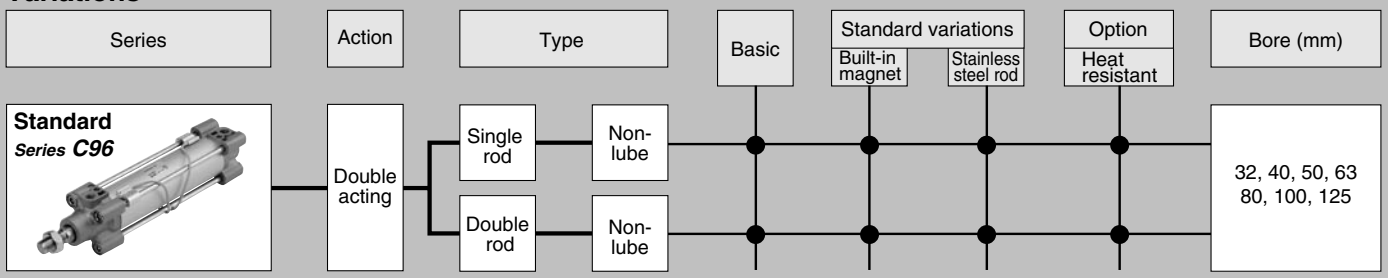
ISO Cylinder

Series C96

ø32, ø40, ø50, ø63, ø80, ø100, ø125

Conforming to ISO 15552

Variations



ISO Cylinder: Standard
Double Acting, Single/Double Rod
Series C96
ø32, ø40, ø50, ø63, ø80, ø100, ø125

How to Order

Without auto switch **C96S** **B** **32** — **100** **W**

With auto switch **C96SD** **B** **32** — **100** **W** — **M9BW** **S**

Built-in magnet

Mounting

B	Basic/Without bracket
L	Axial foot
F	Rod end flange
G	Head end flange
C	Single clevis
D	Double clevis
T	Centre trunnion

Bore size

32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm
125	125 mm

Stroke (mm)
Refer to "Standard Stroke" on page 20.

Rod

—	Single rod
W	Double rod

Auto switch

—	Without auto switch

∗ For applicable auto switch model, refer to the table below.

Number of auto switches

—	2 pcs.
S	1 pc.
3	3 pcs.
n	"n" pcs.

Applicable Auto Switches/Tie-rod Mounting

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage DC	Load voltage AC	Auto switch model Tie-rod mounting	Auto switch model Band mounting	Lead wire length (m) 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9N**	—	●	●	●	○	○	IC	Relay, PLC
				3-wire (PNP)				**M9P**	—	●	●	●	○	○		
				2-wire		12 V		**M9B**	—	●	●	●	○	○	—	
					—	—	100 V, 200 V	**J51**	—	●	—	●	○	—		
		Terminal conduit		3-wire (NPN)	24 V	5 V, 12 V	—	—	**G39**	—	—	—	—	—	IC	
				2-wire		12 V		—	**K39**	—	—	—	—	—	—	
	Diagnosis indication (2-colour)	Grommet		3-wire (NPN)		5 V, 12 V		**M9NW**	—	●	●	●	○	○	IC	
				3-wire (PNP)				**M9PW**	—	●	●	●	○	○		
				2-wire		12 V		**M9BW**	—	●	●	●	○	○	—	
	Water resistant (2-colour)			3-wire (NPN)		5 V, 12 V		**M9NA**	—	○	○	●	○	○	IC	
				3-wire (PNP)				**M9PA**	—	○	○	●	○	○		
				2-wire		12 V		**M9BA**	—	○	○	●	○	○	—	
	Diagnosis output (2-colour)			4-wire (NPN)		5 V, 12 V		**F59F**	—	●	—	●	○	○	IC	
	Strong magnetic field resistant (2-colour)			2-wire (Non-polar type)		—		**P4DW**	—	—	—	●	●	○	—	
Reed switch	—	Grommet	Yes	3-wire (Equiv. to NPN)	—	5 V	—	**A96**	—	●	—	●	—	—	IC	—
			None	2-wire	24 V	12 V	100 V	**A93**	—	●	—	●	—	—	—	Relay, PLC
			Yes				100 V or less	**A90**	—	●	—	●	—	—	IC	
			None				100 V, 200 V	**A54**	—	●	—	●	●	—	—	
							200 V or less	**A64**	—	●	—	●	—	—		
		Terminal conduit	Yes				—	—	**A33**	—	—	—	—	—	—	PLC
		DIN					100 V, 200 V	—	**A34**	—	—	—	—	—		
								—	**A44**	—	—	—	—	—		Relay, PLC
	Diagnosis indication (2-colour)	Grommet				—	—	**A59W**		●	—	●	—	—		

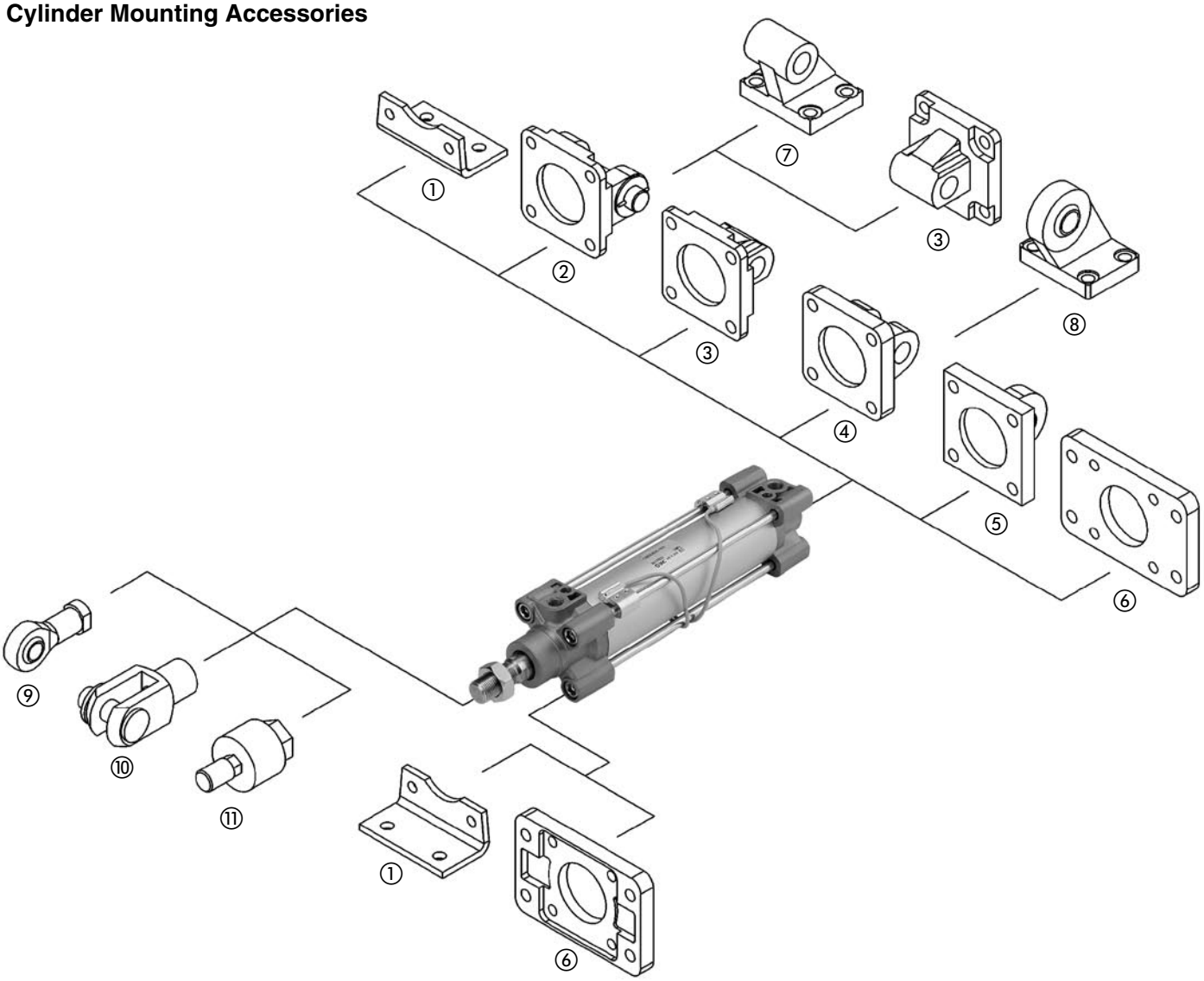
∗ Lead wire length symbols: 0.5 m ····· Nil (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ

∗ Solid state switches marked with "○" are produced upon receipt of order.

∗ Since there are other applicable auto switches than listed, refer to SMC "Best Pneumatics" catalogue.
∗ For details about auto switches with pre-wired connector, refer to EMC-AutoSw-01A catalogue.
∗ D-A9□, M9□, M9□W, M9□AL are shipped together, (but not assembled).

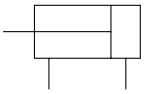
Accessories

Cylinder Mounting Accessories



Bore size (mm)	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
	Foot	Female head end clevis (Corresponds to E accessory)	Male head end clevis	Female head end clevis (for ES accessory)	Male head end clevis with ball joint	Rod/Head end flange	Angled head end clevis	Angled head end clevis with ball joint	Piston rod ball joint (ISO 8139)	Rod clevis (ISO 8140)	Floating joint
32	L5032	D5032	C5032	DS5032	CS5032	F5032	E5032	ES5032	KJ10D	GKM10-20	JA30-10-125
40	L5040	D5040	C5040	DS5040	CS5040	F5040	E5040	ES5040	KJ12D	GKM12-24	JA40-12-125
50	L5050	D5050	C5050	DS5050	CS5050	F5050	E5050	ES5050	KJ16D	GKM16-32	JA50-16-150
63	L5063	D5063	C5063	DS5063	CS5063	F5063	E5063	ES5063	KJ16D	GKM16-32	JA50-16-150
80	L5080	D5080	C5080	DS5080	CS5080	F5080	E5080	ES5080	KJ20D	GKM20-40	JAH50-20-150
100	L5100	D5100	C5100	DS5100	CS5100	F5100	E5100	ES5100	KJ20D	GKM20-40	JAH50-20-150
125	L5125	D5125	C5125	DS5125	CS5125	F5125	E5125	ES5125	KJ27D	GKM30-54	JA125-27-200

JIS Symbol
Double acting



Minimum Stroke for Auto Switch Mounting

Refer to page 28 for “Minimum Stroke for Auto Switch Mounting”.

