

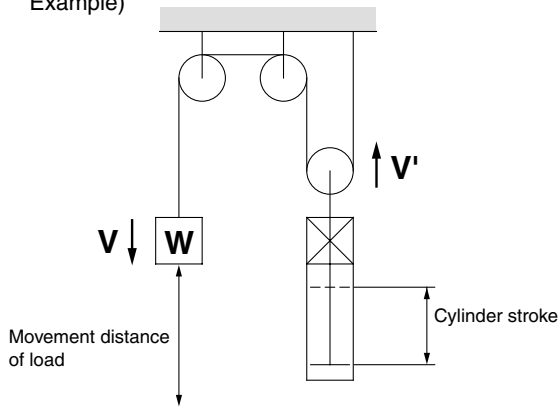
Series CNA Model Selection

Precautions on Model Selection

⚠ Caution

1. In order that the originally selected maximum speed is not exceeded, be certain to use a speed controller to adjust the total movement distance of the load so that movement takes place in no less than the applicable movement time. The movement time is the time that is necessary for the load to travel the total movement distance from the start without any intermediate stops.
2. In cases where the cylinder stroke and the movement distance of the load are different (double speed mechanism, etc.), use the movement distance of the load for selection purposes.

Example)



Selection Example

- Load weight: $m = 50 \text{ kg}$
- Movement distance: $st = 500 \text{ mm}$
- Movement time: $t = 2 \text{ s}$
- Load condition: Vertical downward = Load in direction of rod extension
- Operating pressure: $P = 0.4 \text{ MPa}$

Step (1): From graph (1) find the maximum movement speed of the load.

\therefore Maximum speed $V \cong 350 \text{ mm/s}$

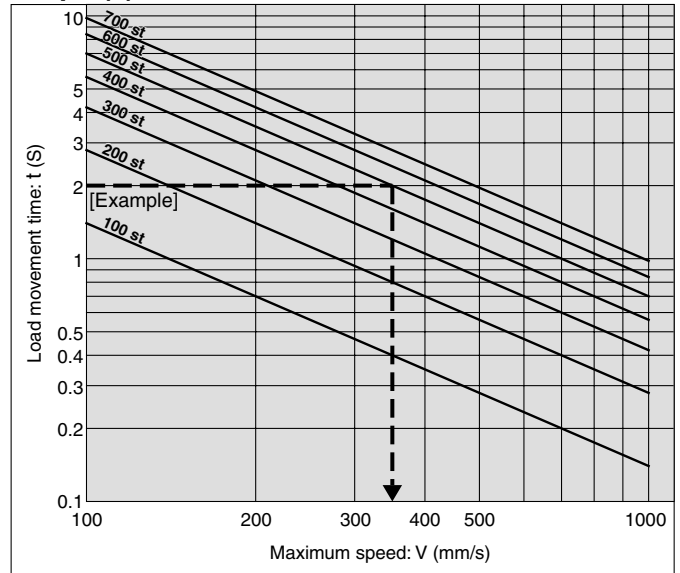
Step (2): Select graph (6) based upon the load conditions and operating pressure, and then from the intersection of the maximum speed $V = 350 \text{ mm/s}$ found in Step (1), and the load weight $m = 50 \text{ kg}$.

$\therefore \phi 63 \rightarrow$ Decided the tube I.D. CNA63 or more.

Step (1) Find the maximum load speed V.

Find the maximum load speed: V (mm/s) from the load movement time: t (s) and the movement distance: st (mm).

Graph (1)



Step (2) Find the bore size.

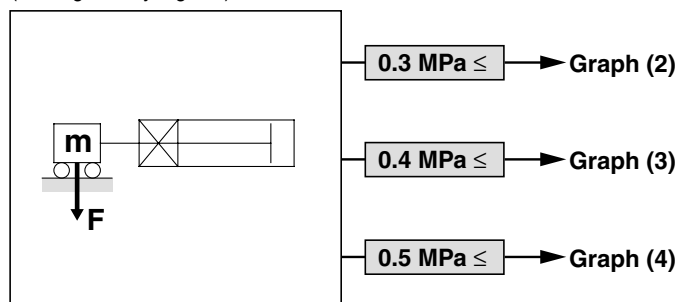
Select a graph based upon the load condition and operating pressure, and then find the point of intersection for the maximum speed found in Step (1) and the load weight. Select the bore size on the line above the point of intersection.

Load Condition

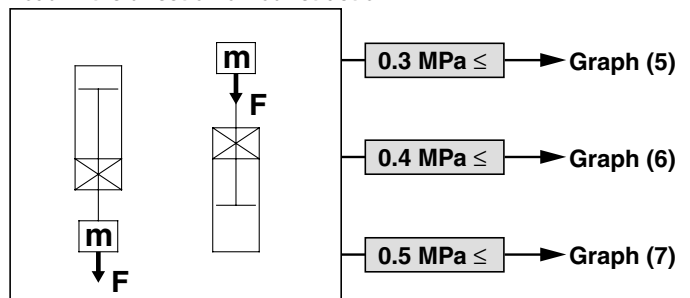
Operating Pressure

Load in the direction at the right angle to rod

(* Being held by a guide)



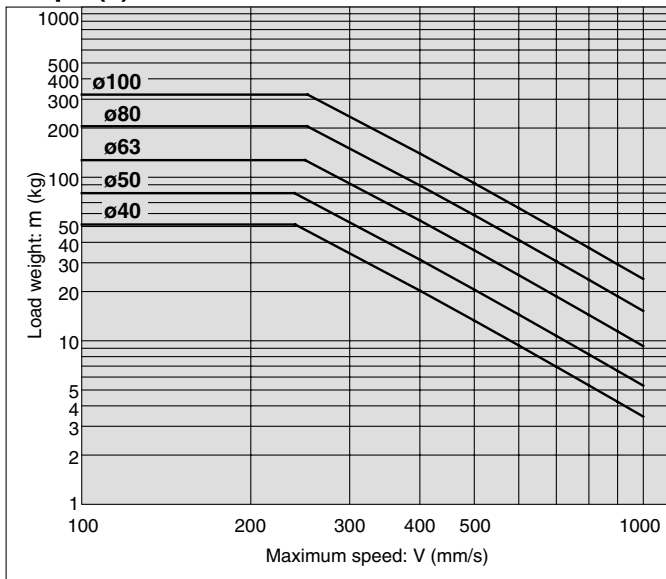
Load in the direction of rod extension
Load in the direction of rod retraction



Selection Graph

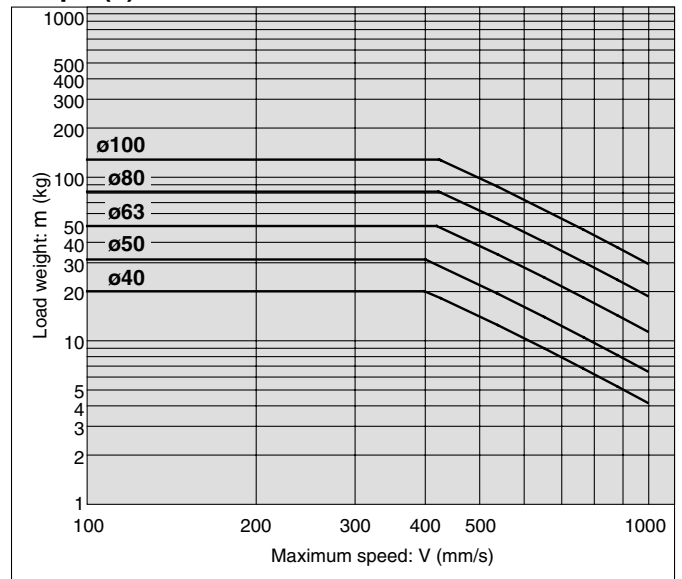
Graph (2)

$0.3 \text{ MPa} \leq P < 0.4 \text{ MPa}$



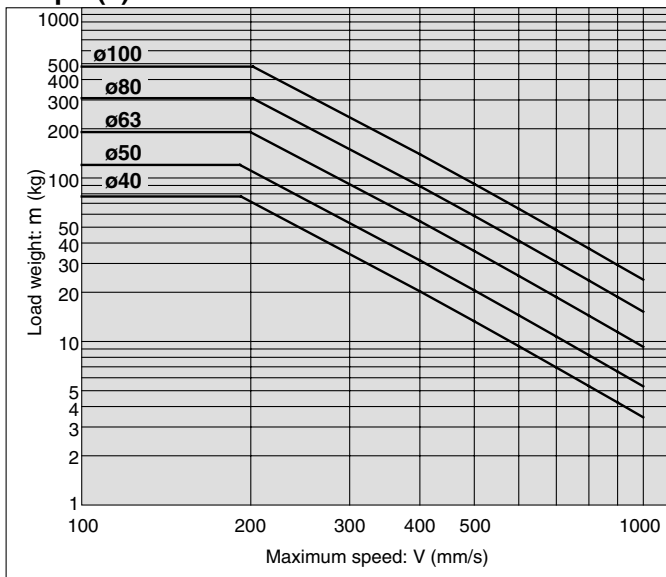
Graph (5)

$0.3 \text{ MPa} \leq P < 0.4 \text{ MPa}$



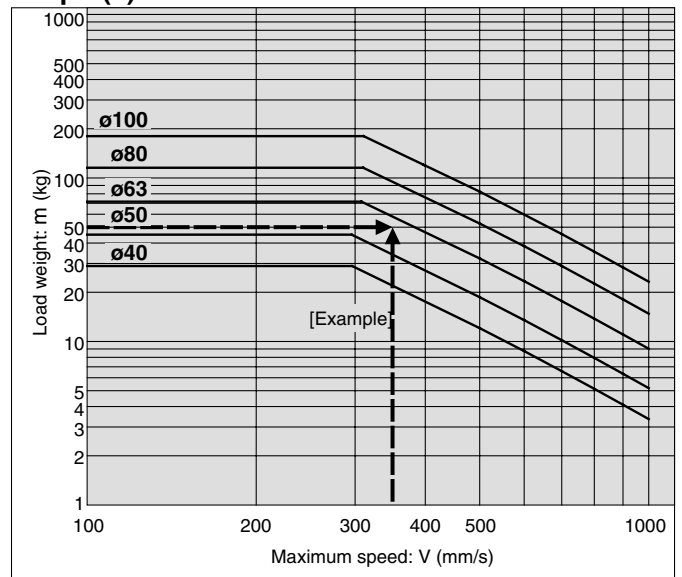
Graph (3)

$0.4 \text{ MPa} \leq P < 0.5 \text{ MPa}$



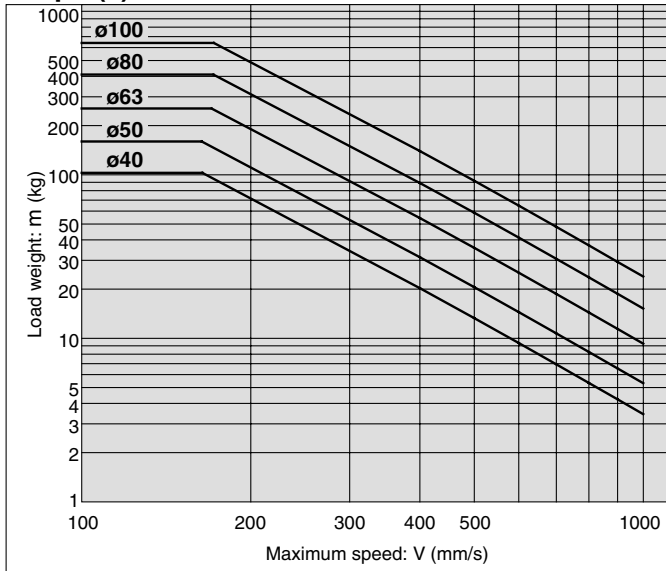
Graph (6)

$0.4 \text{ MPa} \leq P < 0.5 \text{ MPa}$



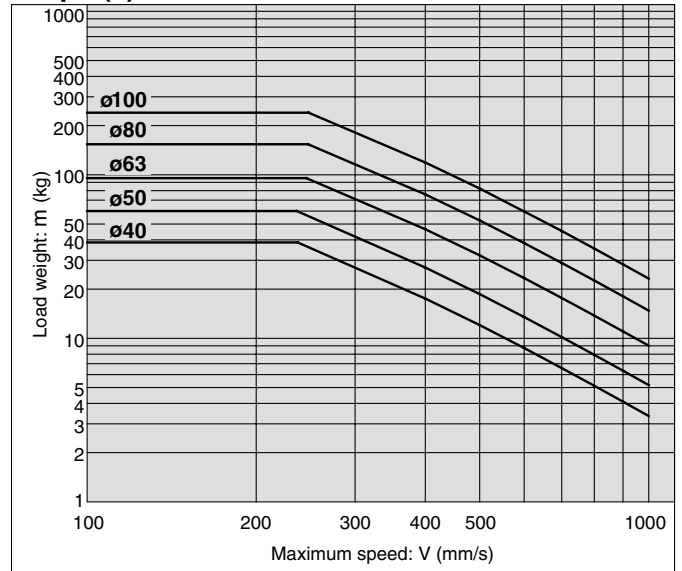
Graph (4)

$0.5 \text{ MPa} \leq P$



Graph (7)

$0.5 \text{ MPa} \leq P$



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Data

Cylinder with Lock

Double Acting, Single Rod

Series CNA

ø40, ø50, ø63, ø80, ø100

How to Order

Without auto switch

With auto switch

CNA L N 50 [] 100 JN D

CDNA L N 50 [] 100 JN D [] []

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Built-in magnet

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
G	Head side flange style
C	Single clevis style
D	Double clevis style
T	Center trunnion style

Type

N	Non-lube
F*	Steel tube

* Auto switches are not available with steel tube.

