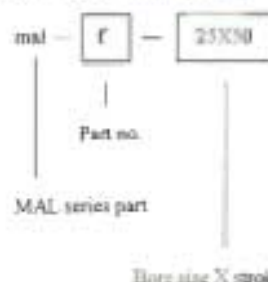
Push Type : $\phi 20 \sim \phi 40$



Pull Type : $\phi 20 \sim \phi 40$



How to order parts



Note : * Bore size only for parts which strokes are not important

Material of major parts

Item	Part no	20	25	32	40
Barrel	b	Aluminum alloy			
Push type front cover	pf	Aluminum alloy			
Pull type back cover*	pbp, pbf	Aluminum alloy			
Piston	p	Aluminum alloy			
Piston rod	pr	Hi-carbon steel with hard chrome plated			
Tube gasket	tg	NBR			
Piston packing	apa	NBR			
Rod packing	mya	NBR			
Piston gasket	pg	NBR			
Bushing	bs	Copper			
Magnet	m	Plastic			
Spring	s	Stainless steel			
Wearing ring	w	Plastic			
Bumper	bu	PU			
Filter	fi	Copper			

Note : 1. No bumpers added in cushion type.

2. Detail part number of packing please refer to packing list.

* For back cover : pbp - pivot-end, pbf - flat-end

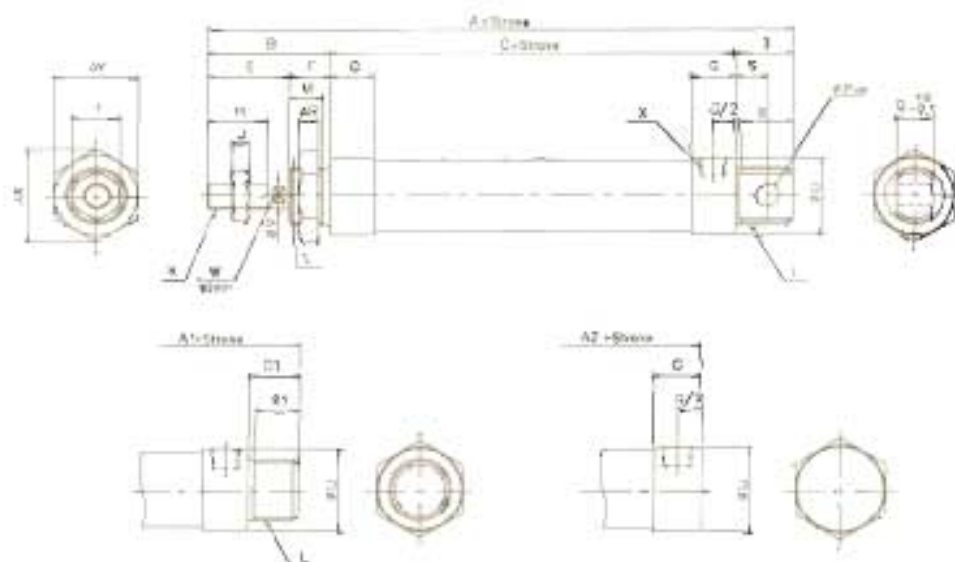
Packing list

Bore size	mm	Rod packing	Piston packing	Piston gasket	Tube gasket
20		mya-20*1	apa-20*1	—	tg-25*2
25		mya-25*1	apa-25*1	pg-25*1	tg-25*2
32		mya-32*1	apa-32*1	pg-32*1	tg-32*2
40		mya-40*1	apa-40*1	pg-40*1	tg-40*2

Note. Rod packing is used only at pull-type

Dimensions of Basic Type - MSAL

ø20~ø40

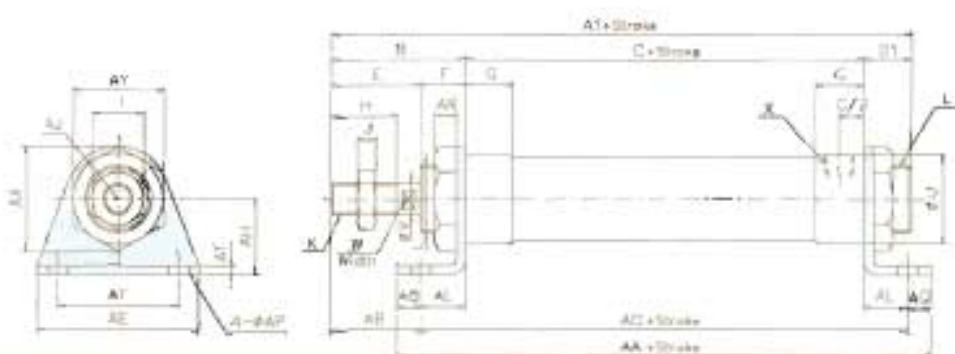


Symbol	A		A1		A2		B	C		D	D1	E	F	G	H
Bore \ Stroke	0-50	51-100	0-50	51-100	0-50	51-100		0-50	51-100						
20	131	156	122	147	110	135	40	70	95	21	12	28	12	16	20
25	133	160	128	153	114	139	44	70	95	21	14	30	14	16	22
32	141	166	128	153	114	139	44	70	95	27	14	30	14	16	22
40	165	190	152	177	138	163	46	92	117	27	14	32	14	22	24