Specifications

Bore size (mm)	32	40	50	63	80	100	125
Action	Double acting						
Fluid	Air						
Proof pressure	1.5 MPa						
Max. operating pressure	1.0 MPa						
Min. operating pressure	0.05 MPa						
Ambient and fluid temperature	Without auto switch: –20 to 70°C With auto switch: –10 to 60°C						
Lubrication	Not required (Non-lube)						
Operating piston speed	50 to 1000 mm/s						50 to 700 mm/s
Allowable stroke tolerance	Up to 250 st: $^{+1.0}_{0}$, 251 to 1000 st: $^{+1.4}_{0}$, 1001 to 1500 st: $^{+1.8}_{0}$, 1501 to 2000 st: $^{+2.2}_{0}$						
Cushion	Both ends (Air cushion)						
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion						

Standard Stroke

Bore size (mm)	Standard stroke (mm)	Max. * stroke
32	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	1000
40	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	1900
50	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	1900
63	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	1900
80	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600, 700, 800	1900
100	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600, 700, 800	1900
125	—	2000

Intermediate strokes are available.
* Please consult with SMC for longer strokes.

Accessories

Mounting		Basic	Foot	Rod end flange	Head end flange	Single clevis	Double clevis	Centre trunnion
Standard	Rod end nut	●	●	●	●	●	●	●
	Clevis pin	—	—	—	—	—	●	—
Option	Piston rod ball joint	●	●	●	●	●	●	●
	Rod clevis	●	●	●	●	●	●	●
	Rod boot	●	●	●	●	●	●	●

* Please do not use a piston rod ball joint (or floating joint) together with a head end clevis with a ball joint (or angled head end clevis with a ball joint).

Theoretical Output

OUT IN (N)

Bore size (mm)	Rod diameter (mm)	Operating direction	Piston area (mm^2)	Operating pressure (MPa)								
				0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
32	12	OUT	804	161	241	322	402	482	563	643	724	804
		IN	691	138	207	276	346	415	484	553	622	691
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	989	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
80	25	OUT	5027	1005	1508	2011	2514	3016	3519	4022	4524	5027
		IN	4536	907	1361	1814	2268	2722	3175	3629	4082	4536
100	25	OUT	7854	1571	2356	3142	3927	4712	5498	6283	7068	7854
		IN	7363	1473	2209	2945	3682	4418	5154	5890	6627	7363
125	32	OUT	12272	2454	3682	4909	6136	7363	8590	9817	11045	12272
		IN	11468	2294	3440	4587	5734	6881	8027	9174	10321	11468

Note) Theoretical out put (N) = Pressure (MPa) x Piston area (mm^2)

Mass

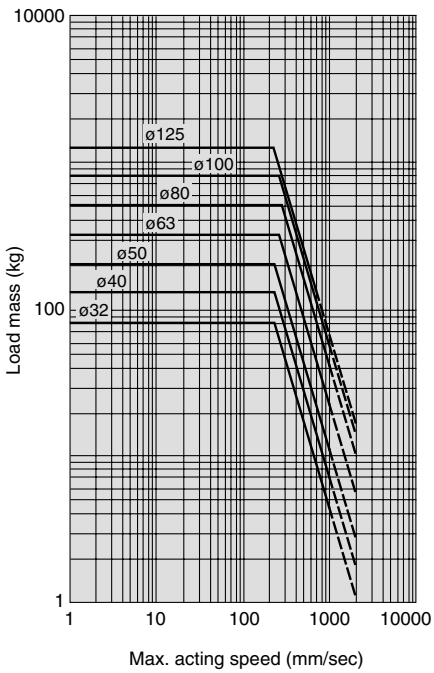
(kg)

Bore size (mm)		**32**	**40**	**50**	**63**	**80**	**100**	**125**
Basic mass	Basic	0.53	0.83	1.33	1.74	2.77	3.69	6.70
	Foot	0.16	0.20	0.38	0.46	0.89	1.09	2.60
	Flange	0.20	0.23	0.47	0.58	1.30	1.81	4.10
	Single clevis	0.16	0.23	0.37	0.60	1.07	1.73	4.15
	Double clevis	0.20	0.32	0.45	0.71	1.28	2.11	4.25
	Trunnion	0.71	1.10	1.73	2.48	4.25	5.95	2.98
Additional mass per each 50 mm stroke	All mounting brackets	0.11	0.16	0.24	0.26	0.40	0.44	0.71
Accessory	Single rod clevis	0.07	0.11	0.22		0.40		1.20
	Double rod clevis	0.09	0.15	0.34		0.69		1.84

Calculation: (Example) C96SD40-100
- Basic mass ····· 0.83 (kg) (Basic, ø40)
- Additional mass ···· 0.16 (kg/50 st)
- Cylinder stroke ····· 100 (st)
- Mounting ····· 0.32 (kg) (Double clevis)

0.83 + 0.16 x 100 ÷ 50 + 0.32 = 1.47kg

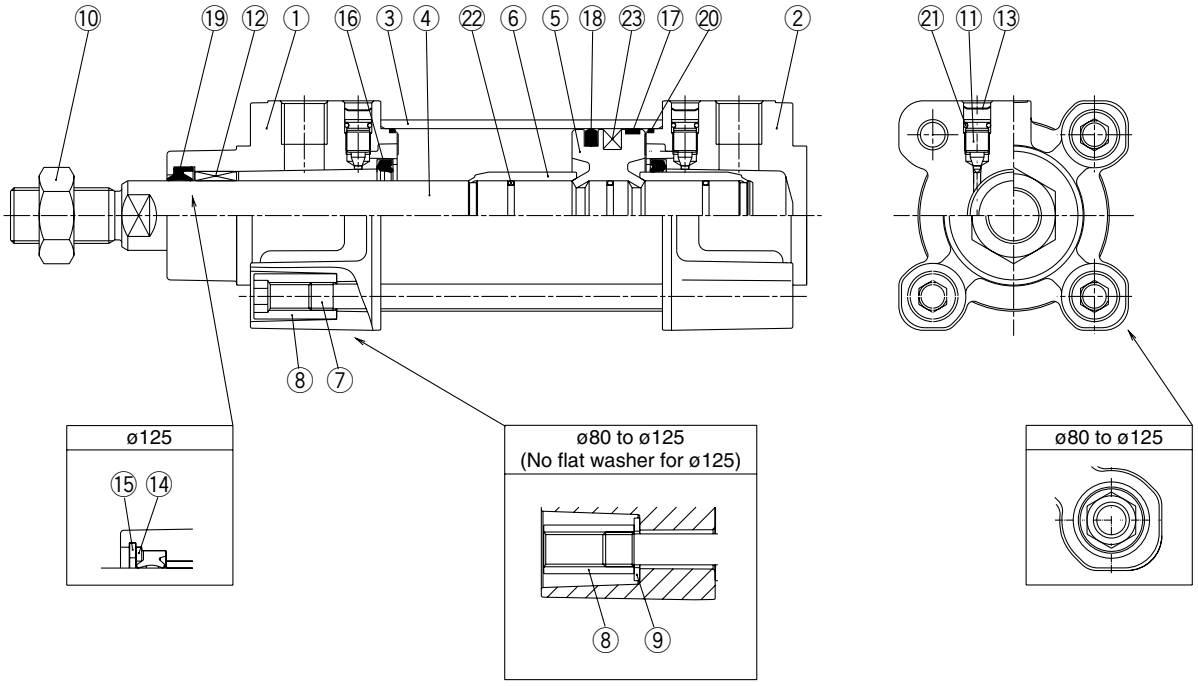
Allowable Kinetic Energy



Example: Find the rod end load limit when a ø63 air cylinder is operated at a maximum drive speed of 500 mm/s. Extend upward from 500 mm/s on the horizontal axis of the graph to the intersection point with the line for a tube bore of 63 mm, and then extend lefward from this point to find the load of 80 kg.

Construction

[First angle projection]



Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum die-casted	
②	Head cover	Aluminum die-casted	
③	Cylinder tube	Aluminum alloy	
④	Piston rod	Carbon steel	
⑤	Piston	Aluminum alloy	
⑥	Cushion ring	Brass	
⑦	Tie-rod	Carbon steel	
⑧	Tie-rod nut	Steel	
⑨	Flat washer	Steel	ø80 and ø100
⑩	Rod end nut	Steel	
⑪	Cushion valve	Steel wire	
⑫	Bushing	Sintered metal	
⑬	Snap ring	Steel for spring	ø40 to ø125
⑭	Rod seal holder	Stainless steel	ø125
⑮	Snap ring	Steel for spring	ø125
⑯	Cushion seal	Urethane rubber	
⑰	Wearing	Resin	
⑱	Piston seal	NBR	
⑲	Rod seal	NBR	
⑳	Cylinder tube gasket	NBR	
㉑	Cushion valve seal	NBR	
㉒	Piston gasket	NBR	
㉓	Magnet		

Replacement Parts: Seal Kit

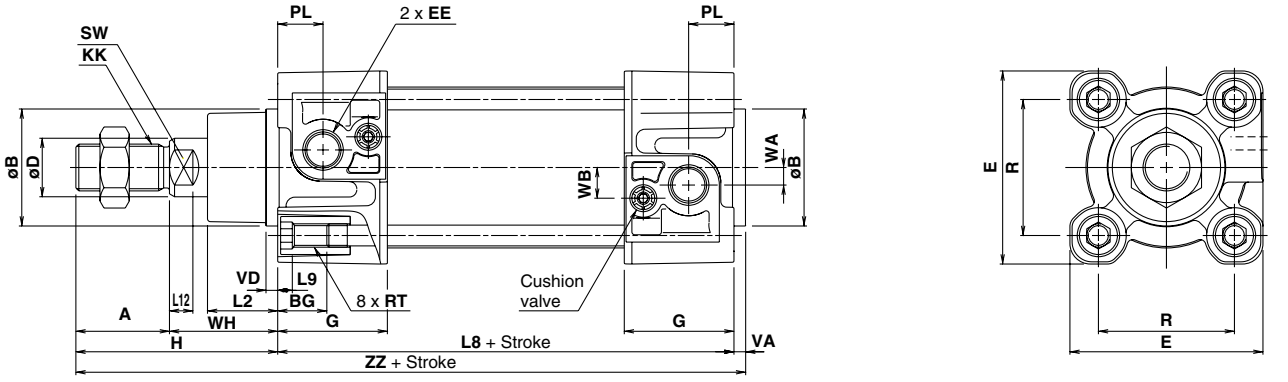
Bore size (mm)	Kit no.	Contents
32	CS95-32	Kits include items ⑯ to ⑳.
40	CS95-40	
50	CS95-50	
63	CS95-63	
80	CS95-80	
100	CS96-100	
125	CS96-125	

∗ Seal kits consist of items ⑯ to ⑳ contained in one kit, and can be orderd using the number for each respective tube bore size.