Bore size

40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Thread type

Nil	Rc
N	NPT

Locking direction

D	Both directions
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Auto switch

Nil	Without auto switch
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* For the applicable auto switch model, refer to the table below.

* DZ7□/Z80/Y59□/Y69□/Y7□□ types are shipped together, (but not assembled). (But, only the mounting bracket for the above models is assembled when shipping.)

With rod boot/cushion

Rod boot	J	Nylon tarpaulin
	K	Heat resistant tarpaulin
Cushion	Nil	With cushion on both ends
	N	Without cushion
	R	With rod bumper
	H	With head cushion

Built-in Magnet Cylinder Model

In the case of built-in magnet without auto switch, the symbol for auto switch is "Nil". (Example) CDNALN40-100-D

Cylinder stroke (mm)
Refer to "Standard Stroke" on page 9-7-9.

Applicable Auto Switch/Refer to page 9-15-1 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length(m)*			Pre-wire connector	Applicable load		
					DC	AC	Tie-rod mounting	Band mounting	0.5 (Nil)	3 (L)	5 (Z)				
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	Z76	—	●	●	—	—	IC circuit	—
								Z73	—	●	●	●	—	—	Relay, PLC
								—	B53	●	●	●	—		PLC
								100 V, 200 V	A54	●	●	●	—		Relay, PLC
								—	A33C	—	—	—	—		PLC
								100 V, 200 V	A34C	—	—	—	—	Relay, PLC	
—	A44C	—	—	—	—										
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	Y59A	G59	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				Y7P	G5P	●	●	○	○		
				2-wire				J51	—	●	●	○	—		
				2-wire				Y59B	K59	●	●	○	○		
								G39C	G39	—	—	—	—	IC circuit	
				3-wire (NPN)				24 V	5 V, 12 V	—	K39C	K39	—	—	
		2-wire		Y7NW	G59W	●	●				○	○	IC circuit		
		3-wire (NPN)		Y7PW	G5PW	●	●				○	○	IC circuit		
		3-wire (PNP)		Y7BW	K59W	●	●				○	○			
		2-wire		Y7BA	G5BA	—	●				○	○	—		
				F59F	G59F	●	●				○	○	IC circuit		
		Water resistant (2-color indication)		Grommet	2-wire	24 V	12 V	—	—	P5DW	—	—	●	●	
With diagnostic output (2-color indication)	—	—	—							—	—				
Magnetic field resistant (2-color indication)	—	2-wire	—	—	—	—	—	—	—	—	—	—	—		

* Lead wire length symbols: 0.5 m.....Nil (Example) A54
3 m.....L (Example) A54L
5 m.....Z (Example) A54Z

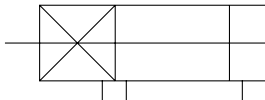
* Solid state switches marked with "○" are produced upon receipt of order.
• Since there are other applicable auto switches than listed, refer to page 9-7-23 for details.
• For details about auto switches with pre-wire connector, refer to page 9-15-66.

Cylinder with Lock Double Acting, Single Rod **Series CNA**



JIS Symbol

Double acting,
Single rod



Made to Order Specifications (For details, refer to page 9-16-1.)

Symbol	Specification
-XA□	Change of rod end shape
-XC3	Special port location
-XC11	Dual stroke cylinder/Single rod type
-XC14	Change of trunnion bracket mounting position
-XC35	With coil scraper

Specifications

Bore size (mm)	40, 50, 63, 80, 100
Fluid	Air
Type	Non-lube
Action	Double acting
Lock operation	Spring locking
Proof pressure	1.5 MPa
Max. operating pressure	1.0 MPa
Max. operating pressure	0.08 MPa
Piston speed	50 to 1000 mm/s *
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)
Cushion	Air cushion
Stroke length tolerance	Up to 250: $^{+1.0}_0$, 251 to 1000: $^{+1.4}_0$, 1001 to 1500: $^{+1.8}_0$
Mounting	Basic style, Axial foot style, Rod side flange style, Head side flange style, Single clevis style, Double clevis style, Center trunnion style

* Load limits exist depending upon piston speed when locked, mounting direction and operating pressure.

Lock Specifications

Locking action	Spring locking (Exhaust locking)
Unlocking pressure	0.25 MPa or more
Lock starting pressure	0.20 MPa or less
Max. operating pressure	1.0 MPa
Locking direction	Both directions

Standard Stroke

For cases with auto switches, refer to the table of minimum strokes for auto switches mounting on page 9-7-21.

Bore size (mm)	Standard stroke (mm)	Long stroke (mm)
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500	800
50, 63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600	1200
80, 100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700	ø80: 1400 ø100: 1500

* Long stroke applies to the axial foot style and the rod side flange style.

Stopping Accuracy

Lock type	Piston speed (mm/s)			
	100	300	500	1000
Spring locking	±0.3	±0.6	±1.0	±2.0

Condition/Lateral, Supply pressure P = 0.5 MPa

Load weight Upper limit of allowed value

Solenoid valve for locking mounted on the unlocking port

Maximum value of stopping position dispersion from 100 measurements

Holding Force of Spring Locking (Maximum static load)

Bore size (mm)	40	50	63	80	100
Holding force (N)	882	1370	2160	3430	5390

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Data

Series CNA

Mounting Bracket Part No.

Bore size (mm)	40	50	63	80	100
Foot *	CA1-L04	CA1-L05	CA1-L06	CA1-L08	CA1-L10
Flange	CA1-F04	CA1-F05	CA1-F06	CA1-F08	CA1-F10
Single clevis	CA1-C04	CA1-C05	CA1-C06	CA1-C08	CA1-C10
Double clevis **	CA1-D04	CA1-D05	CA1-D06	CA1-D08	CA1-D10

* When ordering foot bracket, order 2 pieces per cylinder.

** Clevis pin, plain washer, and cotter pin are shipped together with double clevis style.

Rod Boot Material

Symbol	Rod boot material	Max. ambient temperature
J	Nylon tarpaulin	70°C
K	Heat resistant tarpaulin	110°C *

* Maximum ambient temperature for the rod boot itself.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)				
	40	50	63	80	100
D-A5□/A6□ D-A59W D-F5□/J5□ D-F5□W/J59W D-F5NT D-F5BAL/F59F	BT-04	BT-04	BT-06	BT-08	BT-08
D-A3□/A44 D-G39/K39	BD1-04M	BD1-05M	BD1-06M	BD1-08M	BD1-10M
D-B5□/B64 D-B59W D-G5□/K59 D-G5□W/K59W D-G5BAL D-G59F/G5NTL	BA-04	BA-05	BA-06	BA-08	BA-10
D-A3□C/A44C D-G39C/K39C	BA3-040	BA3-050	BA3-063	BA3-080	BA3-100
D-Z7□/Z80 D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W D-Y7□WV D-Y7BAL	BA4-040	BA4-040	BA4-063	BA4-080	BA4-080
D-P5DWL	BAP2-040	BAP2-040	BAP2-063	BAP2-080	BAP2-080

* Mounting bolt is attached to D-A3□C/A44C/G39C, and K39C.

To order, indicate as shown below, according to the cylinder size.

(Example) ø40.....D-A3□C-4, ø63.....D-A3□C-6, ø100.....D-A3□C-10
ø50.....D-A3□C-5, ø80.....D-A3□C-8

To order the mounting brackets separately, use the part number shown above.

Accessory

Mounting style		Basic style	Foot style	Rod side flange style	Head side flange style	Single clevis style	Double clevis style	Center trunnion style
Standard equipment	Rod end nut	●	●	●	●	●	●	●
	Clevis pin	—	—	—	—	—	●	—
Option	Single knuckle joint	●	●	●	●	●	●	●
	Double knuckle joint (With pin)	●	●	●	●	●	●	●
	With rod boot	●	●	●	●	●	●	●

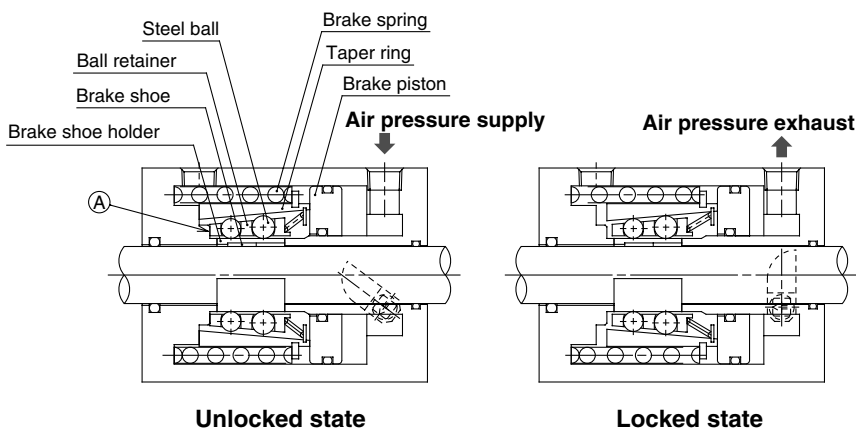
Weight/(): Denotes the values for steel tube.

Bore size (mm)			40	50	63	80	100
Basic weight	Basic style		1.70 (1.75)	2.70 (2.76)	4.08 (4.12)	7.30 (7.46)	10.80 (11.01)
	Foot style		1.89 (1.94)	2.74 (2.78)	4.42 (4.46)	7.97 (8.13)	11.79 (12.00)
	Flange style		2.07 (2.12)	2.97 (3.01)	4.87 (4.91)	8.75 (8.91)	12.72 (12.93)
	Single clevis style		1.93 (1.98)	2.86 (2.90)	4.71 (4.75)	8.41 (8.57)	12.58 (12.79)
	Double clevis style		1.97 (2.02)	2.95 (2.99)	4.87 (4.91)	8.70 (8.86)	13.10 (13.31)
	Trunnion style		2.15 (2.25)	3.05 (3.15)	4.97 (5.17)	9.00 (9.29)	13.20 (13.59)
Additional weight per each 50mm of stroke	Aluminum tube	Mounting bracket	0.22	0.28	0.37	0.52	0.65
	Steel tube	Mounting bracket except trunnion	0.28	0.35	0.43	0.70	0.87
		Trunnion style	0.36	0.46	0.65	0.86	1.07
Accessory bracket	Single knuckle joint		0.23	0.26	0.26	0.60	0.83
	Double knuckle joint		0.32	0.38	0.38	0.73	1.08
	Knuckle pin		0.05	0.05	0.05	0.14	0.19

Calculation: (Example) CNALN40-100-D
 • Base weight 1.89 (Foot, ø40)
 • Additional weight 0.22/50 strokes
 • Cylinder stroke 100 strokes
 $1.89 + 0.22 \times 100/50 = 2.33 \text{ kg}$

Cylinder with Lock Double Acting, Single Rod **Series CNA**

Construction Principle



Spring locking (Exhaust locking)

The spring force which acts upon the taper ring is magnified by a wedge effect, and is conveyed to all of the numerous steel balls which are arranged in two circles. These act on the brake shoe holder and brake, which locks the piston rod by tightening against it with a large force.

