

# COMPACT GUIDED CYLINDER

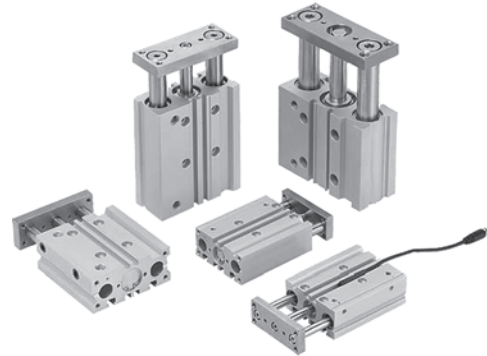
## Series A91

Cat No A91 - 01 - 01 - A

### COMPACT GUIDED CYLINDER - (Ø12, 16, 20, 25, 32, 40, 50, 63mm)

#### Features

- ❑ For ease of loading & unloading workpiece at restriction
- ❑ High speed operation : 0.2 sec/stroke
- ❑ Compact cylinders with strong clamping force, Ø12 to 63mm
- ❑ Improved mounting accuracy. Guide bush and positioning pin hole ensure high-precision mounting
- ❑ Body machined from extruded aluminium that mounts directly to equipment for rigid, secure mounting in small space
- ❑ Compact equipment design is possible. Suited for electronic parts inspection clamps. Ideal for use in small mounting space
- ❑ Adjustable stroke on request



#### Technical Specifications

Series	A91L	A91M
Bearing type	Bushing	Linear bearing
Action	Double acting	
Bore	Ø12, 16, 20, 25, 32, 40, 50, 63 mm	
Operating fluid	Compressed air	
Proof pressure	15 bar (15.3 kgf/cm <sup>2</sup> )	
Max. operating pressure	10 bar (10.2 kgf/cm <sup>2</sup> )	
Min. operating pressure	Ø12, Ø16	1.2 bar (1.2 kgf/cm <sup>2</sup> )
	Ø20 to Ø63	1 bar (1.0 kgf/cm <sup>2</sup> )
Piston speed range	50 to 500 mm/s	
Temperature range	-10° to 60° C	
Lubrication	Non-lube	
Cushion	Rubber bumper on both ends	
Stroke length tolerance mm	+1.5 0	

#### Output force ( force in N : 1N = 0.1 kgf )

Bore dia (mm)	Rod size (mm)	Operating direction	Piston area (mm <sup>2</sup> )	Operating pressure in bar									
				2	3	4	5	6	7	8	9	10	
12	6	OUT	113	23	34	45	57	68	79	90	102	113	
		IN	85	17	26	34	43	51	60	68	77	85	
16	8	OUT	201	40	60	80	101	121	141	161	181	201	
		IN	151	30	45	60	76	91	106	121	136	151	
20	10	OUT	314	63	94	126	157	188	220	251	283	314	
		IN	236	47	71	94	118	142	165	189	212	236	
25	12	OUT	491	98	147	196	246	295	344	393	442	491	
		IN	378	76	113	151	189	227	265	302	340	378	
32	16	OUT	804	161	241	322	402	482	563	643	724	804	
		IN	603	121	181	241	302	362	422	482	543	603	
40	16	OUT	1257	251	377	503	629	754	880	1006	1131	1257	
		IN	1056	211	317	422	528	634	739	845	950	1056	
50	20	OUT	1963	393	589	785	982	1178	1374	1570	1767	1963	
		IN	1649	330	495	660	825	990	1154	1319	1484	1649	
63	20	OUT	3117	623	935	1247	1559	1870	2182	2494	2805	3117	
		IN	2803	561	841	1121	1402	1682	1962	2242	2523	2803	

( Above values have been worked out taking frictional loss into consideration )

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### Standard Stroke

Model		Standard stroke (mm)	Intermediate stroke
A91L Bushing  A91M Linear Bearing	12, 16	10, 20,30, 40, 50, 75, 100	Spacers are installed in the standard stroke cylinders to achieve intermediate strokes Ø12 to Ø32 : Available by 1mm stroke interval Ø40 to Ø100 : Available by 5mm stroke interval <b>Example1:</b> A91L20 x 39 use body of A91L20 x 40. A 1mm spacer is installed to achieve stroke of 39mm. All external dimensions are same as A91L20 x 40. Dimension 'C' will be 77mm <b>Example2:</b> A91L50 x 45 use body of A91L50 x 50. A 5mm spacer is installed to achieve stroke of 45mm. All external dimensions are same as A91L50 x 50. Dimension 'C' will be 94mm.
	20, 25	20,30, 40, 50, 75, 100, 125, 150, 175, 200	
	32, 40, 50, 63	25, 50, 75, 100, 125, 150, 175, 200	

### Weight Table - Bushing Type

Unit : (kg)

Bore dia (mm)	Model	Stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
12	A91L	0.24	0.28	-	0.31	0.35	0.39	0.50	0.59	-	-	-	-
16	A91L	0.33	0.38	-	0.43	0.48	0.53	0.68	0.80	-	-	-	-
20	A91L	-	0.67	-	0.75	0.83	0.91	1.17	1.37	1.57	1.76	1.96	2.16
25	A91L	-	0.95	-	1.05	1.16	1.27	1.65	1.92	2.19	2.47	2.74	3.01
32	A91L	-	-	1.69	-	-	2.07	2.47	2.85	3.24	3.62	4.00	4.38
40	A91L	-	-	1.95	-	-	2.37	2.83	3.25	3.68	4.10	4.53	4.95
50	A91L	-	-	3.36	-	-	4.00	4.73	5.37	6.01	6.65	7.29	7.93
63	A91L	-	-	4.18	-	-	4.94	5.78	6.54	7.29	8.05	8.80	9.56

### Weight Table - Linear Bearing Type

Unit : (kg)

Bore dia (mm)	Model	Stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
12	A91M	0.24	0.27	-	0.30	0.35	0.39	0.47	0.56	-	-	-	-
16	A91M	0.34	0.39	-	0.43	0.51	0.56	0.67	0.79	-	-	-	-
20	A91M	-	0.70	-	0.77	0.89	0.97	1.14	1.31	1.52	1.69	1.87	2.04
25	A91M	-	0.98	-	1.07	1.25	1.34	1.57	1.81	2.08	2.31	2.54	2.77
32	A91M	-	-	1.54	-	-	1.85	2.30	2.62	2.99	3.31	3.62	3.94
40	A91M	-	-	1.79	-	-	2.15	2.64	3.00	3.42	3.78	4.14	4.50
50	A91M	-	-	3.11	-	-	3.66	4.41	4.96	5.60	6.15	6.70	7.25
63	A91M	-	-	3.93	-	-	4.59	5.46	6.12	6.88	7.54	8.21	8.87

### CAUTION NOTES

Be sure to read before handling

#### Precautions

1. Never place your hands or fingers between the plate and the body

Be very careful to prevent your hands or fingers from getting caught in the gap between the cylinder body and the plate when the air is applied.

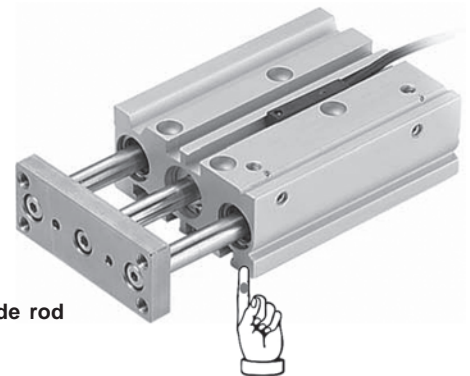
#### Caution

1. Do not scratch or gouge the sliding portion of the piston rod and the guide rod

Damaged seals, etc., will result in leakage or malfunction.

2. Bottom of cylinder

The guide rods will protrude from the bottom of the cylinder at the end of the retracting stroke. Therefore, wherever the cylinder is to be bottom mounted, it is necessary to provide bypass ports in the mounting surface for the guide rods, as well as holes for the hexagon socket head screws, which are used for mounting. Moreover, in applications where impact occurs from a stopper, etc., the mounting bolts should be inserted to a depth of 2d or more (1.5d or more for standard).



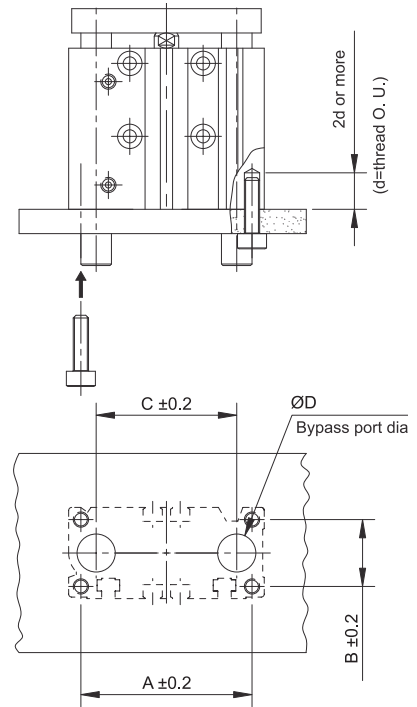
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## Series A91

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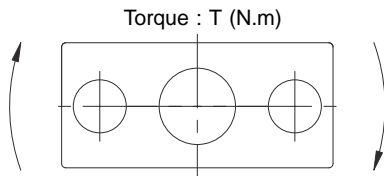
### Standard Type

Bore dia (mm)	A	B	C	D		Hex. socket head cap screw
				A91L	A91M	
12	50	18	41	10	8	M4x0.7
16	56	22	46	12	10	M5x0.8
20	72	24	54	14	12	M5x0.8
25	82	30	64	18	15	M6x1.0
32	98	34	78	22	18	M8x1.25
40	106	40	86	22	18	M8x1.25
50	130	46	110	27	22	M10x1.5
63	142	58	124	27	22	M10x1.5