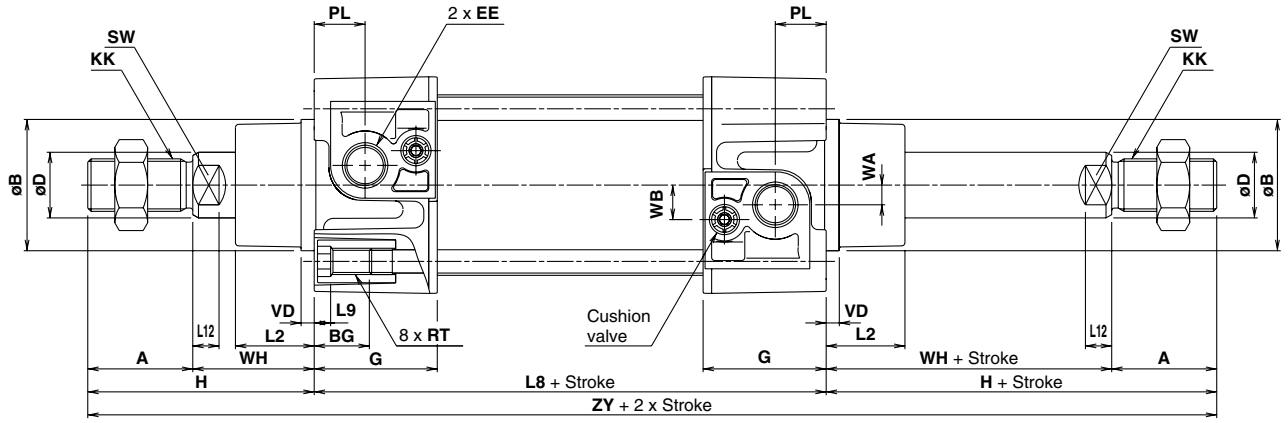
Dimensions: Without Mounting Bracket

[First angle projection]

C96S(D)B Bore size-Stroke



C96S(D)B Bore size-Stroke

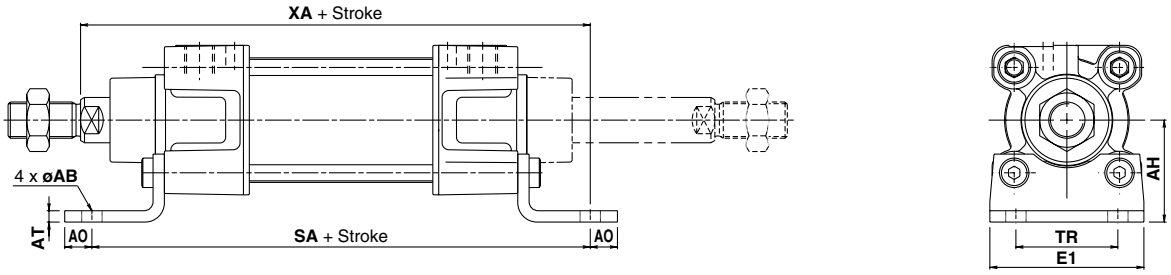


Bore size (mm)	A	øB d11	øD	EE	PL	RT	L12	KK	SW	G	BG	L8	VD	VA	WA	WB	WH	ZZ	ZY	E	R	L2	L9	H
32	22	30	12	G 1/8	13	M6 x 1	6	M10 x 1.25	10	32	16	94	4	4	4	7	26	146	190	47	32.5	15	4	48
40	24	35	16	G 1/4	14	M6 x 1	6.5	M12 x 1.25	13	37.5	16	105	4	4	5	9	30	163	213	54	38	17	4	54
50	32	40	20	G 1/4	15.5	M8 x 1.25	8	M16 x 1.5	17	37.5	16	106	4	4	6	10.5	37	179	244	66	46.5	24	5	69
63	32	45	20	G 3/8	16.5	M8 x 1.25	8	M16 x 1.5	17	45	16	121	4	4	9	12	37	194	259	77	56.5	24	5	69
80	40	45	25	G 3/8	19	M10 x 1.5	10	M20 x 1.5	22	45	17	128	4	4	11.5	14	46	218	300	99	72	30	—	86
100	40	55	25	G 1/2	19	M10 x 1.5	10	M20 x 1.5	22	50	17	138	4	4	17	15	51	233	320	118	89	32	—	91
125	54	60	32	G 1/2	19	M12 x 1.75	13	M27 x 2	27	58	20	160	6	6	17	15	65	285	398	144	110	40	—	119

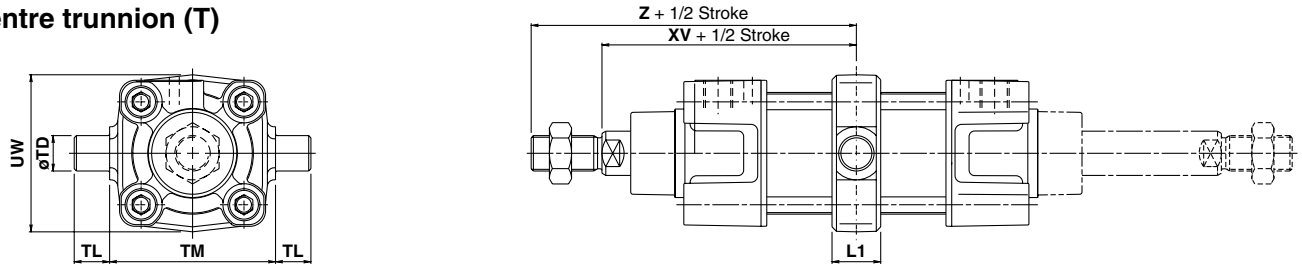
Dimensions: Cylinder Mounting Accessories

[First angle projection]

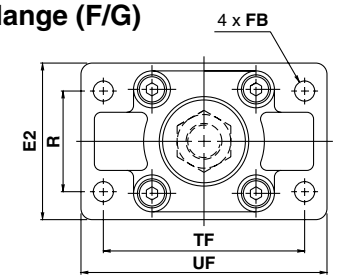
Foot (L)



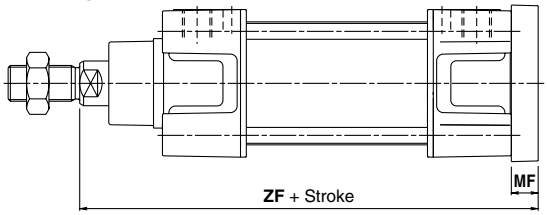
Centre trunnion (T)



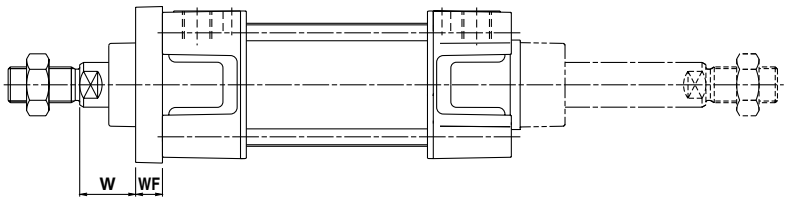
Flange (F/G)



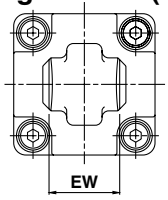
Head end mounting (G)



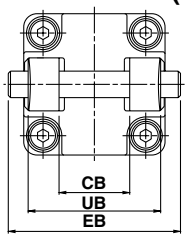
Rod end mounting (F)

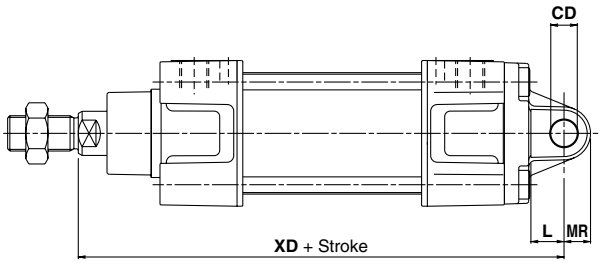


Head end single clevis (C)



Head end double clevis (D)



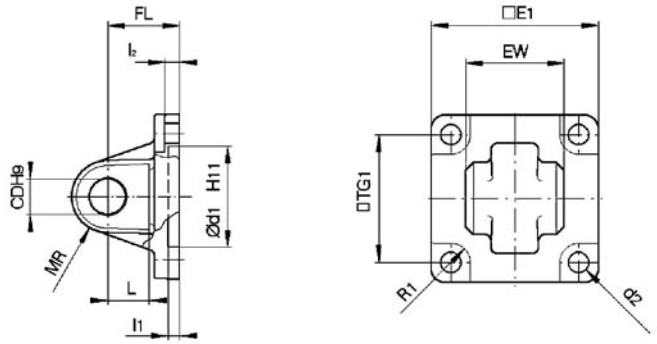


Bore size (mm)	E1	TR	AH	AO	AT	øAB	SA	XA	TM	TL	øTD e8	UW	L1	XV	Z	R	TF	øFB	E2	UF	W	MF	ZF	UB h14	CB H14	EW	øCD H9	L	MR	XD	EB
32	48	32	32	10	4.5	7	142	144	50	12	12	49	17	73	95	32	64	7	50	79	16	10	130	45	26	26-0.2/-0.6	10	12	9.5	142	65
40	55	36	36	11	4.5	10	161	163	63	16	16	58	22	82.5	106.5	36	72	9	55	90	20	10	145	52	28	28-0.2/-0.6	12	15	12	160	75
50	68	45	45	12	5.5	10	170	175	75	16	16	71	22	90	122	45	90	9	70	110	25	12	155	60	32	32-0.2/-0.6	12	15	12	170	80
63	80	50	50	12	5.5	10	185	190	90	20	20	87	28	97.5	129.5	50	100	9	80	120	25	12	170	70	40	40-0.2/-0.6	16	20	16	190	90
80	100	63	63	14	6.5	12	210	215	110	20	20	110	34	110	150	63	126	12	100	153	30	16	190	90	50	50-0.2/-0.6	16	20	16	210	110
100	120	75	71	16	6.5	14.5	220	230	132	25	25	136	40	120	160	75	150	14	120	178	35	16	205	110	60	60-0.2/-0.6	20	25	20	230	140
125	Max. 157	90	90	Max. 25	8	16	250	270	160	25	25	Max. 160	50	145	199	90	180	16	Max. 157	Max. 224	45	20	245	130	70	70-0.5/-1.2	25	Min. 30	Max. 26	275	Max. 157