Unlocking is accomplished when air pressure is supplied to the unlocking port. The release piston and taper ring oppose the spring force, moving to the right side, and the ball retainer strikes the cover section A. The braking force is released as the steel balls are removed from the taper ring by the ball retainer.

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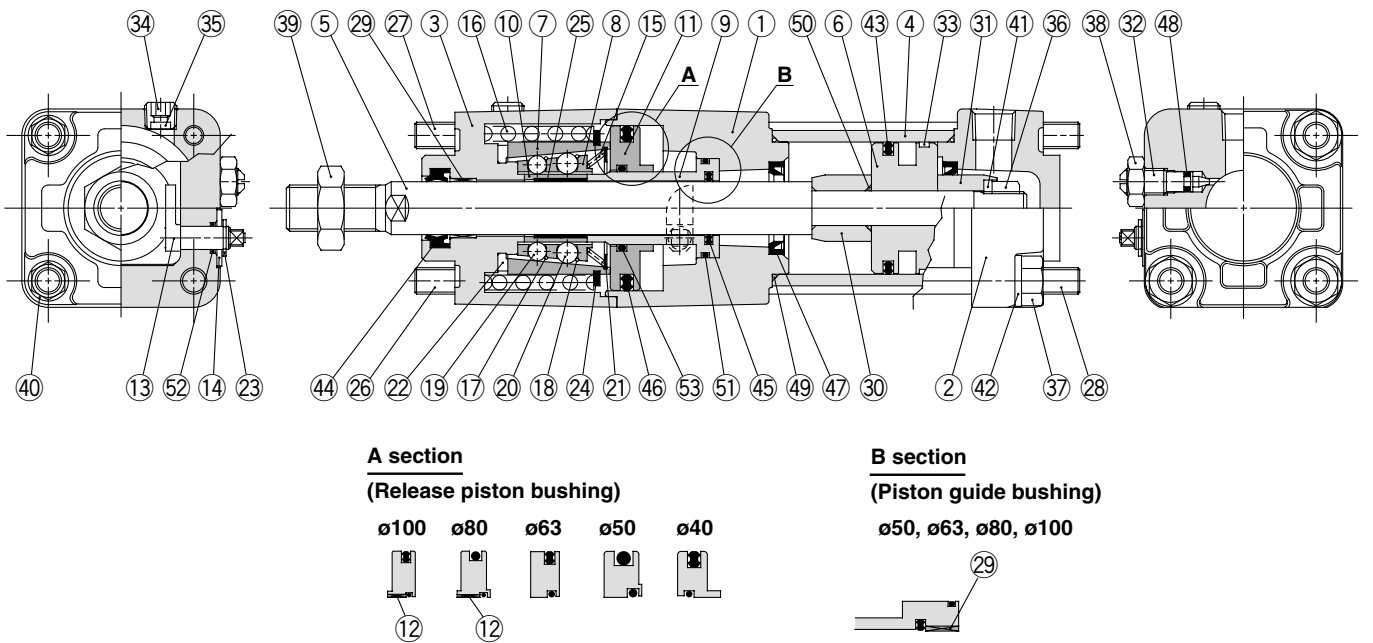
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Data

Series CNA

Construction



Component Parts

No.	Description	Material	Note	
①	Rod cover	Aluminum alloy	Black painted after hard anodized	
②	Head cover	Aluminum alloy	Black painted	
③	Cover	Aluminum alloy	Black painted after hard anodized	
④	Cylinder tube	Aluminum alloy	Hard anodized	
⑤	Piston rod	Carbon steel	Hard chrome plated	
⑥	Piston	Aluminum alloy	Chromated	
⑦	Taper ring	Carbon steel	Heat treated	
⑧	Ball retainer	Special resin		
⑨	Piston guide	Carbon steel	Zinc chromated	
⑩	Brake shoe holder	Special steel	Heat treated	
⑪	Release piston	ø40	Aluminum alloy	Hard anodized
		ø50		
		ø63		
		ø80	Carbon steel	Zinc chromated
		ø100		
⑫	Release piston bushing	Steel + Special resin	Hard anodized	
⑬	Unlocking cam	Chromium molybdenum steel	Zinc chromated	
⑭	Washer	Carbon steel	Black zinc chromated	
⑮	Retainer pre-load spring	Steel wire	Zinc chromated	
⑯	Brake spring	Steel wire	Zinc chromated	
⑰	Clip A	Stainless steel		
⑱	Clip B	Stainless steel		
⑲	Steel ball A	Carbon steel		
⑳	Steel ball B	Carbon steel		
㉑	Tooth ring	Stainless steel		
㉒	Bumper	Polyurethane rubber		
㉓	Type C retaining ring for unlocking cam shaft	Carbon steel		
㉔	Type C retaining ring for taper ring	Carbon steel		
㉕	Brake shoe	Special friction material		
㉖	Unit holding tie-rod A	Carbon steel	Chromated	
㉗	Unit holding tie-rod B	Carbon steel	Chromated	
㉘	Tie-rod	Carbon steel	Chromated	
㉙	Bushing	Lead-bronze casted		
㉚	Cushion ring A	Rolled steel plate	Zinc chromated	

No.	Description	Material	Note
⑳	Cushion ring B	Rolled steel plate	Zinc chromated
㉑	Cushion valve	Rolled steel plate	Electroless nickel plated
㉒	Wear ring	Special resin	
㉓	Hexagon socket head plug	Chromium molybdenum steel	Black zinc chromated
㉔	Element	Bronze	
㉕	Piston nut	Rolled steel plate	Zinc chromated
㉖	Tie-rod nut	Carbon steel	Black zinc chromated
㉗	Lock nut	Carbon steel	Nickel plated
㉘	Rod end nut	Carbon steel	Nickel plated
㉙	Spring washer	Steel wire	Black zinc chromated
㉚	Spring washer	Steel wire	Black zinc chromated
㉛	Spring washer	Steel wire	Black zinc chromated
㉜	Piston seal	NBR	
㉝	Rod seal A	NBR	
㉞	Rod seal B	NBR	
㉟	Release piston seal	NBR	
㊱	Cushion seal	NBR	
㊲	Cushion valve seal	NBR	
㊳	Tube gasket	NBR	
㊴	Piston gasket	NBR	
㊵	Piston guide gasket	NBR	
㊶	Unlocking cam gasket	NBR	
㊷	O-ring	NBR	

Replacement Parts: Seal Kit

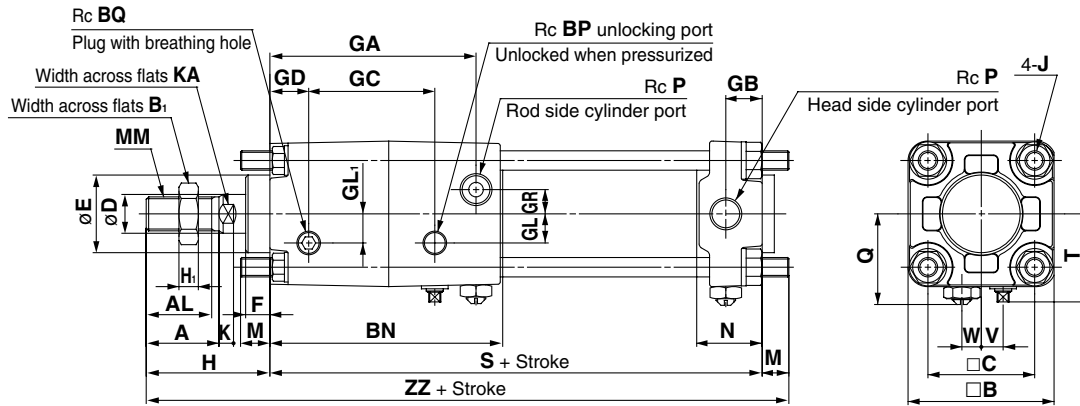
Bore size (mm)	Kit no.	Content
40	CA1N 40A-PS	Including no. ④③, ④④, ④⑧ and ④⑨.
50	CA1N 50A-PS	
63	CA1N 63A-PS	
80	CA1N 80A-PS	
100	CA1N100A-PS	

* Since the lock section for Series CNA is normally replaced as a unit, kits are for the cylinder section only. These can be ordered using the order number for each bore size.

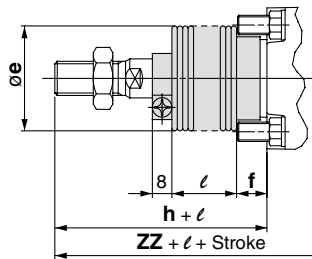
Cylinder with Lock Double Acting, Single Rod Series CNA

Dimensions

Basic style (B): CNABN



With rod boot



Bore size (mm)	Stroke range (mm)	A	AL	B	B ₁	BN	BP	BQ	C	D	E	F	GA	GB	GC	GD	GL	GL ₁	GR	H ₁	J	K	KA
40	Up to 500	30	27	60	22	96	1/8	1/8	44	16	32	10	85	15	52	16	12	12	10	8	M8 x 1.25	6	14
50	Up to 600	35	32	70	27	108	1/4	1/8	52	20	40	10	95	17	56.5	20	13	15	12	11	M8 x 1.25	7	18
63	Up to 600	35	32	86	27	115	1/4	1/4	64	20	40	10	102	17	67	20	18	12	15	11	M10 x 1.25	7	18
80	Up to 750	40	37	102	32	139	1/4	1/4	78	25	52	14	123	21	83	20	23	18	17	13	M12 x 1.75	11	22
100	Up to 750	40	37	116	41	160	1/4	1/4	92	30	52	14	144	21	98	22	25	20	19	16	M12 x 1.75	11	26

Bore size (mm)	M	MM	N	P	Q	H	S	T	V	W	ZZ
40	11	M14 x 1.5	27	1/4	37 to 39.5	51	153	37.5	9	8	215
50	11	M18 x 1.5	30	3/8	42 to 44.5	58	168	44	11	0	237
63	14	M18 x 1.5	31	3/8	50 to 51.5	58	182	52.5	12	0	254
80	17	M22 x 1.5	37	1/2	59.5 to 62.5	71	218	59.5	15	0	306
100	17	M26 x 1.5	40	1/2	66.5 to 69.5	72	246	69.5	15	0	335

With Rod Boot

Bore size (mm)	Stroke range (mm)	e	f	h	l	ZZ
40	20 to 500	43	11.2	59	1/4 stroke	223
50	20 to 600	52	11.2	66	1/4 stroke	245
63	20 to 600	52	11.2	66	1/4 stroke	262
80	20 to 750	65	12.5	80	1/4 stroke	315
100	20 to 750	65	14	81	1/4 stroke	344

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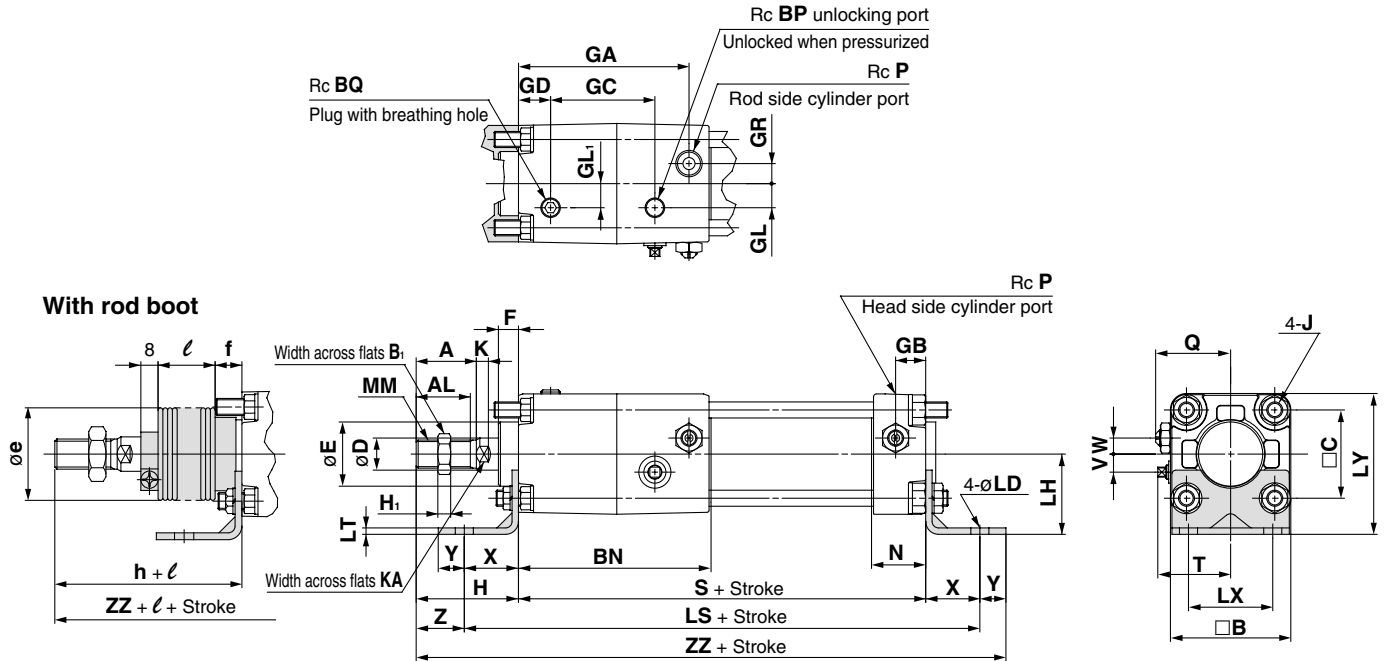
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Data