Symbol	I	J	K	L	M	P	Q	R	R1	S	U	V	W	X	AR	AX	AY
20	13	5	M8*1.25	M22*1.5	10	8	16	19	10	12	30	8	6	G1/8"	7	33	29
25	17	6	M10*1.25	M22*1.5	12	8	16	19	12	12	34	10	8	G1/8"	7	33	29
32	17	6	M10*1.25	M24*2.0	12	10	16	25	12	15	39	12	10	G1/8"	8	37	32
40	19	7	M12*1.25	M30*2.0	12	12	20	25	12	15	49	16	14	G1/4"	9	47	41

Dimensions of Foot Mounting Type (LB)

ø20~ø40

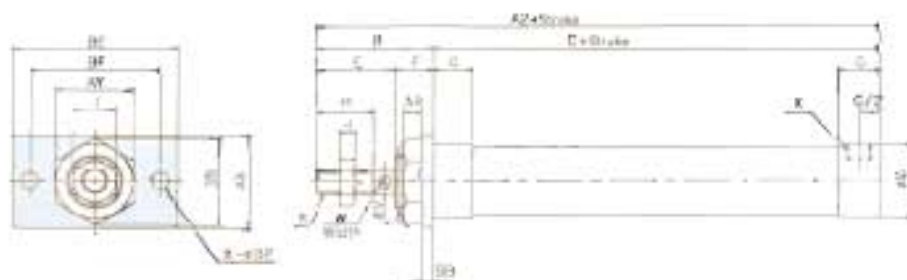


Symbol	A1		B	C		D1	E	F	G	H	I	J	K	L	U	V	W	X
Bore \ Stroke	0-50	51-100		0-50	51-100													
20	122	147	40	70	95	12	28	12	16	20	13	5	M8*1.25	M22*1.5	30	8	6	G1/8"
25	128	153	44	70	95	14	30	14	16	22	17	6	M10*1.25	M22*1.5	34	10	8	G1/8"
32	128	153	44	70	95	14	30	14	16	22	17	6	M10*1.25	M24*2.0	39	12	10	G1/8"
40	152	177	46	92	117	14	32	14	22	24	19	7	M12*1.25	M30*2.0	49	16	14	G1/4"

Symbol	AA		AB	AC		AE	AF	AH	AJ	AL	AP	AQ	AR	AT	AX	AY
Bore \ Stroke	0-50	51-100		0-50	51-100											
20	116	141	25	100	125	54	40	25	17	15	6.5	8	7	3.2	33	29
25	116	141	29	100	125	54	40	25	17	15	6.5	8	7	3.2	33	29
32	136	161	19	120	145	59	43	32	19	25	6.5	8	8	4	37	32
40	158	183	21	142	167	64	50	36	23	25	6.5	8	9	4	47	41

Dimensions of Flange Mounting Type (FA)

ø20~ø25



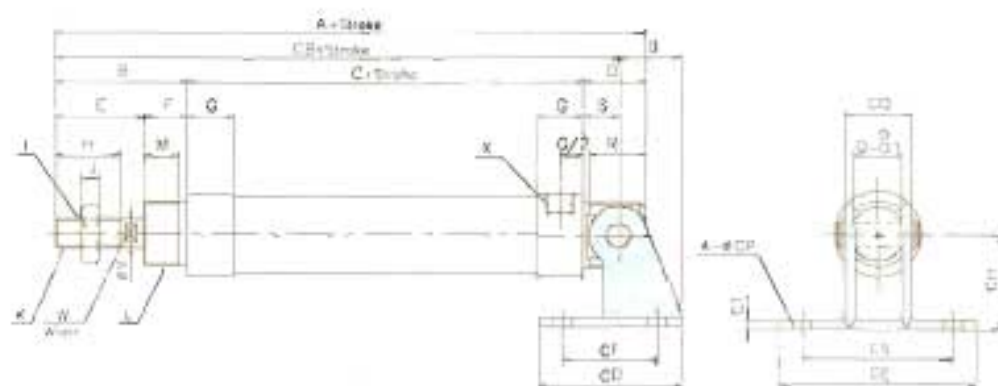
ø32~ø40



Symbol	A2		B	C		D	E	F	G	H	I	J	K	L	U	V	W	X	A	A	A	B	B	B	B	B
Bore \ Stroke	0-50	51-100		0-50	51-100																					
20	110	131	40	70	95	28	12	16	20	13	5	M8*1.25	M22*1.5	30	8	6	G1/8"	7	33	29	4	38	—	64	50	6.5
25	114	139	44	70	95	30	14	16	22	17	6	M10*1.25	M22*1.5	34	10	8	G1/8"	7	33	29	4	38	—	64	50	6.5
32	114	139	44	70	95	30	14	16	22	17	6	M10*1.25	M24*2.0	40	12	10	G1/8"	8	37	32	4	47	33	72	58	6.5
40	138	163	46	92	117	32	14	22	24	19	7	M12*1.25	M30*2.0	49	16	14	G1/4"	9	47	41	4.5	50	36	84	70	6.5

Dimensions of Pivot Type with Support Bracket (SDB)