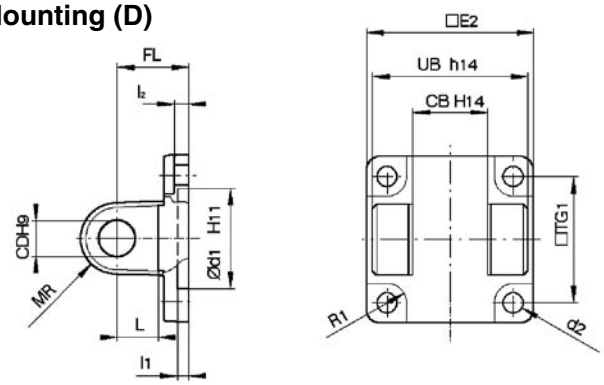
Dimensions: Cylinder Mounting Accessories (C/D/E/CS)

[First angle projection]

Mounting (C)

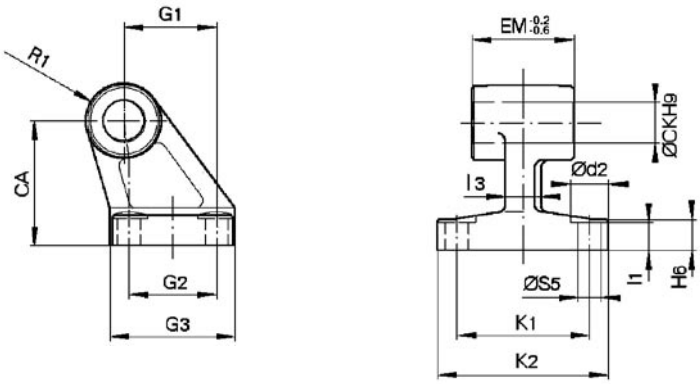


Mounting (D)



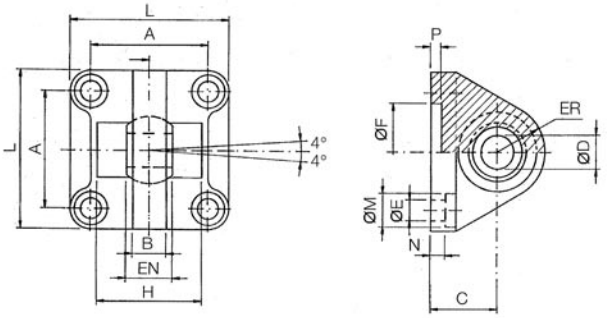
Bore size (mm)	E_1	EW	TG_1	FL	l_1	L	l_2	ød1	øCD	MR	ød2	R_1	E_2	UB	CB
32	45	$26^{-0.2}_{-0.6}$	32.5	22	5	12	5.5	30	10	9.5	6.6	6.5	48	45	26
40	51	$28^{-0.2}_{-0.6}$	38	25	5	15	5.5	35	12	12	6.6	6.5	56	52	28
50	64	$32^{-0.2}_{-0.6}$	46.5	27	5	15	6.5	40	12	12	9	8.5	64	60	32
63	74	$40^{-0.2}_{-0.6}$	56.5	32	5	20	6.5	45	16	16	9	8.5	75	70	40
80	94	$50^{-0.2}_{-0.6}$	72	36	5	20	10	45	16	16	11	11	95	90	50
100	113	$60^{-0.2}_{-0.6}$	89	41	5	25	10	55	20	20	11	12	115	110	60
125	Max. 157	$70^{-0.5}_{-1.2}$	110	50	7	30	10	60	25	26	13.5	10	Max. 157	130	70

Mounting (E)



Bore size (mm)	ød2	øCK	øS5	K_1	K_2 max.	l_3 max.	G_1	l_1	G_2	EM	G_3 max.	CA	H_6	R_1
32	11	10	6.6	38	51	10	21	7	18	$26^{-0.2}_{-0.6}$	31	32	8	10
40	11	12	6.6	41	54	10	24	9	22	$28^{-0.2}_{-0.6}$	35	36	10	11
50	15	12	9	50	65	12	33	11	30	$32^{-0.2}_{-0.6}$	45	45	12	12
63	15	16	9	52	67	14	37	11	35	$40^{-0.2}_{-0.6}$	50	50	12	15
80	18	16	11	66	86	18	47	12.5	40	$50^{-0.2}_{-0.6}$	60	63	14	15
100	18	20	11	76	96	20	55	13.5	50	$60^{-0.2}_{-0.6}$	70	71	15	19
125	20	25	14	94	124	30	70	17	60	$70^{-0.5}_{-1.5}$	90	90	20	22.5

Mounting (CS): Head end clevis with ball joint



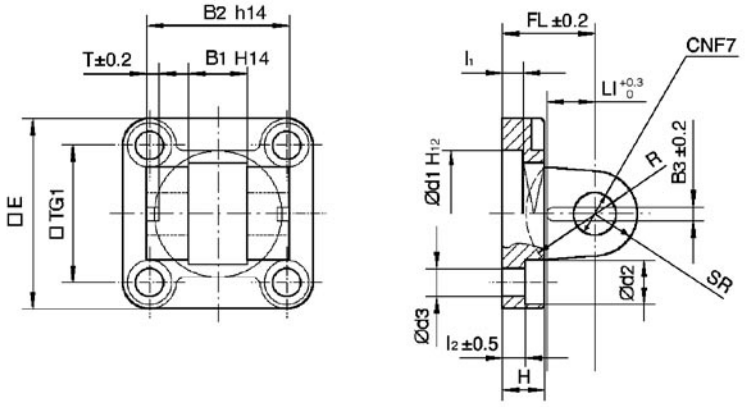
Bore size (mm)	A	B max.	C	øD H7	EN 0 −0.1	ER max.	øF H11	øE	L	øM	N	P	H ±0.5
32	32.5	10.5	22	10	14	15	30	6.6	45	10.5	5.5	5	—
40	38	12	25	12	16	18	35	6.6	55	11	5.5	5	—
50	46.5	15	27	16	21	20	40	9	65	15	6.5	5	51
63	56.5	15	32	16	21	23	45	9	75	15	6.5	5	—
80	72	18	36	20	25	27	45	11	95	18	10	5	70
100	89	18	41	20	25	30	55	11	115	18	10	5	—
125	110	25	50	30	37	40	60	13.5	140	20	10	7	100

∗ Black colour

Dimensions: Cylinder Mounting Accessories (DS/ES)

[First angle projection]

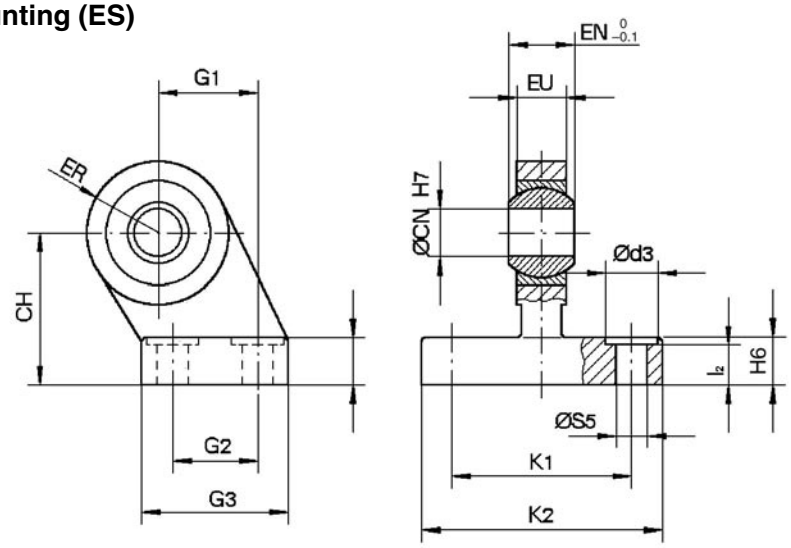
Mounting (DS)



Bore size (mm)	E	B_1	B_2	B_3	LI	TG_1	T	l_1 min.	l_2	FL	H max.	$ød_1$	$ød_2$	$ød_3$	øCN	SR max.	R
32	45	14	34	3.3	11.5	32.5	3	5	5.5	22	10	30	10.5	6.6	10	11	17
40	55	16	40	4.3	12	38	4	5	5.5	25	10	35	11	6.6	12	13	20
50	65	21	45	4.3	14	46.5	4	5	6.5	27	12	40	15	9	16	18	22
63	75	21	51	4.3	14	56.5	4	5	6.5	32	12	45	15	9	16	18	25
80	95	25	65	4.3	16	72	4	5	10	36	16	45	18	11	20	22	30
100	115	25	75	6.3	16	89	4	5	10	41	16	55	18	11	20	22	32
125	140	37	97	6.3	24	110	6	7	10	50	20	60	20	13.5	30	30	42

∗ Black colour

Mounting (ES)



Bore size (mm)	$ød_3$	øCN	$øS_5$	K_1	K_2 max.	l_2	G_1	G_2	G_3 max.	EN	EU	CH	H_6	ER max.
32	11	10	6.6	38	51	8.5	21	18	31	14	10.5	32	10	15
40	11	12	6.6	41	54	8.5	24	22	35	16	12	36	10	18
50	15	16	9	50	65	10.5	33	30	45	21	15	45	12	20
63	15	16	9	52	67	10.5	37	35	50	21	15	50	12	23
80	18	20	11	66	86	11.5	47	40	60	25	18	63	14	27
100	18	20	11	76	96	12.5	55	50	70	25	18	71	15	30
125	20	30	13.5	94	124	17	70	60	90	37	25	90	20	40