Series CNA

Dimensions

Axial foot style (L): CNALN



Long Stroke

Bore size (mm)	Stroke range (mm)	RT	RY
40	501 to 800	—	—
	601 to 1000	—	—
50	1001 to 1200	30	76
	601 to 1000	—	—
63	1001 to 1200	40	92
	751 to 1000	—	—
80	1001 to 1400	45	112
	751 to 1000	—	—
100	1001 to 1500	50	136
	—	—	—

Bore size (mm)	Stroke range (mm)	A	AL	B	B ₁	BN	BP	BQ	C	D	E	F	GA	GB	GC	GD	GL	GL ₁	GR	H ₁	J	K	KA
40	Up to 500	30	27	60	22	96	1/8	1/8	44	16	32	10	85	15	52	16	12	12	10	8	M8 x 1.25	6	14
50	Up to 600	35	32	70	27	108	1/4	1/8	52	20	40	10	95	17	56.5	20	13	15	12	11	M8 x 1.25	7	18
63	Up to 600	35	32	86	27	115	1/4	1/4	64	20	40	10	102	17	67	20	18	12	15	11	M10 x 1.25	7	18
80	Up to 750	40	37	102	32	139	1/4	1/4	78	25	52	14	123	21	83	20	23	18	17	13	M12 x 1.75	11	22
100	Up to 750	40	37	116	41	160	1/4	1/4	92	30	52	14	144	21	98	22	25	20	19	16	M12 x 1.75	11	26

Bore size (mm)	LD	LH	LS	LT	LX	LY	MM	N	P	Q	H	S	T	V	W	X	Y	Z	ZZ
40	9	40	207	3.2	42	70	M14 x 1.5	27	1/4	37 to 39.5	51	153	37.5	9	8	27	13	24	244
50	9	45	222	3.2	50	80	M18 x 1.5	30	3/8	42 to 44.5	58	168	44	11	0	27	13	31	266
63	11.5	50	250	3.2	59	93	M18 x 1.5	31	3/8	50 to 51.5	58	182	52.5	12	0	34	16	24	290
80	13.5	65	306	4.5	76	116	M22 x 1.5	37	1/2	59.5 to 62.5	71	218	59.5	15	0	44	16	27	349
100	13.5	75	332	6.0	92	133	M26 x 1.5	40	1/2	66.5 to 69.5	72	246	69.5	15	0	43	17	29	378

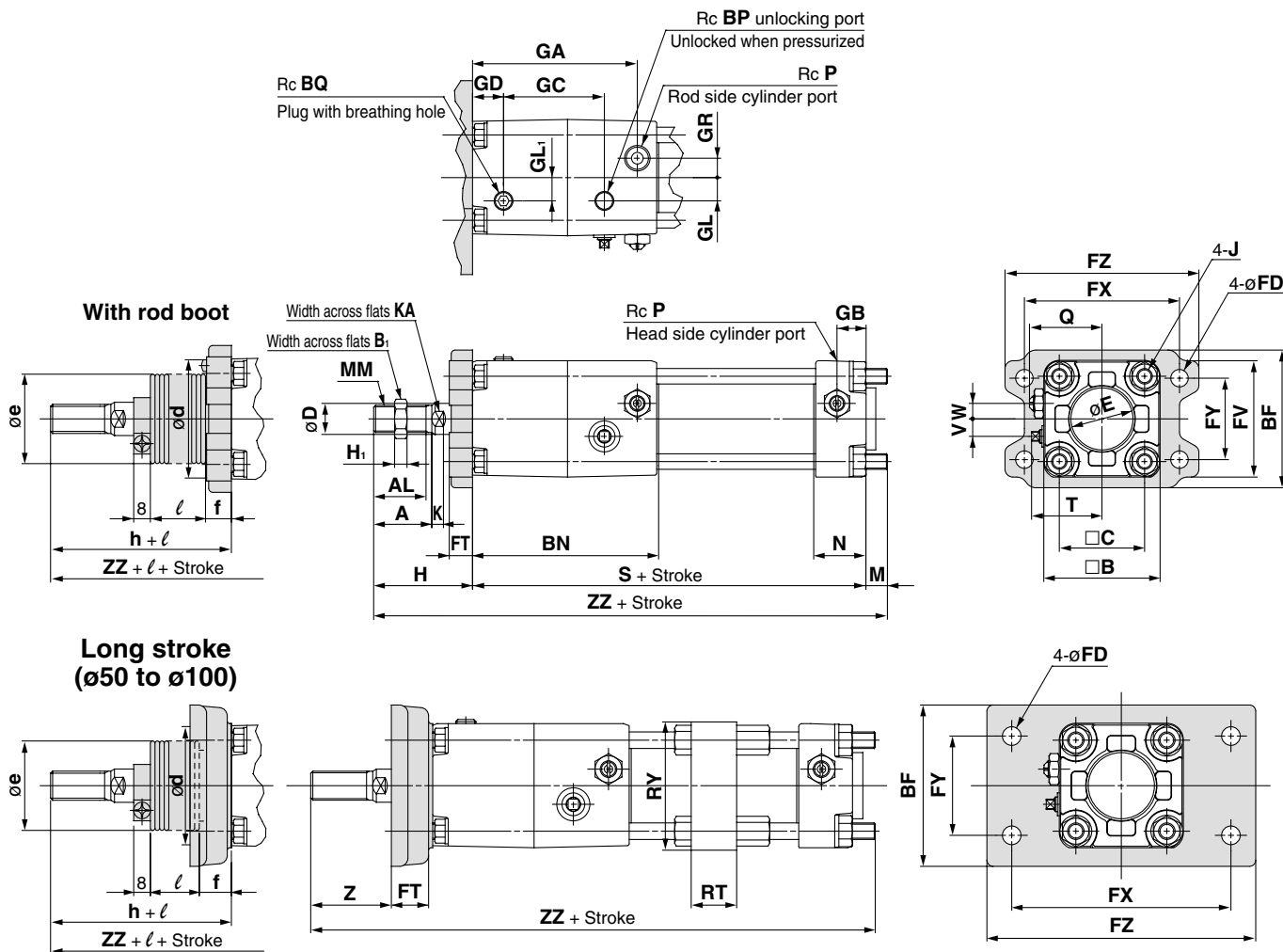
With Rod Boot

Bore size (mm)	Stroke range (mm)	e	f	h	l	ZZ
40	20 to 500	43	11.2	59	1/4 stroke	252
50	20 to 600	52	11.2	66	1/4 stroke	274
63	20 to 600	52	11.2	66	1/4 stroke	298
80	20 to 750	65	12.5	80	1/4 stroke	358
100	20 to 750	65	14	81	1/4 stroke	387

Cylinder with Lock Double Acting, Single Rod Series CNA

Dimensions

Rod side flange style (F): CNAFN



- CL
- CL1
- MLGC
- CNG
- MNB
- CNA**
- CNS
- CLS
- CLQ
- MLGP
- RLQ
- MLU
- ML1C
- D-
- X
- 20-
- Data

Bore size (mm)	Stroke range (mm)	A	AL	B	B ₁	BF	BN	BP	BQ	C	D	E	FD	FT	FV	FX	FY	FZ	GA	GB	GC	GD	GL	GL ₁	GR	H ₁	J
40	Up to 800	30	27	60	22	71	96	1/8	1/8	44	16	32	9	12	60	80	42	100	85	15	52	16	12	12	10	8	M8 x 1.25
50	Up to 1000	35	32	70	27	81	108	1/4	1/8	52	20	40	9	12	70	90	50	110	95	17	56.5	20	13	15	12	11	M8 x 1.25
63	Up to 1000	35	32	86	27	101	115	1/4	1/4	64	20	40	11.5	15	86	105	59	130	102	17	67	20	18	12	15	11	M10 x 1.25
80	Up to 1000	40	37	102	32	119	139	1/4	1/4	78	25	52	13.5	18	102	130	76	160	123	21	83	20	23	18	17	13	M12 x 1.75
100	Up to 1000	40	37	116	41	133	160	1/4	1/4	92	30	52	13.5	18	116	150	92	180	144	21	98	22	25	20	19	16	M12 x 1.75

Bore size (mm)	K	KA	M	MM	N	P	Q	H	S	T	V	W	ZZ
40	6	14	11	M14 x 1.5	27	1/4	37 to 39.5	51	153	37.5	9	8	215
50	7	18	11	M18 x 1.5	30	3/8	42 to 44.5	58	168	44	11	0	237
63	7	18	14	M18 x 1.5	31	3/8	50 to 51.5	58	182	52.5	12	0	254
80	11	22	17	M22 x 1.5	37	1/2	59.5 to 62.5	71	218	59.5	15	0	306
100	11	26	17	M26 x 1.5	40	1/2	66.5 to 69.5	72	246	69.5	15	0	335

With Rod Boot

Bore size (mm)	Stroke range (mm)	d	e	f	h	l	ZZ
40	20 to 800	52	43	15	59	1/4 stroke	223
50	20 to 1000	58	52	15	66	1/4 stroke	245
63	20 to 1000	58	52	17.5	66	1/4 stroke	262
80	20 to 1000	80	65	21.5	80	1/4 stroke	315
100	20 to 1000	80	65	21.5	81	1/4 stroke	344

Long Stroke

Bore size (mm)	Stroke range (mm)	BF	FD	FT	FX	FY	FZ	RT	RY	Z	ZZ
50	1001 to 1200	88	9	20	120	58	144	30	76	47	241
63	1001 to 1200	105	11.5	23	140	64	170	40	92	48	263
80	1001 to 1400	124	13.5	28	164	84	198	45	112	59	317
100	1001 to 1500	140	13.5	29	180	100	220	50	136	60	347