### Operating Condition

#### Allowable Rotational Torque of Plate

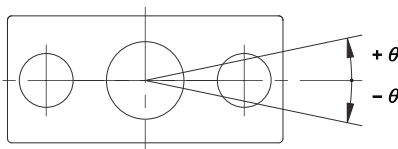


T (N.m)

Bore dia (mm)	Bearing type	Stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
12	A91L	0.39	0.32	-	0.27	0.24	0.21	0.43	0.36	-	-	-	-
	A91M	0.61	0.45	-	0.35	0.58	0.50	0.37	0.29	-	-	-	-
16	A91L	0.69	0.58	-	0.49	0.43	0.38	0.69	0.58	-	-	-	-
	A91M	0.99	0.74	-	0.59	0.99	0.86	0.65	0.52	-	-	-	-
20	A91L	-	1.05	-	0.93	0.83	0.75	1.88	1.63	1.44	1.28	1.16	1.06
	A91M	-	1.26	-	1.03	2.17	1.94	1.52	1.25	1.34	1.17	1.03	0.93
25	A91L	-	1.76	-	1.55	1.38	1.25	2.96	2.57	2.26	2.02	1.83	1.67
	A91M	-	2.11	-	1.75	3.37	3.02	2.38	1.97	2.05	1.78	1.58	1.41
32	A91L	-	-	6.35	-	-	5.13	5.69	4.97	4.42	3.98	3.61	3.31
	A91M	-	-	5.95	-	-	4.89	5.11	4.51	6.34	5.79	5.33	4.93
40	A91L	-	-	7.00	-	-	5.66	6.27	5.48	4.87	4.38	3.98	3.65
	A91M	-	-	6.55	-	-	5.39	5.62	4.96	6.98	6.38	5.87	5.43
50	A91L	-	-	13.0	-	-	10.8	12.0	10.6	9.50	8.60	7.86	7.24
	A91M	-	-	9.17	-	-	7.62	9.83	8.74	11.6	10.7	9.83	9.12
63	A91L	-	-	14.7	-	-	12.1	13.5	11.9	10.7	9.69	8.86	8.16
	A91M	-	-	10.2	-	-	8.48	11.0	9.74	13.0	11.9	11.0	10.2

1 N.m = 10.2 kgf.cm

### Non-Rotating Accuracy of Plate



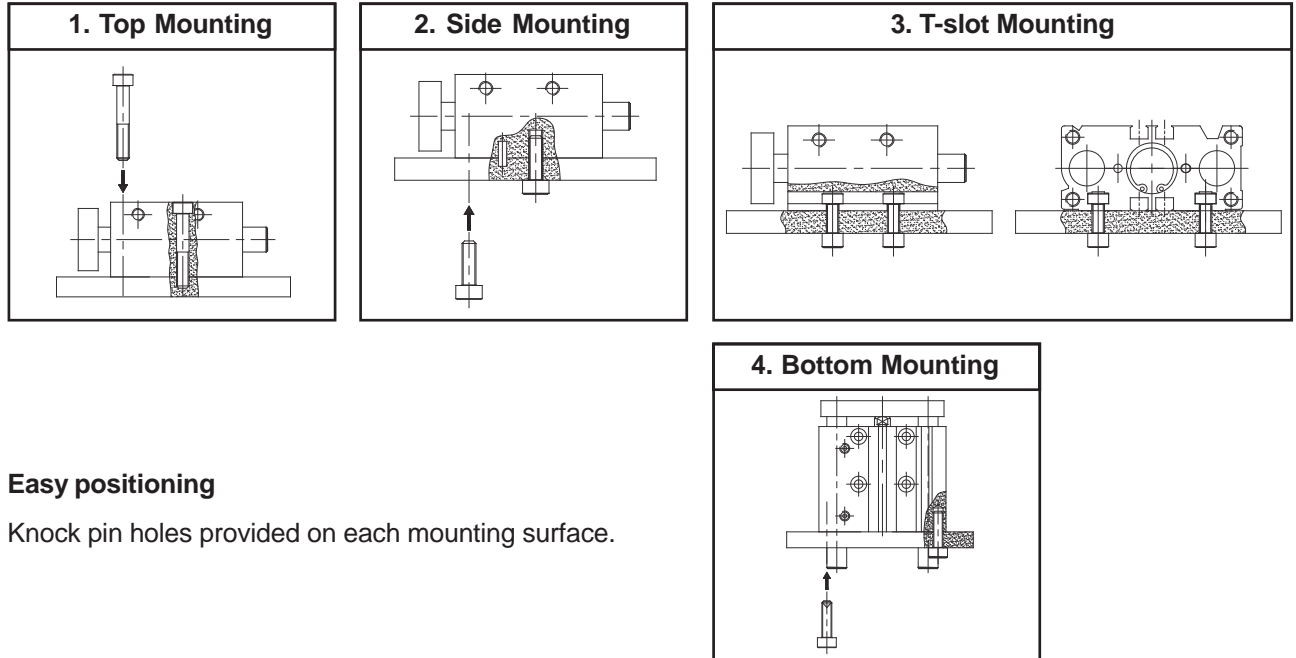
Bore dia (mm)	Non-rotating accuracy $\theta$		Bore dia (mm)	Non-rotating accuracy $\theta$	
	A91L	A91M		A91L	A91M
12	$\pm 0.08^\circ$	$\pm 0.10^\circ$	32	$\pm 0.06^\circ$	$\pm 0.08^\circ$
16			40		
20	$\pm 0.07^\circ$	$\pm 0.09^\circ$	50	$\pm 0.05^\circ$	$\pm 0.06^\circ$
25			63		

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### Four Mounting Style



### Easy positioning

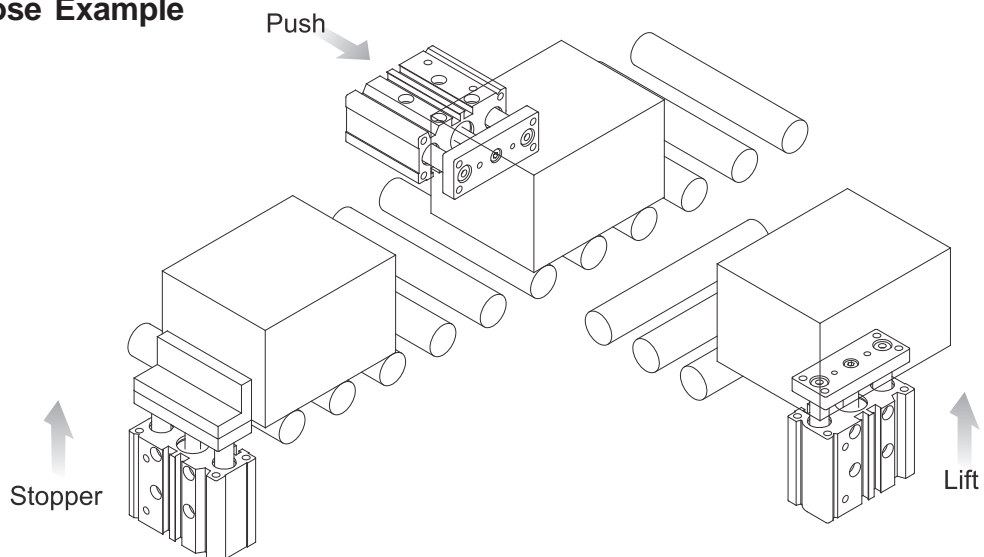
Knock pin holes provided on each mounting surface.

### Stroke corresponding list - stroke variations

Bearing type	Bore dia (mm)	Stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
A91L Bushing	12	●	●	○	●	●	●	●	●				
	16	●	●	○	●	●	●	●	●				
	20		●	○	●	●	●	●	●	●	●	●	●
	25		●	○	●	●	●	●	●	●	●	●	●
A91M Linear Bearing	32		○	●	○	○	●	●	●	●	●	●	●
	40		○	●	○	○	●	●	●	●	●	●	●
	50		○	●	○	○	●	●	●	●	●	●	●
	63		○	●	○	○	●	●	●	●	●	●	●

(●) Standard stroke. (○) It's available, but please contact with us for detailed dimensions.