∗ Black colour

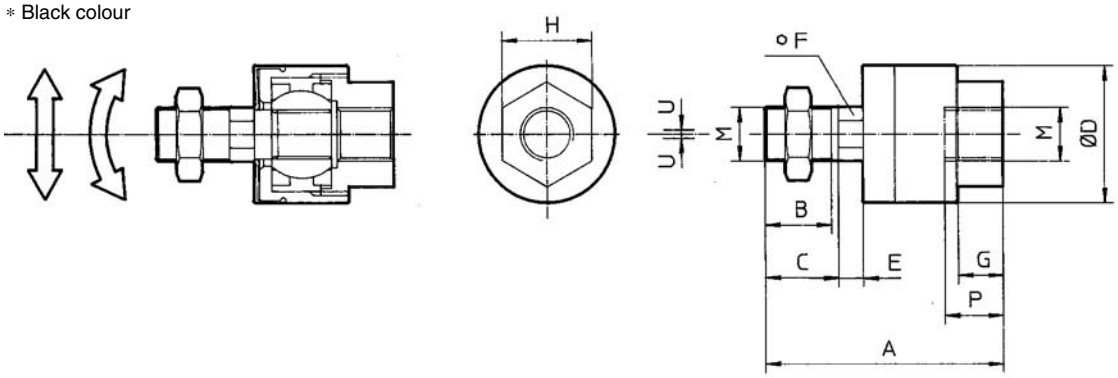
Dimensions: Piston Rod Mounting Accessories

[First angle projection]

Floating Joint JA

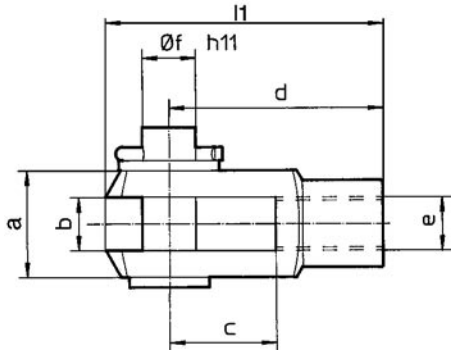
Bore size (mm)	M	Part no.	A	B	C	øD	E	F	G	H	P	U	Load (kN)	Mass (g)	Angle
32	M10 x 1.25	**JA30-10-125**	49.5	19.5	—	24	5	8	8	17	9	0.5	2.5	70	±0.5°
40	M12 x 1.25	**JA40-12-125**	60	20	—	31	6	11	11	22	13	0.75	4.4	160	
50, 63	M16 x 1.5	**JA50-16-150**	71.5	22	—	41	7.5	14	13.5	27	15	1	11	300	
80, 100	M20 x 1.5	**JAH50-20-150**	101	28	31	59.5	11.5	24	16	32	18	2	18	1080	
125	M27 x 2	**JA125-27-200**	123	34	38	66	13	27	20	41	24	2	28	1500	

∗ Black colour



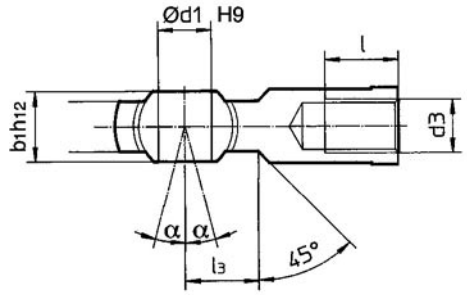
Rod Clevis GKM (ISO 8140), Supplied with Bolt and Safety Device

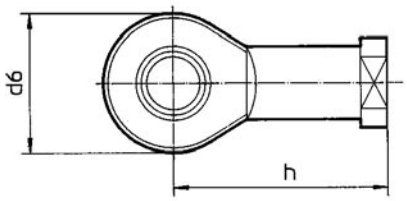
Bore size (mm)	e	Part no.	b	d	øf h11 (Shaft)	øf H9 (Hole)	l_1	c min.	a max.
32	M10 x 1.25	**GKM10-20**	$10^{+0.5}_{+0.15}$	40	10	10	52	20	20
40	M12 x 1.25	**GKM12-24**	$12^{+0.5}_{+0.15}$	48	12	12	62	24	24
50, 63	M16 x 1.5	**GKM16-32**	$16^{+0.5}_{+0.15}$	64	16	16	83	32	32
80, 100	M20 x 1.5	**GKM20-40**	$20^{+0.5}_{+0.15}$	80	20	20	105	40	40
125	M27 x 2	**GKM30-54**	$30^{+0.5}_{+0.15}$	110	30	30	148	54	55



Piston Rod Ball Joint KJ (ISO 8139)

Bore size (mm)	d_3	Part no.	$ød_{1\ H9}$	h	d_6 max.	$b_{1\ h12}$	l min.	a	l_3
32	M10 x 1.25	**KJ10D**	10	43	28	14	20	4°	15
40	M12 x 1.25	**KJ12D**	12	50	32	16	22	4°	17
50, 63	M16 x 1.5	**KJ16D**	16	64	42	21	28	4°	23
80, 100	M20 x 1.5	**KJ20D**	20	77	50	25	33	4°	27
125	M27 x 2	**KJ27D**	30	110	70	37	51	4°	36



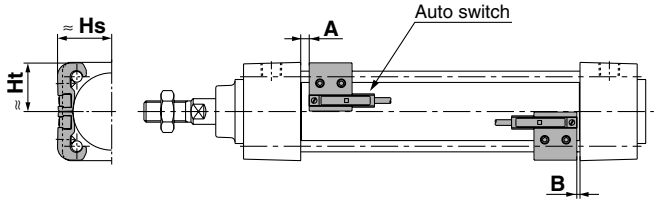


Minimum Stroke for Auto Switch Mounting

(mm)