ø20~ø40



Symbol	A		B	C		D	E	F	G	H	I	J	K	L	M	Q	R	S	U	V	W
Bore \ Stroke	0-50	51-100		0-50	51-100																
20	131	156	40	70	95	21	28	12	16	20	13	5	M8*1.25	M22*1.5	10	16	19	12	30	8	6
25	135	160	44	70	95	21	30	14	16	22	17	6	M10*1.25	M22*1.5	12	18	19	12	34	10	8
32	141	166	44	70	95	27	30	14	16	22	17	6	M10*1.25	M24*2.0	12	16	23	15	39	12	10
40	165	190	46	92	117	27	32	14	22	24	19	7	M12*1.25	M30*2.0	13	20	25	15	49	16	14

Symbol	X	CA	CB		CD	CE	CF	CH	CP	CQ	CT
Bore \ Stroke			0-50	51-100							
20	G1/8"	31	122	147	48	67	32	32	6.2	22	3
25	G1/8"	51	126	151	48	67	32	32	6.5	22	3
32	G3/8"	51	129	154	51	67	36	36	6.5	24	4
40	G1/4"	55	153	178	56	71	40	40	6.5	25	4

SLIM CYLINDER - ALUMINUM TYPE

Double Rod Type

Ordering code

MAL	—		—	25X50	—		—	
				Cylinder bore size X Stroke				
		D - Double-rod type				Mounting type :		
						Blank - Basic type		
						LB - Foot type		
						FA - Flange type		
						Blank - Without magnet		
						S - With magnet		
MAL	- Double acting slim cylinder							
MSAL	- Single acting slim cylinder							



Specification

Bore size	mm	20	25	32	40
Action	Double acting type, Single acting type				
Fluid	Air				
Mounting type	Basic type, Foot type, Flange type				
Pressure range	Double acting type	0.1 ~ 0.9 { 1.0 ~ 9.2 }			
MPa (kgf/cm ²)	Single acting type	0.15 ~ 0.9 { 1.5 ~ 9.2 }			
Proof pressure	MPa (kgf/cm ²)	1.35 { 13.5 }			
Temperature range	℃	0 ~ 70			
Speed range	mm/s	50 ~ 800			
Cushioning	Bumper				
Port size	G 1/8"			G 1/4"	

Cylinder size and stroke (mm) - Double Acting Type

Bore size	Standard stroke	Maximum stroke	Available stroke
20	25 50 75 100 125 150 175 200	200	300
25	25 50 75 100 125 150 175 200 225 250	250	300
32	25 50 75 100 125 150 175 200 225 250	250	300
40	25 50 75 100 125 150 175 200 225 250	250	300

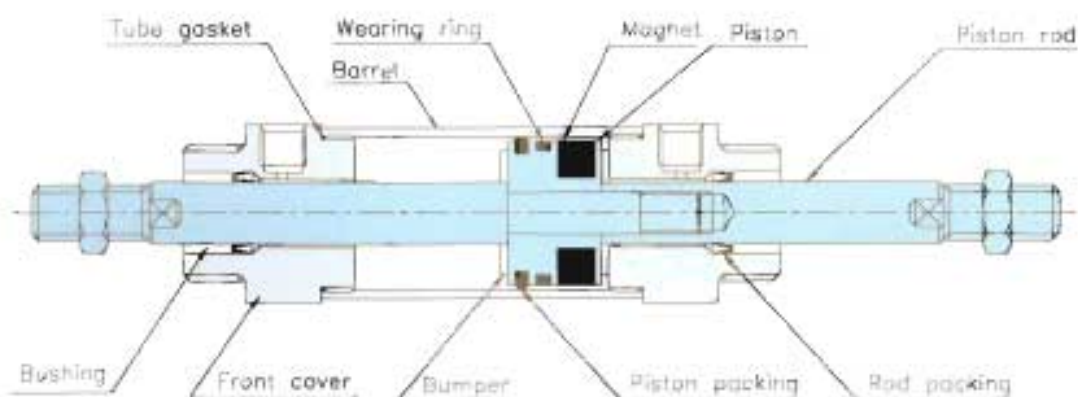
Cylinder size and stroke (mm) - Single Acting Type

Bore size	Standard stroke	Maximum stroke	Available stroke
20	25 50 75 100	100	150
25	25 50 75 100	100	150
32	25 50 75 100	100	150
40	25 50 75 100	100	150

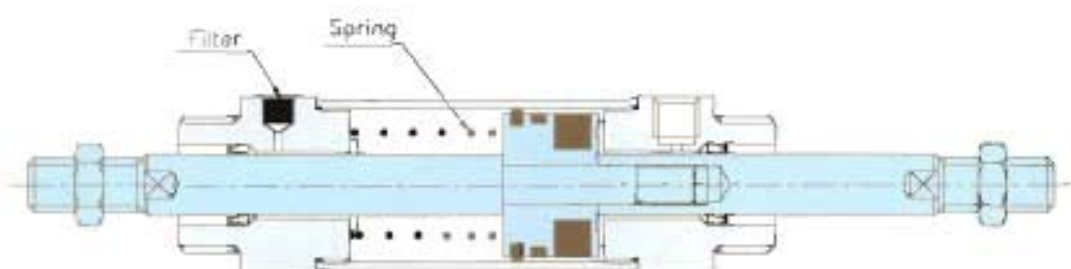
- Note : 1. Stroke tolerance 0, +1.
 2. Consult us for non-standard stroke and special piston rod.
 3. When the stroke exceeds the maximum stroke, minimum operating pressure is 0.2MPa (0.3MPa for single acting type).