### Multipurpose Example

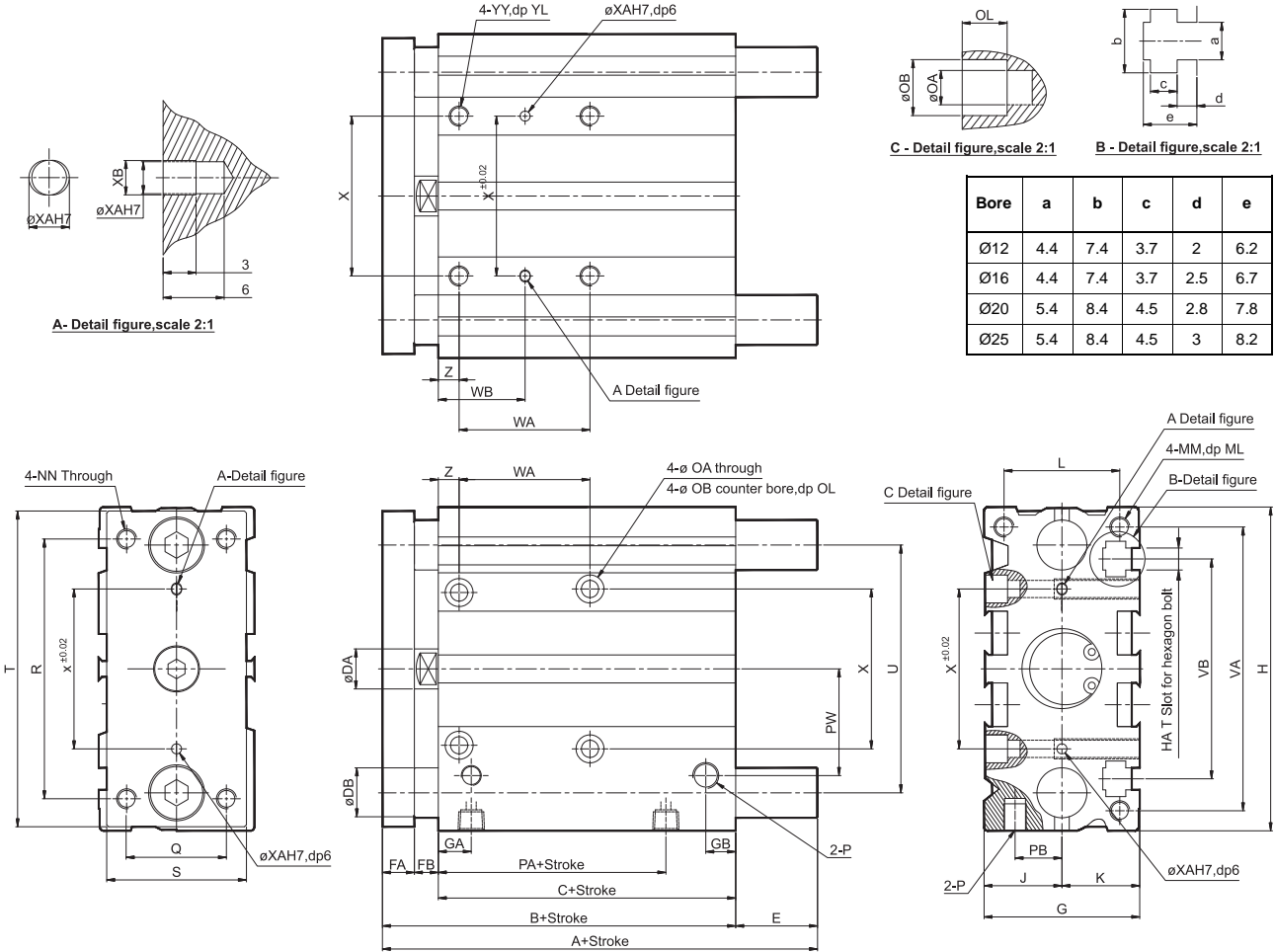


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### Basic Dimensions



Bore	a	b	c	d	e
Ø12	4.4	7.4	3.7	2	6.2
Ø16	4.4	7.4	3.7	2.5	6.7
Ø20	5.4	8.4	4.5	2.8	7.8
Ø25	5.4	8.4	4.5	3	8.2

### A91L / A91M Common Dimensions

Bore	B	C	DA	FA	FB	G	GA	GB	H	HA	J	K	L	MM	ML	NN	OA	OB	OL	P	PA	PB	PW
Ø12	42	29	6	9.5	3.5	26	11	10	58	M4	13	13	18	M4x0.7	10	M4x0.7	4.3	8	4.5	M5x0.8	13	8	18
Ø16	46	33	8	8	5	30	11	9.5	64	M4	15	15	22	M5x0.8	12	M5x0.8	4.3	8	4.5	M5x0.8	15	10	19
Ø20	53	37	10	10	6	36	10.5	10.5	83	M5	18	18	24	M5x0.8	13	M5x0.8	5.3	9.5	5.5	Rc1/8	12.5	10.5	25
Ø25	53.5	37.5	12	11	5	42	11.5	11	93	M5	21	21	30	M6x1.0	15	M6x1.0	5.3	9.5	5.5	Rc1/8	12.5	13.5	28.5

Bore	Q	R	S	T	U	VA	VB	WA (stroke)				WB (stroke)				X	XA	XB	YY	YL	Z		
								10-30	40-100	125-200	250-300	300	10-30	40-100	125-200							250-300	300
Ø12	14	48	22	56	41	50	37	20	40	110	200	-	15	25	60	105	-	23	3	3.5	M5x0.8	10	5
Ø16	16	54	25	62	46	56	38	24	44	110	200	-	17	27	60	105	-	24	3	3.5	M5x0.8	10	5
Ø20	18	70	30	81	54	72	44	24	44	120	200	300	29	39	77	117	167	28	3	3.5	M6x1.0	12	17
Ø25	26	78	38	91	64	82	50	24	44	120	200	300	29	39	77	117	167	34	4	4.5	M6x1.0	12	17

### A91L (Bushing) A / DB / E Dimensions

Bore	A (stroke)			DB	E (stroke)		
	10-50	75-100	100		10-50	75-100	100
Ø12	42	60.5	85	8	0	18.5	43
Ø16	46	64.5	95	10	0	18.5	49

Bore	A (stroke)		DB	E (stroke)	
	10-50	75-200		10-50	75-200
Ø20	53	84.5	12	0	31.5
Ø25	53.5	85	16	0	31.5

### A91M (Linear Bearing) A / DB / E Dimensions

Bore	A (stroke)			DB	E (stroke)		
	10-30	40-100	100		10-30	40-100	100
Ø12	43	55	85	6	1	13	43
Ø16	49	65	95	8	3	19	49

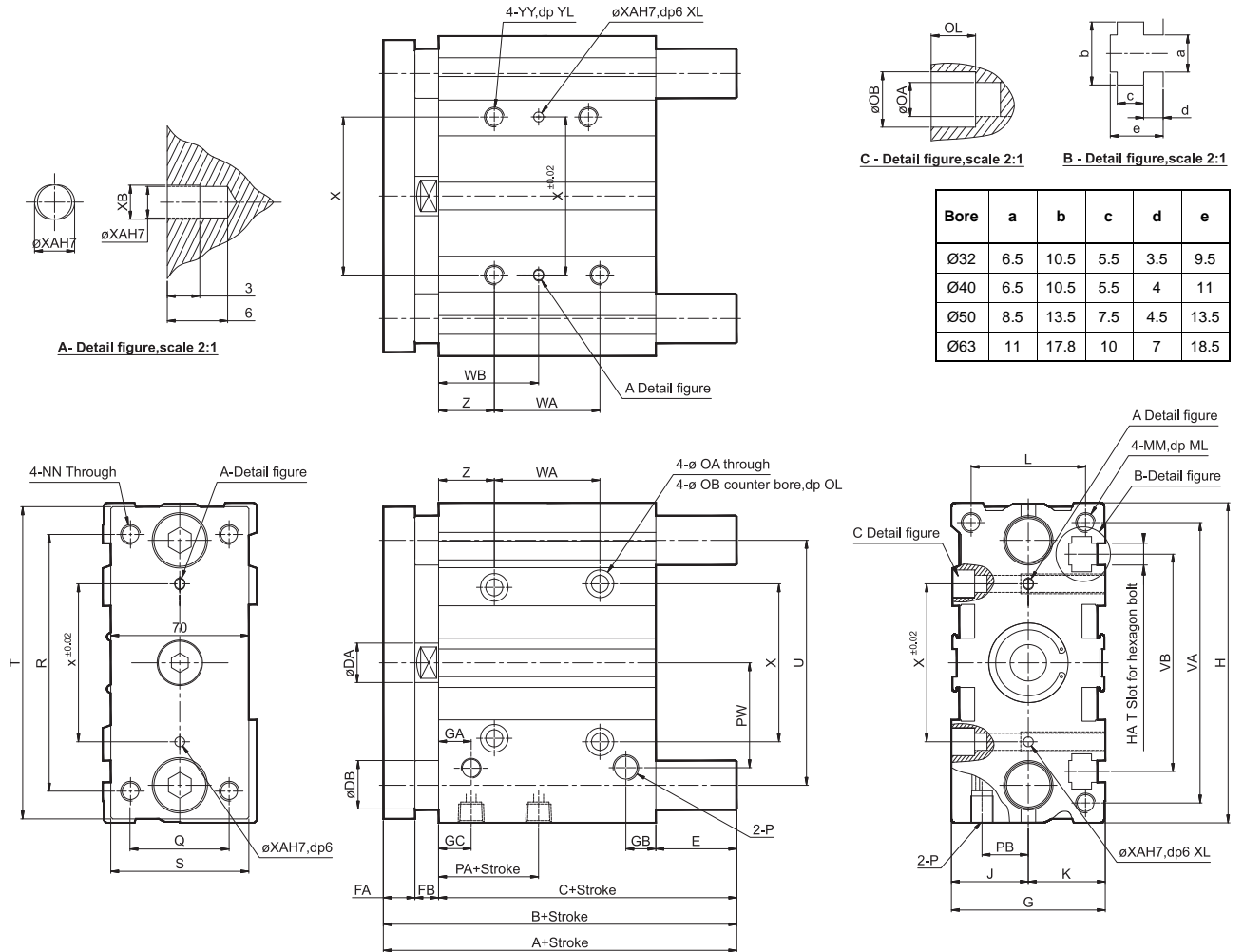
Bore	A (stroke)			DB	E (stroke)		
	20-30	40-100	125-200		20-30	40-100	125-200
Ø12	63	80	104	10	10	27	51
Ø16	69.5	85.5	104.5	13	16	32	51

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### Basic Dimensions



Bore	a	b	c	d	e
Ø32	6.5	10.5	5.5	3.5	9.5
Ø40	6.5	10.5	5.5	4	11
Ø50	8.5	13.5	7.5	4.5	13.5
Ø63	11	17.8	10	7	18.5

### A91L / A91M Common Dimensions

Bore	B	C	DA	FA	FB	G	GA	GB	H	HA	J	K	L	MM	ML	NN	OA	OB	OL	P	PA	GC	PB	PW
Ø32	59.5	37.5	16	12	10	48	12.5	11.5	112	M6	24	24	34	M8x1.25	20	M8x1.25	6.6	11	7.5	Rc1/8	7	12.5	15	34
Ø40	66	44	16	12	10	54	14	12	120	M6	27	27	40	M8x1.25	20	M8x1.25	6.6	11	7.5	Rc1/8	13	14	18	38
Ø50	72	44	20	16	12	64	14	13	148	M8	32	32	46	M10x1.5	22	M10x1.5	8.6	14	9.5	Rc1/4	9	12	21.5	47
Ø63	77	49	20	16	12	78	16.5	14	162	M10	39	39	58	M10x1.5	22	M10x1.5	8.6	14	9.5	Rc1/4	14	16.5	28	58

