Compact Cylinder with Air Cushion

RQ Series

ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

Uses a unique air cushion mechanism with no cushion ring.

New A long stroke variant has been added to the air cushion cylinders.

Model	Mounting	Rod end configuration	Standard stroke : ●	Long stroke : ●	Auto switch
R(D)Q□20	• Through-hole • Double end tapped • Foot type • Rod side flange type • Head side flange type • Double clevis type	• Female thread • Male thread	15 20 25 30 40 50	75 100 125 150 175 200 250 300	• Direct mounting auto switch (ø20 to ø100)
R(D)Q□25					
R(D)Q□32					
R(D)Q□40					
R(D)Q□50					
R(D)Q□63					
R(D)Q□80					
R(D)Q□100					

∗ Size ø20 and ø25 with standard strokes have through-holes and double end taps in common.
∗ The through-hole option is not available for the long stroke variant.

Future new standard for shock elimination,

Employs a new construction for the air cushion mechanism.

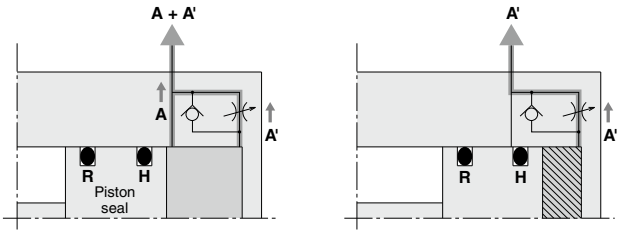
Compact Cylinder with Air Cushion

RQ Series

Unique air cushion construction with no cushion ring

Elimination of the cushion ring used in current cushion ring type air cushions has made it possible to reduce the overall length of the cylinder. This produces an air cushion cylinder which retains the merits of a compact design.

Working principle



① When the piston is retracting, exhaust is discharged from both A and A' until piston seal H passes the air passage A.
② After piston seal H has passed the air passage A, exhaust is discharged only from A'. The section marked with diagonal lines becomes a cushion chamber, and a cushioning effect is achieved.
③ When air is supplied for piston extension, the check seal opens and the piston starts with no delay.

noise reduction and improvement in repeatability

Minimal extended dimensions from +2.5 mm to 13 mm

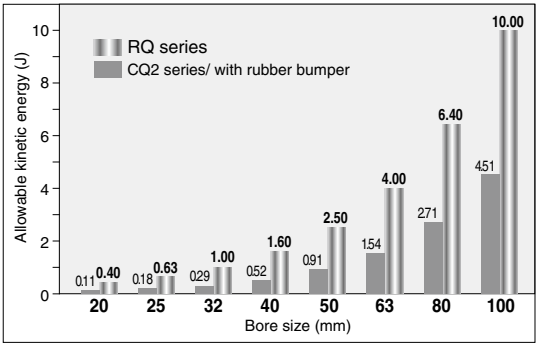
(Compared with series CDQS/CDQ2 of the same bore size with auto switches)

Series	Bore size	Extended dimension	Comparable cylinder
RDQ series	20	+2.5 mm	CDQS series
	25	+4 mm	
	32	+4 mm	CDQ2 series
	40	+4.5 mm	
	50	+9 mm	
	63	+9 mm	
	80	+10 mm	
	100	+13 mm	

Nearly three times the allowable kinetic energy

(Compared to the CQS/CQ2 series with rubber bumper)

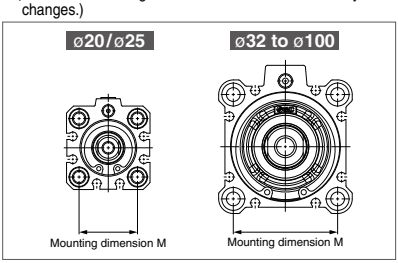
Improved energy absorption allows selection of a cylinder that is two sizes smaller for the same kinetic energy.



Interchangeable mounting

The mounting dimension "M" is the same as the compact cylinder **CQS/CQ2** series.

(**CQS/CQ2** mounting brackets can be used without any changes.)



Improved repeatability

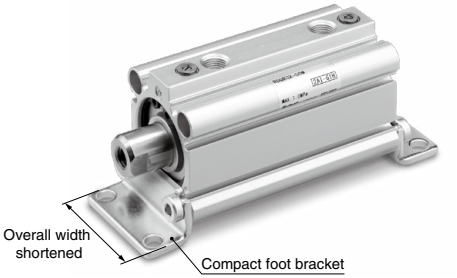
The piston contact surface at the stroke end is metal, providing improved repeatability for the stopping position as compared with a rubber bumper.

Improved noise reduction (Stroke end impact noise reduced)

- Decrease of 19dB or more (Compared with the **CQ2** series without cushion)
- Decrease of 14dB or more (Compared with the **CQ2** series with rubber bumper)

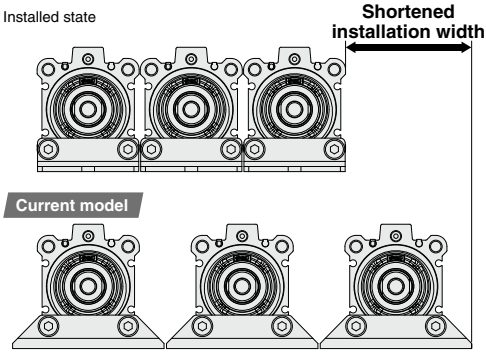
Added compact type foot brackets

■Compact foot bracket has the same width as the cylinder. Overall width reduced by up to 42% (for ø20)



■More compact installation space possible

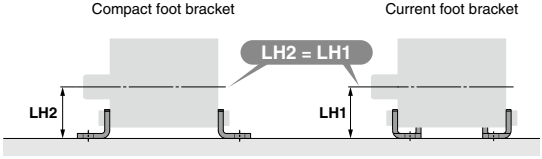
- **Short pitch mounting is possible.**
- **Allows installation close against a wall.**



Bore size (mm)	Compact foot type width **A** (mm)	Current foot type width **B** (mm)	Reduced width for short pitch mounting (mm)		
			1 unit	2 units	3 units
20	36	62	26	52	78
25	40	66	26	52	78
32	45	71	26	52	78
40	52	78	26	52	78
50	64	95	31	62	93
63	77	113	36	72	108
80	98	140	42	84	126
100	117	162	45	90	135

* Short pitch mounting is possible only without auto switch.

■Height from the bottom of brackets to the center of a cylinder is the same as the current model.



Compact Cylinder with Air Cushion

RQ Series

ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

How to Order

Without auto switch

RQ B 32 – 50 –

With auto switch

RDQ B 32 – 50 – M9BW –

With auto switch magnet

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Mounting bracket

B	Through-hole (Standard)
A	Both ends tapped type
L	Foot type
LC	Compact foot type
F	Rod side flange type
G	Head side flange type
D	Double clevis type

Note 1) Mounting brackets are packed together when shipped (unassembled).
Note 2) Since sizes ø20 and ø25 have a body with type B (Through-hole) and type A (Both ends tapped type) in common, there is no type A part number. Example) RQA 20-30 does not exist.
Note 3) A through-hole type mounting bolt is available as an option. For details ⇨ p. 1041

❷ Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

❸ Thread type

Nil	M thread	ø20, 25
	Rc	ø32 to 100
TN	NPT	
TF	G	

❹ Cylinder stroke (mm)

Bore size	Standard stroke
20, 25	15, 20, 25, 30, 40, 50
32, 40	20, 25, 30, 40, 50, 75, 100
50, 63	30, 40, 50, 75, 100
80, 100	40, 50, 75, 100

∗ For long strokes exceeding the standard stroke range ⇒ p. 1053-3
∗ For details on the manufacturing of intermediate strokes ⇒ p. 1040

❺ Body option

Nil	Standard (Rod end female thread)
M	Rod end male thread

❻ Auto switch

Nil	Without auto switch

∗ Refer to the table below for the applicable auto switch model.

❼ Number of auto switches

Nil	2
S	1
n	n

❽ Made to order common specifications

For details ⇒ p. 1040

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) RDQL40-50

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Perpendicular	Auto switch model: In-line	Lead wire length (m): 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	**M9NV**	**M9N**	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9PV**	**M9P**	●	●	●	○	—	○		
				2-wire	12 V		**M9BV**	**M9B**	●	●	●	○	—	○	—	
	Diagnostic indicator (2-color indicator)			3-wire (NPN)	5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	—	○	IC circuit	
				3-wire (PNP)			**M9PWV**	**M9PW**	●	●	●	○	—	○		
				2-wire	12 V		**M9BWV**	**M9BW**	●	●	●	○	—	○	—	
	Water resistance (2-color indicator)			3-wire (NPN)	5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			**M9PAV**∗1	**M9PA**∗1	○	○	●	○	—	○		
				2-wire	12 V		**M9BAV**∗1	**M9BA**∗1	○	○	●	○	—	○	—	
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)	—		—	**P3DWA**∗∗	●	—	●	●	—	○	—	
Reed auto switch	——	Grommet	Yes	3-wire (NPN equiv.)	—	5 V	—	**A96V**	**A96**	●	—	●	—	—	—	IC circuit	—
			No	2-wire	24 V	12 V	100 V	**A93V**∗2	**A93**	●	●	●	●	—	—	—	Relay, PLC
						5 V, 12 V	100 V or less	**A90V**	**A90**	●	—	●	—	—	—	IC circuit	

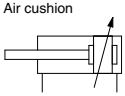
∗1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.
∗2 1 m type lead wire is only applicable to D-A93.

∗ 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
None····· N (Example) J79CN

∗ Solid state auto switches marked with a "○" are produced upon receipt of order.
∗∗ The D-P3DWA□ is mountable on bore size ø25 to ø100.

∗ Besides the models in the above catalog, there are some other auto switches that are applicable. For more information, refer to page 1056.
∗ Refer to pages 1340 and 1341 for the details of auto switches with a pre-wired connector.
∗ When mounting brackets (foot/flange type) are used, then in some cases auto switches cannot be retrofitted.

Symbol
Air cushion



Made to Order

Made to Order
Click here for details

Symbol	Specifications
-XA□	Change of Rod End Shape
-XC4	With heavy duty scraper
-XC35	With coil scraper (For ø32 to 100 only)

Allowable kinetic energy

Refer to "Selection" on page 1057 regarding the allowable kinetic energy.

Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
Lubrication	Not required (non-lube)							
Fluid	Air							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Minimum operating pressure	0.05 MPa							
Ambient and fluid temperature	Without auto switch magnet : –10 to 70°C With auto switch magnet : –10 to 60°C (No freezing)							
Rod end thread	Female thread							
Stroke length tolerance	$^{+1.0}_{0}$							
Mounting	Through-hole							
Piston speed	50 to 500 mm/s							

Standard Stroke

Bore size (mm)	Standard stroke (mm)
20, 25	15, 20, 25, 30, 40, 50
32, 40	20, 25, 30, 40, 50, 75, 100
50, 63	30, 40, 50, 75, 100
80, 100	40, 50, 75, 100

Manufacture of Intermediate Stroke

Description	Exclusive body	
Part no.	Refer to "How to Order" for standard model	
Method	Available in stroke increments of 1mm, using an exclusive body for the specified stroke.	
Stroke range	Bore size	Stroke range
	20, 25	16 to 49
	32, 40	21 to 99
	50, 63	31 to 99
	80, 100	41 to 99
Example	Part no.: RQB32-47 A special tube is manufactured for a 47mm stroke.	

Effective Cushion Length

Bore size (mm)	20	25	32	40	50	63	80	100
Effective cushion length (mm)	5.8	6.1	6.6	6.6	7.1	7	7.5	8

Mounting Bracket Part No.

Bore size (mm)	Foot Note 1)	Compact foot	Flange	Double clevis
20	CQS-L020	CQS-LC020	CQS-F020	CQS-D020
25	CQS-L025	CQS-LC025	CQS-F025	CQS-D025
32	CQ-L032	CQ-LC032	CQ-F032	CQ-D032
40	CQ-L040	CQ-LC040	CQ-F040	CQ-D040
50	CQ-L050	CQ-LC050	CQ-F050	CQ-D050
63	CQ-L063	CQ-LC063	CQ-F063	CQ-D063
80	CQ-L080	CQ-LC080	CQ-F080	CQ-D080
100	CQ-L100	CQ-LC100	CQ-F100	CQ-D100

Note 1) When ordering foot/compact foot brackets, order 2 pieces per cylinder.
Note 2) The following parts are included with each bracket.
Foot/Compact foot/Flange : Body mounting bolts.
Double clevis: Clevis pins, type C retaining ring for axis, and Body mounting bolts.

