



Valve Mounted Cylinder Double Acting, Single Rod Series CV3

Lube/Non-lube Type: $\varnothing 40$, $\varnothing 50$, $\varnothing 63$, $\varnothing 80$, $\varnothing 100$

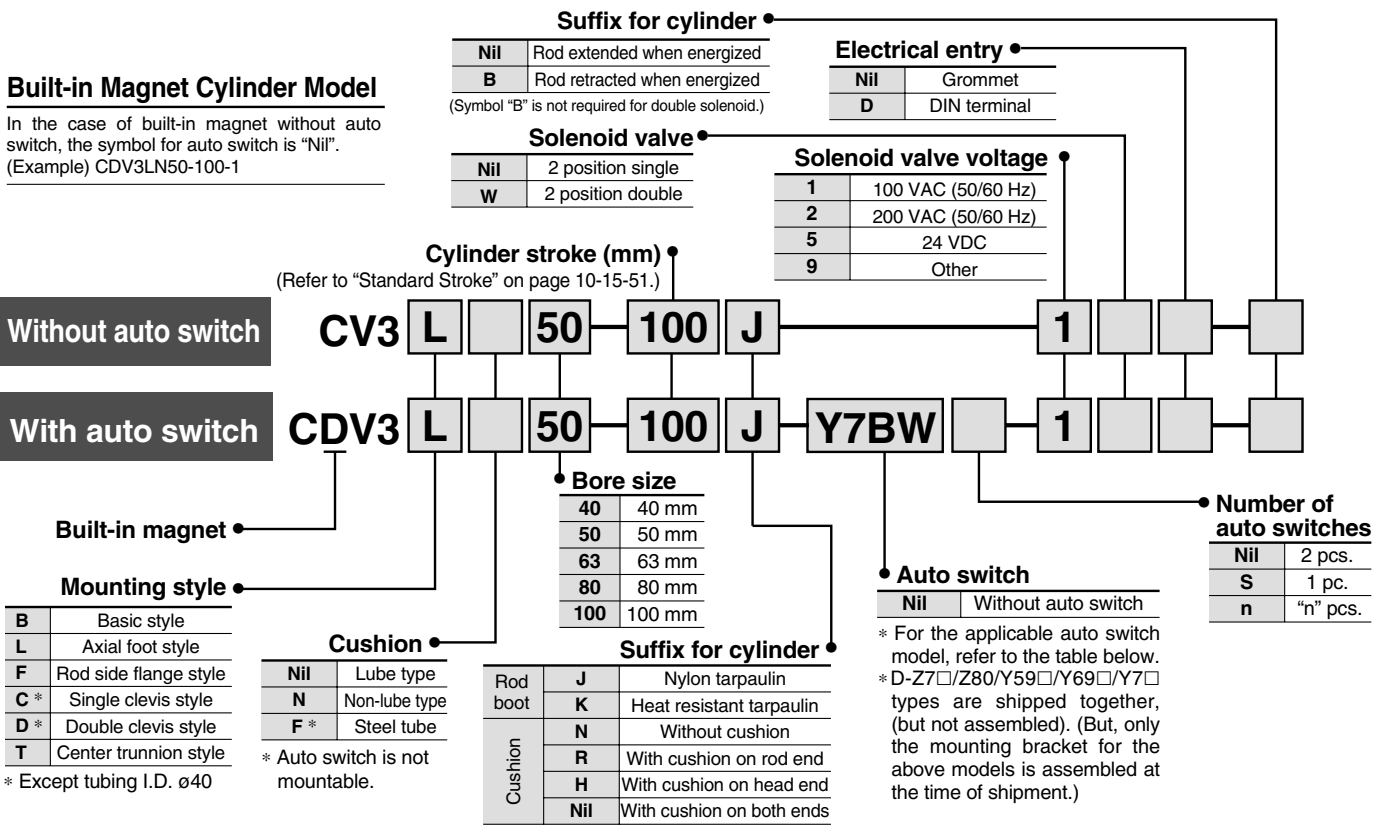
How to Order

Built-in Magnet Cylinder Model

In the case of built-in magnet without auto switch, the symbol for auto switch is "Nil".
(Example) CDV3LN50-100-1