Bore	Q	R	S	T	U	VA	VB	WA (stroke)					WB (stroke)					X	XA	XB	XC	XL	YY	YL	Z
								25	50-100	125-200	250-300	300	25	50-100	125-200	250-300	300								
Ø32	30	96	44	110	78	98	63	24	48	124	200	300	33	45	83	121	171	42	4	4.5	3	6	M8x1.25	16	21
Ø40	30	104	44	118	86	106	72	24	48	124	200	300	34	46	84	122	172	50	4	4.5	3	6	M8x1.25	16	22
Ø50	40	130	60	146	110	130	92	24	48	124	200	300	36	48	86	124	174	66	5	6	4	8	M10x1.5	20	24
Ø63	50	130	70	158	124	142	110	28	52	128	200	300	38	50	88	124	174	80	5	6	4	8	M10x1.5	20	24

### A91L (Bushing) A / DB / E Dimensions

Bore	A (stroke)		DB	E (stroke)	
	25-50	75-200		25-50	75-200
Ø32	97	102	20	37.5	42.5
Ø40	97	102	20	31	36
Ø50	106.5	118	25	34.5	46
Ø63	106.5	118	25	29.5	41

### A91M (Linear Bearing) A / DB / E Dimensions

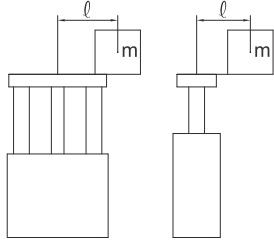
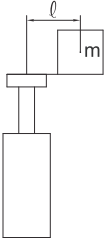
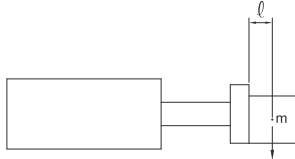
Bore	A (stroke)			DB	E (stroke)		
	25-50	75-100	125-200		25-50	75-100	125-200
Ø32	81	98	118	16	21.5	38.5	58.5
Ø40	81	98	118	16	15	32	52
Ø50	93	114	134	20	21	42	62
Ø63	93	114	134	20	16	37	57

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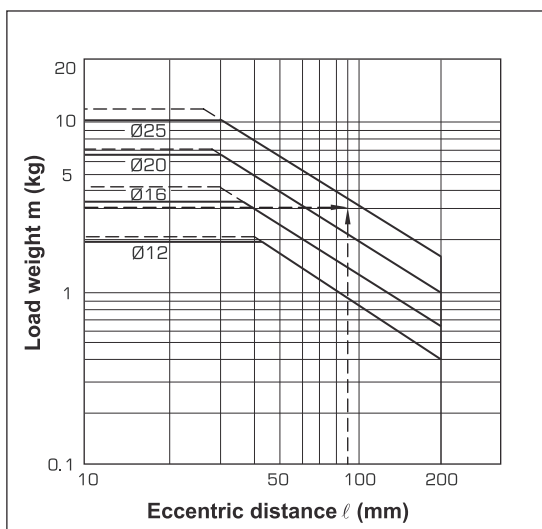
Cat No A91 - 01 - 01 - A

### Model Selection

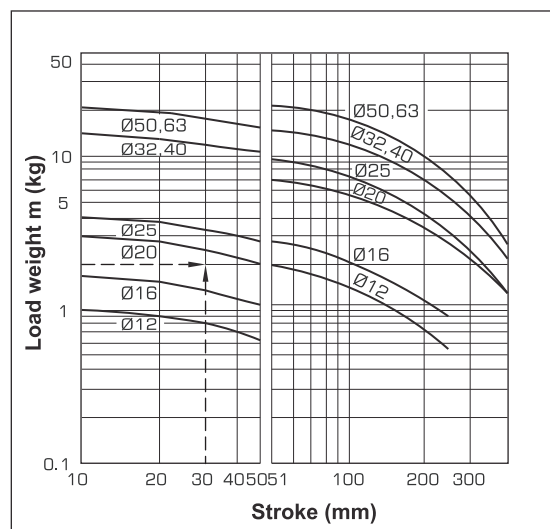
Mounting orientation	Vertical		Horizontal	
				
Max speed (mm/s)	200	400	200	400
Graph (bushing type)	(A), (B)	(C), (D)	(M), (N)	(O), (P)
Graph (linear bearing type)	(E) - (H)	(I) - (L)	(Q) - (R)	(S) - (T)

Selection example 1 (Vertical mounting)	Selection example 1 (Horizontal mounting)
<p>Selection conditions</p> <p>Mounting : Vertical</p> <p>Bearing type : Linear bearing</p> <p>Stroke : 30mm</p> <p>Max. speed : 200 mm/s</p> <p>Load weight (m): 3kg</p> <p>Eccentric distance (l): 90mm</p> <p>Find the point of intersection for the load weight of 3kg and the eccentric distance of 90mm on graph (E), based on vertical mounting with linear bearing type. The stroke is 30mm while the speed is 200 mm/s.</p> <p>So A91M25x30 is selected.</p>	<p>Selection conditions</p> <p>Mounting : Horizontal</p> <p>Bearing type : Bushing</p> <p>Distance between plate and load center of gravity (l): 50mm</p> <p>Max. speed : 200 mm/s</p> <p>Load weight (m): 2kg</p> <p>Stroke : 30mm</p> <p>Find the point of intersection for the load weight of 2kg and stroke 30mm on graph (M), based on horizontal mounting with bushing type. The distance is 50mm between the plate and load center of gravity while the speed is 200 mm/s.</p> <p>So A91L20x30 is selected.</p>

**Graph (E) Less than 40 stroke, V=200mm/s**



**Graph (M) l=50mm, V=200mm/s**



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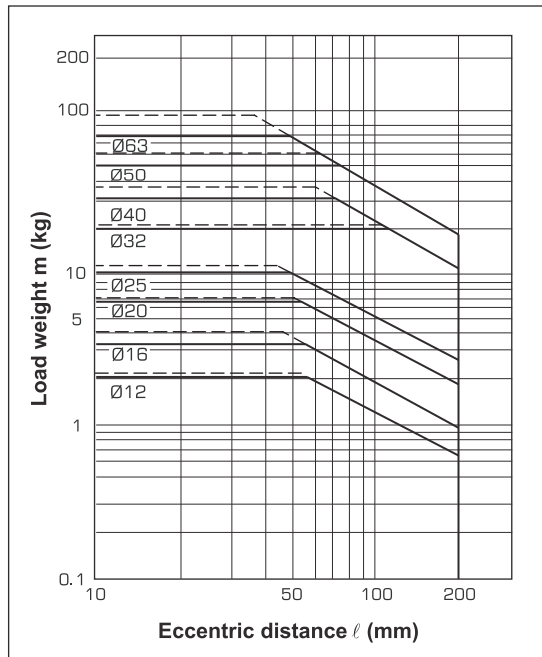
Series A91

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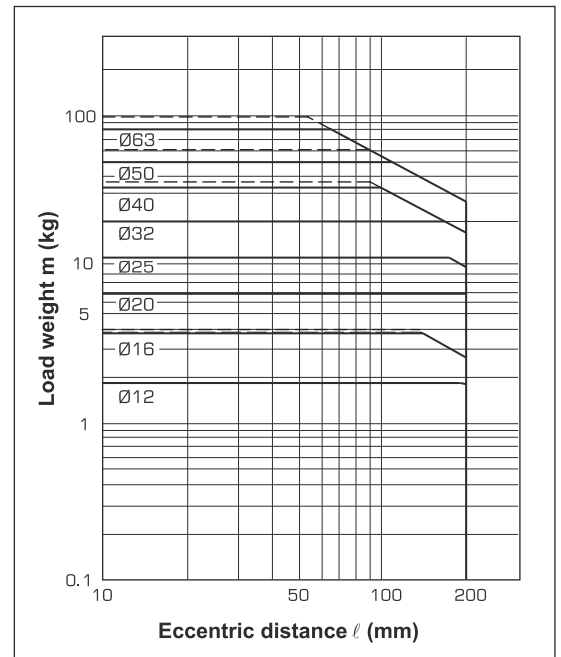
## Vertical mounting (Bushing) - A91L 12 to 63mm