Auto switch model	Number of auto switch mounted	Centre trunnion							Support bracket other than Centre trunnion		
		ø32	ø40	ø50	ø63	ø80	ø100	ø125	ø32, ø40, ø50, ø63	ø80, ø100	ø125
D-A9□	1 switch, 2 switches (Different side, Same side)	70	75		80	85	95	100	15		
	Other qty.	70 + 40 (n – 4)/2 n = 4, 8, 12, 16···	75 + 40 (n – 4)/2 n = 4, 8, 12, 16···		80 + 40 (n – 4)/2 n = 4, 8, 12, 16···	85 + 40 (n – 4)/2 n = 4, 8, 12, 16···	95 + 40 (n – 4)/2 n = 4, 8, 12, 16···	100 + 40 (n – 4)/2 n = 4, 8, 12, 16···	15 + 40 (n – 2)/2 n = 2, 4, 6, 8···		
D-A9□V	1 switch, 2 switches (Different side, Same side)	45	50		55	60	70	75	10		
	Other qty.	45 + 30 (n – 4)/2 n = 4, 8, 12, 16···	50 + 30 (n – 4)/2 n = 4, 8, 12, 16···		55 + 30 (n – 4)/2 n = 4, 8, 12, 16···	60 + 30 (n – 4)/2 n = 4, 8, 12, 16···	70 + 30 (n – 4)/2 n = 4, 8, 12, 16···	75 + 30 (n – 4)/2 n = 4, 8, 12, 16···	10 + 30 (n – 2)/2 n = 2, 4, 6, 8···		
D-M9□ D-M9□W	1 switch, 2 switches (Different side, Same side)	75	80		85	90	95	105	15		
	Other qty.	75 + 40 (n – 4)/2 n = 4, 8, 12, 16···	80 + 40 (n – 4)/2 n = 4, 8, 12, 16···		85 + 40 (n – 4)/2 n = 4, 8, 12, 16···	90 + 40 (n – 4)/2 n = 4, 8, 12, 16···	95 + 40 (n – 4)/2 n = 4, 8, 12, 16···	105 + 40 (n – 4)/2 n = 4, 8, 12, 16···	15 + 40 (n – 2)/2 n = 2, 4, 6, 8···		
D-M9□V D-M9□WV	1 switch, 2 switches (Different side, Same side)	50	55		60	65	70	80	10		
	Other qty.	50 + 30 (n – 4)/2 n = 4, 8, 12, 16···	55 + 30 (n – 4)/2 n = 4, 8, 12, 16···		60 + 30 (n – 4)/2 n = 4, 8, 12, 16···	65 + 30 (n – 4)/2 n = 4, 8, 12, 16···	70 + 30 (n – 4)/2 n = 4, 8, 12, 16···	80 + 30 (n – 4)/2 n = 4, 8, 12, 16···	10 + 30 (n – 2)/2 n = 2, 4, 6, 8···		
D-M9□AL	1 switch, 2 switches (Different side, Same side)	80	85		90	95	100	110	15		
	Other qty.	80 + 40 (n – 2)/2 n = 4, 8, 12, 16···	85 + 40 (n – 2)/2 n = 4, 8, 12, 16···		90 + 40 (n – 2)/2 n = 4, 8, 12, 16···	95 + 40 (n – 2)/2 n = 4, 8, 12, 16···	100 + 40 (n – 2)/2 n = 4, 8, 12, 16···	110 + 40 (n – 2)/2 n = 4, 8, 12, 16···	15 + 40 (n – 2)/2 n = 2, 4, 6, 8···		
D-M9□AVL	1 switch, 2 switches (Different side, Same side)	55	60		65	70	75	85	15		
	Other qty.	55 + 30 (n – 2)/2 n = 4, 8, 12, 16···	60 + 30 (n – 2)/2 n = 4, 8, 12, 16···		65 + 30 (n – 2)/2 n = 4, 8, 12, 16···	70 + 30 (n – 2)/2 n = 4, 8, 12, 16···	75 + 30 (n – 2)/2 n = 4, 8, 12, 16···	85 + 30 (n – 2)/2 n = 4, 8, 12, 16···	15 + 30 (n – 2)/2 n = 2, 4, 6, 8···		
D-A3□ D-G39 D-K39	2 switches (Different side)	60	65		75	80	85	90	35		
	2 switches (Same side)	90	95		100	105	110	125	100		
	Other qty. (Different side)	60 + 30 (n – 2) n = 2, 4, 6, 8···	65 + 30 (n – 2) n = 2, 4, 6, 8···		75 + 30 (n – 2) n = 2, 4, 6, 8···	80 + 30 (n – 2) n = 2, 4, 6, 8···	85 + 30 (n – 2) n = 2, 4, 6, 8···	90 + 30 (n – 2) n = 2, 4, 6, 8···	35 + 30 (n – 2) n = 2, 3, 4···		
	Other qty. (Same side)	90 + 100 (n – 2) n = 2, 4, 6, 8···	95 + 100 (n – 2) n = 2, 4, 6, 8···		100 + 100 (n – 2) n = 2, 4, 6, 8···	105 + 100 (n – 2) n = 2, 4, 6, 8···	110 + 100 (n – 2) n = 2, 4, 6, 8···	125 + 100 (n – 2) n = 2, 4, 6, 8···	100 + 100 (n – 2) n = 2, 3, 4···		
	1 switch	60	65		75	80	85	90	10		
D-A44	2 switches (Different side)	70	75		80		85	90	35		
	2 switches (Same side)	70	75		80		85	90	55		
	Other qty. (Different side)	70 + 30 (n – 2) n = 2, 4, 6, 8···	75 + 30 (n – 2) n = 2, 4, 6, 8···		80 + 30 (n – 2) n = 2, 4, 6, 8···		85 + 30 (n – 2) n = 2, 4, 6, 8···	90 + 30 (n – 2) n = 2, 4, 6, 8···	35 + 30 (n – 2) n = 2, 3, 4···		
	Other qty. (Same side)	70 + 50 (n – 2) n = 2, 4, 6, 8···	75 + 50 (n – 2) n = 2, 4, 6, 8···		80 + 50 (n – 2) n = 2, 4, 6, 8···		85 + 50 (n – 2) n = 2, 4, 6, 8···	90 + 50 (n – 2) n = 2, 4, 6, 8···	55 + 50 (n – 2) n = 2, 3, 4···		
	1 switch	70	75		80		85	90	10		
D-A5□ D-A6□	1 switch, 2 switches (Different side, Same side)	60		80	105	110	115		15	20	
	Other qty. (Same side)	60 + 55 (n – 4)/2 n = 4, 8, 12, 16···		80 + 55 (n – 4)/2 n = 4, 8, 12, 16···	105 + 55 (n – 4)/2 n = 4, 8, 12, 16···	110 + 55 (n – 4)/2 n = 4, 8, 12, 16···	115 + 55 (n – 4)/2 n = 4, 8, 12, 16···		15 + 55 (n – 2)/2 n = 2, 4, 6, 8···	20 + 55 (n – 2)/2 n = 2, 4, 6, 8···	
D-A59W	2 switches (Different side, Same side)	60	70	85	110	115	120		20	25	
	Other qty. (Same side)	60 + 55 (n – 4)/2 n = 4, 8, 12, 16···	70 + 55 (n – 4)/2 n = 4, 8, 12, 16···	85 + 55 (n – 4)/2 n = 4, 8, 12, 16···	110 + 55 (n – 4)/2 n = 4, 8, 12, 16···	115 + 55 (n – 4)/2 n = 4, 8, 12, 16···	120 + 55 (n – 4)/2 n = 4, 8, 12, 16···		20 + 55 (n – 2)/2 n = 2, 4, 6, 8···	25 + 55 (n – 2)/2 n = 2, 4, 6, 8···	
	1 switch	60	70	85	110	115	120		15	25	
D-F5□ D-J5□ D-F5□W D-J59W D-F5BAL	2 switches (Different side, Same side)	90	95		110	115	120	130	15	25	
	Other qty. (Same side)	90 + 55 (n – 4)/2 n = 4, 8, 12, 16···	95 + 55 (n – 4)/2 n = 4, 8, 12, 16···		110 + 55 (n – 4)/2 n = 4, 8, 12, 16···	115 + 55 (n – 4)/2 n = 4, 8, 12, 16···	120 + 55 (n – 4)/2 n = 4, 8, 12, 16···	130 + 55 (n – 4)/2 n = 4, 8, 12, 16···	15 + 55 (n – 2)/2 n = 2, 4, 6, 8···	25 + 55 (n – 2)/2 n = 2, 4, 6, 8···	
D-F59F	1 switch	90	95		110	115	120	130	10	25	
D-F5NTL	2 switches (Different side, Same side)	100	105		120	125	130	140	15	25	30
	Other qty. (Same side)	100 + 55 (n – 4)/2 n = 4, 8, 12, 16···	105 + 55 (n – 4)/2 n = 4, 8, 12, 16···		120 + 55 (n – 4)/2 n = 4, 8, 12, 16···	125 + 55 (n – 4)/2 n = 4, 8, 12, 16···	130 + 55 (n – 4)/2 n = 4, 8, 12, 16···	140 + 55 (n – 4)/2 n = 4, 8, 12, 16···	15 + 55 (n – 2)/2 n = 2, 4, 6, 8···	25 + 55 (n – 2)/2 n = 2, 4, 6, 8···	30 + 55 (n – 2)/2 n = 2, 4, 6, 8···
	1 switch	100	105		120	125	130	140	10	25	30
D-Z7□ D-Z80 D-Y59□	1 switch, 2 switches (Different side, Same side)	80	85	90		95	100	105	15		
D-Y7P D-Y7□W	Other qty.	80 + 40 (n – 4)/2 n = 4, 8, 12, 16···	85 + 40 (n – 4)/2 n = 4, 8, 12, 16···	90 + 40 (n – 4)/2 n = 4, 8, 12, 16···		95 + 40 (n – 4)/2 n = 4, 8, 12, 16···	100 + 40 (n – 4)/2 n = 4, 8, 12, 16···	105 + 40 (n – 4)/2 n = 4, 8, 12, 16···	15 + 40 (n – 2)/2 n = 2, 4, 6, 8···		
D-Y69□ D-Y7PV D-Y7□WV	1 switch, 2 switches (Different side, Same side)	60	65		70	75	85		10		
	Other qty.	60 + 30 (n – 4)/2 n = 4, 8, 12, 16···	65 + 30 (n – 4)/2 n = 4, 8, 12, 16···		70 + 30 (n – 4)/2 n = 4, 8, 12, 16···	75 + 30 (n – 4)/2 n = 4, 8, 12, 16···	85 + 30 (n – 4)/2 n = 4, 8, 12, 16···		10 + 30 (n – 2)/2 n = 2, 4, 6, 8···		
D-Y7BAL	1 switch, 2 switches (Different side, Same side)	85	90		100	105	110	115	20		
	Other qty.	85 + 45 (n – 4)/2 n = 4, 8, 12, 16···	90 + 45 (n – 4)/2 n = 4, 8, 12, 16···		100 + 45 (n – 4)/2 n = 4, 8, 12, 16···	105 + 45 (n – 4)/2 n = 4, 8, 12, 16···	110 + 45 (n – 4)/2 n = 4, 8, 12, 16···	115 + 45 (n – 4)/2 n = 4, 8, 12, 16···	20 + 45 (n – 2)/2 n = 2, 4, 6, 8···		
D-P4DWL	1 switch, 2 switches (Different side, Same side)	120		130		140		150	15		20
	Other qty.	120 + 65 (n – 4)/2 n = 4, 8, 12, 16···		130 + 65 (n – 4)/2 n = 4, 8, 12, 16···		140 + 65 (n – 4)/2 n = 4, 8, 12, 16···		150 + 65 (n – 4)/2 n = 4, 8, 12, 16···	15 + 65 (n – 2)/2 n = 2, 4, 6, 8···		20 + 65 (n – 2)/2 n = 2, 4, 6, 8···

Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height [First angle projection]



Auto Switch Proper Mounting Position

(mm)

Auto switch model / Bore size	D-A9□ D-A9□V		D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□AL D-M9□AVL		D-A5□ D-A6□		D-A59W		D-F5□W D-J59W D-F5□ D-J5□ D-F5BAL D-F59F		D-F5NTL		D-A3□ D-A44 D-G39 D-K39		D-Z7□ D-Z80 D-Y59□ D-Y69□ D-Y7P D-Y7PV D-Y7□W D-Y7□WV D-Y7BAL		D-P4DWL	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
32	6.5	4	10.5	8	0.5	0	4.5	2	7	4.5	12	9.5	0.5	0	4	1.5	3.5	1
40	6.5	4	10.5	8	0.5	0	4.5	2	7	4.5	12	9.5	0.5	0	4	1.5	3.5	1
50	7	4.5	11	8.5	1	0	5	2.5	7.5	5	12.5	10	1	0	4.5	2	4	1.5
63	7	4.5	11	8.5	1	0	5	2.5	7.5	5	12.5	10	1	0	4.5	2	4	1.5
80	10	8.5	14	12.5	4	2.5	8	6.5	10.5	9	15.5	14	4	2.5	7.5	6	7	5.5
100	10	8.5	14	12.5	4	2.5	8	6.5	10.5	9	15.5	14	4	2.5	7.5	6	7	5.5
125	12	12	16	16	6	6	10	10	12.5	12.5	17.5	17.5	6	6	9.5	9.5	9	9

Note) Adjust the auto switch after confirming the operation to set actually.

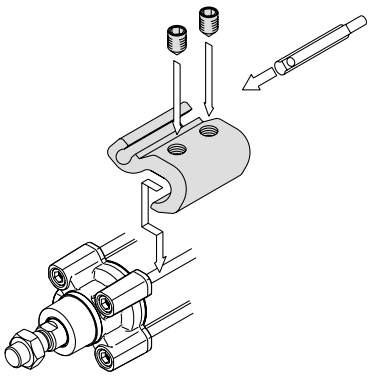
Auto Switch Proper Mounting Height

(mm)

Auto switch model / Bore size	D-A9□ D-M9□ D-M9□W D-M9□AL		D-A9□V		D-M9□V D-M9□WV D-M9□AVL		D-A5□ D-A6□ D-A59W		D-F5□ D-J5□ D-F59F D-F5□W D-J59W D-F5BAL D-F5NTL		D-A3□ D-G39 D-K39		D-A44		D-Z7□ D-Z80 D-Y59□ D-Y7P D-Y7□W D-Y7BAL		D-Y69□ D-Y7PV D-Y7□WV		D-P4DWL	
	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht
32	24.5	23	27.5	23	30.5	23	35	24.5	32.5	25	67	27.5	77	27.5	25.5	23	26.5	23	38	31
40	28.5	25.5	31.5	25.5	34	25.5	38.5	27.5	36.5	27.5	71.5	27.5	81.5	27.5	29.5	26	30	26	42	33
50	33.5	31	36	31	38.5	31	43.5	34.5	41	34	77	—	87	—	33.5	31	34.5	31	46.5	39
63	38.5	36	40.5	36	43	36	48.5	39.5	46	39	83.5	—	93.5	—	39	36	40	36	51.5	44
80	46.5	45	49	45	52	45	55	46.5	52.5	46.5	92.5	—	103	—	47.5	45	48.5	45	58	51.5
100	54	53.5	57	53.5	59.5	53.5	62	55	59.5	55	103	—	113.5	—	55.5	53.5	56.5	53.5	65.5	60.5
125	65.5	64.5	68.5	64.5	71	64.5	71.5	66.5	70.5	66.5	115	—	125	—	67.5	65	68.5	65	76.5	72

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)						
	ø32	ø40	ø50	ø63	ø80	ø100	ø125
D-A9□/A9□V D-M9□/M9□V D-M9□W/M9□WV D-M9□AL/M9□AVL	BMB5-032	BMB5-032	BA7-040	BA7-040	BA7-063	BA7-063	BA7-080
D-A3□/A44 D-G39/K39	BMB2-032	BMB2-040	BMB1-050	BMB1-063	BMB1-080	BMB1-100	BS1-125
D-A5□/A6□ D-A59W D-F5□/J5□ D-F5□W/J59W D-F59F D-F5BAL D-F5NTL	BT-03	BT-03	BT-05	BT-05	BT-06	BT-06	BT-08
D-P4DWL	BMB3T-040	BMB3T-040	BMB3T-050	BMB3T-050	BMB3T-080	BMB3T-080	BAP2T-080
D-Z7□/Z80 D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W D-Y7□WV D-Y7BAL	BMB4-032	BMB4-032	BMB4-050	BMB4-050	BA4-063	BA4-063	BA4-080



• Mounting example for D-A9□(V), M9□(V), M9□W(V), M9□A(V)L

[Mounting screws set made of stainless steel]

The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment. (Please order the mounting bracket separately, since it is not included.)