Theoretical Output

(N)

Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
20	IN	71	118	165
	OUT	94	157	220
25	IN	113	189	264
	OUT	147	245	344
32	IN	181	302	422
	OUT	241	402	563
40	IN	317	528	739
	OUT	377	628	880
50	IN	495	825	1150
	OUT	589	982	1370
63	IN	841	1400	1960
	OUT	935	1560	2180
80	IN	1360	2270	3170
	OUT	1510	2510	3520
100	IN	2140	3570	5000
	OUT	2360	3930	5500

Weight

Basic Weight

(g)

Bore size (mm)	Standard stroke (mm)							
	15	20	25	30	40	50	75	100
20	135	149	163	177	205	233	—	—
25	190	207	224	241	275	309	—	—
32	—	244	264	283	323	362	461	559
40	—	355	377	399	443	487	597	707
50	—	—	—	665	731	797	962	1127
63	—	—	—	873	948	1022	1208	1393
80	—	—	—	—	1660	1778	2073	2368
100	—	—	—	—	2777	2937	3335	3734

Additional Weight

(g)

Bore size (mm)		20	25	32	40	50	63	80	100
Magnet		5	6	11	13	14	22	24	35
Both ends tapped type		—	—	6	6	6	19	45	45
Rod end male thread	Male thread	6	12	26	27	53	53	120	175
	Nut	4	8	17	17	32	32	49	116
Foot type (including bolt)		159	181	143	155	243	324	696	1062
Compact foot type (including bolt)		97	116	99	114	177	241	501	770
Rod side flange type (including bolt)		143	180	180	214	373	559	1056	1365
Head side flange type (including bolt)		137	171	165	198	348	534	1017	1309
Double clevis type (including pin, retaining ring and bolt)		92	127	151	196	393	554	1109	1887

Calculation example) **RQD32-20M**

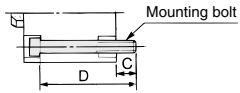
- Basic weight : RQB32-20 244 g
- Additional weight : Double end tapped 6 g
  Rod end male thread 43 g
  Double clevis 151 g
  444 g

Mounting Bolts for R(D)QB

Through-hole type mounting bolts for R(D)QB are available.
Refer to the following for ordering procedures.
Order the actual number of bolts that will be used.

Example) CQ-M5x50L 4 pcs.

Material: Chromium molybdenum steel
Surface treatment: Zinc chromated

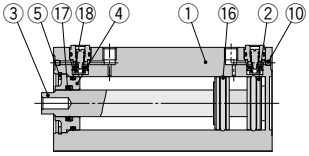


Cylinder model	C	D	Mounting bolt Part no.
R(D)QB20-15	9	50	CQ-M5 x 50L
-20		55	x 55L
-25		60	x 60L
-30		65	x 65L
-40		75	x 75L
-50		85	x 85L
R(D)QB25-15	9.5	55	CQ-M5 x 55L
-20		60	x 60L
-25		65	x 65L
-30		70	x 70L
-40		80	x 80L
-50		90	x 90L
R(D)QB32-20	10	60	CQ-M5 x 60L
-25		65	x 65L
-30		70	x 70L
-40		80	x 80L
-50		90	x 90L
-75		115	x 115L
-100		140	x 140L

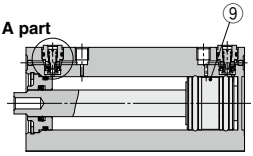
Cylinder model	C	D	Mounting bolt Part no.
R(D)QB40-20	8	65	CQ-M5 x 65L
-25		70	x 70L
-30		75	x 75L
-40		85	x 85L
-50		95	x 95L
-75		120	x 120L
-100		145	x 145L
R(D)QB50-30	13.5	85	CQ-M6 x 85L
-40		95	x 95L
-50		105	x 105L
-75		130	x 130L
-100		155	x 155L
R(D)QB63-30	15.5	90	CQ-M8 x 90L
-40		100	x 100L
-50		110	x 110L
-75		135	x 135L
-100		160	x 160L
R(D)QB80-40	15	105	CQ-M10 x 105L
-50		115	x 115L
-75		140	x 140L
-100		165	x 165L
R(D)QB100-40	17.5	120	CQ-M10 x 120L
-50		130	x 130L
-75		155	x 155L
-100		180	x 180L

Construction

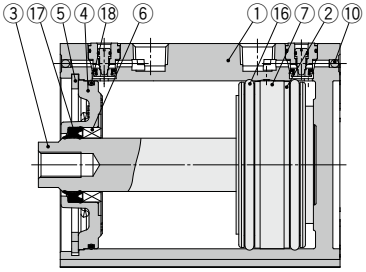
ø20 to ø40



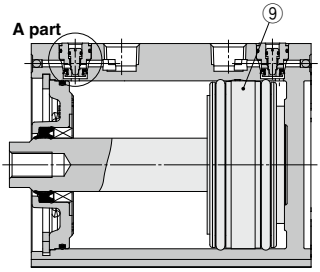
With auto switch (Built-in magnet)



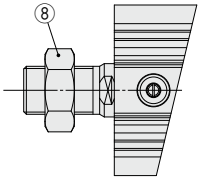
ø50 to ø100



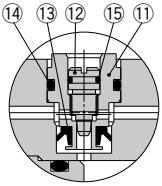
With auto switch (Built-in magnet)



M: Rod end male thread



Details of A part



Component Parts

No.	Description	Material	Note
1	**Cylinder tube**	Aluminum alloy	Hard anodized
2	**Piston**	Aluminum alloy	
3	**Piston rod**	Stainless steel	ø20, ø25
		Carbon steel	ø32 to ø100, Hard chrome plated
4	**Collar**	Aluminum alloy	ø20 to ø40, Anodized
		Aluminum alloy casted	ø50 to ø100, Chromated, Painted
5	**Retaining ring**	Carbon tool steel	Phosphate coating
6	**Bushing**	Bearing alloy	ø50 to ø100
7	**Wear ring**	Resin	ø63 to ø100
8	**Rod end nut**	Carbon steel	Zinc chromated
9	**Magnet**	—	
10	**Steel ball**	High carbon chrome bearing steel	
11	**Check seal retainer**	Brass	Electroless nickel plated
12	**Cushion needle**	Stainless steel	
13	**Check seal**	NBR	
14	**Check gasket**	NBR	
15	**Needle gasket**	NBR	
16	**Piston seal**	NBR	
17	**Rod seal**	NBR	
18	**Tube gasket**	NBR	

Replacement Parts/Seal Kit

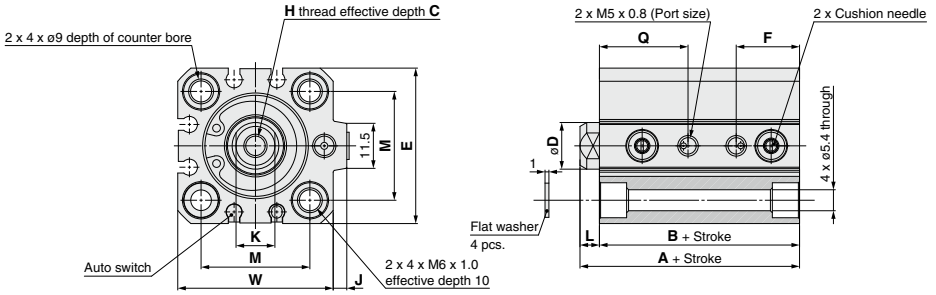
Bore size (mm)	Part no.	Contents
20	RQB20-PS	Set of nos. above ⑯, ⑰, ⑱, and a grease pack (GR-S-010)
25	RQB25-PS	
32	RQB32-PS	
40	RQB40-PS	
50	RQB50-PS	
63	RQB63-PS	
80	RQB80-PS	
100	RQB100-PS	

* Seal kit includes ⑯, ⑰ and ⑱. Order the seal kit, based on each bore size.
* The seal kit includes a grease pack.
  Order with the following part number when only the grease pack is needed.
  Grease pack part number: **GR-S-010** (10 g), **GR-S-020** (20 g), **GR-S-400** (400 g)

Dimensions: ø20, ø25

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.
∗ For the auto switch mounting position and its mounting height, refer to pages 1054 and 1055.

Basic type (Through-hole/Both ends tapped common): RQB/RDQB



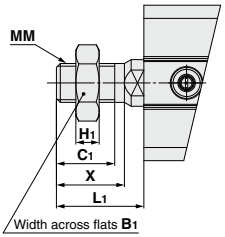
mm

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	F	H	J	K	L	M	Q	W
20	15 to 50	36.5	32	7	10	36	15.5	M5 x 0.8	3	8	4.5	25.5	21	39
25	15 to 50	41.5	36.5	12	12	40	17	M6 x 1.0	3.5	10	5	28	23	43.5

∗ Refer to page 1052 for details on rod end nut and accessories.

• Add the stroke to calculate the length of intermediate strokes.

Rod end male thread



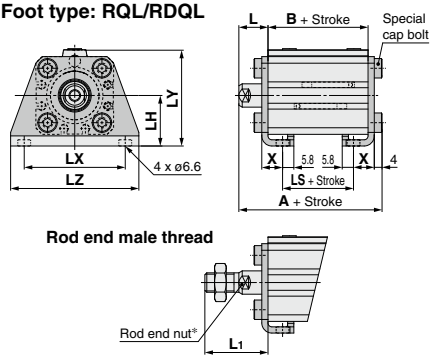
mm

Bore size (mm)	B_1	H_1	C_1	X	MM	L_1
20	13	5	12	14	M8 x 1.25	18.5
25	17	6	15	17.5	M10 x 1.25	22.5

Mounting Bracket Dimensions

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.

Foot type: RQL/RDQL



Rod end male thread

Foot Type

mm

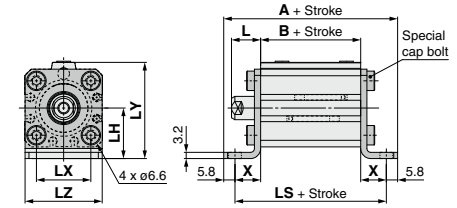
Bore size (mm)	Stroke range (mm)	A	B	LS	L
20	15 to 50	53.7	32	20	14.5
25	15 to 50	58.7	36.5	21.5	15

mm

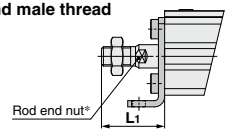
Bore size (mm)	L_1	LH	LX	LY	LZ	X
20	28.5	24	48	45	62	9.2
25	32.5	26	52	49.5	66	10.7

Foot bracket material: Carbon steel
Surface treatment: Nickel plated

Compact foot type: RQLC/RDQLC



Rod end male thread



Compact Foot Type

mm

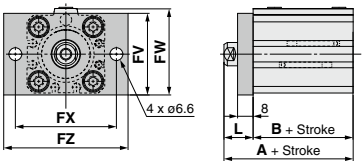
Bore size (mm)	Stroke range (mm)	A	B	LS	L
20	15 to 50	70	32	58.4	14.5
25	15 to 50	74.5	36.5	62.9	15

mm

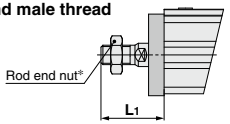
Bore size (mm)	L_1	LH	LX	LY	LZ	X
20	28.5	24	25.5	45	36	13.2
25	32.5	26	28	49.5	40	13.2

Foot bracket material: Carbon steel
Surface treatment: Zinc chromated

Rod side flange type: RQF/RDQF



Rod end male thread



Rod Side Flange Type

mm

Bore size (mm)	Stroke range (mm)	A	B	L
20	15 to 50	46.5	32	14.5
25	15 to 50	51.5	36.5	15

mm

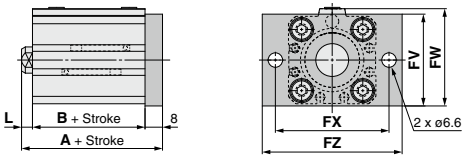
Bore size (mm)	L_1	FV	FW	FX	FZ
20	28.5	39	40.5	48	60
25	32.5	42	44.5	52	64

Flange material: Carbon steel
Surface treatment: Nickel plated

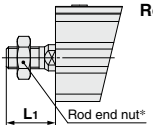
Mounting Bracket Dimensions

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.

Head side flange type: RQG/RDQG



Rod end male thread



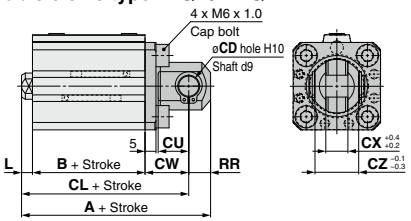
Head Side Flange Type mm

Bore size (mm)	Stroke range (mm)	A	L	L1
20	15 to 50	44.5	4.5	18.5
25	15 to 50	49.5	5	22.5

∗ All dimensions but A, L and L1 are identical to those of the rod side flange type.