————— Operating pressure 4 bar  
- - - - - Operating pressure 5 bar or above

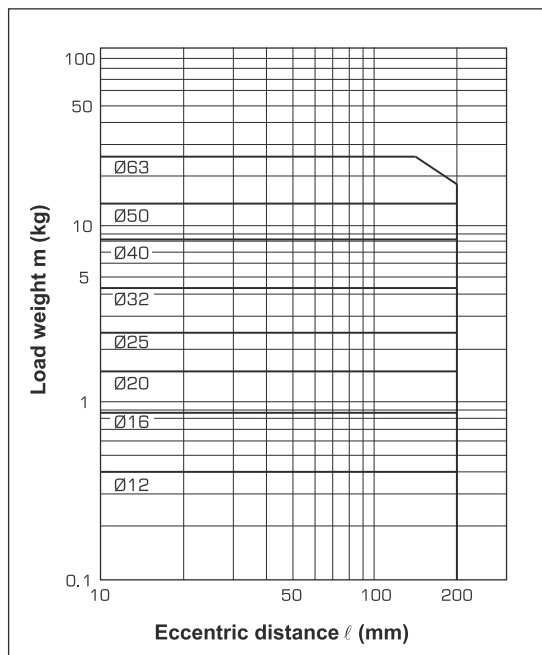
(A) 50mm stroke or less, V=200mm/s



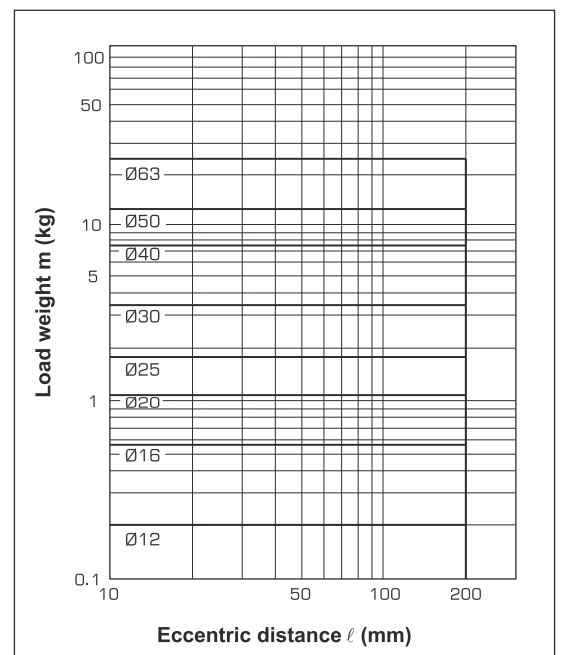
(B) Over 50 stroke, V=200mm/s



(C) 50mm stroke or less, V=400mm/s



(D) Over 50 stroke, V=400mm/s





# COMPACT GUIDED CYLINDER

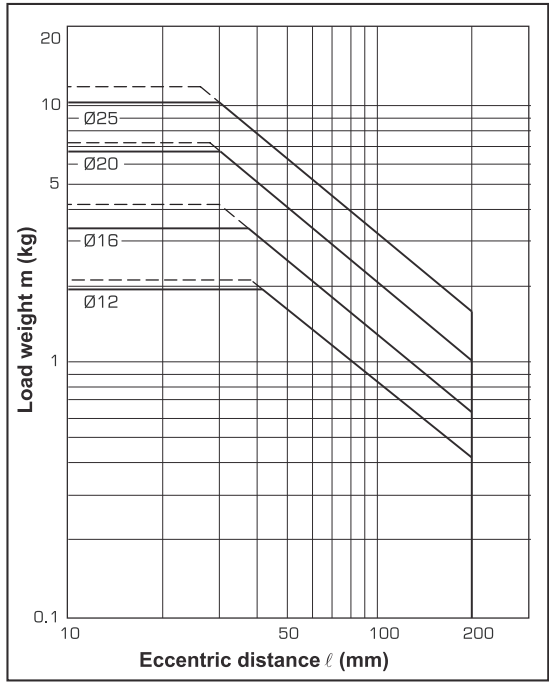
Series A91

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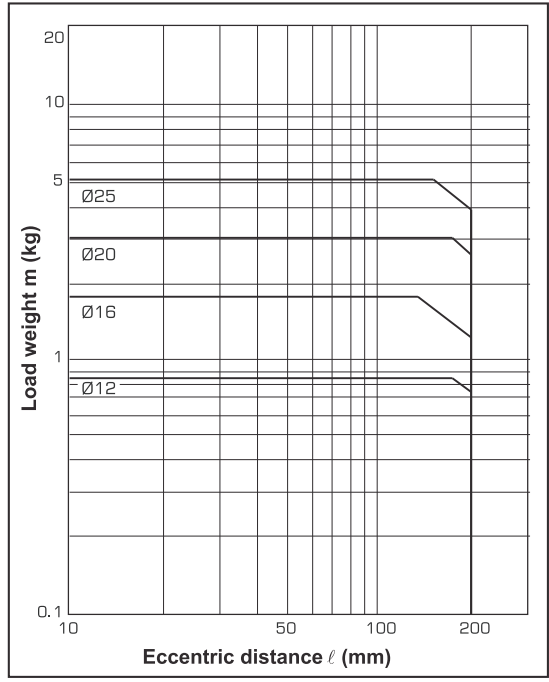
## Vertical mounting (Linear Bearing) - A91M 12 to 25mm

————— Operating pressure 4 bar  
- - - - - Operating pressure 5 bar or above

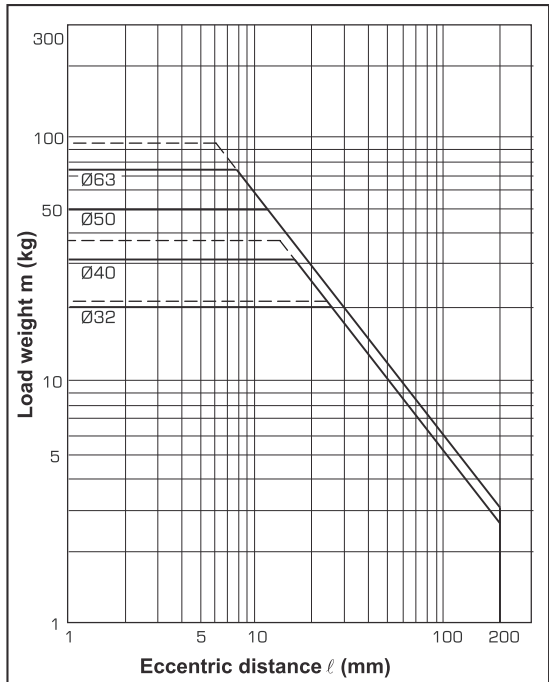
(E) 30mm stroke or less, V=200mm/s



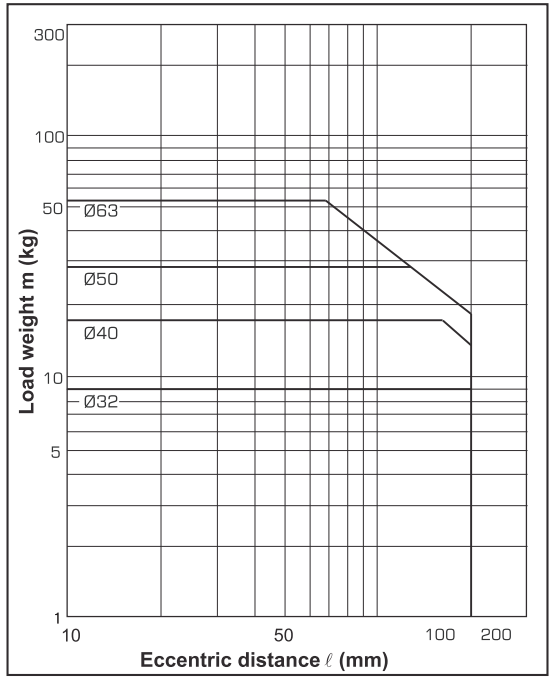
(F) Over 30 stroke, V=200mm/s



(G) 50mm stroke or less, V=200mm/s



(H) Over 50 stroke, V=200mm/s



# COMPACT GUIDED CYLINDER

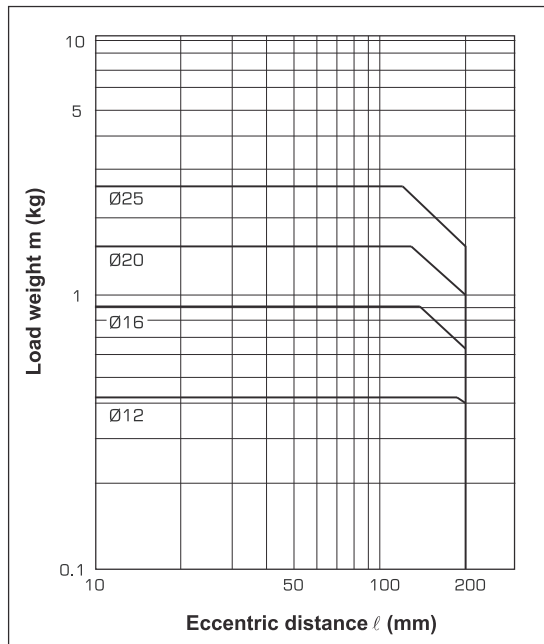
Series A91

Cat No A91 - 01 - 01 - A

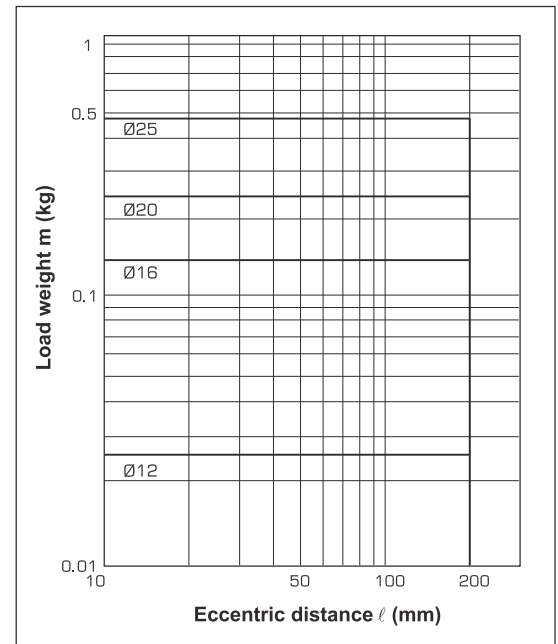
## Vertical mounting (Linear Bearing) - A91M 12 to 25mm