BBA1: For D-A5/A6/F5/J5

Note 1) For details on BBA1, refer to page 34.
"D-F5BAL" switch is set on the cylinder with the stainless steel screws above when shipped from factory.
When a switch is shipped independently, "BBA1" screws are attached.

Note 2) When using type D-M9□A(V)L or Y7BAL, please do not use the iron set screws included with the auto switch mounting bracket (BMB5-032, BA7-□□□, BAB4-□□□, BA4-□□□) shown above, instead order the set of stainless steel set screws (BBA1), and please use the stainless steel set screws (M4 x 6L) included in BBA1.

Operating Range

(mm)

Auto switch model	Bore size						
	32	40	50	63	80	100	125
D-A9□/A9□V	7	7.5	8.5	9.5	9.5	10.5	12
D-M9□/M9□V D-M9□W/M9□WV D-M9□AL/M9□AVL	4	4.5	5	6	6	6	7.5
D-Z7□/Z80	7.5	8.5	7.5	9.5	9.5	10.5	13
D-A5□/A6□	9	9	10	11	11	11	10
D-A59W	13	13	13	14	14	15	17
D-A3□/A44	9	9	10	11	11	11	10
D-Y59□/Y69□ D-Y7P/Y7□V D-Y7□W/Y7□WV D-Y7BAL	5.5	5.5	7	7.5	6.5	5.5	7
D-F5□/J5□ D-F5□W/J59W D-F5BAL/F5NTL D-F59F	3.5	4	4	4.5	4.5	4.5	5
D-G39/K39	9	9	9	10	10	11	11
D-P4DWL	4	4	4	4.5	4	4.5	4.5

∗ Since this is a guideline including hysteresis, not meant to be guaranteed.
(Assuming approximately ±30% dispersion.)
There may be the case it will vary substantially depending on an ambient environment.

Besides the models listed "How to Order," the following auto switches are applicable.
For detailed auto switch specifications, refer to SMC "Best Pneumatics 2004" catalogues.

Type	Auto switch model	Electrical entry	Features
Solid state switch	** D-M9NV, M9PV, M9BV	Grommet (Perpendicular)	—
	D-Y69A, Y69B, Y7PV		
	D-M9NWV, M9PWV, M9BWV		Diagnosis indication (2-colour)
	D-Y7NWV, Y7PWV, Y7BWV		
	D-M9NAVL, M9PAVL, M9BAVL		Water resistant (2-colour)
	D-Y59A, Y59B, Y7P	Grommet (In-line)	—
	D-F59, F5P, J59		
	D-Y7NW, Y7PW, Y7BW		Diagnosis indication (2-colour)
	D-F59W, F5PW, J59W		
	D-F5BAL, Y7BAL		Water resistant (2-colour)
	D-F5NTL		With timer
	D-P5DWL		Strong magnetic field resistant (2-colour)
Reed switch	D-A93V, A96V	Grommet (Perpendicular)	—
	D-A90V		Without indicator light
	D-A67, Z80	Grommet (In-line)	
	D-A53, A56, Z73, Z76		—

∗ For details about auto switches with pre-wired connector, refer to SMC "Best Pneumatics 2004" Vol.6 catalogue.
∗ Normally closed (NC = b contact), solid state switch (D-F9G, F9H, Y7G, Y7H type) are also available.
For details, refer to SMC "Best Pneumatics 2004" Vol.7/8/9/10 catalogue.
∗∗ D-M9BVM, M9NVM, M9PVM type (product of 1 m in length of the lead wire) are applicable from the shipment in May, 2008.

⚠ Specific Product Precautions

Adjustment

⚠ Warning

1. Do not open the cushion valve above the stopper.
Cushion valves are provided with a crimp (ø32) or a retaining ring (ø40 to ø125) as a stopping mechanism, and the cushion valve should not be opened above that point.
If air is supplied and operation started without confirming the above condition, the cushion valve may be ejected from the cover.

2. Be certain to activate the air cushion at the stroke end.
When it is intended to use the cushion valve in the fully opened position, select a style with a damper. If this is not done, the tie-rods or piston rod assembly will be damaged.

3. When replacing brackets, use the hexagon wrenches shown below.

Bore size (mm)	Width across flats	Tightening torque (N·m)
32, 40	4	5.1
50, 63	5	11
80, 100	6	19.2
125	10	30.1

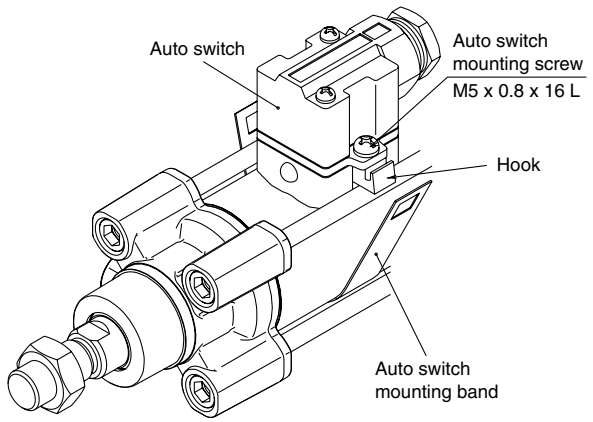
Series C96
How to Mount and Move the Auto Switch

Mounting Bracket Tie-rod Mounting

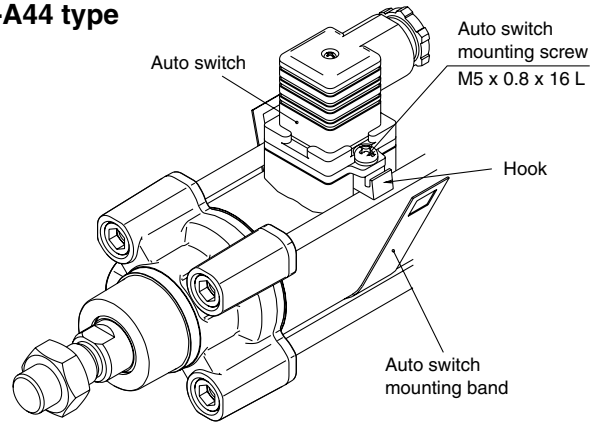
<Applicable Auto Switch>
Solid state switch ··· D-G39, D-K39
Reed switch ····· D-A33, D-A34, D-A44

How to Mount and Move the Auto Switch

D-A3□, D-G3/K3 type



D-A44 type



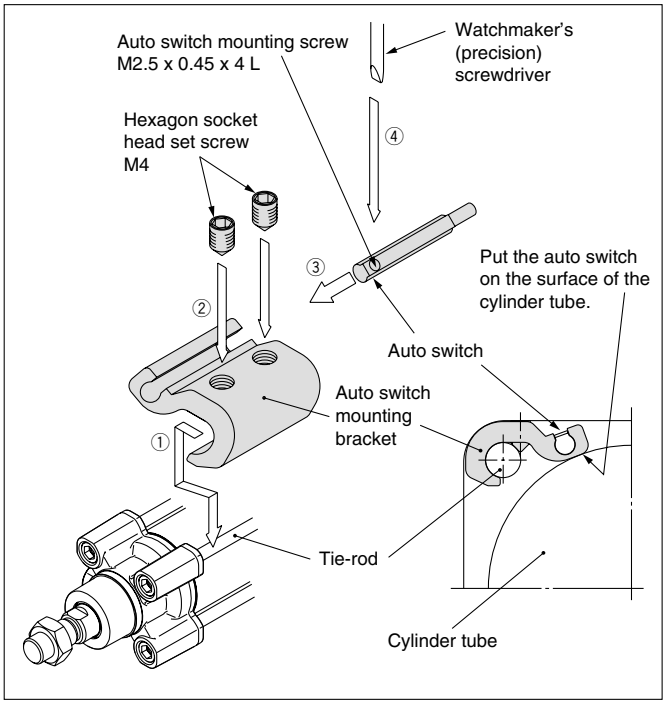
1. Loosen the auto switch mounting screws at both sides to pull down the hook.
2. Put an auto switch mounting band on the cylinder tube and set it at the auto switch mounting position, and then hook the band.
3. Screw lightly the auto switch mounting screw.
4. Set the whole body to the detecting position by sliding, tighten the mounting screw to secure the auto switch. (The tightening torque should be about 2 to 3 N·m.)
5. Modification of the detecting position should be made in the state of 3.

Auto Switch Mounting Bracket Part No. (Band)

Cylinder series	Applicable bore size (mm)						
	32	**40**	**50**	**63**	**80**	**100**	**125**
C96	BMB2 -032	BMB2 -040	BMB1 -050	BMB1 -063	BMB1 -080	BMB1 -100	BS1 -125

<Applicable Auto Switch>
Solid state switch ··· D-M9N(V), D-M9P(V), D-M9B(V)
D-M9NW(V), D-M9PW(V), D-M9BW(V)
D-M9NA(V), D-M9PA(V), D-M9BA(V)
Reed switch ····· D-A90(V), A93(V), A96(V)

How to Mount and Move the Auto Switch



1. Fix it to the detecting position with a set screw by installing an auto switch mounting bracket in the cylinder tie-rod and letting the bottom surface of an auto switch mounting bracket contact the cylinder tube firmly.
2. Fix it to the detecting position with a set screw (M4).
(Use a hexagon wrench.)
3. Fit an auto switch into the auto switch mounting groove to set it roughly to the mounting position for an auto switch.
4. After confirming the detecting position, tighten up the mounting screw (M2.5) attached to an auto switch, and secure the auto switch.
5. When changing the detecting position, carry out in the state of 3.