Without auto switch

With auto switch



Applicable Auto Switch/Refer to page 10-20-1 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)	—	5 V	—	Z76	—	●	●	—	—	IC circuit	—			
				2-wire	24 V	12 V	100 V	Z73	—	●	●	●	—	—	Relay, PLC			
							—	B53***	—	●	●	●	—	—	PLC			
		100 V, 200 V					A54	B54***	●	●	●	—	—	Relay, PLC				
		Terminal conduit		—	—	—	A33C	A33	—	—	—	—	—	PLC				
				100 V	200 V	A34C	A34	—	—	—	—	—	—	Relay, PLC				
Diagnostic indication (2-color indication)	—	Grommet	—	—	—	—	A59W	B59W***	●	●	—	—	—	—				
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	—	●	●	○	—					
		Terminal conduit		12 V	Y59B	K59***	●	●	○	○								
				5 V, 12 V	G39C	G39	—	—	—	—								
				12 V	K39C	K39	—	—	—	—								
		Grommet	3-wire (NPN)	24 V	5 V, 12 V	—	Y7NW	G59W**	●	●	○	○	IC circuit					
			3-wire (PNP)				Y7PW	G5PW**	●	●	○	○						
			2-wire				Y7BW	K59W**	●	●	○	○						
		Diagnostic indication (2-color indication)	—	Grommet	Yes	4-wire (NPN)	5 V, 12 V	—	F59F	G59F***	●	●	○	○	IC circuit			
		With diagnostic output (2-color indication)	—						—	—	—	—	—	—	—	—	—	—

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

- Since there are other applicable auto switches than listed, refer to page 10-15-61 for details.
- For details about auto switches with pre-wire connector, refer to page 10-20-66.

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

- ** D-G5□W/K59W/G59F cannot be mounted on bore sizes $\varnothing 40$ and $\varnothing 50$ lube style cylinder.
- *** D-B5□W/G5□/K5□ types are mountable only upon a receipt of order. (Not mountable after the time of shipment)

Valve Mounted Cylinder Double Acting, Single Rod Series CV3

Adjustable speed.

Built-in throttle valves are provided to enable speed adjustments in each direction.

Operation type can be changed to rod extended when energized or rod retracted when energized.

Ease of maintenance and inspection.

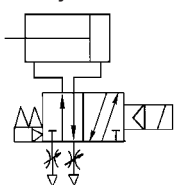
The solenoid valve can be separated easily and the cylinder can also be disassembled.

A manual operation mechanism is provided as standard equipment (non-locking).

An auto switch cylinder with the switch installed can also be manufactured.



JIS Symbol



Made to Order Specifications (For details, refer to page 10-21-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC4	With heavy duty scraper
-XC6	Piston rod and rod end nut made of stainless steel
-XC7	Tie-rod, cushion valve, and tie-rod nut and similar parts made of stainless steel
-XC15	Change of tie-rod length
-XC22	Fluoro rubber seals
-XC29	Double knuckle joint with spring pin

⚠ Precautions

Minimum stroke for auto switch mounting

⚠ Caution

- Each switch and mounting style of cylinder has different minimum mountable stroke. Be careful especially of the center trunnion style. (For details, refer to page 10-15-62.)

Specifications

Applicable bore size (mm)	40, 50, 63, 80, 100	
Type	Lube	Non-lube
Series	CV3	CV3□N
Action	Double acting	
Fluid	Air	
Proof pressure	1.35 MPa	
Maximum operating pressure	0.9 MPa	
Minimum operating pressure	0.15 MPa	
Ambient & fluid temperature	-10 to 50°C (No freezing)	
Cushion	Air cushion	
Thread tolerance	JIS Class 2	
Stroke length tolerance	Up to 250 st : $^{+0.0}_{-0}$, 251 to 1000 st : $^{+0.14}_{-0}$	
Effective area of valve (Cv factor)	18 mm ² (1.0)	
Port size	Rc 1/4	
Electrical entry	Grommet, DIN terminal	
Piston speed	ø40 to ø80: 50 to 500 mm/s*, ø100: 50 to 350 mm/s*	
Mounting	Basic style, Axial foot style, Rod side flange style Single clevis style, Double clevis style, Center trunnion style	

* Operate within the range of absorbed energy.

Allowable Kinetic Energy

Bore size (mm)	40	50	63	80	100
Allowable kinetic energy	2.4 J	4.4 J	7.8 J	11.7 J	20.5 J

Solenoid Valve Specifications

Applicable solenoid valve model	V3□08		
Coil rated voltage	100/200 VAC (50/60 Hz), 24 VDC		
Allowable voltage	-15 to 10% of the rated voltage		
Coil insulation	Class B or equivalent (130°C)		
Apparent power ^{Note)}	AC	Inrush	50 Hz: 8.5 VA 60 Hz: 7.5 VA
		Holding	50 Hz: 7.0 VA 60 Hz: 5.5 VA
	DC	6 W	

Note) At the rated voltage.