Inner Construction and Major parts

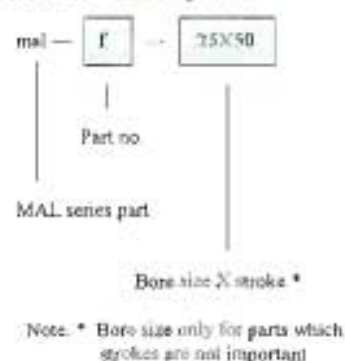
Double acting Type : $\phi 20 \sim \phi 40$



Single acting Type : $\phi 20 \sim \phi 40$



How to order parts



Material of major parts

Item	Part no.	20	25	32	40
Barrel	b	Aluminum alloy			
Front cover	f	Aluminum alloy			
Piston	p	Aluminum alloy			
Piston rod	pr	Hi-carbon steel with hard chrome plated			
Tube gasket	tg	NBR			
Piston packing	apa	NBR			
Rod packing	mya	NBR			
Piston gasket	pg	NBR			
Bushing	bs	Copper			
Magnet	m	Plastic			
Spring	s	Stainless steel			
Wearing ring	w	Plastic			
Bumper	bu	PU			
Filter	fi	Copper			

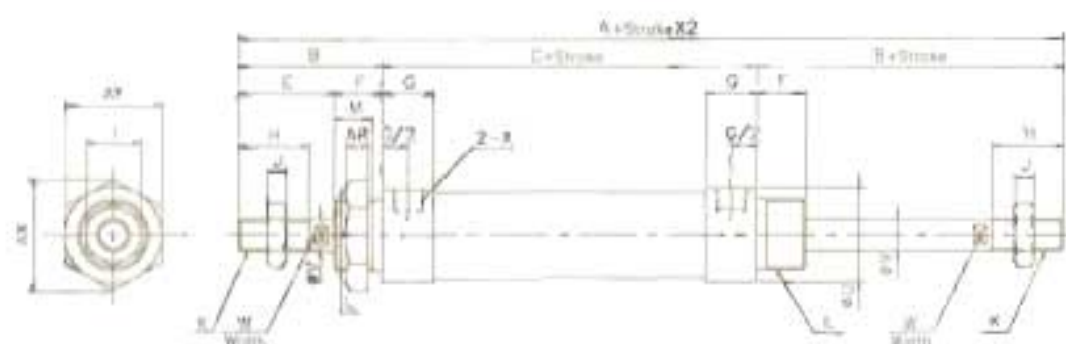
Note: 1. No bumpers added in cushion type
2. Detail part number of packing please refer to packing list

Packing list

Bore size	mm	Rod packing	Piston packing	Piston gasket	Tube gasket
20		mya-20*2	apa-20*1	—	tg-25*2
25		mya-25*2	apa-25*1	pg-25*1	tg-25*2
32		mya-32*2	apa-32*1	pg-32*1	tg-32*2
40		mya-40*2	apa-40*1	pg-40*1	tg-40*2

Dimensions of Basic Type - MAL-D

ø20~ø40

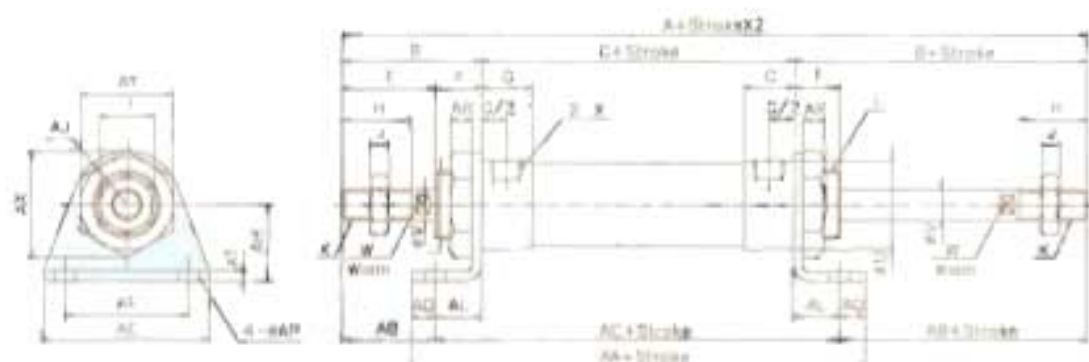


Note: Dimension A1 & C1 stands for single acting type

Symbol Bore \ Stroke	A	A1		B	C	C1		E	F	G	H	I	J	K	L	M	U	V	W	X	AR	AX	AY
		0-50	51-100			0-50	51-100																
20	150	150	175	40	70	70	95	28	12	16	20	13	5	M8*1.25	M22*1.5	10	30	8	6	G1/8"	7	33	29
25	158	158	183	44	70	70	95	30	14	16	22	17	6	M10*1.25	M22*1.5	12	34	10	8	G1/8"	7	33	29
32	158	158	183	44	70	70	95	30	14	16	22	17	6	M10*1.25	M24*2.0	12	39	12	10	G1/8"	8	37	32
40	184	184	209	46	92	92	117	32	14	22	24	19	7	M12*1.25	M30*2.0	12	49	16	14	G1/4"	9	47	41