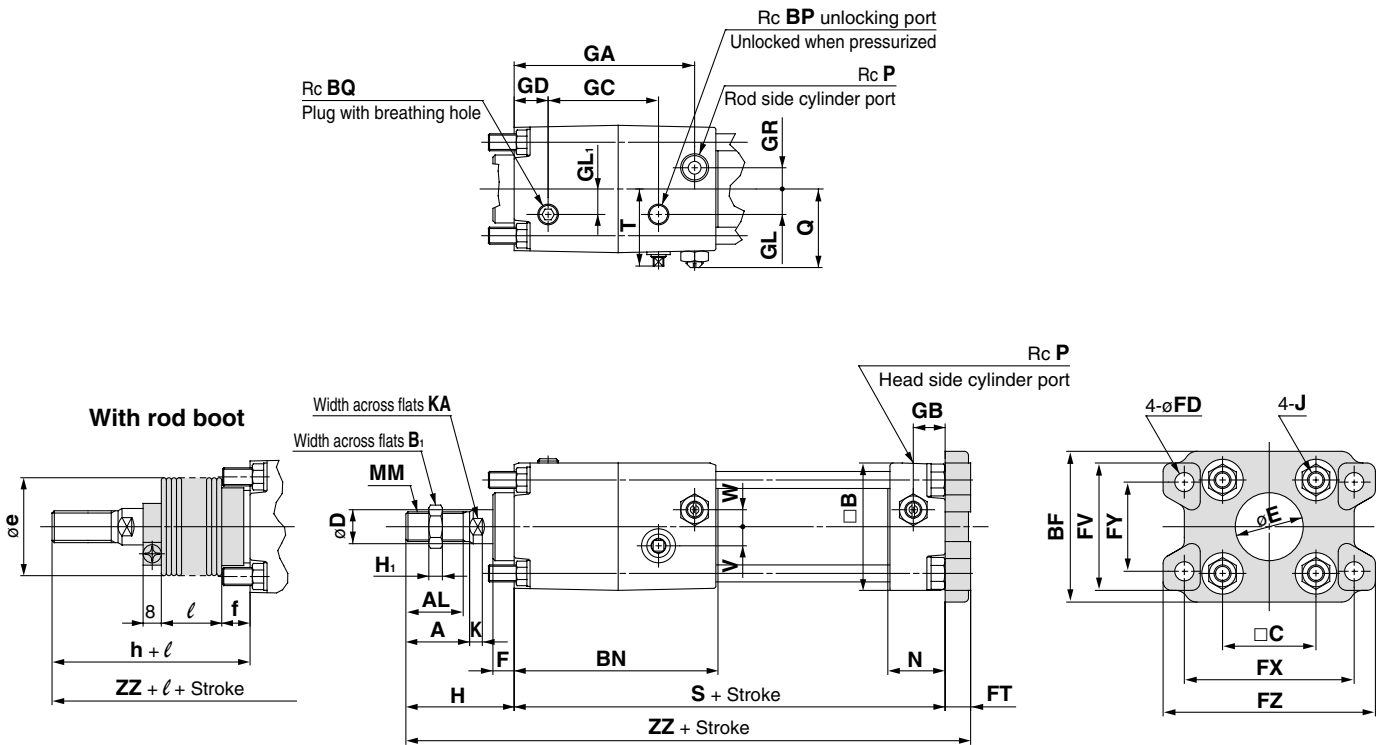
With Long Stroke Rod Boot

Bore size (mm)	Stroke range (mm)	d	e	f	h	l	ZZ
50	1001 to 1200	58	52	19	66	1/4 stroke	240
63	1001 to 1200	58	52	19	66	1/4 stroke	258
80	1001 to 1400	80	65	21	80	1/4 stroke	310
100	1001 to 1500	80	65	21	81	1/4 stroke	339

Series CNA

Dimensions

Head side flange style (G): CNAGN



Bore size (mm)	Stroke range (mm)	A	AL	B	B ₁	BF	BN	BP	BQ	C	D	E	F	FD	FT	FV	FX	FY	FZ	GA	GB	GC	GD	GL	GL ₁	GR	H ₁
40	Up to 500	30	27	60	22	71	96	1/8	1/8	44	16	32	10	9	12	60	80	42	100	85	15	52	16	12	12	10	8
50	Up to 600	35	32	70	27	81	108	1/4	1/8	52	20	40	10	9	12	70	90	50	110	95	17	56.5	20	13	15	12	11
63	Up to 600	35	32	86	27	101	115	1/4	1/4	64	20	40	10	11.5	15	86	105	59	130	102	17	67	20	18	12	15	11
80	Up to 750	40	37	102	32	119	139	1/4	1/4	78	25	52	14	13.5	18	102	130	76	160	123	21	83	20	23	18	17	13
100	Up to 750	40	37	116	41	133	160	1/4	1/4	92	30	52	14	13.5	18	116	150	92	180	144	21	98	22	25	20	19	16

Bore size (mm)	J	K	KA	M	MM	N	P	Q	H	S	T	V	W	ZZ
40	M8 x 1.25	6	14	11	M14 x 1.5	27	1/4	37 to 39.5	51	153	37.5	9	8	216
50	M8 x 1.25	7	18	11	M18 x 1.5	30	3/8	42 to 44.5	58	168	44	11	0	238
63	M10 x 1.25	7	18	14	M18 x 1.5	31	3/8	50 to 51.5	58	182	52.5	12	0	255
80	M12 x 1.75	11	22	17	M22 x 1.5	37	1/2	59.5 to 62.5	71	218	59.5	15	0	307
100	M12 x 1.75	11	26	17	M26 x 1.5	40	1/2	66.5 to 69.5	72	246	69.5	15	0	336

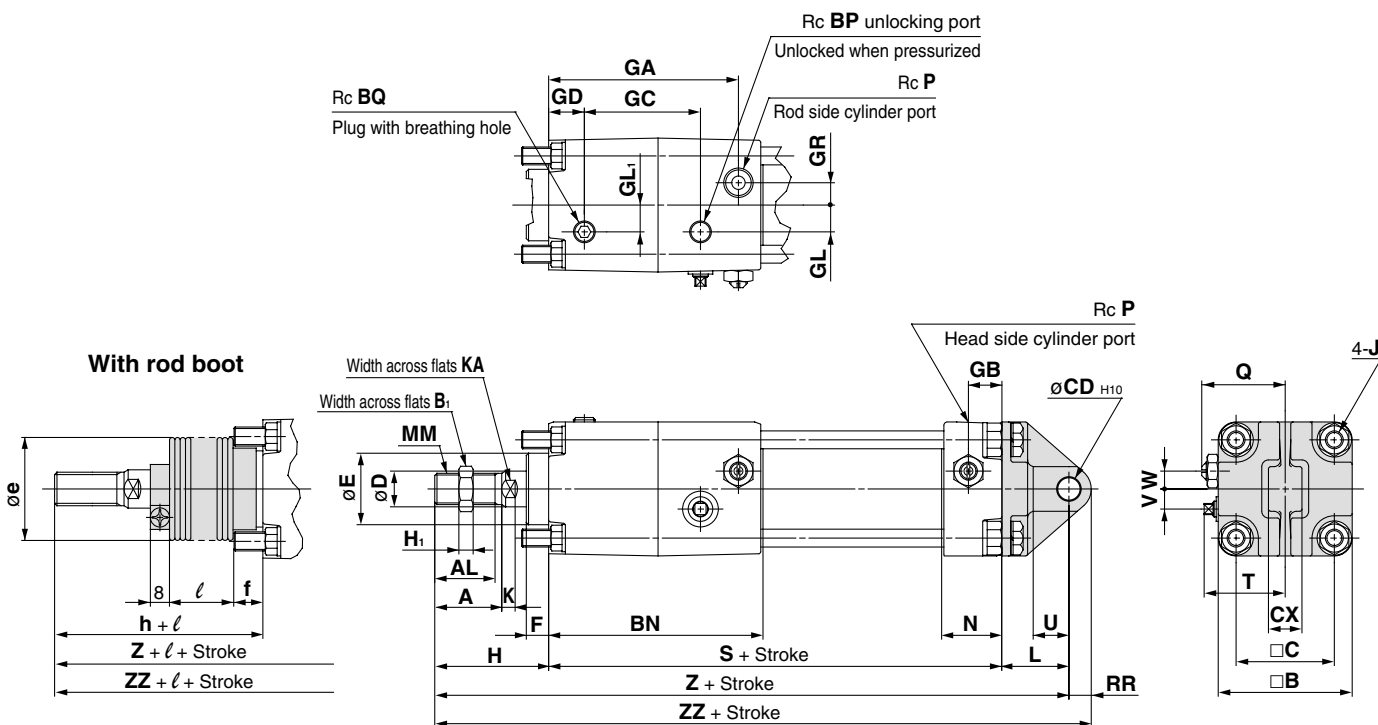
With Rod Boot

Bore size (mm)	Stroke range (mm)	e	f	h	l	ZZ
40	20 to 500	43	11.2	59	1/4 stroke	224
50	20 to 600	52	11.2	66	1/4 stroke	246
63	20 to 600	52	11.2	66	1/4 stroke	263
80	20 to 750	65	12.5	80	1/4 stroke	316
100	20 to 750	65	14	81	1/4 stroke	345

Cylinder with Lock Double Acting, Single Rod Series CNA

Dimensions

Single clevis style (C): CNACN



Bore size (mm)	Stroke range (mm)	A	AL	B	B ₁	BN	BP	BQ	C	CD	CX	D	E	F	GA	GB	GC	GD	GL	GL ₁	GR	H ₁
40	Up to 500	30	27	60	22	96	1/8	1/8	44	10	15 ^{-0.1} _{-0.3}	16	32	10	85	15	52	16	12	12	10	8
50	Up to 600	35	32	70	27	108	1/4	1/8	52	12	18 ^{-0.1} _{-0.3}	20	40	10	95	17	56.5	20	13	15	12	11
63	Up to 600	35	32	86	27	115	1/4	1/4	64	16	25 ^{-0.1} _{-0.3}	20	40	10	102	17	67	20	18	12	15	11
80	Up to 750	40	37	102	32	139	1/4	1/4	78	20	31.5 ^{-0.1} _{-0.3}	25	52	14	123	21	83	20	23	18	17	13
100	Up to 750	40	37	116	41	160	1/4	1/4	92	25	35.5 ^{-0.1} _{-0.3}	30	52	14	144	21	98	22	25	20	19	16

Bore size (mm)	J	K	KA	L	MM	N	P	Q	H	RR	S	T	U	V	W	Z	ZZ
40	M8 x 1.25	6	14	30	M14 x 1.5	27	1/4	37 to 39.5	51	10	153	37.5	16	9	8	234	244
50	M8 x 1.25	7	18	35	M18 x 1.5	30	3/8	42 to 44.5	58	12	168	44	19	11	0	261	273
63	M10 x 1.25	7	18	40	M18 x 1.5	31	3/8	50 to 51.5	58	16	182	52.5	23	12	0	280	296
80	M12 x 1.75	11	22	48	M22 x 1.5	37	1/2	59.5 to 62.5	71	20	218	59.5	28	15	0	337	357
100	M12 x 1.75	11	26	58	M26 x 1.5	40	1/2	66.5 to 69.5	72	25	246	69.5	36	15	0	376	401

With Rod Boot

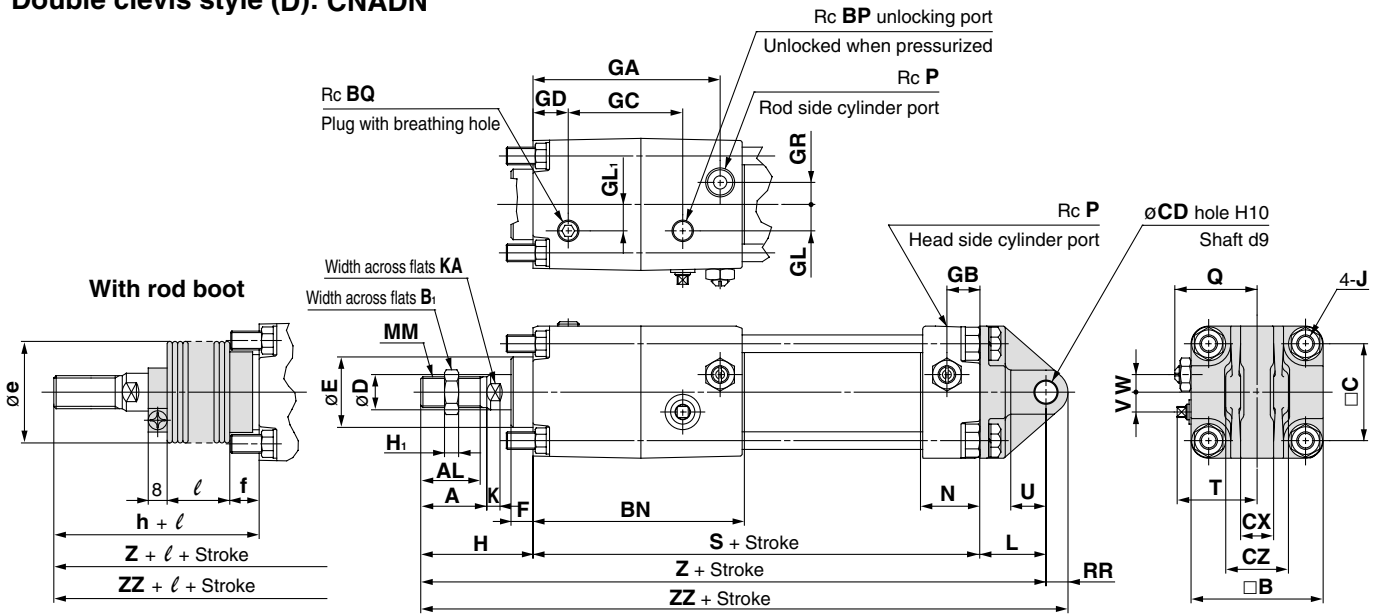
Bore size (mm)	Stroke range (mm)	e	f	h	ℓ	Z	ZZ
40	20 to 500	43	11.2	59	1/4 stroke	242	252
50	20 to 600	52	11.2	66	1/4 stroke	269	281
63	20 to 600	52	11.2	66	1/4 stroke	288	304
80	20 to 750	65	12.5	80	1/4 stroke	346	366
100	20 to 750	65	14	81	1/4 stroke	385	410