————— Operating pressure 4 bar

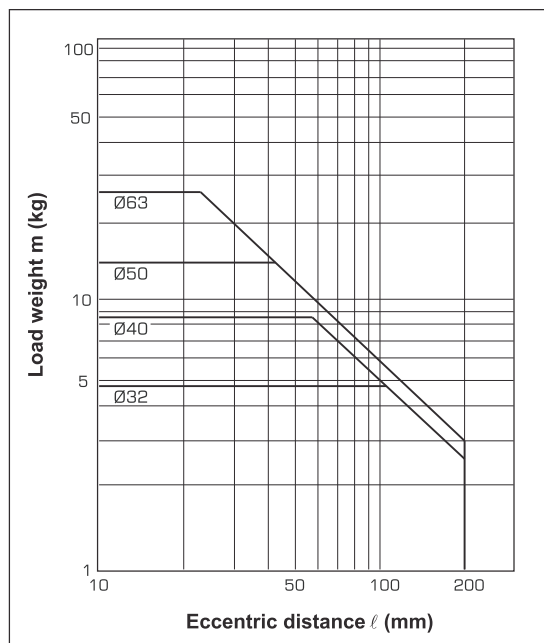
### (I) 30mm stroke or less, V=400mm/s



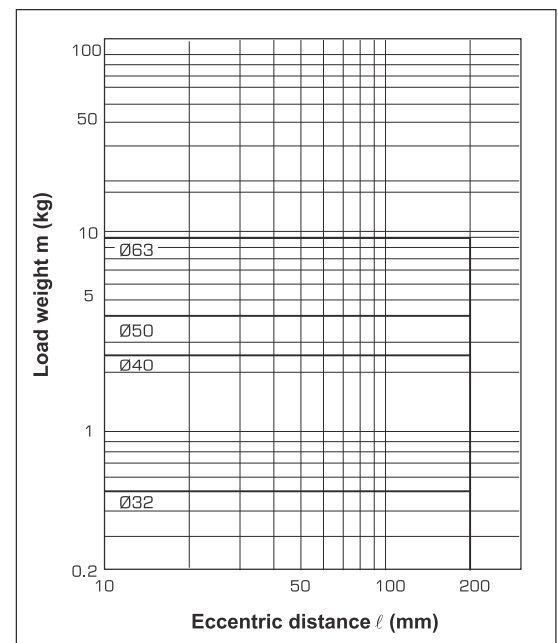
### (J) Over 30 stroke, V=400mm/s



### (K) 50mm stroke or less, V=400mm/s



### (L) Over 50 stroke, V=400mm/s



# COMPACT GUIDED CYLINDER

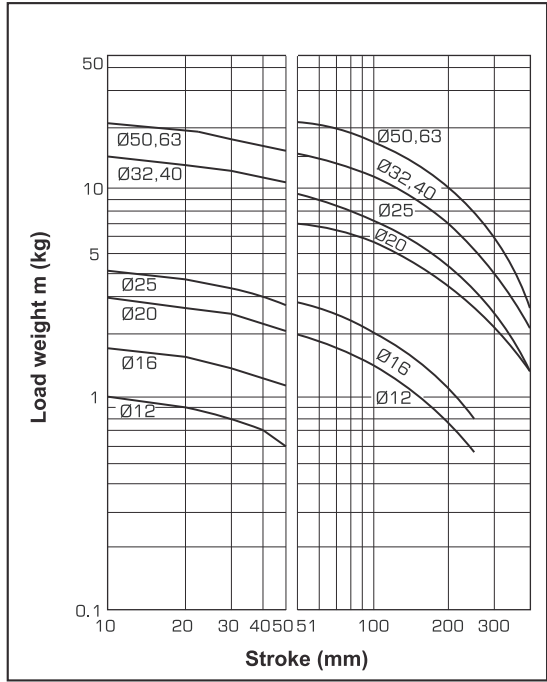
Series A91

Cat No A91 - 01 - 01 - A

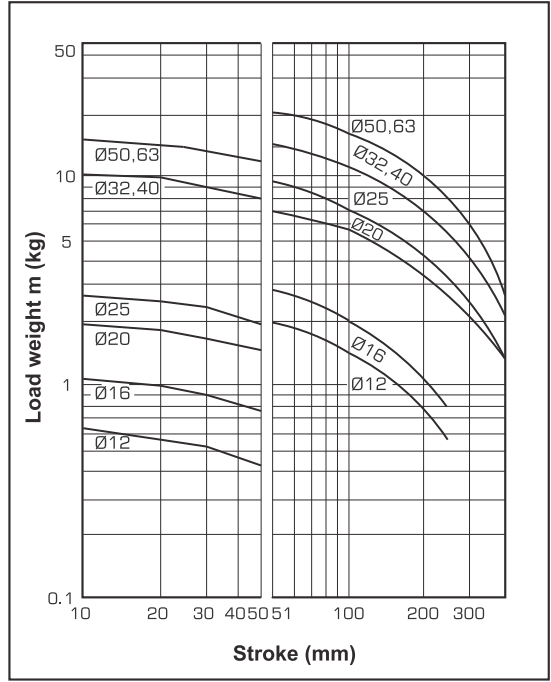
**Horizontal mounting (Bushing)**  
**- A91L 12 to 63**

————— Operating pressure 4 bar

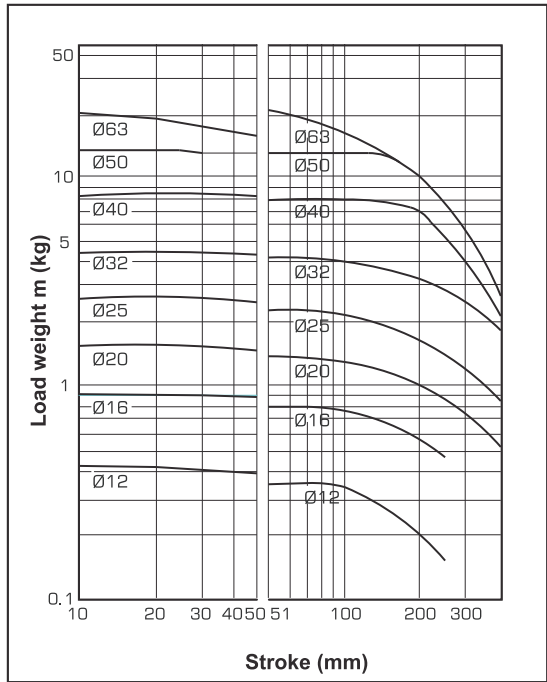
**(M)  $\ell=50\text{mm}$ ,  $V=200\text{mm/s}$**



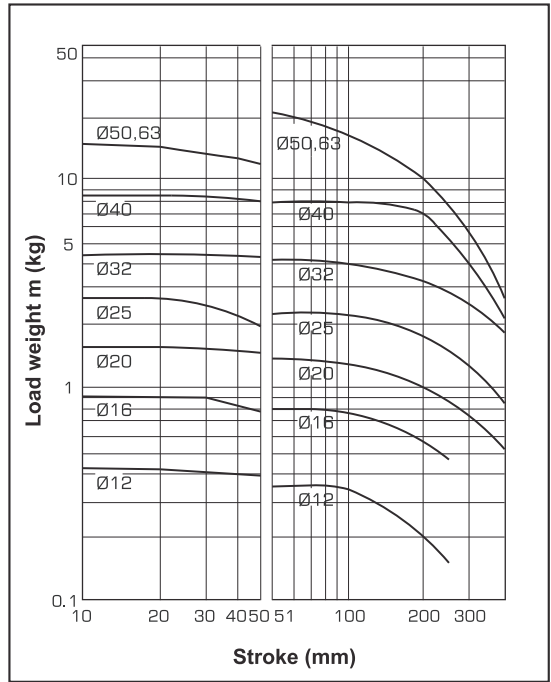
**(N)  $\ell=100\text{mm}$ ,  $V=200\text{mm/s}$**



**(O)  $\ell=50\text{mm}$ ,  $V=400\text{mm/s}$**



**(P)  $\ell=100\text{mm}$ ,  $V=400\text{mm/s}$**



# COMPACT GUIDED CYLINDER

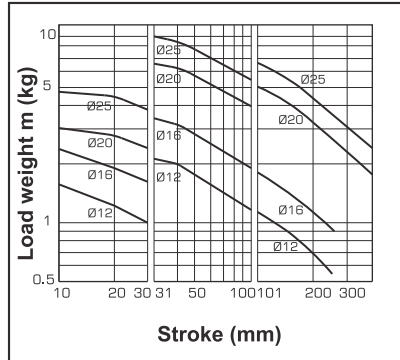
Series A91

Cat No A91 - 01 - 01 - A

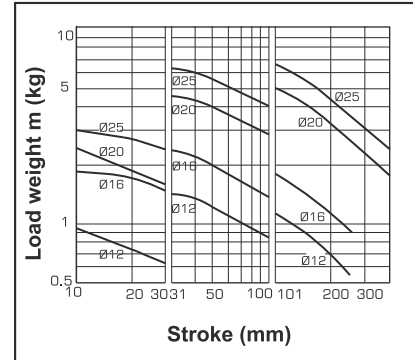
## Horizontal mounting (Linear bearing)

**A91M 12 to 25**

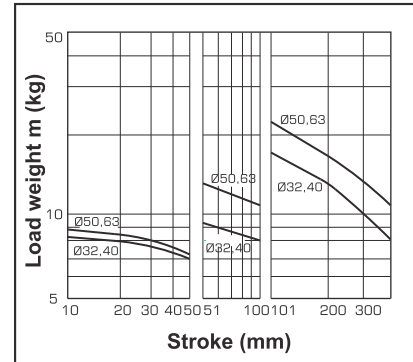
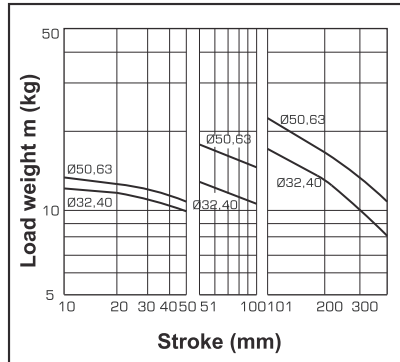
(Q)  $\ell=50\text{mm}$ ,  $V=200\text{mm/s}$