Dimensions of Foot Mounting Type (LB)

ø20~ø40



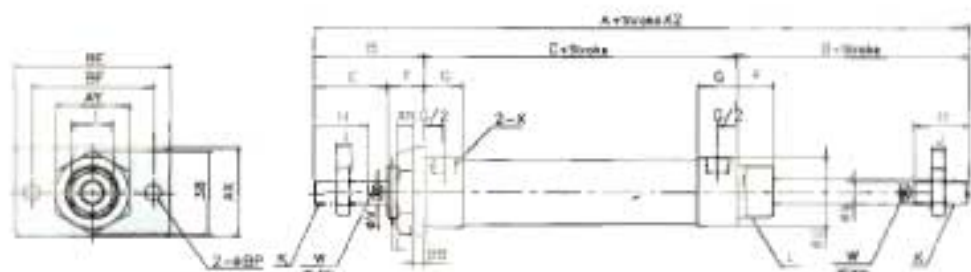
Note: Dimension A1, C1, AA1 & AC1 stands for single acting type

Symbol Bore \ Stroke	A	A1		B	C	C1		D1	E	F	G	H	I	J	K	L	U	V	W	X
		0-50	51-100			0-50	51-100													
20	150	150	175	40	70	70	95	12	28	12	16	20	13	5	M8*1.25	M22*1.5	30	8	6	G1/8"
25	158	158	183	44	70	70	95	14	30	14	16	22	17	6	M10*1.25	M22*1.5	34	10	8	G1/8"
32	158	158	183	44	70	70	95	14	30	14	16	22	17	6	M10*1.25	M24*2.0	39	12	10	G1/8"
40	184	184	209	46	92	92	117	14	32	14	22	24	19	7	M12*1.25	M30*2.0	49	16	14	G1/4"

Symbol Bore \ Stroke	AA	AA1		AB	AC	AC1		AE	AF	AH	AJ	AL	AP	AQ	AR	AT	AX	AY
		0-50	51-100			0-50	51-100											
20	116	116	141	23	100	100	125	54	48	25	17	15	6.5	8	7	3.2	33	29
25	118	118	141	29	100	100	125	54	48	25	17	15	6.5	8	7	3.2	33	29
32	136	136	161	19	120	120	145	59	43	32	19	23	6.5	8	8	4	37	32
40	158	158	183	21	142	142	167	64	50	36	23	25	6.5	8	9	4	47	41

Dimensions of Flange Mounting Type

ø20~ø25



ø32~ø40

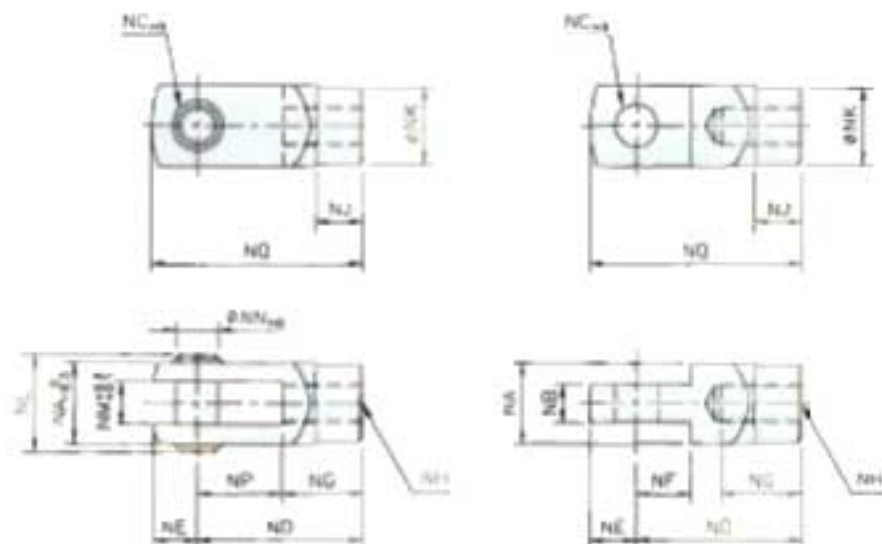


Note: Dimension A1 & C1 stands for single acting type.