- CL
- CL1
- MLGC
- CNG
- MNB
- CNA**
- CNS
- CLS
- CLQ
- MLGP
- RLQ
- MLU
- ML1C
- D-
- X
- 20-
- Data

Series CNA

Dimensions

Double clevis style (D): CNADN



Bore size (mm)	Stroke range (mm)	A	AL	B	B1	BN	BP	BQ	C	CD	CX	CZ	D	E	F	GA	GB	GC	GD	GL	GL ₁	GR	H1	J	K	KA
40	Up to 500	30	27	60	22	96	1/8	1/8	44	10	15 ^{+0.3} _{-0.1}	29.5	16	32	10	85	15	52	16	12	12	10	8	M8 x 1.25	6	14
50	Up to 600	35	32	70	27	108	1/4	1/8	52	12	18 ^{+0.3} _{-0.1}	38	20	40	10	95	17	56.5	20	13	15	12	11	M8 x 1.25	7	18
63	Up to 600	35	32	86	27	115	1/4	1/4	64	16	25 ^{+0.3} _{-0.1}	49	20	40	10	102	17	67	20	18	12	15	11	M10 x 1.25	7	18
80	Up to 750	40	37	102	32	139	1/4	1/4	78	20	31.5 ^{+0.3} _{-0.1}	61	25	52	14	123	21	83	20	23	18	17	13	M12 x 1.75	11	22
100	Up to 750	40	37	116	41	160	1/4	1/4	92	25	35.5 ^{+0.3} _{-0.1}	64	30	52	14	144	21	98	22	25	20	19	16	M12 x 1.75	11	26

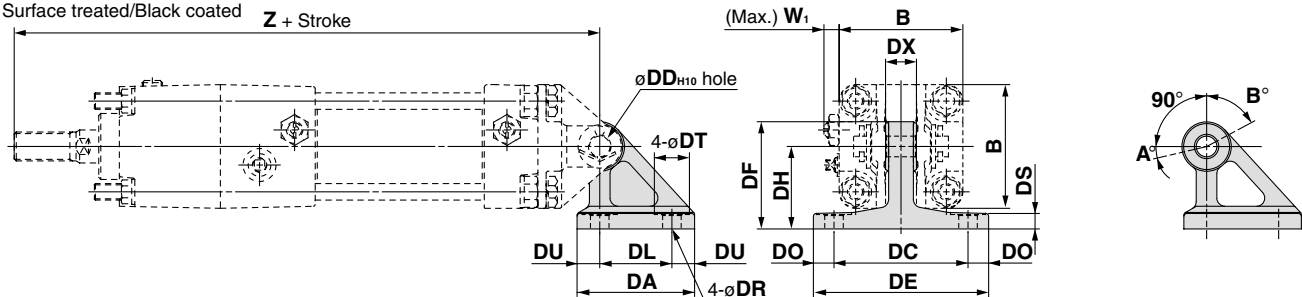
Bore size (mm)	L	MM	N	P	Q	RR	S	T	U	V	W	H	Z	ZZ
40	30	M14 x 1.5	27	1/4	37 to 39.5	10	153	37.5	16	9	8	51	234	244
50	35	M18 x 1.5	30	3/8	42 to 44.5	12	168	44	19	11	0	58	261	273
63	40	M18 x 1.5	31	3/8	50 to 51.5	16	182	52.5	23	12	0	58	280	296
80	48	M22 x 1.5	37	1/2	59.5 to 62.5	20	218	59.5	28	15	0	71	337	357
100	58	M26 x 1.5	40	1/2	66.5 to 69.5	25	246	69.5	36	15	0	72	376	401

With Rod Boot

Bore size (mm)	Stroke range (mm)	e	f	h	ℓ	Z	ZZ
40	20 to 500	43	11.2	59	1/4 stroke	242	252
50	20 to 600	52	11.2	66	1/4 stroke	269	281
63	20 to 600	52	11.2	66	1/4 stroke	288	304
80	20 to 750	65	12.5	80	1/4 stroke	346	366
100	20 to 750	65	14	81	1/4 stroke	385	410

Double Clevis Pivot Bracket

Material/Cast iron • Strength is the same as cylinder brackets.
Surface treated/Black coated Z + Stroke



Part no.	Bore size (mm)	DA	DL	DU	DC	DX	DE	DO	DR	DT	DS	DH	DF	B	W ₁	Z	DD
CA1-B04	40	57	35	11	65	15	85	10	9	17	8	40	52	60	10	234	10 ^{+0.058} ₀
CA1-B05	50	57	35	11	65	18	85	10	9	17	8	40	52	70	10	261	12 ^{+0.070} ₀
CA1-B06	63	67	40	13.5	80	25	105	12.5	11	22	10	50	66	85	10	280	16 ^{+0.070} ₀
CA1-B08	80	93	60	16.5	100	31.5	130	15	13.5	24	12	65	90	102	12	337	20 ^{+0.084} ₀
CA1-B10	100	93	60	16.5	100	35.5	130	15	13.5	24	12	65	90	116	12	376	25 ^{+0.084} ₀

Rotating Angle

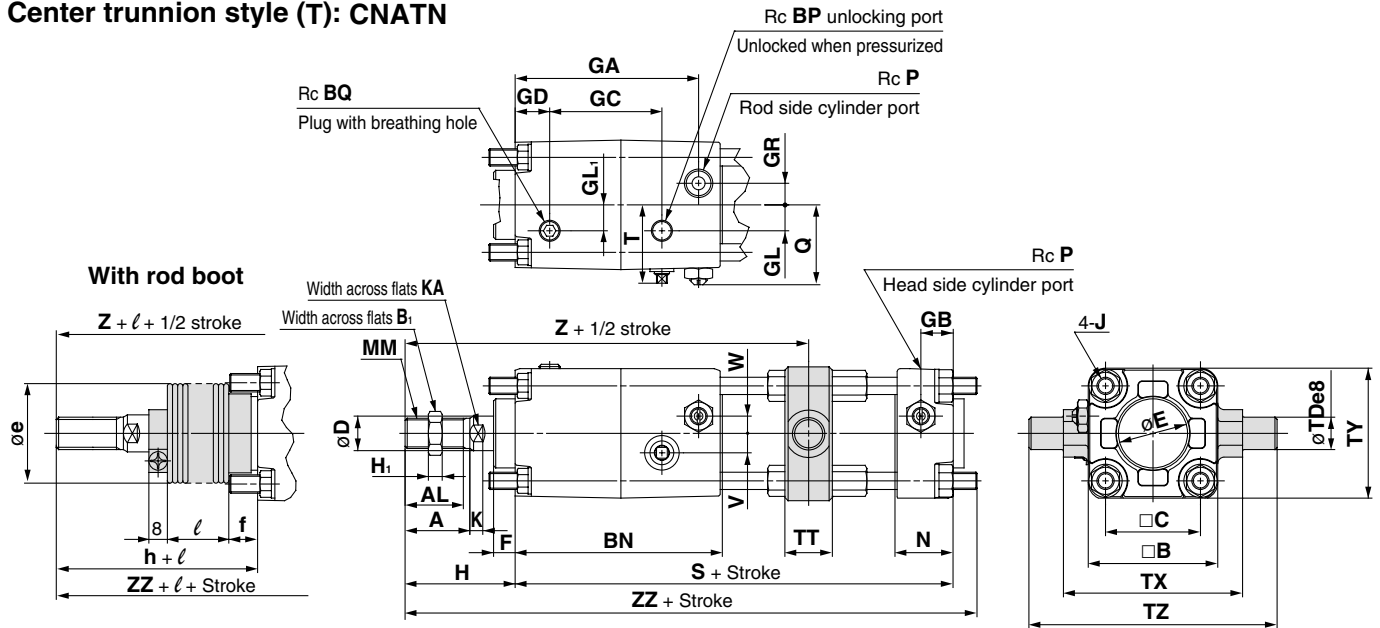
Bore size (mm)	A°	B°	A° + B° + 90°
40	12°	60°	162°
50			
63			
80			
100			

Note) There is no mention in cylinder part no. 2. Order it separately from cylinder. 3. Pin, retainer, etc. of female rear clevis, male rear clevis are shipped together.

Cylinder with Lock Double Acting, Single Rod Series CNA

Dimensions

Center trunnion style (T): CNATN



Bore size (mm)	Stroke range (mm)	A	AL	B	B ₁	BN	BP	BQ	C	D	E	F	GA	GB	GC	GD	GL	GL ₁	GR	H ₁	J	K	KA	MM	N
40	25 to 500	30	27	60	22	96	1/8	1/8	44	16	32	10	85	15	52	16	12	12	10	8	M8 x 1.25	6	14	M14 x 1.5	27
50	25 to 600	35	32	70	27	108	1/4	1/8	52	20	40	10	95	17	56.5	20	13	15	12	11	M8 x 1.25	7	18	M18 x 1.5	30
63	32 to 600	35	32	86	27	115	1/4	1/4	64	20	40	10	102	17	67	20	18	12	15	11	M10 x 1.25	7	18	M18 x 1.5	31
80	41 to 750	40	37	102	32	139	1/4	1/4	78	25	52	14	123	21	83	20	23	18	17	13	M12 x 1.75	11	22	M22 x 1.5	37
100	45 to 750	40	37	116	41	160	1/4	1/4	92	30	52	14	144	21	98	22	25	20	19	16	M12 x 1.75	11	26	M26 x 1.5	40

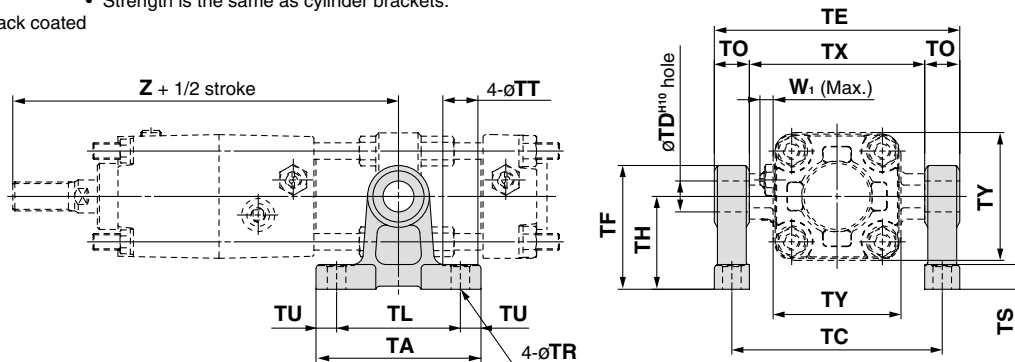
Bore size (mm)	P	Q	S	T	TDe8	TT	TX	TY	TZ	V	W	H	Z	ZZ
40	1/4	37 to 39.5	153	37.5	15 ^{-0.032} _{-0.059}	22	85	62	117	9	8	51	162	209
50	3/8	42 to 44.5	168	44	15 ^{-0.032} _{-0.059}	22	95	74	127	11	0	58	181	232
63	3/8	50 to 51.5	182	52.5	18 ^{-0.032} _{-0.059}	28	110	90	148	12	0	58	191	246
80	1/2	59.5 to 62.5	218	59.5	25 ^{-0.040} _{-0.073}	34	140	110	192	15	0	71	231	296
100	1/2	66.5 to 69.5	246	69.5	25 ^{-0.040} _{-0.073}	40	162	130	214	15	0	72	255	326

With Rod Boot

Bore size (mm)	Stroke range (mm)	e	f	h	l	Z	ZZ
40	25 to 500	43	11.2	59	1/4 stroke	170	217
50	25 to 600	52	11.2	66	1/4 stroke	189	240
63	32 to 600	52	11.2	66	1/4 stroke	199	254
80	41 to 750	65	12.5	80	1/4 stroke	240	305
100	45 to 750	65	14	81	1/4 stroke	264	335

Trunnion Pivot Bracket

Material: Cast iron • Strength is the same as cylinder brackets.
Surface treated: Black coated



Part no.	Bore size (mm)	TA	TL	TU	TC	TX	TE	TO	TR	TT	TS	TH	TF	TY	W ₁	Z	TD
CA1-S04	40	80	60	10	102	85	119	17	9	17	12	45	60	62	10	162	15 ^{-0.070} ₀
	50	80	60	10	112	95	129	17	9	17	12	45	60	74	10	181	15 ^{-0.070} ₀
CA1-S06	63	100	70	15	130	110	150	20	11	22	14	55	73	90	10	191	18 ^{-0.070} ₀
CA1-S08	80	120	90	15	166	140	192	26	13.5	24	17	75	100	110	12	231	25 ^{+0.084} ₀
	100	120	90	15	188	162	214	26	13.5	24	17	75	100	130	12	255	25 ^{+0.084} ₀

Note 1) There is no mention in cylinder part no.
Note 2) Order it separately from cylinder.
Note 3) Two trunnion pivot brackets are needed per one cylinder.