Flange material: Carbon steel
Surface treatment: Nickel plated

Double clevis type: RQD/RDQD



Double Clevis Type mm

Bore size (mm)	Stroke range (mm)	A	B	CL	CD	CU
20	15 to 50	63.5	32	54.5	8	12
25	15 to 50	71.5	36.5	61.5	10	14

mm

Bore size (mm)	CW	CX	CZ	L	L1	RR
20	18	8	16	4.5	18.5	9
25	20	10	20	5	22.5	10

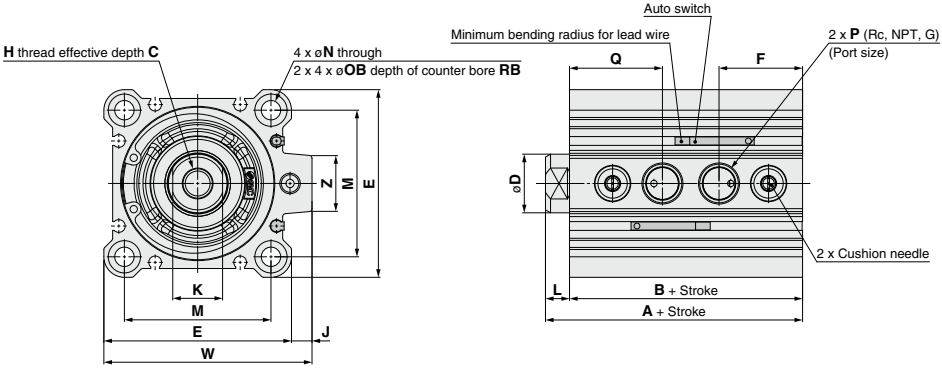
∗ Double clevis pins and retaining rings are included in the package.
∗ Refer to page 1052 for details on rod end nut and accessories.

Double clevis bracket material: Carbon steel
Surface treatment: Nickel plated

Dimensions: ø32, ø40, ø50

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.
∗ For the auto switch mounting position and its mounting height, refer to pages 1054 and 1055.

Basic type (Through-hole): RQB/RDQB



mm

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	F	H	J	K	L	M	N
32	20 to 100	44	37	13	16	45	18.5	M8 x 1.25	4.5	14	7	34	5.5
40	20 to 100	51	44	13	16	52	20	M8 x 1.25	5	14	7	40	5.5
50	30 to 100	57.5	49.5	15	20	64	28.5	M10 x 1.5	7	17	8	50	6.6

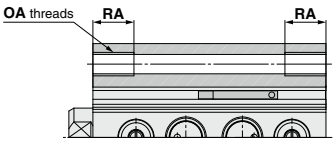
mm

Bore size (mm)	OB	P	Q	RB	W	Z
32	9	1/8	23	7	49.5	14
40	9	1/8	28	7	57	15
50	11	1/4	31.5	8	71	19

∗ Refer to page 1052 for details on rod end nut and accessories.

• Add the stroke to calculate the length of intermediate strokes.

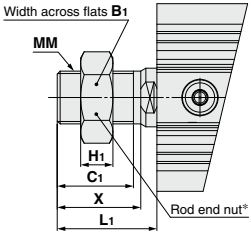
Both ends tapped type: RQA/RDQA



mm

Bore size (mm)	OA	RA
32	M6 x 1.0	10
40	M6 x 1.0	10
50	M8 x 1.25	14

Rod end male thread



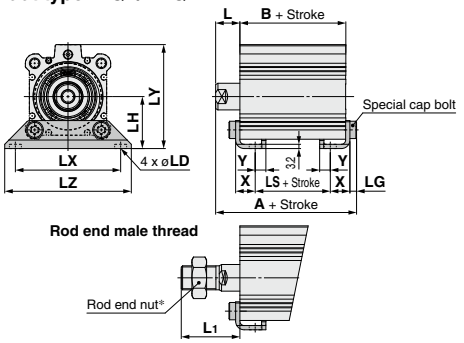
mm

Bore size (mm)	B1	H1	C1	X	MM	L1
32	22	8	20.5	23.5	M14 x 1.5	28.5
40	22	8	20.5	23.5	M14 x 1.5	28.5
50	27	11	26	28.5	M18 x 1.5	33.5

Mounting Bracket Dimensions

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.

Foot type: RQL/RDQL



Foot Type

mm

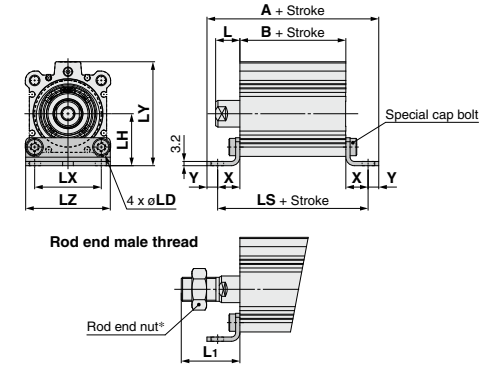
Bore size (mm)	Stroke range (mm)	A	B	LS	L	L1	LD
32	20 to 100	61.2	37	21	17	38.5	6.6
40	20 to 100	68.2	44	28	17	38.5	6.6
50	30 to 100	75.7	49.5	26.5	18	43.5	9

mm

Bore size (mm)	LG	LH	LX	LY	LZ	X	Y
32	4	30	57	57	71	11.2	5.8
40	4	33	64	64	78	11.2	7
50	5	39	79	78	95	14.7	8

Foot bracket material: Carbon steel
Surface treatment: Nickel plated

Compact foot type: RQLC/RDQLC



Compact Foot Type

mm

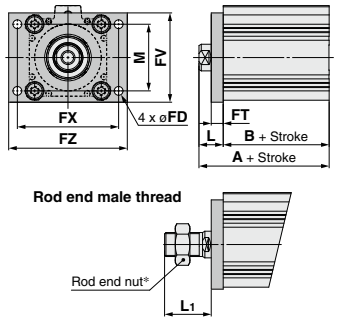
Bore size (mm)	Stroke range (mm)	A	B	LS	L	L1	LD
32	20 to 100	76	37	64.4	17	38.5	6.6
40	20 to 100	85.4	44	71.4	17	38.5	6.6
50	30 to 100	98.9	49.5	82.9	18	43.5	9

mm

Bore size (mm)	LH	LX	LY	LZ	X	Y
32	30	34	57	45	13.7	5.8
40	33	40	64	52	13.7	7
50	39	50	78	64	16.7	8

Foot bracket material: Carbon steel
Surface treatment: Zinc chromated

Rod side flange type: RQF/RDQF



Rod Side Flange Type

mm

Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV
32	20 to 100	54	37	5.5	8	48
40	20 to 100	61	44	5.5	8	54
50	30 to 100	67.5	49.5	6.6	9	67

mm

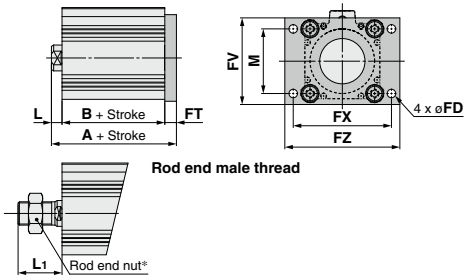
Bore size (mm)	FX	FZ	L	L1	M
32	56	65	17	38.5	34
40	62	72	17	38.5	40
50	76	89	18	43.5	50

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

Mounting Bracket Dimensions

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.

Head side flange type: RQG/RDQG



Head Side Flange Type

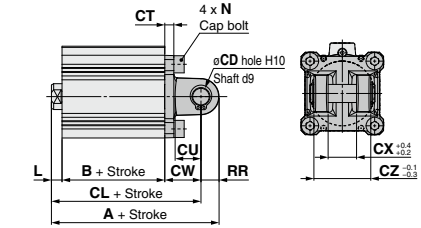
mm

Bore size (mm)	Stroke range (mm)	A	L	L1
32	20 to 100	52	7	28.5
40	20 to 100	59	7	28.5
50	30 to 100	66.5	8	33.5

* All dimensions but A, L and L1 are identical to those of the rod side flange type.

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

Double clevis type: RQD/RDQD



Double Clevis Type

mm

Bore size (mm)	Stroke range (mm)	A	B	CL	CD	CT	CU
32	20 to 100	74	37	64	10	5	14
40	20 to 100	83	44	73	10	6	14
50	30 to 100	99.5	49.5	85.5	14	7	20

mm

Bore size (mm)	CW	CX	CZ	L	L1	N	RR
32	20	18	36	7	28.5	M6 x 1.0	10
40	22	18	36	7	28.5	M6 x 1.0	10
50	28	22	44	8	33.5	M8 x 1.25	14

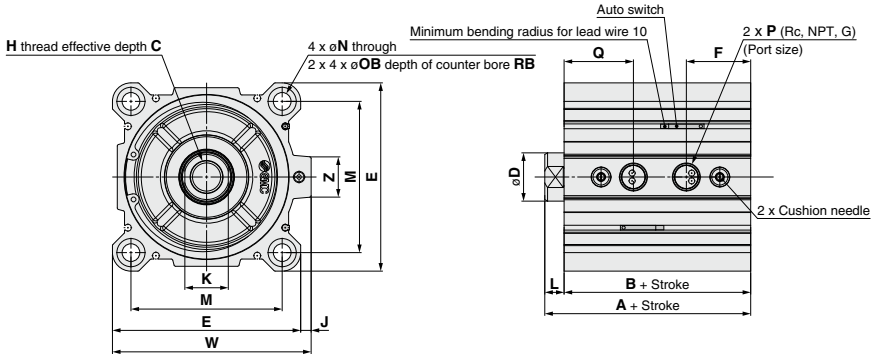
* Double clevis pins and retaining rings are included in the package.
* Refer to page 1052 for details on rod end nut and accessories.

Double clevis bracket material: Cast iron
Surface treatment: Painted

Dimensions: ø63, ø80, ø100

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.
∗ For the auto switch mounting position and its mounting height, refer to pages 1054 and 1055.

Basic type (Through-hole)



mm

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	F	H	J	K	L	M	N	OB	P
63	30 to 100	63	55	15	20	77	31	M10 x 1.5	7	17	8	60	9	14	1/4
80	40 to 100	73.5	63.5	21	25	98	35.5	M16 x 2.0	6	22	10	77	11	17.5	3/8
100	40 to 100	88	76	27	30	117	40	M20 x 2.5	6.5	27	12	94	11	17.5	3/8

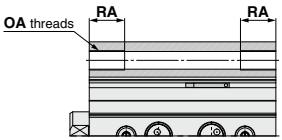
mm

Bore size (mm)	Q	RB	W	Z
63	34	10.5	84	19
80	39	13.5	104	25
100	43	13.5	123.5	25

∗ Refer to page 1052 for details on rod end nut and accessories.

• Add the stroke to calculate the length of intermediate strokes.

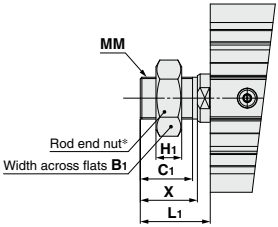
Both ends tapped type: RQA/RDQA



mm

Bore size (mm)	OA	RA
63	M10 x 1.5	18
80	M12 x 1.75	22
100	M12 x 1.75	22

Rod end male thread



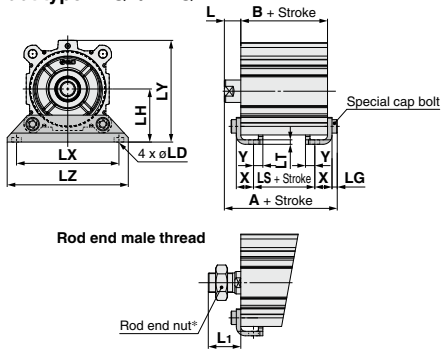
mm

Bore size (mm)	B_1	H_1	C_1	X	MM	L_1
63	27	11	26	28.5	M18 x 1.5	33.5
80	32	13	32.5	35.5	M22 x 1.5	43.5
100	41	16	32.5	35.5	M26 x 1.5	43.5

Mounting Bracket Dimensions

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.