Symbol	A	A1		B	C	C1		E	F	G	H	I	J	K	L	U	V	W	X	A	A	B	B	B	B	B	B		
Bore & Stroke		0-50	51-100			0-50	51-100													R	X	Y	B	B	C	D	E	F	F
20	150	150	175	40	70	70	95	28	12	16	20	13	5	M8*1.25	M22*1.5	30	8	6	G1/8"	7	33	29	4	38	—	64	50	6.5	
25	158	158	183	44	70	70	95	30	14	16	22	17	6	M10*1.25	M22*1.5	34	10	8	G1/8"	7	33	29	4	38	—	64	50	6.5	
32	158	158	183	44	70	70	95	30	14	16	22	17	6	M10*1.25	M24*2.0	40	12	10	G1/8"	8	37	32	4	47	33	72	58	6.5	
40	184	184	209	46	92	92	117	32	14	22	24	19	7	M12*1.25	M30*2.0	49	16	14	G1/4"	9	47	41	4.5	50	36	84	70	6.5	

Dimensions of Knuckles — Y & I

Y & I



Bore size mm	NA	NB	NC	ND	NE	NF	NG	NH	NI	NK	NL	NM	NN	NP	NQ
20	16	8	8	30	10	11	15	M8*1.25	10	14	21	8	8	15	42
25	19	10	10	40	12	15	20	M10*1.25	12	18	25	10	10	20	52
32	19	10	10	40	12	15	20	M10*1.25	12	18	25	10	10	20	52
40	24	14	10	45	12	15	25	M12*1.25	15	23	31	14	10	20	57

SLIM CYLINDER - ALUMINUM TYPE

Double Rod Cylinder - Adjustable Stroke Type

Ordering code

MAL	—		—	25X50-20	—		—	
		Cylinder bore size	X	Stroke	-	Adjustable stroke		
		I - Adjustable stroke type				Mounting type		
						Blank - Basic type		
						LB - Foot type		
						FA - Flange type		
						Blank - Without magnet		
						S - With magnet		
MAL	- Double acting slim cylinder							



Specification

Bore size	mm	20	25	32	40
Action	Double acting type				
Fluid	Air				
Mounting type	Basic type, Foot type, Flange type				
Pressure range	MPa { kgf/cm ² }	0.1 ~ 0.9 { 1.0 ~ 9.2 }			
Proof pressure	MPa { kgf/cm ² }	1.35 { 13.5 }			
Temperature range	℃	0 ~ 70			
Speed range	mm/s	50 ~ 800			
Cushioning	Bumper				
Port size	G 1/8"				G 1/4"

Cylinder size and stroke (mm)

Bore size	Standard stroke	Adjustable stroke	Maximum stroke	Available stroke
20	25 50 75 100 125 150 175 200	10 20 30 40 50	200	300
25	25 50 75 100 125 150 175 200 225 250	10 20 30 40 50	250	300
32	25 50 75 100 125 150 175 200 225 250	10 20 30 40 50	250	300
40	25 50 75 100 125 150 175 200 225 250	10 20 30 40 50	250	300

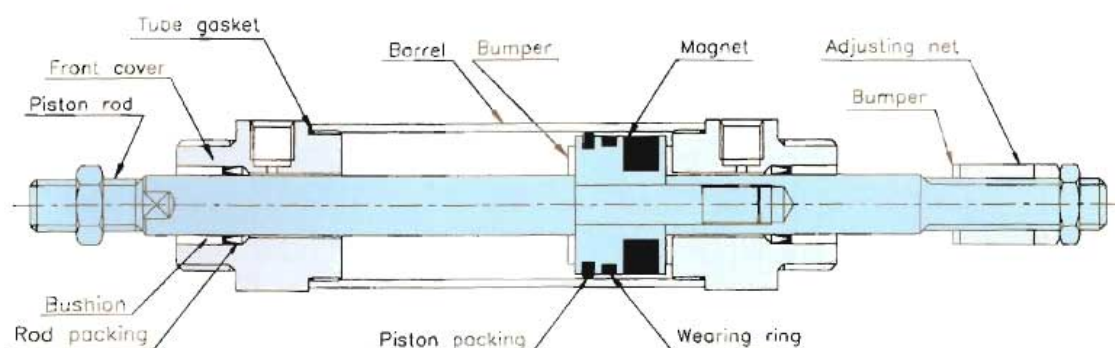
Note: 1. Stroke tolerance: 0, +1.

2. Consult us for non-standard stroke and special piston rod.

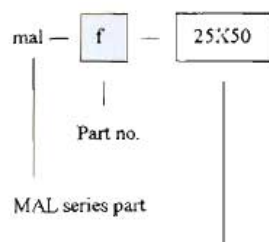
3. When the stroke exceeds the maximum stroke, minimum operating pressure is 0.2MPa

Inner Construction and Major parts

ø20~ø40



How to order parts



Bore size X stroke *

Note. *. Bore size only for parts which strokes are not important.

Material of major parts

Item	Part no.	20	25	32	40
Barrel	b	Aluminum alloy			
Front cover	f	Aluminum alloy			
Piston	p	Aluminum alloy			
Piston rod	pr	Hi-carbon steel with hard chrome plated			
Tube gasket	tg	NBR			
Piston packing	apa	NBR			
Rod packing	mya	NBR			
Piston gasket	pg	NBR			
Bushing	bs	Copper			
Magnet	m	Plastic			
Wearing ring	w	Plastic			
Bumper	bu	PU			
Adjusting nut	an	Hard steel			
Adjusting nut bumper	ab	PU			

Note : 1. No bumpers added in cushion type.