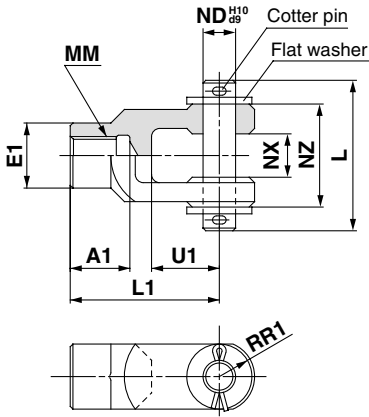
- CL
- CL1
- MLGC
- CNG
- MNB
- CNA**
- CNS
- CLS
- CLQ
- MLGP
- RLQ
- MLU
- ML1C
- D-
- X
- 20-
- Data

Series CNA

Accessory Bracket Dimensions

Y Type Double Knuckle Joint

* Pin and snap ring are shipped together with double clevis and double knuckle joint.

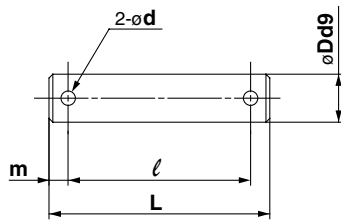


Material: Cast iron

Part no.	Applicable bore size (mm)	A1	E1	L1	MM	RR1	U1	ND	NX	NZ	L	Cotter pin size	Flat washer size
Y-04C	40	22	24	55	M14 x 1.5	13	25	12	16 ^{+0.3} / _{+0.1}	38	55.5	ø3 x 18ℓ	Polished round 12
Y-05C	50, 63	27	28	60	M18 x 1.5	15	27	12	16 ^{+0.3} / _{+0.1}	38	55.5	ø3 x 18ℓ	Polished round 12
Y-08C	80	37	36	71	M22 x 1.5	19	28	18	28 ^{+0.3} / _{+0.1}	55	76.5	ø4 x 25ℓ	Polished round 18
Y-10C	100	37	40	83	M26 x 1.5	21	38	20	30 ^{+0.3} / _{+0.1}	61	83	ø4 x 25ℓ	Polished round 20

* Knuckle pin, cotter pin and flat washer are attached.

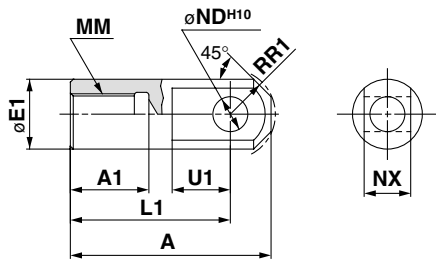
Clevis Pin/Knuckle Pin



Material: Carbon steel

Part no.	Applicable bore size(mm)		Dd9	L	ℓ	m	d Drill through	Applicable cotter pin	Applicable flat washer
	Clevis	Knuckle							
CDP-2A	40	—	10 ^{-0.040} / _{-0.076}	46	38	4	3	ø3 x 18ℓ	Polished round 10
CDP-3A	50	40, 50, 63	12 ^{-0.050} / _{-0.093}	55.5	47.5	4	3	ø3 x 18ℓ	Polished round 12
CDP-4A	63	—	16 ^{-0.050} / _{-0.093}	71	61	5	4	ø4 x 25ℓ	Polished round 16
CDP-5A	—	80	18 ^{-0.050} / _{-0.093}	76.5	66.5	5	4	ø4 x 25ℓ	Polished round 18
CDP-6A	80	100	20 ^{-0.065} / _{-0.117}	83	73	5	4	ø4 x 25ℓ	Polished round 20
CDP-7A	100	—	25 ^{-0.065} / _{-0.117}	88	78	5	4	ø4 x 36ℓ	Polished round 24

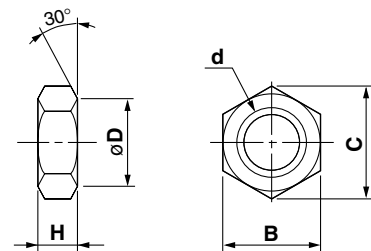
I Type Single Knuckle Joint



Material: Sulfur free-cutting steel

Part no.	Applicable bore size (mm)	A	A1	E1	L1	MM	R1	U1	ND	NX
I-04	40	69	22	24	55	M14 x 1.5	15.5	20	12 ^{+0.070} / ₀	16 ^{-0.1} / _{-0.3}
I-05	50, 63	74	27	28	60	M18 x 1.5	15.5	20	12 ^{+0.070} / ₀	16 ^{-0.1} / _{-0.3}
I-08	80	91	37	36	71	M22 x 1.5	22.5	26	18 ^{+0.070} / ₀	28 ^{-0.1} / _{-0.3}
I-10	100	105	37	40	83	M26 x 1.5	24.5	28	20 ^{+0.084} / ₀	30 ^{-0.1} / _{-0.3}

Rod End Nut (Standard equipment)



Material: Rolled steel

Part no.	Applicable bore size (mm)	d	H	B	C	D
NT-04	40	M14 x 1.5	8	22	25.4	21
NT-05	50, 63	M18 x 1.5	11	27	31.2	26
NT-08	80	M22 x 1.5	13	32	37.0	31
NT-10	100	M26 x 1.5	16	41	47.3	39

Minimum Stroke for Auto Switch Mounting

n: Number of auto switch

Auto switch model	Number of auto switches mounted	Mounting brackets other than center trunnion	Center trunnion				
			ø40	ø50	ø63	ø80	ø100
D-A5□/A6□/D-F5□/J5□ D-F5□W/J59W D-F5BAL, D-F59F	2 (Different sides, Same side), 1	15	90		100	110	120
	n (Same side)	$15 + 55 \frac{(n-2)}{2}$ n = 2, 4, 6, 8...	$90 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$100 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$110 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$120 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	
D-A59W	2 (Different sides, Same side)	20	90		100	110	120
	n (Same side)	$20 + 55 \frac{(n-2)}{2}$ n = 2, 4, 6, 8...	$90 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$100 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$110 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$120 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	
	1	15	90		100	110	120
D-F5□W/J59W D-F5BAL D-F59F D-F5NTL	2 (Different sides, Same side), 1	25	110		120	130	140
	n (Same side)	$25 + 55 \frac{(n-2)}{2}$ n = 2, 4, 6, 8...	$110 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$120 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$130 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$140 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	
D-B5□/B64 D-G5□/K59 D-G5□W D-K59W D-G5BAL D-G59F D-G5NTL	2	Different sides	15	90	100	110	
		Same side	75	90	100	110	
	n	Different sides	$15 + 50 \frac{(n-2)}{2}$ n = 2, 4, 6, 8, ...	$90 + 50 \frac{(n-4)}{2}$ n = 4, 8, 12, 16, ...	$100 + 50 \frac{(n-4)}{2}$ n = 4, 8, 12, 16, ...	$110 + 50 \frac{(n-4)}{2}$ n = 4, 8, 12, 16, ...	
		Same side	$75 + 50 (n-2)$ n = 2, 3, 4, ...	$90 + 50 (n-2)$ n = 2, 4, 6, 8, ...	$100 + 50 (n-2)$ n = 2, 4, 6, 8, ...	$110 + 50 (n-2)$ n = 2, 4, 6, 8, ...	
	1	10	90	100	110		
	1	10	90	100	110		
D-B59W	2	Different sides	20	90	100	110	
		Same side	75	90	100	110	
	n	Different sides	$20 + 50 \frac{(n-2)}{2}$ n = 2, 4, 6, 8, ...	$90 + 50 \frac{(n-4)}{2}$ n = 4, 8, 12, 16, ...	$100 + 50 \frac{(n-4)}{2}$ n = 4, 8, 12, 16, ...	$110 + 50 \frac{(n-4)}{2}$ n = 4, 8, 12, 16, ...	
		Same side	$75 + 50 (n-2)$ n = 2, 3, 4, ...	$90 + 50 (n-2)$ n = 2, 4, 6, 8, ...	$100 + 50 (n-2)$ n = 2, 4, 6, 8, ...	$110 + 50 (n-2)$ n = 2, 4, 6, 8, ...	
	1	15	90	100	110		
D-A3□ D-G39 D-K39	2	Different sides	35	75	80	90	
		Same side	100	100	100	100	
	n	Different sides	$35 + 30 (n-2)$ n = 2, 3, 4, ...	$75 + 30 (n-2)$ n = 2, 4, 6, 8, ...	$80 + 30 (n-2)$ n = 2, 4, 6, 8, ...	$90 + 30 (n-2)$ n = 2, 4, 6, 8, ...	
		Same side	$100 + 100 (n-2)$ n = 2, 3, 4, ...	$100 + 100 (n-2), n = 2, 4, 6, 8, ...$			
	1	10	75	80	90		
D-A44	2	Different sides	35	75	80	90	
		Same side	55	75	80	90	
	n	Different sides	$35 + 30 (n-2)$ n = 2, 3, 4, ...	$75 + 30 (n-2)$ n = 2, 4, 6, 8, ...	$80 + 30 (n-2)$ n = 2, 4, 6, 8, ...	$90 + 30 (n-2)$ n = 2, 4, 6, 8, ...	
		Same side	$55 + 50 (n-2)$ n = 2, 3, 4, ...	$75 + 50 (n-2)$ n = 2, 4, 6, 8, ...	$80 + 50 (n-2)$ n = 2, 4, 6, 8, ...	$90 + 50 (n-2)$ n = 2, 4, 6, 8, ...	
	1	10	75	80	90		
D-A3□C D-G39C D-K39C	2	Different sides	20	75	80	90	
		Same side	100	100	100	100	
	n	Different sides	$20 + 35 (n-2)$ n = 2, 3, 4, ...	$75 + 35 (n-2)$ n = 2, 4, 6, 8, ...	$80 + 35 (n-2)$ n = 2, 4, 6, 8, ...	$90 + 35 (n-2)$ n = 2, 4, 6, 8, ...	
		Same side	$100 + 100 (n-2)$ n = 2, 3, 4, 5...	$100 + 100 (n-2), n = 2, 4, 6, 8, ...$			
	1	10	75	80	90		
D-A44C	2	Different sides	20	75	80	90	
		Same side	55	75	80	90	
	n	Different sides	$20 + 35 (n-2)$ n = 2, 3, 4, ...	$75 + 35 (n-2)$ n = 2, 4, 6, 8, ...	$80 + 35 (n-2)$ n = 2, 4, 6, 8, ...	$90 + 35 (n-2)$ n = 2, 4, 6, 8, ...	
		Same side	$55 + 50 (n-2)$ n = 2, 3, 4, ...	$75 + 50 (n-2)$ n = 2, 4, 6, 8, ...	$80 + 50 (n-2)$ n = 2, 4, 6, 8, ...	$90 + 50 (n-2)$ n = 2, 4, 6, 8, ...	
	1	10	75	80	90		
D-Z7□/Z80 D-Y59□/Y7P D-Y7□W	2 (Different sides, Same side), 1	15	80	85	90	95	105
	n	$15 + 40 \frac{(n-2)}{2}$ n = 2, 4, 6, 8...	$80 + 40 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$85 + 40 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$90 + 40 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$95 + 40 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$105 + 40 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...
D-Y69□/Y7PV D-Y7□WV	2 (Different sides, Same side), 1	10	65		75	80	90
	n	$10 + 30 \frac{(n-2)}{2}$ n = 2, 4, 6, 8...	$65 + 30 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$75 + 30 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$80 + 30 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$90 + 30 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	
D-Y7BAL	2 (Different sides, Same side), 1	20	95		100	105	110
	n	$20 + 45 \frac{(n-2)}{2}$ n = 2, 4, 6, 8...	$95 + 45 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$100 + 45 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$105 + 45 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$110 + 45 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	
D-P5DWL	2 (Different sides, Same side), 1	15	120		130	140	
	n	$15 + 65 \frac{(n-2)}{2}$ n = 2, 4, 6, 8...	$120 + 65 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$130 + 65 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...	$140 + 65 \frac{(n-4)}{2}$ n = 4, 8, 12, 16...		