Foot type: RQL/RDQL



Foot Type

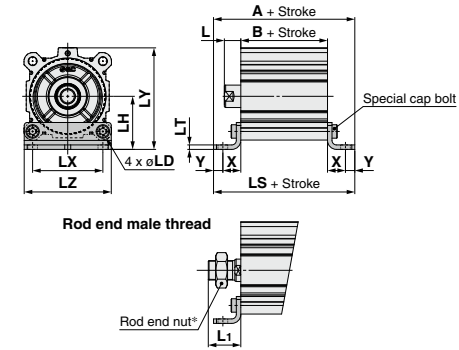
mm

Bore size (mm)	Stroke range (mm)	A	B	LS	L	L1	LD	LG	LH	LT
63	30 to 100	81.2	55	29	18	43.5	11	5	46	3.2
80	40 to 100	95	63.5	33.5	20	53.5	13	7	59	4.5
100	40 to 100	111	76	42	22	53.5	13	7	71	6

Bore size (mm)	LX	LY	LZ	X	Y
63	95	91.5	113	16.2	9
80	118	114	140	19.5	11
100	137	136	162	23	12.5

Foot bracket material: Carbon steel
Surface treatment: Nickel plated

Compact foot type: RQLC/RDQLC



Compact Foot Type

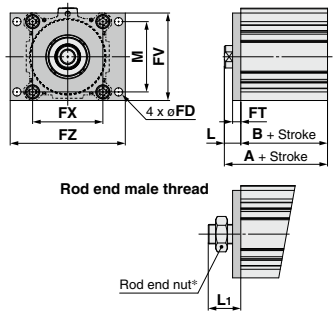
mm

Bore size (mm)	Stroke range (mm)	A	B	LS	L	L1	LD	LH	LT
63	30 to 100	109.4	55	91.4	18	43.5	11	46	3.2
80	40 to 100	130.5	63.5	108.5	20	53.5	13	59	4.5
100	40 to 100	149	76	124	22	53.5	13	71	6

Bore size (mm)	LX	LY	LZ	X	Y
63	60	91.5	77	18.2	9
80	77	114	98	22.5	11
100	94	136	117	24	12.5

Foot bracket material: Carbon steel
Surface treatment: Zinc chromated

Rod side flange type: RQF/RDQF



Rod Side Flange Type

mm

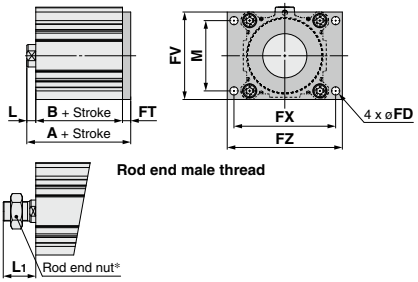
Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV	FX	FZ	L	L1	M
63	30 to 100	73	55	9	9	80	92	108	18	43.5	60
80	40 to 100	83.5	63.5	11	11	99	116	134	20	53.5	77
100	40 to 100	98	76	11	11	117	136	154	22	53.5	94

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

Mounting Bracket Dimensions

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.

Head side flange type: RQG/RDQG



Head Side Flange Type

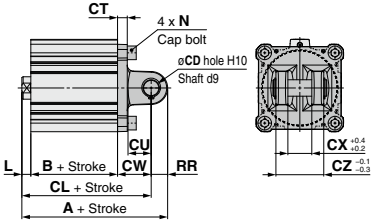
mm

Bore size (mm)	Stroke range (mm)	A	L	L_1
63	30 to 100	72	8	33.5
80	40 to 100	84.5	10	43.5
100	40 to 100	99	12	43.5

∗ All dimensions but A, L and L_1 are identical to those of the rod side flange type.

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

Double clevis type: RQD/RDQD



Double Clevis Type

mm

Bore size (mm)	Stroke range (mm)	A	B	CL	CD	CT	CU	CW	CX	CZ	L
63	30 to 100	107	55	93	14	8	20	30	22	44	8
80	40 to 100	129.5	63.5	111.5	18	10	27	38	28	56	10
100	40 to 100	155	76	133	22	13	31	45	32	64	12

Bore size (mm)	L_1	N	RR
63	33.5	M10 x 1.5	14
80	43.5	M12 x 1.75	18
100	43.5	M12 x 1.75	22

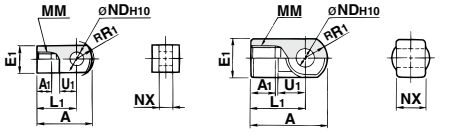
∗ Double clevis pins and retaining rings are included in the package.
∗ Refer to page 1052 for details on rod end nut and accessories.

Double clevis bracket material: Cast iron
Surface treatment: Painted

RQ Series
Accessory Bracket Dimensions

Single Knuckle Joint

For I-G02, I-G03 | **For I-G04, I-G05 I-G08, I-G10**



Material: Carbon steel
Surface treatment: Nickel plated

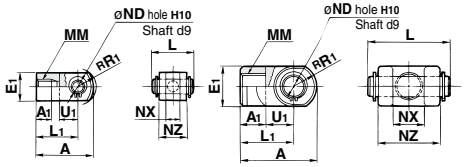
Material: Cast iron
Surface treatment: Nickel plated

mm

Part no.	Applicable bore size (mm)	A	A1	E1	L1	MM	RR1	U1	ND	NX
I-G02	20	34	8.5	□16	25	M8 x 1.25	10.3	11.5	$8^{+0.058}_{0}$	$8^{-0.2}_{-0.4}$
I-G03	25	41	10.5	□20	30	M10 x 1.25	12.8	14	$10^{+0.058}_{0}$	$10^{-0.2}_{-0.4}$
I-G04	32, 40	42	14	ø22	30	M14 x 1.5	12	14	$10^{+0.058}_{0}$	$18^{-0.3}_{-0.5}$
I-G05	50, 63	56	18	ø28	40	M18 x 1.5	16	20	$14^{+0.070}_{0}$	$22^{-0.3}_{-0.5}$
I-G08	80	71	21	ø38	50	M22 x 1.5	21	27	$18^{+0.070}_{0}$	$28^{-0.3}_{-0.5}$
I-G10	100	79	21	ø44	55	M26 x 1.5	24	31	$22^{+0.084}_{0}$	$32^{-0.3}_{-0.5}$

Double Knuckle Joint

For Y-G02, Y-G03 | **For Y-G04, Y-G05 Y-G08, Y-G10**



Material: Carbon steel
Surface treatment: Nickel plated

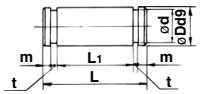
Material: Cast iron
Surface treatment: Nickel plated

mm

Part no.	Applicable bore size (mm)	A	A1	E1	L1	MM	RR1	U1	ND	NX	NZ	L	Applicable pin no.
Y-G02	20	34	8.5	□16	25	M8 x 1.25	10.3	11.5	$8^{+0.058}_{0}$	$8^{+0.4}_{+0.2}$	16	21	IY-G02
Y-G03	25	41	10.5	□20	30	M10 x 1.25	12.8	14	$10^{+0.058}_{0}$	$10^{+0.4}_{+0.2}$	20	25.6	IY-G03
Y-G04	32, 40	42	16	ø22	30	M14 x 1.5	12	14	$10^{+0.058}_{0}$	$18^{+0.5}_{+0.3}$	36	41.6	IY-G04
Y-G05	50, 63	56	20	ø28	40	M18 x 1.5	16	20	$14^{+0.070}_{0}$	$22^{+0.5}_{+0.3}$	44	50.6	IY-G05
Y-G08	80	71	23	ø38	50	M22 x 1.5	21	27	$18^{+0.070}_{0}$	$28^{+0.5}_{+0.3}$	56	64	IY-G08
Y-G10	100	79	24	ø44	55	M26 x 1.5	24	31	$22^{+0.084}_{0}$	$32^{+0.5}_{+0.3}$	64	72	IY-G10

∗ Knuckle pin and retaining ring are included.

Knuckle Pin (Common with double clevis pin)



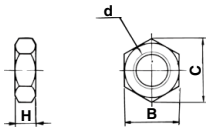
Material: Carbon steel

mm

Part no.	Applicable bore size (mm)	D	L	d	L1	m	t	Retaining ring
IY-G02	20	$8^{-0.040}_{-0.076}$	21	7.6	16.2	1.5	0.9	C8 type for pivot
IY-G03	25	$10^{-0.040}_{-0.076}$	25.6	9.6	20.2	1.55	1.15	C10 type for pivot
IY-G04	32,40	$10^{-0.040}_{-0.076}$	41.6	9.6	36.2	1.55	1.15	C10 type for pivot
IY-G05	50,63	$14^{-0.050}_{-0.093}$	50.6	13.4	44.2	2.05	1.15	C14 type for pivot
IY-G08	80	$18^{-0.050}_{-0.093}$	64	17	56.2	2.55	1.35	C18 type for pivot
IY-G10	100	$22^{-0.065}_{-0.117}$	72	21	64.2	2.55	1.35	C22 type for pivot

∗ Type C retaining rings for axis are included.

Rod End Nut



Material: Carbon steel
Surface treatment: Zinc chromated

mm

Part no.	Applicable bore size (mm)	d	H	B	C
NT-02	20	M8 x 1.25	5	13	15.0
NT-03	25	M10 x 1.25	6	17	19.6
NT-04	32, 40	M14 x 1.5	8	22	25.4
NT-05	50, 63	M18 x 1.5	11	27	31.2
NT-08	80	M22 x 1.5	13	32	37.0
NT-10	100	M26 x 1.5	16	41	47.3

Simple Joint (RQ): ø20 to ø100

Joint/Mounting Bracket (Type A/B) Part Nos.

Bore size (mm)	Joint	Type A mounting bracket	Type B mounting bracket
20	YU-020	YA-020	YB-020
25	YU-025	YA-025	YB-025
32, 40	YU-03	YA-03	YB-03
50, 63	YU-05	YA-05	YB-05
80	YU-08	YA-08	YB-08
100	YU-10	YA-10	YB-10

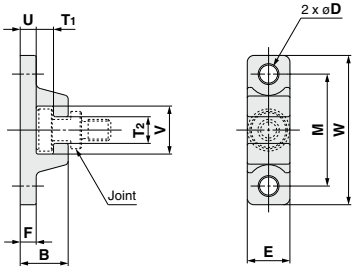
<Ordering>
• Joints are not included with type A or B mounting brackets. Order them separately.
(Example)
Bore size ø40 Part no.
• Type A mounting bracket YA-03
• Joint YU-03

Allowable Eccentricity

(mm)

Bore size (mm)	20	25	32	40	50	63	80	100
Eccentricity tolerance	±0.5		±1				±1.5	±2
Axial direction backlash	0.5							

Type A Mounting Bracket



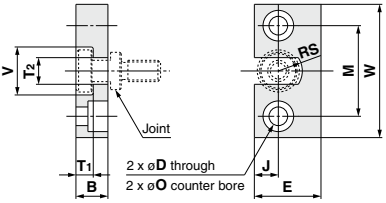
Material: Chromium molybdenum steel (Nickel plating)

(mm)

Bore size (mm)	Part no.	B	D	E	F	M	T1	T2
20	**YA-020**	12	4.5	13	5	30	3.5	6
25	**YA-025**	12.5	5.5	15	5	33	3.5	7
32, 40	**YA-03**	18	6.8	16	6	42	6.5	10
50, 63	**YA-05**	20	9	20	8	50	6.5	12
80	**YA-08**	26	11	25	10	62	8.5	16
100	**YA-10**	31	14	30	12	76	10.5	18

Bore size (mm)	Part no.	U	V	W	Weight (g)
20	**YA-020**	5	13.5	42	27
25	**YA-025**	5	16.5	45	34
32, 40	**YA-03**	6	18	56	55
50, 63	**YA-05**	8	22	67	100
80	**YA-08**	10	28	83	195
100	**YA-10**	12	36	100	340

Type B Mounting Bracket



Material: Stainless steel

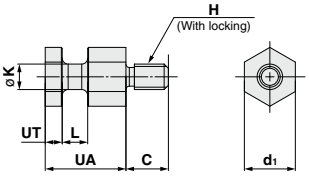
(mm)

Bore size (mm)	Part no.	B	D	E	J	M	O
20	**YB-020**	7	4.5	18	7	25.5	—
25	**YB-025**	7.5	5.5	20	8	28	—
32, 40	**YB-03**	12	7	25	9	34	11.5 depth 7.5
50, 63	**YB-05**	12	9	32	11	42	14.5 depth 8.5
80	**YB-08**	16	11	38	13	52	18 depth 12
100	**YB-10**	19	14	50	17	62	21 depth 14

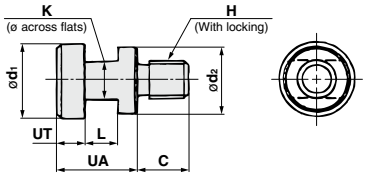
Bore size (mm)	Part no.	T1	T2	V	W	RS	Weight (g)
20	**YB-020**	3.5	6	13.6	36	3	28
25	**YB-025**	3.5	7	16.6	40	3.5	36
32, 40	**YB-03**	6.5	10	18	50	9	80
50, 63	**YB-05**	6.5	12	22	60	11	120
80	**YB-08**	8.5	16	28	75	14	230
100	**YB-10**	10.5	18	36	90	18	455

Joint

YU-020, YU-025



YU-03, YU-05
YU-08, YU-10



Material: Chromium molybdenum steel (Nickel plating)

Applicable bore size (mm)	Part no.	UA	C	d_1	d_2	H	K	L	UT	Weight (g)
20	**YU-020**	11.5	6	10	—	M5 x 0.8	5	4	3	7
25	**YU-025**	12	11	12	—	M6 x 1.0	6	4.5	3	10
32, 40	**YU-03**	17	11	15.8	14	M8 x 1.25	8	7	6	25
50, 63	**YU-05**	17	13	19.8	18	M10 x 1.5	10	7	6	40
80	**YU-08**	22	20	24.8	23	M16 x 2	13	9	8	90
100	**YU-10**	26	26	29.8	28	M20 x 2.5	14	11	10	160

Compact Cylinder with Air Cushion
Long Stroke Type
RQ Series
ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

How to Order

Without auto switch RQ A 32 □ – 300 C □

With auto switch RDQ A 32 □ – 300 C □ – M9BW □

With auto switch magnet ●

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Mounting bracket

A	Through-hole (Standard)
L	Foot type
LC	Compact foot type
F	Rod side flange type
G	Head side flange type
D	Double clevis type

∗ Mounting brackets are packed together when shipped (unassembled).