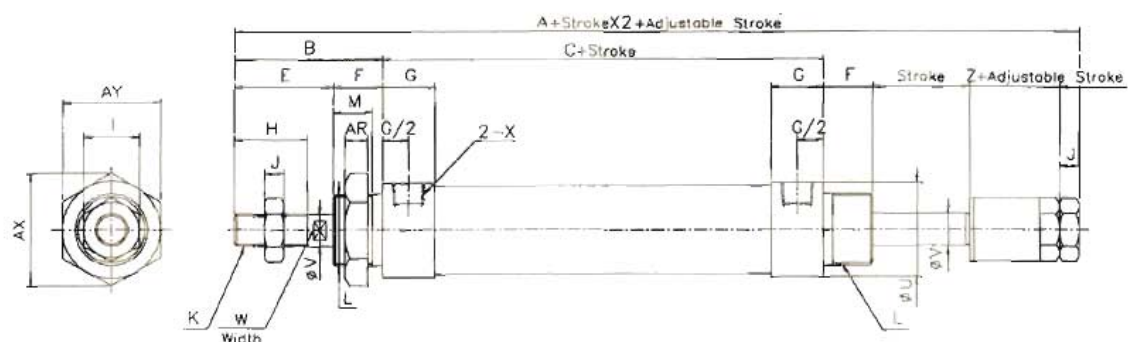
2. Detail part number of packing please refer to packing list.

Packing list

Bore size	mm	Rod packing	Piston packing	Piston gasket	Tube gasket
20		mya-20*2	apa-20*1	—	tg-25*2
25		mya-25*2	apa-25*1	pg-25*1	tg-25*2
32		mya-32*2	apa-32*1	pg-32*1	tg-32*2
40		mya-40*2	apa-40*1	pg-40*1	tg-40*2

Dimensions of Basic Type - MAL-J

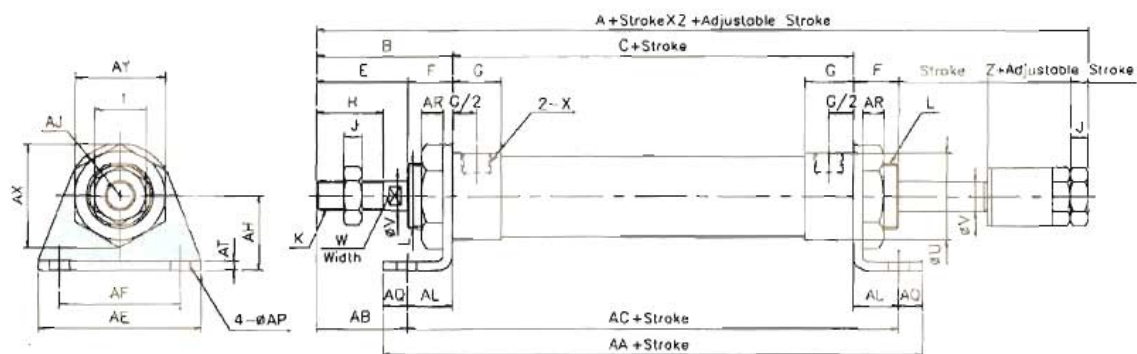
ø20~ø40



Bore size mm	A	B	C	E	F	G	H	I	J	K	L	M	U	V	W	X	AR	AX	AY	Z
20	147	40	70	28	12	16	20	13	5	M8*1.25	M22*1.5	10	30	8	6	G1/8"	7	33	29	20
25	154	44	70	30	14	16	22	17	6	M10*1.25	M22*1.5	12	34	10	8	G1/8"	7	33	29	20
32	154	44	70	30	14	16	22	17	6	M10*1.25	M24*2.0	12	39	12	10	G1/8"	8	37	32	20
40	179	46	92	32	14	22	24	19	7	M12*1.25	M30*2.0	12	49	16	14	G1/4"	9	47	41	20

Dimensions of Foot Mounting Type (LB)

ø20~ø40

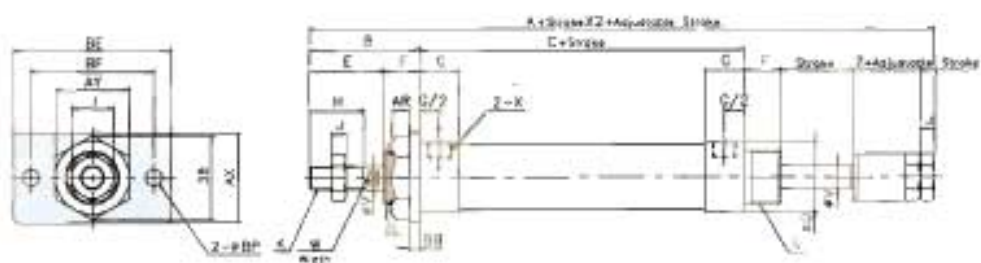


Bore size mm	A	B	C	E	F	G	H	I	J	K	L	M	U	V	W	X	Z
20	147	40	70	28	12	16	20	13	5	M8*1.25	M22*1.5	10	30	8	6	G1/8"	20
25	154	44	70	30	14	16	22	17	6	M10*1.25	M22*1.5	12	34	10	8	G1/8"	20
32	154	44	70	30	14	16	22	17	6	M10*1.25	M24*2.0	12	39	12	10	G1/8"	20
40	179	46	92	32	14	22	24	19	7	M12*1.25	M30*2.0	12	49	16	14	G1/4"	20