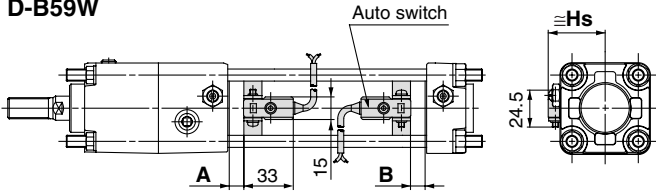
- CL
- CL1
- MLGC
- CNG
- MNB
- CNA
- CNS
- CLS
- CLQ
- MLGP
- RLQ
- MLU
- ML1C
- D-
- X
- 20-
- Data

Series CNA

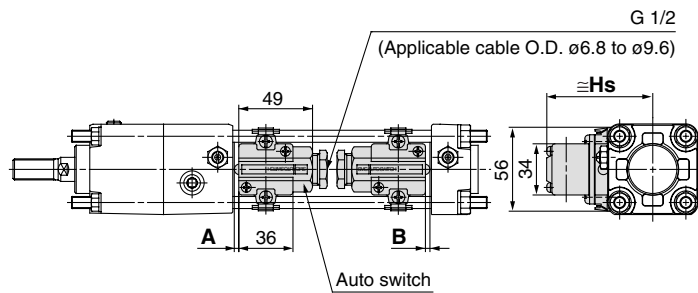
Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

<Band mounting style>

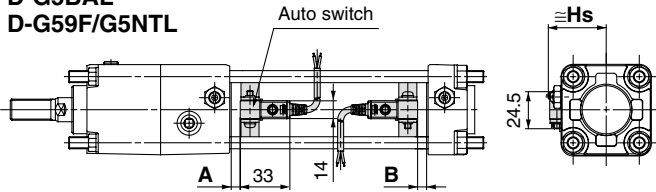
D-B5□/B64
D-B59W



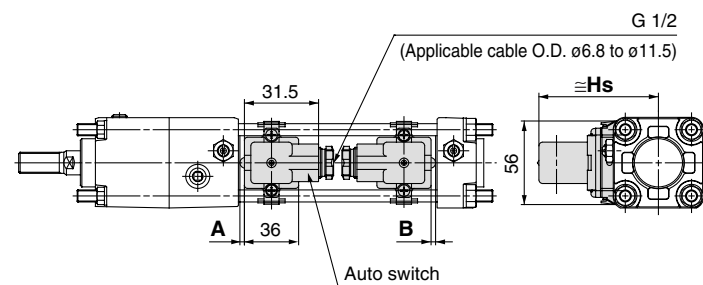
D-A3□
D-G39/K39



D-G5□/K59
D-G5□W/K59W
D-G5BAL
D-G59F/G5NTL

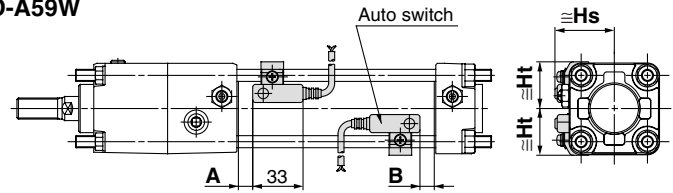


D-A44

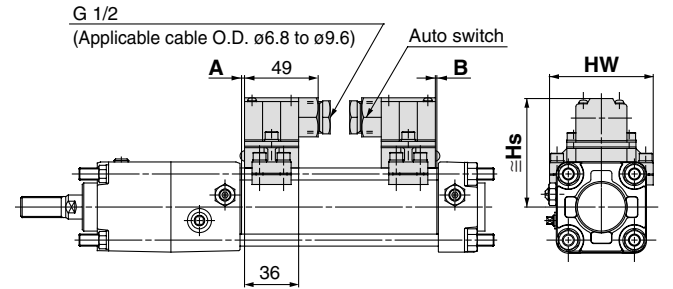


<Tie-rod mounting style>

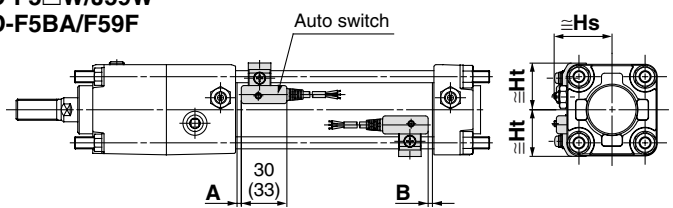
D-A5□/A6□
D-A59W



D-A3□C
D-G39C/K39C

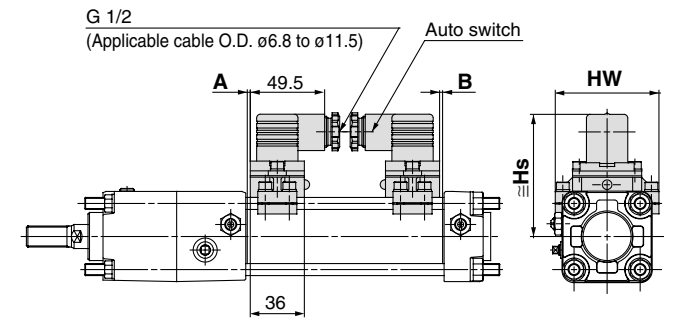


D-F5□/J5□
D-F5NTL
D-F5□W/J59W
D-F5BA/F59F



* (): Donates the value of D-F5LF.

D-A44C



Proper Auto Switch Mounting Position

Auto switch model	D-A5□/A6□ D-A3□/A3□C D-A44/A44C D-G39/G39C D-K39/K39C		D-B5/B6 D-B59W		D-G59F D-F59F D-G5□W D-K59W D-G5BAL D-G5□ D-K59 D-G5NTL D-F5□ D-J5□		D-A59W		D-F5□W D-F5BAL		D-F5NTL			
	A	B	A	B	A	B	A	B	A	B	A	B		
40	0	0	0.5	0	3.5	1.5	2	0	4	2	10.5	8.5	11.5	9.5
50	0	0	0.5	0	3.5	1.5	2	0	4	2	10.5	8.5	11.5	9.5
63	2.5	1.5	3	2	6	5	4.5	3.5	6.5	5.5	13	12	14	13
80	6	4	6.5	4.5	9.5	7.5	8	6	10	8	16.5	14.5	17.5	15.5
100	7.5	6.5	8	7	11	10	9.5	8.5	11.5	10.5	18	17	19	18

* Long stroke is available only for foot style and rod side flange style mounting support.

9-7-22

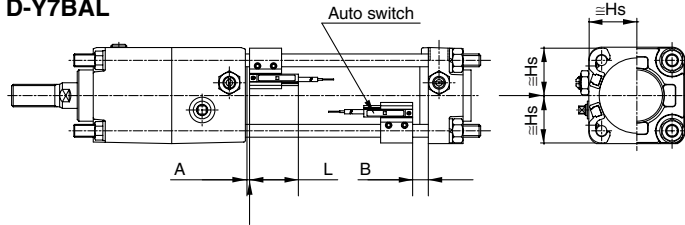
Auto Switch Mounting Height

Auto switch model	D-B5□/B64 D-B59W D-G5□ D-K59 D-G5NTL D-G5□W D-K59W D-G5BAL D-G59F		D-A3□ D-G39 D-K39		D-A44		D-A5□ D-A6□ D-A59W		D-F5□ D-J59 D-F5□W D-J59W D-F5BAL D-F59F D-F5NTL		D-A3□C D-G39C D-K39C		D-A44C	
	Hs	Hs	Hs	Hs	Ht	Hs	Ht	Hs	Hw	Hs	Hw	Hs	Hw	
40	38	72.5	80.5	40	31	38.5	31	73	69	81	69			
50	43.5	78	86	43.5	35	42.5	35	78.5	77	86.5	77			
63	50.5	85	93	49	42	48	42	85.5	91	93.5	91			
80	59	93.5	101.5	55.5	50	54	50	94	107	102	107			
100	69.5	104	112	63	57.5	62	57.5	104	121	112	121			

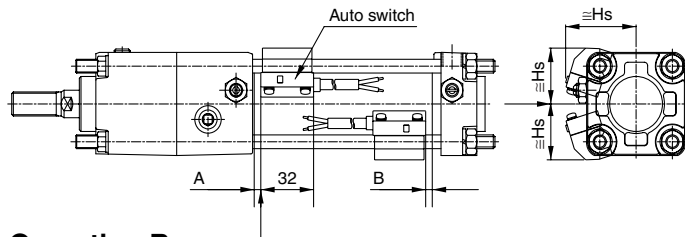
Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

<Tie-rod mounting style>

D-Z7□/Z80
 D-Y59□/Y69□/Y7P/Y7PV
 D-Y7□W, D-Y7□WV
 D-Y7BAL



D-P5DWL



Operating Range

Auto switch model	Bore size (mm)				
	40	50	63	80	100
D-Z7□/Z80	8	7	9	9.5	10.5
D-A3□/A44	9	10	11	11	11
D-A3□C, D-A44C					
D-A5□/A6□					
D-B5□/B64	13	13	14	14	15
D-A59W	14	14	17	16	18
D-B59W	8	7	5.5	6.5	6.5
D-Y59□/Y69□	3.5	3.5	5	5	5
D-Y7P/Y7□V					
D-Y7□W/Y7□WV					
D-Y7BAL	4	4	4.5	4.5	4.5
D-F5□/J5□/F59F	5	6	6.5	6.5	7
D-F5□W/J59W					
D-F5BAL/F5NTL					
D-G5□/K59/G59F	9	9	10	10	11
D-G5□W/K59W	4	4	4.5	4	4.5
D-G5NTL/G5BAL					
D-G39/K39					
D-G39C, D-K39C					
D-P5DWL					

* 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.

Proper Auto Switch Mounting Position

Auto switch model	D-P5DWL			
	D-Z7□/Z80 D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W D-Y7□WV D-Y7BAL			
Bore size (mm)	A	B	A	B
40	3.5	1.5	3	1
50	3.5	1.5	3	1
63	6	5	5.5	4.5
80	9.5	7.5	9	7
100	11	10	10.5	9.5

Auto Switch Mounting Height

Auto switch model	D-Z7□ D-Z80 D-Y59□ D-Y7P D-Y7□W		D-Y69□ D-Y7PV D-Y7□WV		D-Y7BAL		D-P5DWL	
	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht
Bore size (mm)								
40	30	30	30.5	30	34	30	43	33.5
50	34	34	35	34	38.5	34	47	38
63	41	41	42.5	41	46.5	41	53	44
80	49.5	48.5	51	48.5	55	48.5	60	52
100	58.5	56	59	56	63	56	67	59

Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted. For detailed specifications, refer to page 9-15-1.

Type	Model	Electrical entry (Fetching direction)	Features
Read switch	D-A53/A56	Grommet (In-line)	—
	D-A64/A67		Without indicator light
	D-Z80		
Solid state switch	D-F59/F5P/J59	Grommet (In-line)	—
	D-F59W/F5PW/J59W		2-color indication type
	D-F5BAL		2-color indication type, Water resistant
	D-F5NTL		With timer
	D-G5NTL		
	D-Y69A/Y69B/Y7PV	Grommet (Perpendicular)	—
	D-Y7NWV/Y7PWV/Y7BWV		2-color indication type

* With pre-wire connector is available for solid state auto switches. For details, refer to page 9-15-66.

* Normally closed (NC = b contact), solid state switch (D-Y7G/Y7H type) are also available. For details, refer to page 9-15-40.

CL

CL1

MLGC

CNG

MNB

CNA

CNS

CLS

CLQ

MLGP

RLQ

MLU

ML1C

D-

-X

20-

Data