❷ Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

❸ Thread type

Nil	M thread	ø20, 25
	Rc	ø32 to 100
TN	NPT	
TF	G	

❹ Cylinder stroke (mm)

Bore size	Standard stroke
20, 25	75, 100, 125, 150, 175, 200
32, 40, 50, 63, 80, 100	125, 150, 175, 200, 250, 300

∗ For details on the manufacturing of intermediate strokes ⇒ p. 1053-3

❺ Cushion

C	With rubber bumper

❻ Body option

Nil	Standard (Rod end female thread)
M	Rod end male thread

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) RDQA40-200C

❼ Auto switch

Nil	Without auto switch

∗ Refer to the table below for the applicable auto switch model.

❽ Number of auto switches

Nil	2
S	1
n	n

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Perpendicular	Auto switch model: In-line	Lead wire length (m): 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	**M9NV**	**M9N**	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9PV**	**M9P**	●	●	●	○	—	○		
				2-wire	12 V		**M9BV**	**M9B**	●	●	●	○	—	○	—	
	Diagnostic indicator (2-color indicator)	Grommet		3-wire (NPN)	5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	—	○	IC circuit	
				3-wire (PNP)			**M9PWV**	**M9PW**	●	●	●	○	—	○		
				2-wire	12 V		**M9BWV**	**M9BW**	●	●	●	○	—	○	—	
	Water resistance (2-color indicator)			3-wire (NPN)	5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			**M9PAV**∗1	**M9PA**∗1	○	○	●	○	—	○		
				2-wire	12 V		**M9BAV**∗1	**M9BA**∗1	○	○	●	○	—	○	—	
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)	—		—	**P3DWA**∗∗	●	—	●	●	—	○	—	
Reed auto switch	——	Grommet	Yes	3-wire (NPN equiv.)	—	5 V	—	**A96V**	**A96**	●	—	●	—	—	—	IC circuit	—
			No	2-wire	24 V	12 V	100 V	**A93V**∗2	**A93**	●	●	●	●	—	—	—	Relay, PLC
						5 V, 12 V	100 V or less	**A90V**	**A90**	●	—	●	—	—	—	IC circuit	

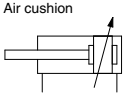
∗1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.
∗2 1 m type lead wire is only applicable to D-A93.

∗ 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
None ····· N (Example) J79CN

∗ Solid state auto switches marked with a "○" are produced upon receipt of order.
∗∗ The D-P3DWA□ is mountable on bore size ø25 to ø100.

∗ Besides the models in the above catalog, there are some other auto switches that are applicable. For more information, refer to page 1056.
∗ Refer to pages 1340 and 1341 for the details of auto switches with a pre-wired connector.
∗ When mounting brackets (foot/flange type) are used, then in some cases auto switches cannot be retrofitted.

Symbol
Air cushion



Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
Lubrication	Not required (non-lube)							
Fluid	Air							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Minimum operating pressure	0.05 MPa							
Ambient and fluid temperature	Without auto switch magnet : –10 to 70°C (No freezing) With auto switch magnet : –10 to 60°C							
Stroke length tolerance	$^{+1.4}_{0}$ Note)							
Cushion	Air cushion, Rubber bumper							
Piston speed	50 to 500 mm/s							

Note) The stroke length tolerance does not include the tolerance of the bumper.

Standard Stroke

Bore size (mm)	Standard stroke (mm)
20, 25	75, 100, 125, 150, 175, 200
32, 40, 50, 63, 80, 100	125, 150, 175, 200, 250, 300

Manufacture of Intermediate Stroke

Description	Exclusive body	
Part no.	Refer to "How to Order" for standard model	
Method	Available in stroke increments of 1mm, using an exclusive body for the specified stroke.	
Stroke range	Bore size	Stroke range
	20, 25	51 to 199
	32, 40, 50, 63, 80, 100	101 to 299
Example	Part no.: RQA32-115DC A special tube is manufactured for a 115 mm stroke.	

Allowable kinetic energy

Refer to "Selection" on page 1057 regarding the allowable kinetic energy.

Effective Cushion Length

Bore size (mm)	20	25	32	40	50	63	80	100
Effective cushion length (mm)	5.8	6.1	6.6	6.6	7.1	7	7.5	8

Mounting Bracket Part No.

Bore size (mm)	Foot Note 1)	Compact foot	Flange	Double clevis
20	CQS-L020	CQS-LC020	CQS-F020	CQS-D020
25	CQS-L025	CQS-LC025	CQS-F025	CQS-D025
32	CQ-L032	CQ-LC032	CQ-F032	CQ-D032
40	CQ-L040	CQ-LC040	CQ-F040	CQ-D040
50	CQ-L050	CQ-LC050	CQ-F050	CQ-D050
63	CQ-L063	CQ-LC063	CQ-F063	CQ-D063
80	CQ-L080	CQ-LC080	CQ-F080	CQ-D080
100	CQ-L100	CQ-LC100	CQ-F100	CQ-D100

Note 1) When ordering foot/compact foot brackets, order 2 pieces per cylinder.
Note 2) The following parts are included with each bracket.
Foot/Compact foot/Flange : Body mounting bolts.
Double clevis: Clevis pins, type C retaining ring for axis, and Body mounting bolts.

Theoretical Output

OUT IN

(N)

Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
20	IN	71	118	165
	OUT	94	157	220
25	IN	113	189	264
	OUT	147	245	344
32	IN	181	302	422
	OUT	241	402	563
40	IN	317	528	739
	OUT	377	628	880
50	IN	495	825	1150
	OUT	589	982	1370
63	IN	841	1400	1960
	OUT	935	1560	2180
80	IN	1360	2270	3170
	OUT	1510	2510	3520
100	IN	2140	3570	5000
	OUT	2360	3930	5500

Weight

Basic Weight

(g)

Bore size (mm)	Standard stroke (mm)							
	75	**100**	**125**	**150**	**175**	**200**	**250**	**300**
20	348	418	488	558	627	697	—	—
25	451	536	622	707	793	878	—	—
32	—	—	726	824	922	1019	1214	1409
40	—	—	925	1036	1146	1256	1476	1697
50	—	—	1442	1607	1772	1936	2266	2596
63	—	—	1737	1923	2108	2294	2665	3036
80	—	—	3008	3302	3597	3892	4481	5071
100	—	—	4560	4958	5357	5755	6553	7350

Additional Weight

(g)

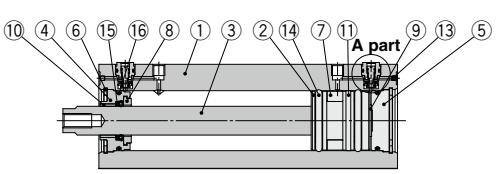
Bore size (mm)		**20**	**25**	**32**	**40**	**50**	**63**	**80**	**100**
Magnet		5	6	11	13	14	22	24	35
Rod end male thread	Male thread	6	12	26	27	53	53	120	175
	Nut	4	8	17	17	32	32	49	116
Foot type (including bolt)		159	181	143	155	243	324	696	1062
Compact foot type (including bolt)		97	116	99	114	177	241	501	770
Rod side flange type (including bolt)		137	171	165	198	348	534	1017	1309
Head side flange type (including bolt)		137	171	165	198	348	534	1017	1309
Double clevis type (including pin, retaining ring and bolt)		92	127	151	196	393	554	1109	1887

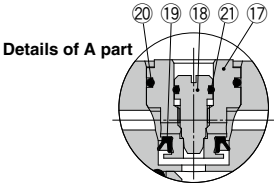
Calculation example) **RDQF32-200CM**

●Basic weight:	RQA32-200C	1019 g
●Additional weight:	Magnet	11 g
	Rod end male thread	43 g
	Rod side flange type	165 g
		1238 g

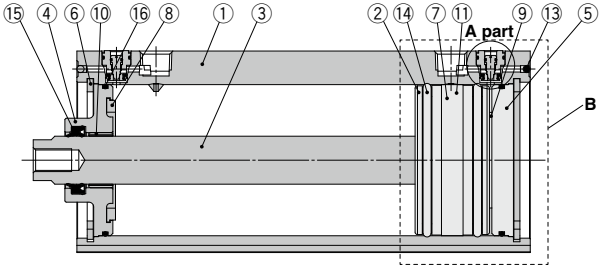
Construction

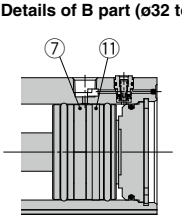
ø20, ø25





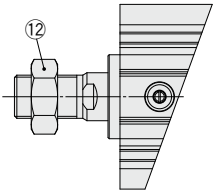
ø32 to ø100





∗ The magnet will only be installed when the magnet for auto switches option is selected.

M: Rod end male thread



Component Parts

No.	Description	Material	Note
1	**Cylinder tube**	Aluminum alloy	Hard anodized
2	**Piston**	Aluminum alloy	
3	**Piston rod**	Stainless steel	ø20, ø25
		Carbon steel	ø32 to ø100 Hard chrome plated
4	**Collar**	Aluminum alloy	Anodized
5	**Bottom plate**	Aluminum alloy	Anodized
6	**Retaining ring**	Carbon tool steel	Phosphate coating
7	**Magnet**	—	With auto switch magnet
8	**Bumper A**	Urethane	
9	**Bumper B**	Urethane	
10	**Bushing**	Bearing alloy	
11	**Wear ring**	Resin	
12	**Rod end nut**	Carbon steel	Zinc chromated
13	**Steel ball**	High carbon chrome bearing steel	
14	**Piston seal**	NBR	
15	**Rod seal**	NBR	
16	**Tube gasket**	NBR	
17	**Check seal retainer**	Brass	Electroless nickel plated
18	**Cushion needle**	Stainless steel	
19	**Check seal**	NBR	
20	**Check gasket**	NBR	
21	**Needle gasket**	NBR	

Replacement Parts/Seal Kit

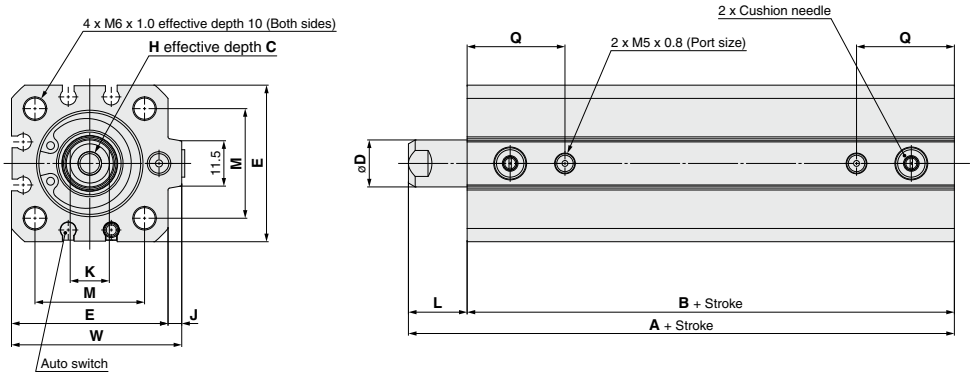
Bore size (mm)	Part no.	Contents
20	RQA20-L-PS	Set of nos. above ⑭, ⑮, ⑯, and a grease pack (GR-S-010)
25	RQA25-L-PS	
32	RQA32-L-PS	
40	RQA40-L-PS	
50	RQA50-L-PS	
63	RQA63-L-PS	Set of nos. above ⑭, ⑮, ⑯, and a grease pack (GR-S-020)
80	RQA80-L-PS	
100	RQA100-L-PS	

∗ Seal kit includes ⑭, ⑮ and ⑯. Order the seal kit, based on each bore size.
∗ The seal kit includes a grease pack.
Order with the following part number when only the grease pack is needed.
Grease pack part number: **GR-S-010** (10 g), **GR-S-020** (20 g), **GR-S-400** (400 g)

Dimensions: ø20, ø25

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.
∗ For the auto switch mounting position and its mounting height, refer to pages 1054 and 1055.