Bore size mm	AA	AB	AC	AE	AF	AH	AJ	AL	AP	AQ	AR	AT	AX	AY
20	116	25	100	54	40	25	17	15	6.5	8	7	3.2	33	29
25	116	29	100	54	40	25	17	15	6.5	8	7	3.2	33	29
32	136	19	120	59	45	32	19	25	6.5	8	8	4	37	32
40	158	21	142	64	50	36	23	25	6.5	8	9	4	47	41

Dimensions of Flange Mounting Type (FA)

φ20~φ25

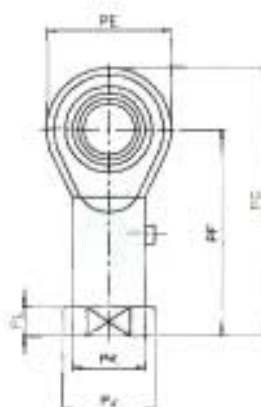
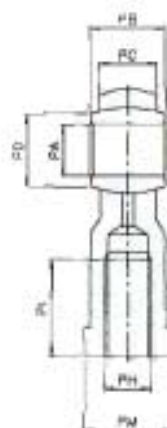


φ32~φ40



Bore size mm	A	B	C	E	F	G	H	I	J	K	L	U	V	W	X	Z	AR	AX	AY	BB	BC	BD	BE	BF	BP
20	147	40	70	28	12	16	20	13	5	M8*1.25	M22*1.5	30	8	6	G1/8"	20	7	33	29	4	38	—	64	50	6.5
25	154	44	70	30	14	16	22	17	6	M10*1.25	M22*1.5	34	10	8	G1/8"	20	7	33	29	4	38	—	64	50	6.5
32	154	44	70	30	14	16	22	17	6	M10*1.25	M24*2.0	39	12	10	G1/8"	20	8	37	32	4	47	33	72	58	6.5
40	179	46	92	32	14	22	24	19	7	M12*1.25	M30*2.0	49	16	14	G1/4"	20	9	47	41	4.5	50	36	84	70	6.5

Dimensions of Universal Joint (Fish-Ball Joint)



Bore size mm	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM
20	8	12	9	10.4	22	36	47	M8*1.25	17	16	12.5	5	14
25	10	14	11	12.9	26	43	56	M10*1.25	21	19	15	6.5	17
32	10	14	11	12.9	26	43	56	M10*1.25	21	19	15	6.5	17
40	12	16	12	15.4	30	50	65	M12*1.25	24	22	17.5	6.5	19

SLIM CYLINDER - ALUMINUM TYPE

Sensor Switch and Switch Band

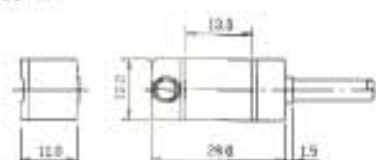
Ordering code

CS1	—	
Sensor switch	Sensor type	F : Lamp in front position U : Lamp in up position S : Mini type
BL	—	20
MAL series sensor switch band	Band size	20 : 16mm bore band 32 : 32mm bore band 25 : 20mm bore band 40 : 40mm bore band

CS1-F



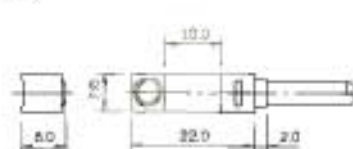
CS1-U



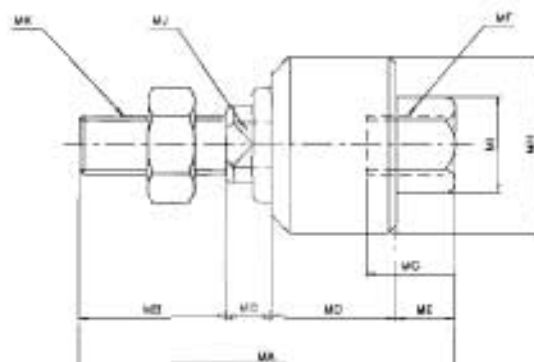
Specification

Sensor Switch Type		F,U	S
Operating voltage range (DC)		DC5-DC24V	
Operating voltage range (AC)		AC24V-AC220V	AC24V-AC110V
Operating current range (mA)		5 - 100	
Switching Characteristics	Response time	0.3ms max.	
	Bouncing time	0.3ms max.	
	Releasing time	0.05ms max.	
	Frequency range	3-250Hz	
Withstand voltage of contact point		200VDC min.	
Temperature		0 - 60 °C (32 - 140 °F)	
Shock resistance		30G (Non-repeated shock)	
Vibration resistance		7g max (10-55Hz)	
Indicator lamp		Green LED goes on when in ON position	
Lead wire		Gray $\phi 4 \times 2M$	
Electrical life		5X10 ⁶ times min.	

CS1-S



Dimensions of Floating Joint



Symbol	mm	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK
20	51	20	6	17	8		M8*1.25	12	24	13	8	M8*1.25
25	58	22	7	21	8		M10*1.25	12	26	17	10	M10*1.25
32	58	22	7	21	8		M10*1.25	12	26	17	10	M10*1.25
40	58	22	8	21	7		M12*1.25	12	28	19	12	M12*1.25