Note 1) To protect auto switches, ensure that the main body of an auto switch should be embedded into the auto switch mounting groove with a depth of 15 mm or more.
Note 2) Set the tightening torque of a hexagon socket head set screw (M4) to be 1.0 to 1.2 N·m.
Note 3) When tightening an auto switch mounting screw (M2.5), use a watchmaker's screwdriver with a grip diameter of 5 to 6 mm.
Also, set the tightening torque to be 0.05 to 0.15 N·m. As a guide, turn 90° from the position where it comes to feel tight.

Auto Switch Mounting Bracket Part No. (Including Bracket, Set Screw)

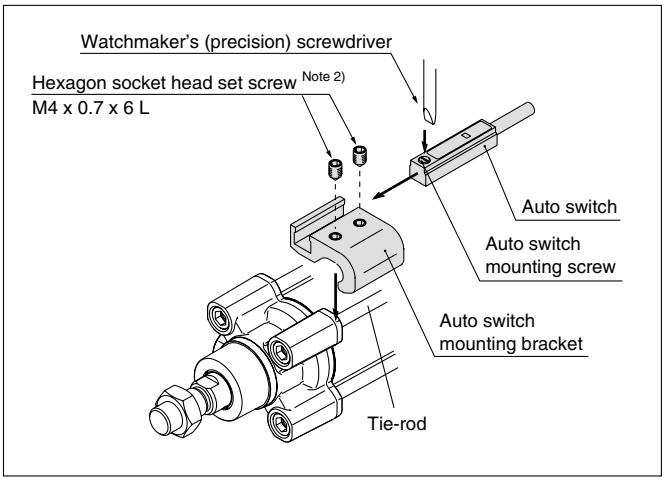
Cylinder series	Applicable bore size (mm)						
	32	**40**	**50**	**63**	**80**	**100**	**125**
C96	BMB5 -032	BMB5 -032	BA7 -040	BA7 -040	BA7 -063	BA7 -063	BA7 -080

Note 1) When using type D-M9□A(V)L, please order stainless steel screw set BBA1 separately (page 34) , and use the stainless steel set screws, after selecting set screws of the appropriate length for the cylinder series—as shown in the table above.
Note 2) Colour or gloss differences in the metal surfaces have no effect on metal performance.
The special properties of the chromate (trivalent) applied to the main body of the auto switch mounting bracket for BA7-□ and BMB5-□ result in differences in coloration depending on the production lot, but these have no adverse impact on corrosion resistance.

<Applicable Auto Switch>

Solid state switch ··· D-Y59$^{A}_{B}$, Y69$^{A}_{B}$, D-Y7P(V)
D-Y7NW(V), Y7PW(V), Y7BW(V)
D-Y7BAL
Reed switch ····· D-Z73, Z76, Z80

How to Mount and Move the Auto Switch



Note 1) When tightening an auto switch mounting screw, use a watchmaker's screwdriver with a handle diameter of 5 to 6 mm. Also, set the tightening torque to be 0.05 to 0.1 N·m. As a guide, turn 90° from the position where it comes to feel tight. Set the tightening torque of a hexagon socket head set screw (M4 x 0.7) to be 1.0 to 1.2 N·m.

1. Fix it to the detecting position with a set screw by installing an auto switch mounting bracket in the cylinder tie-rod and letting the bottom surface of an auto switch mounting bracket contact the cylinder tube firmly. (Use a hexagon wrench.)
2. Fit an auto switch into the auto switch mounting groove to set it roughly to the mounting position for an auto switch.
3. After confirming the detecting position, tighten up the mounting screw attached to an auto switch, and secure the auto switch.
4. When changing the detecting position, carry out in the state of 2.

∗ To protect the auto switches, ensure that the main body of an auto switch should be embedded into the auto switch mounting groove with a depth of 15 mm or more.

Auto Switch Mounting Bracket Part No. (Including Bracket, Set Screw)

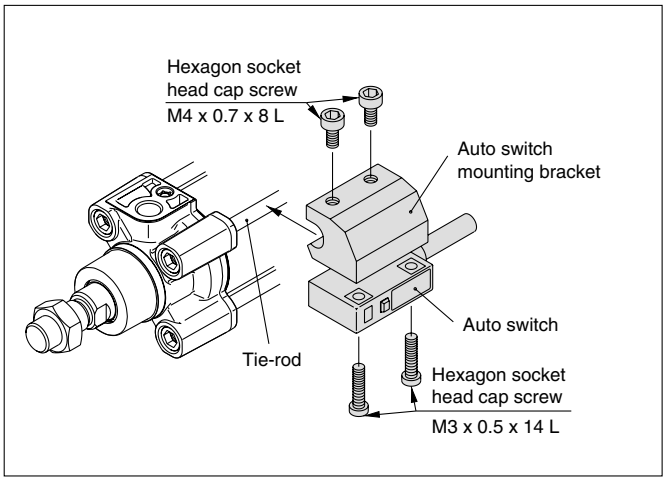
Cylinder series	Applicable bore size (mm)						
	32	**40**	**50**	**63**	**80**	**100**	**125**
C96	BMB4 -032	BMB4 -032	BMB4 -050	BMB4 -050	BA4 -063	BA4 -063	BA4 -080

Note 2) When using type D-Y7BAL, please order the stainless steel screw set BBA1 separately (page 34), and use the stainless steel set screws, after selecting set screws of the appropriate length for the cylinder series—as shown in the table above.

<Applicable Auto Switch>

Solid state switch ··· D-P4DWL

How to Mount and Move the Auto Switch



1. Slightly screw the hexagon socket head cap screw (M4 x 0.7 x 8 L) into the M4 tapped portion of auto switch mounting bracket. (2 locations) Use caution that the tip of the hexagon socket head cap screw should not stick out to the concave portion of the auto switch mounting bracket.
2. Put a hexagon socket head cap screw (M3 x 0.5 x 14 L) through the auto switch's through-hole (2 locations), and then push it down into the M3 tapped part on the auto switch mounting bracket while turning it lightly.
3. Place the concave part of the auto switch mounting bracket into the cylinder tie-rod, and slide the auto switch mounting bracket in order to set roughly to the detecting position.
4. After reconfirming the detecting position, tighten the M3 mounting screw to secure the auto switch by making the bottom face of the auto switch attached to the cylinder tube. (Tightening torque of the M3 screw should be 0.5 to 0.7 N·m.)
5. Tighten up the M4 screw of the auto switch mounting bracket to secure the auto switch mounting bracket. (Ensure that the tightening torque of the M4 screw should be set at 1.0 to 1.2 N·m.)

Auto Switch Mounting Bracket Part No. (Including Bracket, Screw)

Cylinder series	Applicable bore size (mm)						
	32	**40**	**50**	**63**	**80**	**100**	**125**
C96	BMB3T -040	BMB3T -040	BMB3T -050	BMB3T -050	BMB3T -080	BMB3T -080	BAP2T -080

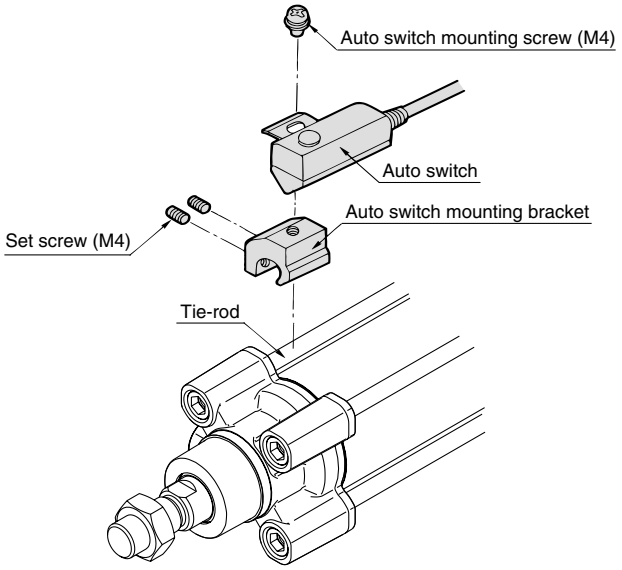
How to Mount and Move the Auto Switch

Mounting Bracket Tie-rod Mounting

<Applicable Auto Switch>

Solid state switch ··· D-F59, D-F5P
D-J59, D-J51, D-F5BAL
D-F59W, D-F5PW, D-J59W
D-F59F, D-F5NTL

Reed switch ····· D-A53, D-A54, D-A56, D-A64, D-A67
D-A59W



1. Fix the auto switch on the auto switch mounting bracket with the auto switch mounting screw (M4) and install the set screw.
2. Fit the auto switch mounting bracket into the cylinder tie-rod and then fix the auto switch at the detecting position with the hexagonal wrench. (Be sure to put the auto switch on the surface of the cylinder tube.)
3. When changing the detecting position, loosen the set screw to move the auto switch and then re-fix the auto switch on the cylinder tube. (Tightening torque of the M4 screw should be 1.0 to 1.2 N·m.)

Auto Switch Mounting Bracket Part No. (Including Bracket, Screw, Set Screw)

Cylinder series	Applicable bore size (mm)						
	32	**40**	**50**	**63**	**80**	**100**	**125**
C96	BT-03	BT-03	BT-05	BT-05	BT-06	BT-06	BT-08

[Mounting screws set made of stainless steel]
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.
(Please order the auto switch mounting bracket separately, since it is not included.)

BBA1: For D-A5/A6/F5/J5

"D-F5BAL" switch is set on the cylinder with the stainless steel screws above when shipped from factory.
When a switch is shipped independently, "BBA1" screws are attached.

Auto Switch Mounting Screw Set

Part no.	Contents				Applicable auto switch mounting bracket part no.	Applicable auto switch
	No.	Description	Size	Quantity		
BBA1	1	Auto switch mounting screw	M4 x 0.7 x 8L	1	BT-□□	D-A5, A6 D-F5, J5
	2	Set screw	M4 x 0.7 x 6L	2	BT-03, BT-04, BT-05 BT-06, BT-08, BT-12	D-A5, A6 D-F5, J5
					BA4-040, BA4-063, BA4-080 BMB4-032, BMB4-050	D-Z7, Z8 D-Y5, Y6, Y7
					BMB5-032 BA7-040, BA7-063, BA7-080	D-A9 D-M9
	3	Set screw	M4 x 0.7 x 8L	2	BT-16, BT-18A, BT-20	D-A5, A6 D-F5, J5
					BS4-125, BS4-160 BS4-180, BS4-200	D-Z7, Z8 D-Y5, Y6, Y7
					BS5-125, BS5-160 BS5-180, BS5-200	D-A9 D-M9