Basic type (Both ends tapped): RQA/RDQA



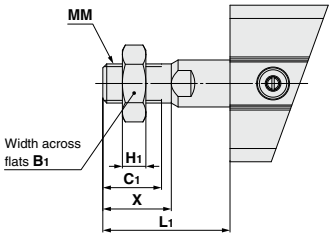
mm

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	H	J	K	L	M	Q	W
20	75 to 200	60.5	46	7	10	36	M5 x 0.8	3	8	14.5	25.5	23	39
25	75 to 200	64.5	49.5	12	12	40	M6 x 1.0	3.5	10	15	28	25	43.5

∗ Refer to page 1052 for details on rod end nut and accessories.

• Add the stroke to calculate the length of intermediate strokes.

Rod end male thread



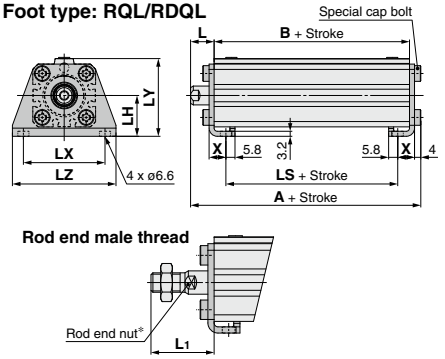
mm

Bore size (mm)	B_1	H_1	C_1	X	MM	L_1
20	13	5	12	14	M8 x 1.25	28.5
25	17	6	15	17.5	M10 x 1.25	32.5

Mounting Bracket Dimensions

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.

Foot type: RQL/RDQL



Foot Type

mm

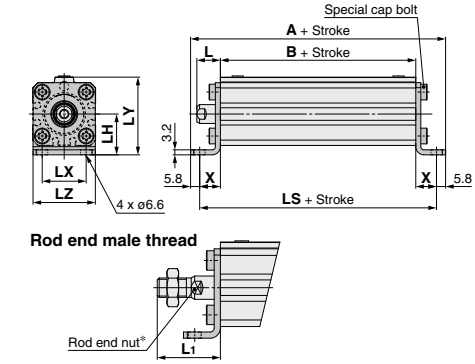
Bore size (mm)	Stroke range (mm)	A	B	LS	L
20	75 to 200	67.7	46	34	14.5
25	75 to 200	71.7	49.5	34.5	15

mm

Bore size (mm)	L1	LH	LX	LY	LZ	X
20	28.5	24	48	45	62	9.2
25	32.5	26	52	49.5	66	10.7

Foot bracket material: Carbon steel
Surface treatment: Nickel plated

Compact foot type: RQLC/RDQLC



Compact Foot Type

mm

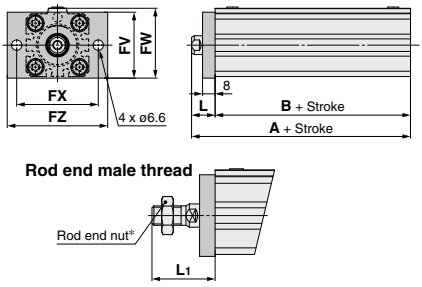
Bore size (mm)	Stroke range (mm)	A	B	LS	L
20	75 to 200	84	46	72.4	14.5
25	75 to 200	87.5	49.5	75.9	15

mm

Bore size (mm)	L1	LH	LX	LY	LZ	X
20	28.5	24	25.5	45	36	13.2
25	32.5	26	28	49.5	40	13.2

Foot bracket material: Carbon steel
Surface treatment: Zinc chromated

Rod side flange type: RQF/RDQF



Rod Side Flange Type

mm

Bore size (mm)	Stroke range (mm)	A	B	L
20	75 to 200	60.5	46	14.5
25	75 to 200	64.5	49.5	15

mm

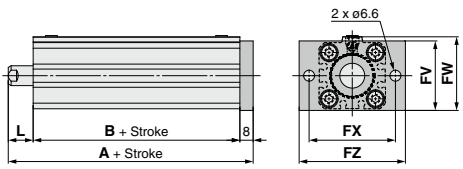
Bore size (mm)	L1	FV	FW	FX	FZ
20	28.5	39	40.5	48	60
25	32.5	42	44.5	52	64

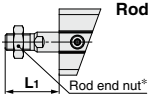
Flange material: Carbon steel
Surface treatment: Nickel plated

Mounting Bracket Dimensions

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.

Head side flange type: RQG/RDQG





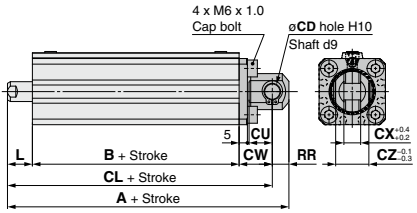
Head side flange type mm

Bore size (mm)	Stroke range (mm)	A
20	75 to 200	68.5
25	75 to 200	72.5

Flange material: Carbon steel
Surface treatment: Nickel plated

* All dimensions but A are identical to those of the rod side flange type.

Double clevis type: RQD/RDQD



Double clevis type mm

Bore size (mm)	Stroke range (mm)	A	B	CL	CD	CU
20	75 to 200	87.5	46	78.5	8	12
25	75 to 200	94.5	49.5	84.5	10	14

mm

Bore size (mm)	CW	CX	CZ	L	L1	RR
20	18	8	16	14.5	28.5	9
25	20	10	20	15	32.5	10

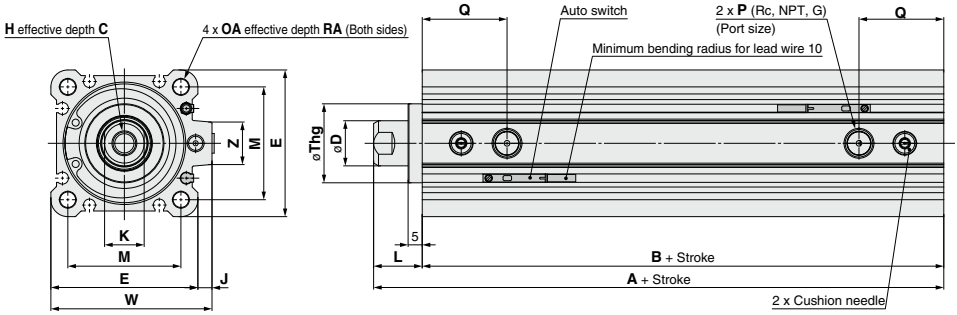
* Double clevis pins and retaining rings are included in the package.
* Refer to pages 1052 to 1053-1 for details on the rod end nut, and accessories.

Double clevis bracket material: Carbon steel
Surface treatment: Nickel plated

Dimensions: ø32, ø40, ø50

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.
∗ For the auto switch mounting position and its mounting height, refer to pages 1054 and 1055.

Basic type (Both ends tapped): RQA/RDQA



mm

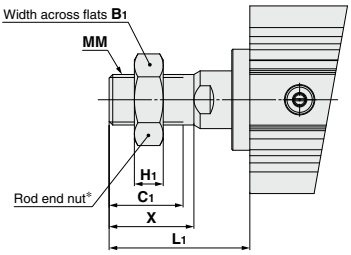
Bore size (mm)	Stroke range (mm)	A	B	C	D	E	H	J	K	L	M
32	125 to 300	67	50	13	16	45	M8 x 1.25	4.5	14	17	34
40	125 to 300	76.5	59.5	13	16	52	M8 x 1.25	5	14	17	40
50	125 to 300	80.5	62.5	15	20	64	M10 x 1.5	7	17	18	50

mm

Bore size (mm)	OA	P	Q	RA	Th9	W	Z
32	M6 x 1.0	1/8	25	10	$22^{0}_{-0.052}$	49.5	14
40	M6 x 1.0	1/8	30	10	$28^{0}_{-0.052}$	57	15
50	M8 x 1.25	1/4	32.5	14	$35^{0}_{-0.062}$	71	19

• Add the stroke to calculate the length of intermediate strokes.

Rod end male thread



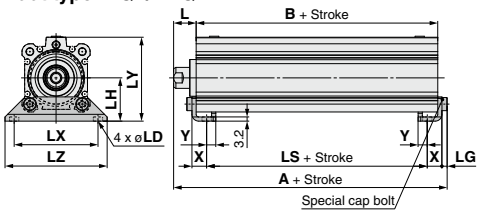
mm

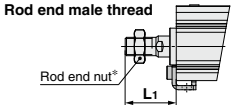
Bore size (mm)	B_1	H_1	C_1	X	MM	L_1
32	22	8	20.5	23.5	M14 x 1.5	38.5
40	22	8	20.5	23.5	M14 x 1.5	38.5
50	27	11	26	28.5	M18 x 1.5	43.5

Mounting Bracket Dimensions

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.

Foot type: RQL/RDQL





Foot Type

mm

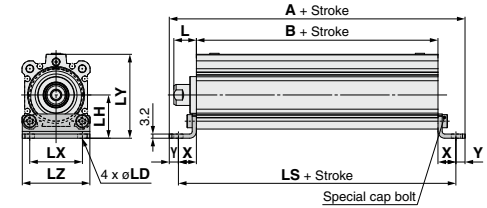
Bore size (mm)	Stroke range (mm)	A	B	LS	L	L1	LD
32	125 to 300	74.2	50	34	17	38.5	6.6
40	125 to 300	83.7	59.5	43.5	17	38.5	6.6
50	125 to 300	88.7	62.5	39.5	18	43.5	9

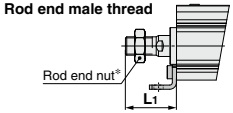
mm

Bore size (mm)	LG	LH	LX	LY	LZ	X	Y
32	4	30	57	57	71	11.2	5.8
40	4	33	64	64	78	11.2	7
50	5	39	79	78	95	14.7	8

Foot bracket material: Carbon steel
Surface treatment: Nickel plated

Compact foot type: RQLC/RDQLC





Compact Foot Type

mm

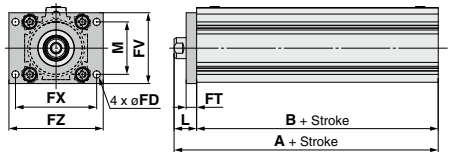
Bore size (mm)	Stroke range (mm)	A	B	LS	L	L1	LD
32	125 to 300	89	50	77.4	17	38.5	6.6
40	125 to 300	100.9	59.5	86.9	17	38.5	6.6
50	125 to 300	111.9	62.5	95.9	18	43.5	9

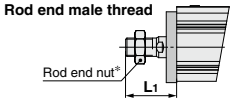
mm

Bore size (mm)	LH	LX	LY	LZ	X	Y
32	30	34	57	45	13.7	5.8
40	33	40	64	52	13.7	7
50	39	50	78	64	16.7	8

Foot bracket material: Carbon steel
Surface treatment: Zinc chromated

Rod side flange type: RQF/RDQF





Rod Side Flange Type

mm

Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV
32	125 to 300	67	50	5.5	8	48
40	125 to 300	76.5	59.5	5.5	8	54
50	125 to 300	80.5	62.5	6.6	9	67

mm

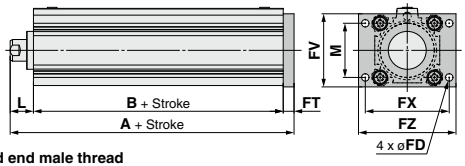
Bore size (mm)	FX	FZ	L	L1	M
32	56	65	17	38.5	34
40	62	72	17	38.5	40
50	76	89	18	43.5	50

Flange material: Carbon steel
Surface treatment: Nickel plated

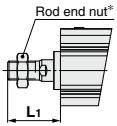
Mounting Bracket Dimensions

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.

Head side flange type: RQG/RDQG



Rod end male thread



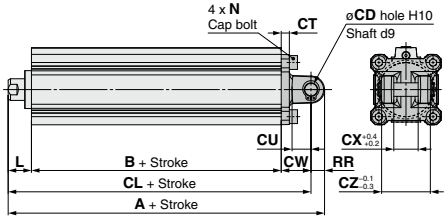
Head side flange type mm

Bore size (mm)	Stroke range (mm)	A
32	125 to 300	75
40	125 to 300	84.5
50	125 to 300	89.5

Flange material: Carbon steel
Surface treatment: Nickel plated

* All dimensions but A are identical to those of the rod side flange type.