Standard Stroke

Bore size (mm)	Standard stroke (mm)
40	25, 50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500
50, 63	25, 50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600
80, 100	25, 50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700

Note) The cylinders with the standard strokes indicated above can be delivered in a short term. Intermediate stroke except mentioned above is manufactured upon receipt of order. When the auto switch is attached, the minimum stroke is going to be different. Refer to page 10-15-62. The minimum stroke length is different in the trunnion style. For further information, refer to page 10-15-62.

Rod Boot Material

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

* Maximum ambient temperature for the rod boot itself.

Accessory

Mounting		Basic style	Foot style	Rod 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	●	●	●	●	●	●

* Pin, plain washer and cotter pin are packaged together with double clevis and double knuckle joint.

RE_B^A

REC

C□X

C□Y

MQ_M^Q

RHC

MK(2)

RS_G^Q

RS_A^H

RZQ

MI_S^W

CEP1

CE1

CE2

ML2B

C_G¹5-S

CV

MVGQ

CC

RB

J

D-

-X

20-

Data

Series CV3

Weight

(kg)

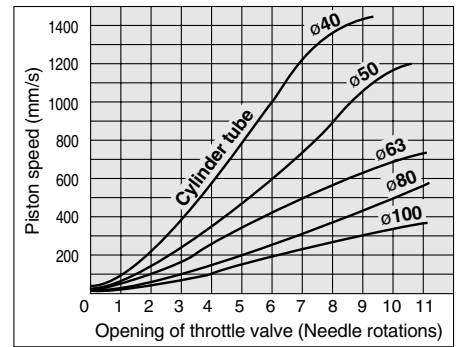
Bore size (mm)		40	50	63	80	100
Basic weight	Basic style	1.30 (1.35)	1.73 (1.77)	2.57 (2.61)	4.29 (4.44)	6.01 (6.21)
	Axial foot style	1.47 (1.52)	1.93 (1.97)	2.86 (2.9)	5.08 (5.23)	6.94 (7.14)
	Rod side flange style	1.56 (1.61)	2.14 (2.18)	3.19 (3.23)	5.39 (5.54)	7.40 (7.6)
	Single clevis style	—	2.46 (2.5)	3.68 (3.72)	6.23 (6.38)	8.66 (8.86)
	Double clevis style	—	2.51 (2.55)	3.73 (3.77)	6.29 (6.44)	8.73 (8.93)
	Trunnion style	1.95 (2.05)	2.52 (3.52)	3.96 (4.16)	6.67 (6.96)	9.58 (9.97)
Additional weight per each 50 mm of stroke	All mounting brackets (Except trunnion style of iron tube)	0.22 (0.28)	0.28 (0.35)	0.37 (0.43)	0.52 (0.70)	0.65 (0.87)
	Trunnion style of steel	(0.36)	(0.46)	(0.65)	(0.86)	(1.07)
Accessory bracket	Single knuckle	0.23	0.26	0.26	0.60	0.83
	Double knuckle (with pin)	0.37	0.43	0.43	0.87	1.27

Calculation: (Example) CV3L40-100-1

*(): Steel tube type.

- Basic weight.....1.47 (kg)
- Additional weight.....0.22 (kg/50 st)
- Cylinder stroke.....100 (st) $1.47 + 0.22 \times 100 \div 50 = 1.9$ kg

Opening Range of Throttle Valve and Driving Speed



Conditions: Operating pressure 0.5 MPa, Horizontal mounting, No load, Spring return side

- Driving speeds indicated above are for reference.

Mounting Bracket Part No.

Mounting Bracket Part No.

Bore size (mm)	40	50	63	80	100
Axial foot *	CA1-L04	CA1-L05	CA1-L06	CA1-L08	CA1-L10
Flange	CA1-F04	CA1-F05	CA1-F06	CA1-F08	CA1-F10
Single clevis	—	CV3-C05	CV3-C06	CV3-C08	CV3-C10
Double clevis **	—	CV3-D05	CV3-D06	CV3-D08	CV3-D10

* Order two foot brackets per cylinder.

** For double clevis style, pin for clevis, plain washer and split pin are shipped together.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)				
	40	50	63	80	100
D-A5□/A6□/A59W/F5□/J5□ D-F5□W/J59W/F5NTL/F59F	BT-04	BT-04	BT-06	BT-08	BT-08
D-A3□/A44/G39/K39	BD1-04M	BD1-05M	BD1-06M	BD1-08M	BD1-10M
D-B5□/B64/B59W/G5□/K59 D-G5□W/K59W/G59F/G5NTL	BA-04	BA-05	BA-06	BA-08	BA-10
D-A3□C/A44C/G39C/K39C*	BA3-040	BA3-050	BA3-063	BA3-080	BA3-100
D-Z7□/Z80/Y59□/Y69□/Y7P D-Y7PV/Y7□W/Y7□WV	BA4-040	BA4-040	BA4-063	BA4-080	BA4-080

* Mounting brackets are provided with D-A3□C/A44C/G39C/K39C. When ordering, indicate as described below, in accordance with the cylinder size.