(R)  $\ell=100\text{mm}$ ,  $V=200\text{mm/s}$

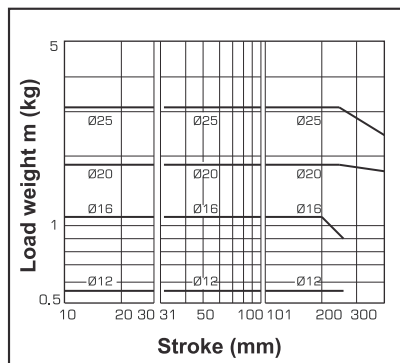


**A91M 32 to 63**

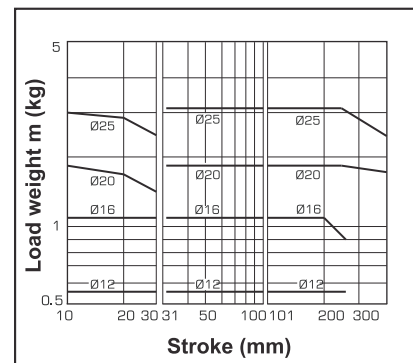


**A91M 12 to 25**

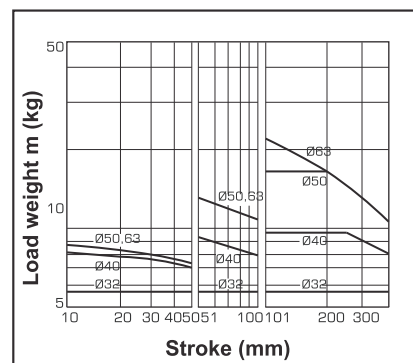
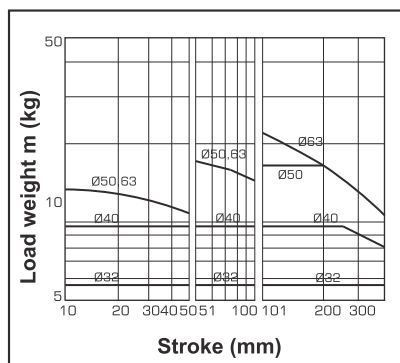
(S)  $\ell=50\text{mm}$ ,  $V=400\text{mm/s}$



(T)  $\ell=100\text{mm}$ ,  $V=400\text{mm/s}$



**A91M 32 to 63**



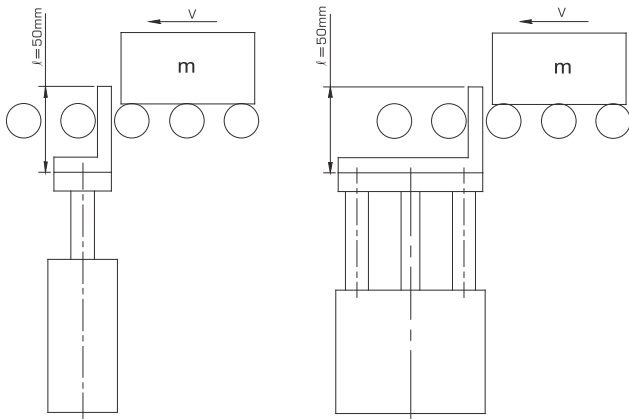
# COMPACT GUIDED CYLINDER

Series A91

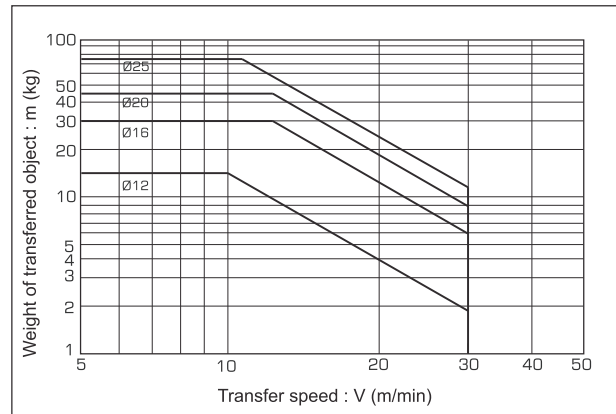
Cat No A91 - 01 - 01 - A

## Operating range when used as stopper

### Cylinder bore size Ø12 to 25 (Bushing)



### A91L 12 to 25 (Bushing)



When selecting a model with a longer l dimension, be sure to choose a bore size which is sufficiently large.

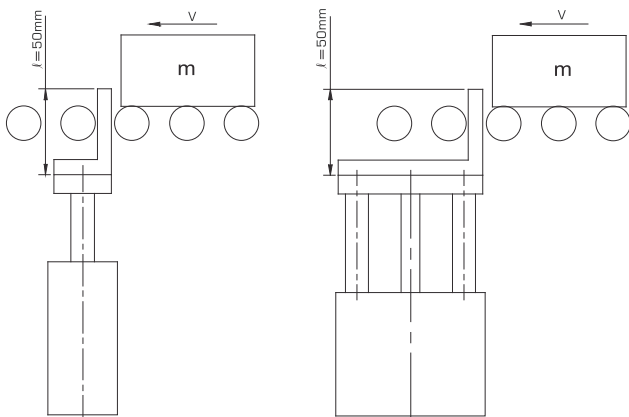
**Caution**

### Caution on handling

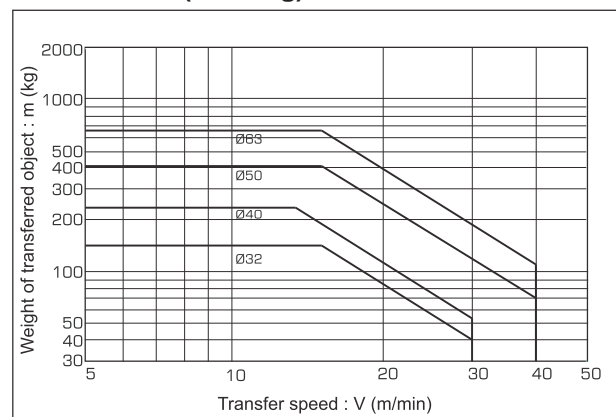
Note 1 : When using as a stopper, select a model with 30 stroke or less.

Note 2 : A91M (Linear bearing) cannot be used as a stopper.

### Cylinder bore size Ø32 to 63 (Bushing)



### A91L 32 to 63 (Bushing)



When selecting a model with a longer l dimension, be sure to choose a bore size which is sufficiently large.

**Caution**

### Caution on handling

Note 1 : When using as a stopper, select a model with 30 stroke or less.

Note 2 : A91M (Linear bearing) cannot be used as a stopper.

# COMPACT GUIDED CYLINDER

## Series A91

Cat No A91 - 01 - 01 - A

**Sensors can be mounted on two sides**

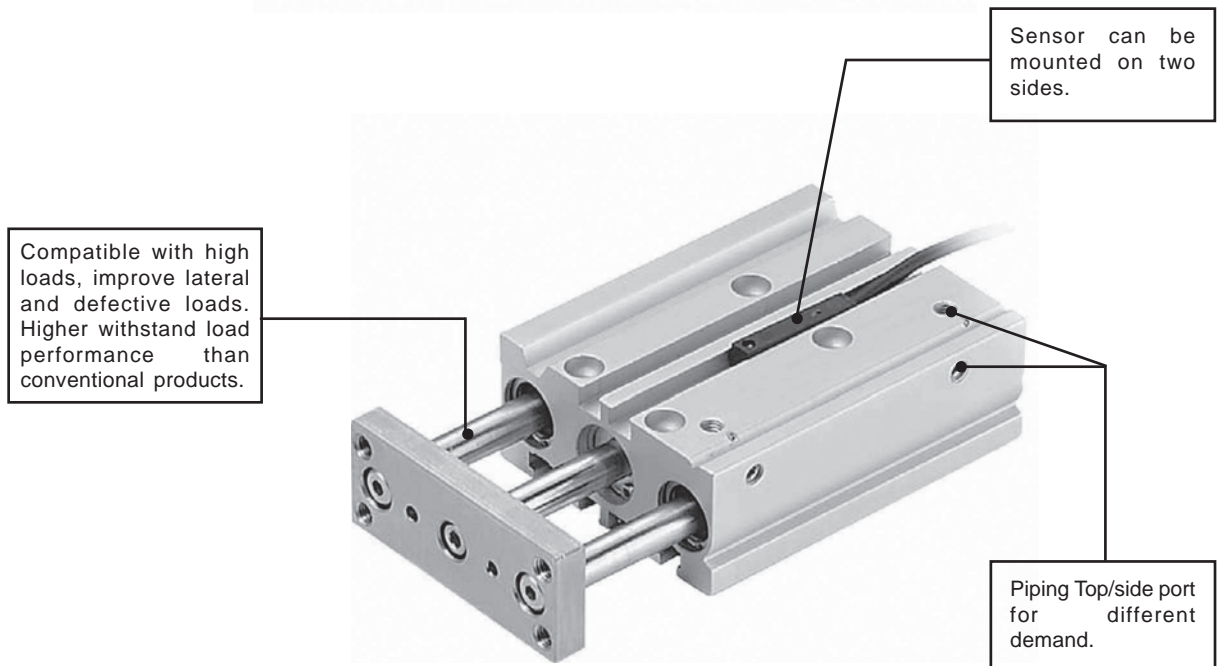
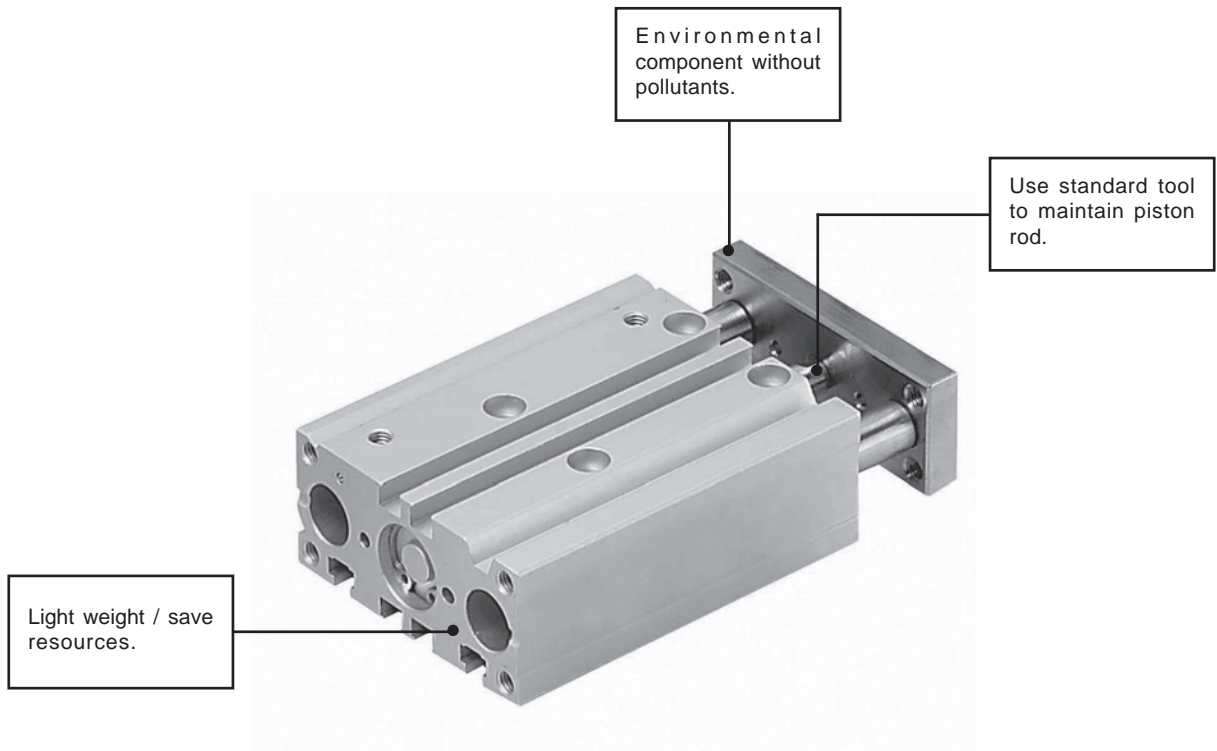
**Two types of guide rod bearing for various applications**