Double clevis type: RQD/RDQD



Double clevis type mm

Bore size (mm)	Stroke range (mm)	A	B	CL	CD	CT	CU
32	125 to 300	97	50	87	10	5	14
40	125 to 300	108.5	59.5	98.5	10	6	14
50	125 to 300	122.5	62.5	108.5	14	7	20

mm

Bore size (mm)	CW	CX	CZ	L	L1	N	RR
32	20	18	36	17	38.5	M6 x 1.0	10
40	22	18	36	17	38.5	M6 x 1.0	10
50	28	22	44	18	43.5	M8 x 1.25	14

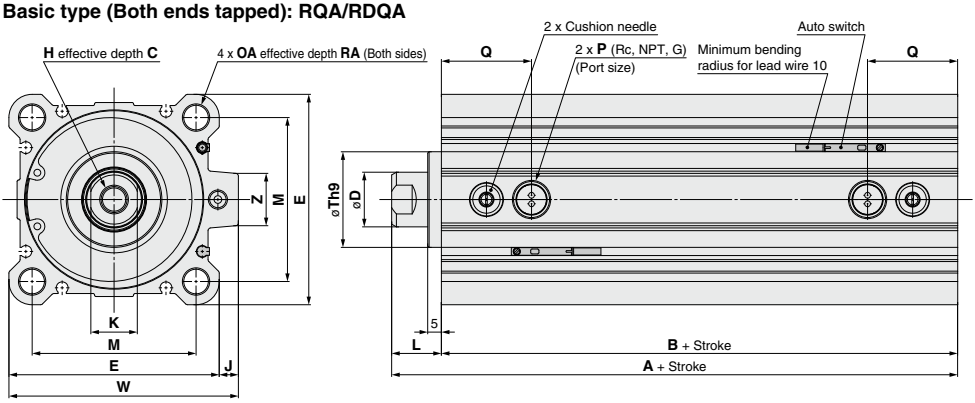
* Double clevis pins and retaining rings are included in the package.
* Refer to pages 1052 to 1053-1 for details on the rod end nut, and accessories.

Double clevis bracket material: Cast iron
Surface treatment: Painted

Dimensions: ø63, ø80, ø100

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.
∗ For the auto switch mounting position and its mounting height, refer to pages 1054 and 1055.

Basic type (Both ends tapped): RQA/RDQA



mm

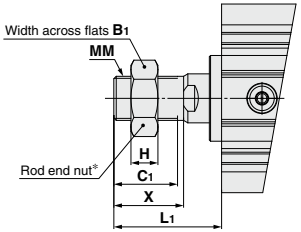
Bore size (mm)	Stroke range (mm)	A	B	C	D	E	H	J	K	L	M
63	125 to 300	82	64	15	20	77	M10 x 1.5	7	17	18	60
80	125 to 300	95	75	21	25	98	M16 x 2.0	6	22	20	77
100	125 to 300	108.5	86.5	27	30	117	M20 x 2.5	6.5	27	22	94

mm

Bore size (mm)	OA	P	Q	RA	Th9	W	Z
63	M10 x 1.5	1/4	33	18	$35^{0}_{-0.062}$	84	19
80	M12 x 1.75	3/8	39	22	$43^{0}_{-0.062}$	104	25
100	M12 x 1.75	3/8	45	22	$59^{0}_{-0.074}$	123.5	25

• Add the stroke to calculate the length of intermediate strokes.

Rod end male thread



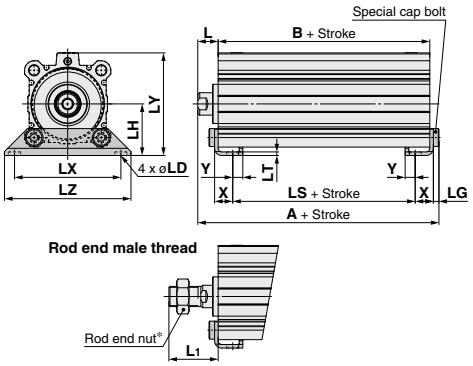
mm

Bore size (mm)	B1	H1	C1	X	MM	L1
63	27	11	26	28.5	M18 x 1.5	43.5
80	32	13	32.5	35.5	M22 x 1.5	53.5
100	41	16	32.5	35.5	M26 x 1.5	53.5

Mounting Bracket Dimensions

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.

Foot type: RQL/RDQL



Foot Type

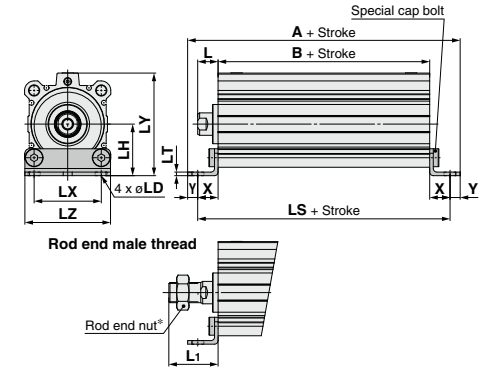
mm

Bore size (mm)	Stroke range (mm)	A	B	LS	L	L1	LD	LG	LH	LT
63	125 to 300	90.2	64	38	18	43.5	11	5	46	3.2
80	125 to 300	106.5	75	45	20	53.5	13	7	59	4.5
100	125 to 300	121.5	86.5	52.5	22	53.5	13	7	71	6

Bore size (mm)	LX	LY	LZ	X	Y
63	95	91.5	113	16.2	9
80	118	114	140	19.5	11
100	137	136	162	23	12.5

Foot bracket material: Carbon steel
Surface treatment: Nickel plated

Compact foot type: RQLC/RDQLC



Compact Foot Type

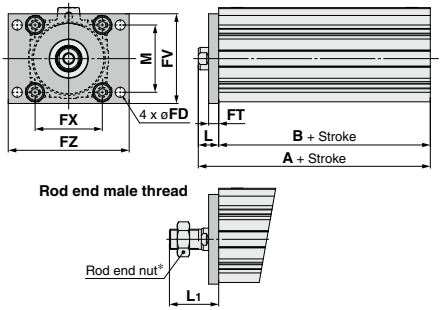
mm

Bore size (mm)	Stroke range (mm)	A	B	LS	L	L1	LD	LH	LT
63	125 to 300	118.4	64	100.4	18	43.5	11	46	3.2
80	125 to 300	142	75	120	20	53.5	13	59	4.5
100	125 to 300	159.5	86.5	134.5	22	53.5	13	71	6

Bore size (mm)	LX	LY	LZ	X	Y
63	60	91.5	77	18.2	9
80	77	114	98	22.5	11
100	94	136	117	24	12.5

Foot bracket material: Carbon steel
Surface treatment: Zinc chromated

Rod side flange type: RQF/RDQF



Rod Side Flange Type

mm

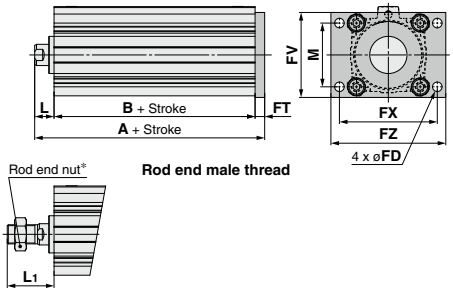
Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV	FX	FZ	L	L1	M
63	125 to 300	82	64	9	9	80	92	108	18	43.5	60
80	125 to 300	95	75	11	11	99	116	134	20	53.5	77
100	125 to 300	108.5	86.5	11	11	117	136	154	22	53.5	94

Flange material: Carbon steel
Surface treatment: Nickel plated

Mounting Bracket Dimensions

The dimensions remain the same regardless of the selection of a magnet in the "How to order" section.

Head side flange type: RQG/RDQG



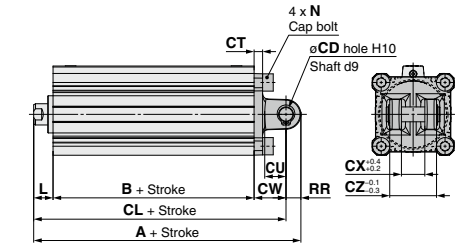
Head side flange type mm

Bore size (mm)	Stroke range (mm)	A
63	125 to 300	91
80	125 to 300	106
100	125 to 300	119.5

Flange material: Carbon steel
Surface treatment: Nickel plated

* All dimensions but A are identical to those of the rod side flange type.

Double clevis type: RQD/RDQD



Double clevis type mm

Bore size (mm)	Stroke range (mm)	A	B	CL	CD	CT	CU	CW	CX	CZ	L
63	125 to 300	126	64	112	14	8	20	30	22	44	18
80	125 to 300	151	75	133	18	10	27	38	28	56	20
100	125 to 300	175.5	86.5	153.5	22	13	31	45	32	64	22

Bore size (mm)	L1	N	RR
63	43.5	M10 x 1.5	14
80	53.5	M12 x 1.75	18
100	53.5	M12 x 1.75	22

* Double clevis pins and retaining rings are included in the package.
* Refer to pages 1052 to 1053-1 for details on the rod end nut, and accessories.

Double clevis bracket material: Cast iron
Surface treatment: Painted

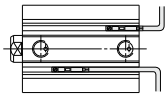
Auto Switch Mounting 1

Minimum Auto Switch Mounting Stroke

(mm)

No. of auto switch mounted	D-M9□ D-M9□A D-M9□V D-M9□AV D-M9□W D-A9□ D-M9□WV D-A9□V	D-A7□/A80 D-F7□V D-A73C/A80C D-J79C D-A7□H/A80H D-F7□WV D-F7□/J79 D-F7BAV	D-A79W	D-F7□W D-F7NT D-J79W D-F79F D-F7BA	D-P3DWA
1 pc.	15	15	15	20 (15)	15
2 pcs.	15	15	20	20	15

Note) The dimension stated in ( ) shows the minimum mountable stroke when the auto switch does not project from the end face of the cylinder body and the lead wire bending space is not hindered. (Refer to the figure on the right.) Order auto switches and auto switch mounting brackets separately.

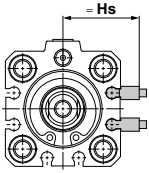


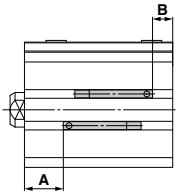
Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

ø20/ø25

D-M9□
D-M9□W
D-M9□A
D-A9□

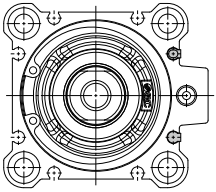
D-M9□V
D-M9□WV
D-M9□AV
D-A9□V



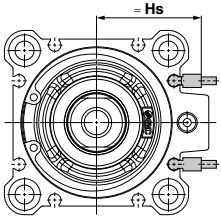


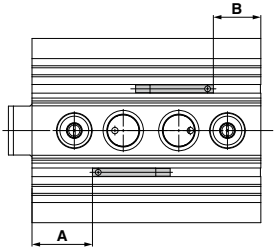
ø32 to ø100

D-M9□
D-M9□W
D-M9□A
D-A9□



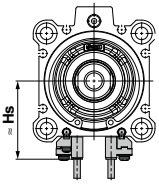
D-M9□V
D-M9□WV
D-M9□AV
D-A9□V

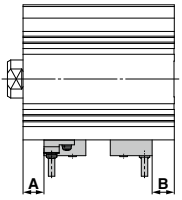




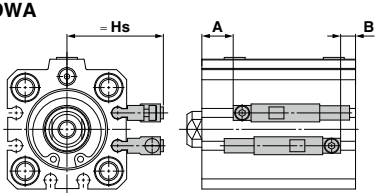
ø32 to ø100

D-A7□ **D-F7NT**
D-A80 **D-F7BA**
D-A7□H **D-A73C**
D-A80H **D-A80C**
D-F7□ **D-J79C**
D-J79 **D-A79W**
D-F7□W **D-F7□V**
D-J79W **D-F7□WV**
D-F79F **D-F7BAV**

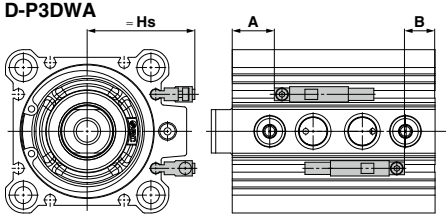




ø25
D-P3DWA



ø32 to ø100
D-P3DWA



Proper Auto Switch Mounting Position

Applicable cylinder series: RDQ (Standard stroke)

(mm)

Auto switch model / Bore size	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C/F7□ D-F79F/J79/F7□V D-J79C/F7□W D-J79W/F7□WV D-F7BAV/F7BA		D-F7NT		D-A79W		D-P3DWA	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
20	13.5	7	9.5	3	—	—	—	—	—	—	—	—	—	—
25	15	9.5	11	5.5	—	—	—	—	—	—	—	—	10.5	5
32	16.5	8.5	12.5	4.5	13.5	5.5	14	6	19	11	11	3	12	4
40	21	11	17	7	18	8	18.5	8.5	23.5	13.5	15.5	5.5	16.5	6.5
50	21	16.5	17	12.5	18	13.5	18.5	14	23.5	19	15.5	11	16.5	12
63	23.5	19.5	19.5	15.5	20.5	16.5	21	17	26	22	18	14	19	15
80	28.5	23	24.5	19	25.5	20	26	20.5	31	25.5	23	17.5	24	18.5
100	35	29	31	25	32	26	32.5	26.5	37.5	31.5	29.5	23.5	30.5	24.5

Applicable cylinder series: RDQ (Long stroke)

(mm)

Auto switch model / Bore size	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C/F7□ D-F79F/J79/F7□V D-J79C/F7□W D-J79W/F7□WV D-F7BAV/F7BA		D-F7NT		D-A79W		D-P3DWA	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
20	15.5	18	11.5	14	—	—	—	—	—	—	—	—	—	—
25	17	20	13	16	—	—	—	—	—	—	—	—	12.5	15.5
32	17	21	13	17	14	18	14.5	18.5	19.5	23.5	11.5	15.5	12.5	16.5
40	21.5	26	17.5	22	18.5	23	19	23.5	24	28.5	16	20.5	17	21.5
50	21	29	17	25	18	26	18.5	26.5	23.5	31.5	15.5	23.5	16.5	24.5
63	25.5	26.5	21.5	22.5	22.5	23.5	23	24	28	29	20	21	21	22
80	30.5	32	26.5	28	27.5	29	28	29.5	33	34.5	25	26.5	26	27.5
100	36.5	37.5	32.5	33.5	33.5	34.5	34	35	39	40	31	32	32	33

Note) Adjust the auto switch after confirming the operating condition in the actual setting.