### Bushing

The lateral withstand load is more than twice that of a traditional stopper cylinder (round bar type) and is usable for use with lateral loads accompanied by impact.

### Linear bearing

Suitable for use as a pusher and lifter.

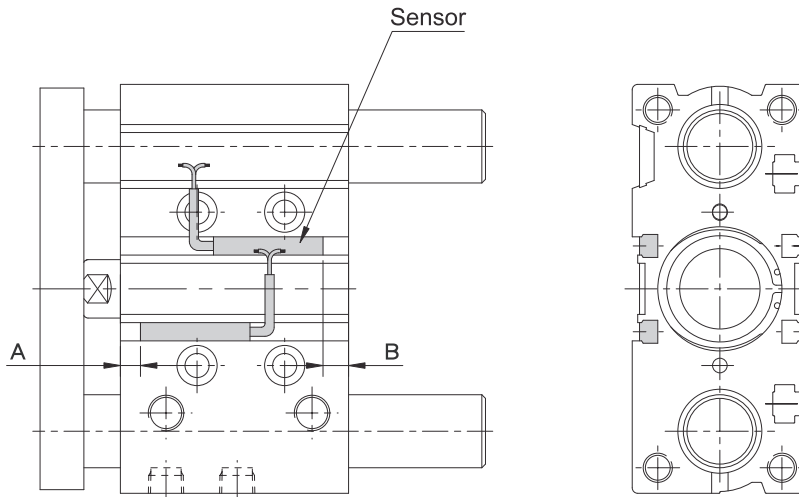


# COMPACT GUIDED CYLINDER

Series A91

Cat No A91 - 01 - 01 - A

## Proper sensor mounting position (Detection at stroke end) and its mounting height



### Proper mounting

Cylinder Bore dia (mm)	A	B
12	2	0
16	1.5	1
20	4.5	2
25	2	7

Cylinder Bore dia (mm)	A	B
32	0	7
40	2.5	12
50	10	4.5
63	10.5	9

## Reed Switch Mounting

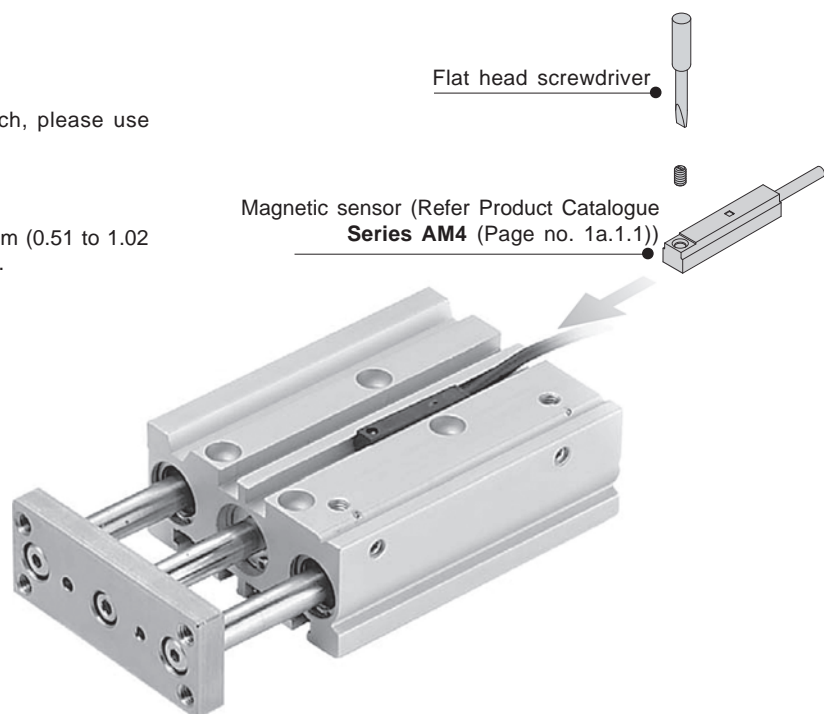
### Caution

#### Application tool

To tighten the fixed screws on the reed switch, please use  $\varnothing 5\text{-}\varnothing 6$  flat head screwdriver.

#### Torque to tighten

Please tighten when the output is 0.05 to 0.1 N·m (0.51 to 1.02 kgf·cm) then turn round 90° before feeling tight.

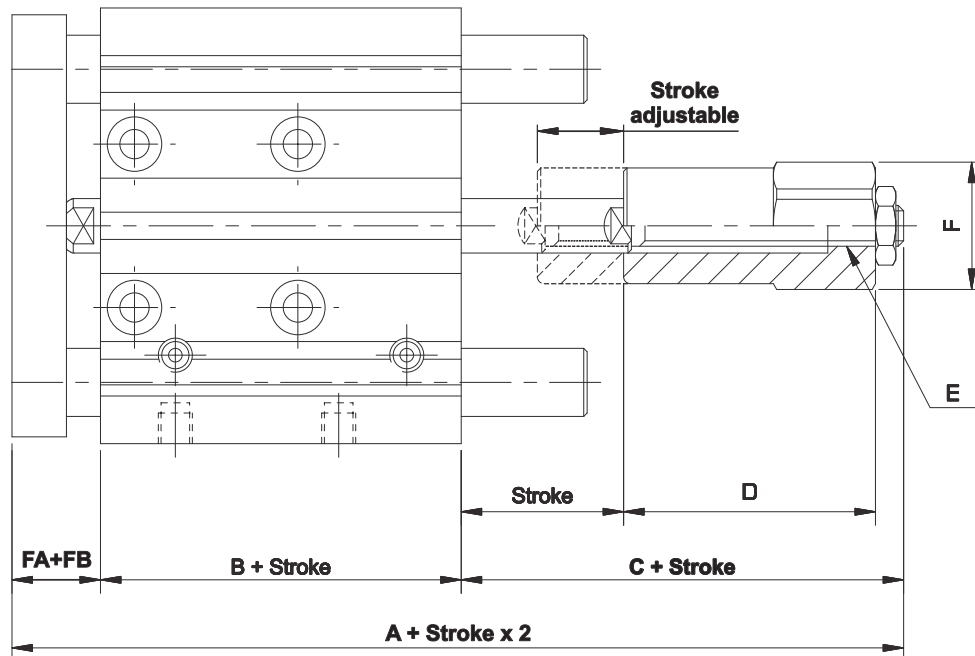


# COMPACT GUIDED CYLINDER

## Series A91

Cat No A91 - 01 - 01 - A

### Stroke adjustable type



Bore	A	B	C	D	E	F	Stroke adjustable
Ø20	105.5	37	52.5	45	M8x1.25	23	0 to 25
Ø25	105.5	37.5	52	45	M10x1.25	23	
Ø32	126.5	37.5	67	55	M12x1.25	32.5	
Ø40	135	44	69	55	M12x1.25	32.5	
Ø50	139	44	67	60	M16x1.5	39	
Ø63	143	49	66	60	M16x1.5	39	

### How to order

**A91**

Bearing type		Bore dia (mm)		Stroke (mm)	Special Cylinder
L	Bushing	012	- Ø12	10 to 100	Y - Adjustable stroke
M	Linear Bearing	016	- Ø16		
		020	- Ø20	20 to 200	Note: Adjustable stroke - bore Ø20 to Ø63 only
		025	- Ø25		
		032	- Ø32	25 to 200	
		040	- Ø40		
		050	- Ø50		
		063	- Ø63		

### Ordering Example :

Compact guided cylinder, bore Ø20, stroke 100 mm, bushing type : **A91L020100**

Compact guided cylinder, bore Ø20, stroke 100 mm, bushing type, adjustable stroke : **A91L020100-Y**

Subject to change