Auto Switch Mounting Height

(mm)

Auto switch model / Bore size	D-M9□V D-M9□WV D-M9□AV	D-A9□V	D-A7□ D-A80	D-F7□/J79 D-F7□W/J79W D-F7BA/F79F D-F7NT D-A7□H/A80H
	Hs	Hs	Hs	Hs
20	24.5	22.5	—	—
25	26.5	24.5	—	—
32	30	27.5	34	36
40	32	30	37.5	38
50	37.5	35	43	43.5
63	42.5	40.5	48	48.5
80	51	49	56.5	57
100	59	57	64.5	65.5

(mm)

Auto switch model / Bore size	D-F7□V D-F7□WV	D-J79C	D-A73C D-A80C	D-A79W	D-P3DWA
	Hs	Hs	Hs	Hs	Hs
20	—	—	—	—	—
25	—	—	—	—	33
32	36.5	39.5	40.5	37.5	35.5
40	40	42.5	43.5	40.5	38
50	45	48	49	46	43
63	50.5	53.5	54.5	51.5	48
80	59	61.5	62.5	49.5	56.5
100	67	70	71	68	65

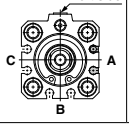
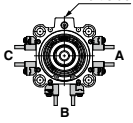
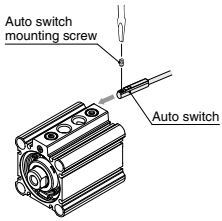
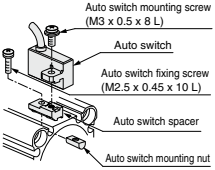
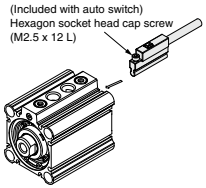
Operating Range

(mm)

Auto switch model	Bore size							
	20	25	32	40	50	63	80	100
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	5.5	6	6	6	7	9.5	10	11
D-A9□/A9□V	10	10	9.5	9.5	9.5	12	9	12
D-A73/A80 D-A7□H/A80H D-A73C/A80C	—	—	12	11	10	12	12	13
D-A79W	—	—	6	14	14	16	15	17
D-F7□/F7□V D-J79/J79C/J79W D-F7□W/F7□WV D-F79F/F7BA D-F7BAV/F7NT	—	—	13	6	6	6.5	6.5	7
D-P3DWA	—	6	6	6	6	8.5	9	9

Auto Switch Mounting 2

Auto Switch Mounting Bracket/Part No.

Applicable auto switch	**D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV D-A9□/A9□V**	**D-F7□/F7□V/J79/J79C/F7□W/J79W/F7□WV D-F7BA/F7BAV/F79F/F7NT D-A7□/A80/A7□H/A80H/A73C/A80C/A79W**	**D-P3DWA**
Bore size (mm)	**ø20 to ø100**	**ø32 to ø100**	**ø25 to ø100**
Auto switch mounting bracket part no.	—	BQ5-032	—
Auto switch mounting bracket fitting parts lineup/Weight	—	• Auto switch fixing screw (M2.5 x 10 L) • Auto switch mounting screw (M3 x 8 L) • Auto switch spacer • Auto switch mounting nut Weight: 3.5 g	—
Auto switch mounting surface	Surfaces with auto switch mounting slot **ø20, ø25** Port side  **ø32 to ø100** 	A/B/C side except port side Port side 	Surfaces with auto switch mounting slot Port side 
Mounting of auto switch	 • When tightening an auto switch mounting screw, use a watchmaker's screwdriver with a handle diameter of 5 to 6 mm. **Tightening torque for auto switch mounting screw** [N·m] Auto switch model / Tightening torque **D-M9□(V), D-M9□W(V), D-A9□(V)**: 0.05 to 0.15 **D-M9□A(V)**: 0.05 to 0.10	① Insert the nut into the auto switch mounting slot on the cylinder tube, and place it in the roughly estimated setting position. ② With the lower tapered part of the auto switch spacer facing the outside of the cylinder tube, line up the M2.5 through hole with the M2.5 female thread of the auto switch mounting nut. ③ Gently screw the auto switch mounting nut fixing screw (M2.5) into the thread of the auto switch mounting nut through the mounting hole. ④ Engage the ridge on the auto switch mounting arm with the recess in the auto switch spacer. ⑤ Tighten the auto switch mounting screw (M3) to fix the auto switch. The tightening torque of the M3 screw must be 0.35 to 0.45 N·m. ⑥ Confirm where the mounting position is, and tighten the auto switch fixing screw (M2.5) to fix the auto switch mounting nut. The tightening torque of the M2.5 screw must be 0.25 to 0.35 N·m. ⑦ The detection position can be changed under the conditions in step ⑤. 	① Insert the mounting bracket into the mating groove of the cylinder tube. ② Check the detecting position of the auto switch and fix the auto switch firmly with the hexagon socket head cap screw (M2.5 x 12 L). ③ If the detecting position is changed, go back to step ①. ∗ Ensure that the auto switch is covered with the mating groove to protect the auto switch. ∗ The tightening torque for the hexagon socket head cap screw (M2.5 x 12 L) is 0.2 to 0.3 N·m. 

∗ Auto switch mounting bracket and auto switch are enclosed with the cylinder for shipment.
For an environment that needs the water-resistant auto switch, select the D-M9□A(V) type.
Auto switch mounting bracket for the D-F7BA(V) type uses BQ5-032 normal specifications (metal screw).
∗ D-A7/A8/F7/J7 types cannot be mounted on ø20 and ø25.

Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted.

Other Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Model	Electrical entry (Fetching direction)	Features
Reed auto switch	D-A73, A72	Grommet (Perpendicular)	—
	D-A80		Without indicator light
	D-A73H, A72H, A76H	Grommet (In-line)	—
	D-A80H		Without indicator light
	D-A79W		Diagnostic indication (2-color indicator)
	D-A73C	Connector (Perpendicular)	—
	D-A80C		Without indicator light

Type	Model	Electrical entry (Fetching direction)	Features
Solid state auto switch	D-F7NV, F7PV, F7BV	Grommet (Perpendicular)	—
	D-F7NWV, F7BWV		Diagnostic indication (2-color indicator)
	D-F7BAV		Water resistance (2-color indicator)
	D-F79, F7P, J79	Grommet (In-line)	—
	D-F79W, F7PW, J79W		Diagnostic indication (2-color indicator)
	D-F7BA		Water resistance (2-color indicator)
	D-F7NT		With timer
	D-F79F		With diagnostic output (2-color indicator)
	D-J79C	Connector (Perpendicular)	—

∗ For solid state auto switches, auto switches with a pre-wired connector are also available. Refer to pages 1340 and 1341 for details.
∗ Normally closed (NC = b contact) solid state auto switches (D-M9□E(V)) are also available. Refer to page 1290 for details.
∗ D-A7/A8/F7/J7 types cannot be mounted on ø20 and ø25.

RQ Series
Specific Product Precautions

Be sure to read this before handling the products. For safety instructions as well as actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" of each product on the SMC website: https://www.smcworld.com

Installation and Removal of Retaining Ring

⚠ Caution

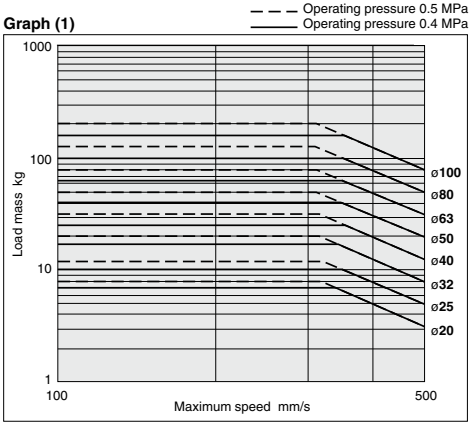
1. **Use appropriate pliers (Type C retaining ring installing tool) for installation and removal.**
2. **Even when using appropriate pliers (Type C retaining ring installing tool), proceed with caution as there is a danger of the retaining ring flying off the end of the pliers (Type C retaining ring installing tool) and causing human injury or damage to nearby equipment. After installation, confirm that the retaining ring is securely seated into the retaining ring groove before supplying air.**

Selection

⚠ Caution

1. **Operate the cylinder to the stroke end.**
   When the stroke is restricted by an external stopper or a clamped work piece, satisfactory cushioning and noise reduction may not be achieved.
2. **Strictly observe the limiting ranges for load mass and maximum speed (Graph (1)). Also, the limiting ranges are based on operation of the cylinder to the stroke end and proper adjustment of the cushion needle.**
   If operated beyond the limiting ranges, excessive impact will occur and this may cause damage to equipment.

Graph (1)



3. **Adjust the cushion needle to reduce excessive kinetic energy from the piston impact at the stroke end by absorbing enough kinetic energy during the cushion stroke.**
   If the piston impacts the stroke end with excessive kinetic energy (values in Table 1 or more), an excessive impact will occur and this may cause damage to equipment.

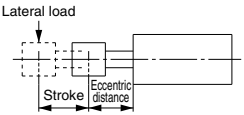
Table (1) Allowable Kinetic Energy At Piston Impact Unit: [J]

Bore size		ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Piston speed		50 to 500 mm/s							
Allowable kinetic energy	Standard stroke	0.055	0.09	0.15	0.26	0.46	0.77	1.36	2.27
	Long stroke	0.11	0.18	0.29	0.52	0.91	1.54	2.71	4.54

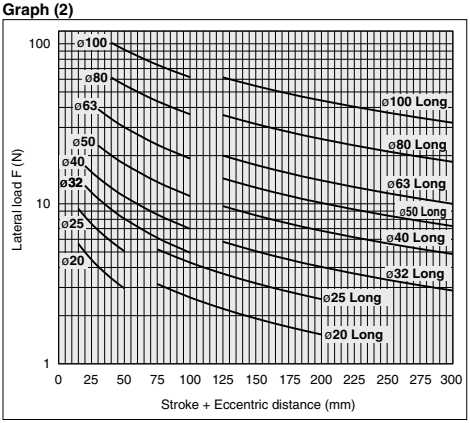
Selection

⚠ Caution

4. **Strictly observe the limiting ranges for the piston rod lateral load (Graph (2)).**
   If operated beyond the limiting ranges, this may cause the equipment life to be reduced or damage to equipment may occur.



Graph (2)



Cushion Needle Adjustment

⚠ Caution

1. **Readjust with a Cushion Needle**
   When the product is shipped, the cushion needle is open 1/4 to 1/2 turn from the fully closed position. Readjust the position depending on the load or operating speed before using.
   Note that the needle must be fully closed first, and then gradually reopened when adjusting.
2. **Keep the adjustment range for the cushion needle between the closed position and the rotations shown below.**

	Rotations
ø20 to ø100	2.5 rotations or less

Use a 3 mm flat head watchmakers screw driver to adjust the cushion needle. The adjustment range for the cushion needle must be between the closed position and the open position ranges above. A retaining mechanism prevents the cushion needle from coming out, however, it may spring out during operation if it is rotated beyond the ranges shown above.