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

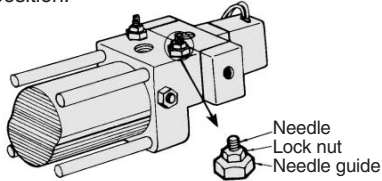
Mounting of Auto Switch

D-B5□, B64, G5□, D-K5□ types are mountable only upon a receipt of order. (Not mountable after the time of shipment)

Series CV3

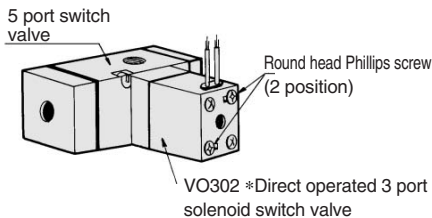
Piston Speed Adjustment

- To slow down the piston speed, screw in the needle of the silencer exhaust throttle valve clockwise, to reduce the amount of air that is discharged.
- The throttle valve needle opens fully when it is loosened 11 turns from its fully closed position.



- After the specified speed has been set, secure the needle with the lock nut.

Change of Voltage Specifications



<Step>

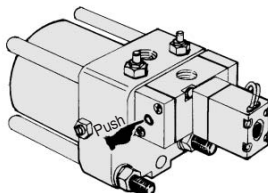
- Loosen the Phillips screw with a screwdriver.
- Detach the VO302* direct operated 3 port solenoid valve switch* from the 5 port solenoid valve (V3108, V3208) and replace it.

How to order pilot valve:

- For single solenoid valve
 - Pilot valve only
VO302A-00** 1 pc.
 - With gasket
VO302S-00** 1 pc.
- For double solenoid valve
 - Pilot valve only
VO302A-00** 2 pcs.
 - With gasket
VO302D-00** 2 pcs.

Manual Operation

Manual operation (non-locking) is possible by pushing the manual button about 3 mm.



Changing between Rod Extended when Energized and Rod Retracted when Energized

Ex.) From rod extended when energized to rod retracted when energized

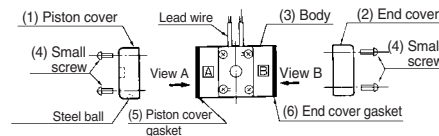


Fig. 1

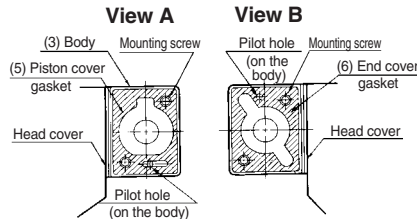


Fig. 2

<Step>

- Loosen small screw (4) and remove piston cover (1) and end cover (2) from body (3). See Fig. 1. Leave piston cover gasket (5) and end cover gasket (6) attached to body (3). The installed position of the gasket at this time is shown in Fig. 2.
- Push spool valve (7) and spool spring (8) out from the end cover side (the letter "B" side of the body) of body (3). (Do not push them out from the opposite direction. Fig. 3)

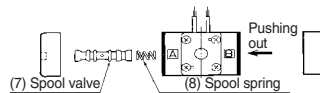


Fig. 3

- Invert the spool valve 180° and insert it from the piston cover side (the side of the body marked "A") of body e. (Fig. 4)

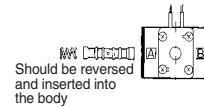


Fig. 4

- Interchange piston cover gasket (5) and end cover gasket (6). (Fig. 5)

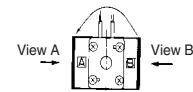


Fig. 5

The positions for gaskets after replacement are like the Fig. 6.

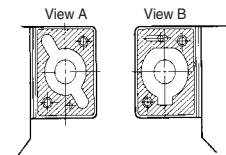


Fig. 6

- Interchange piston cover (1) and end cover (2). The installation must be performed from the piston cover side (the letter "B" side of the body). (Refer to Fig. 7.)

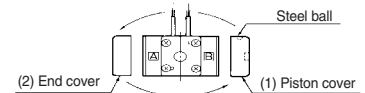
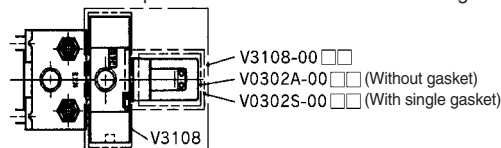


Fig. 7

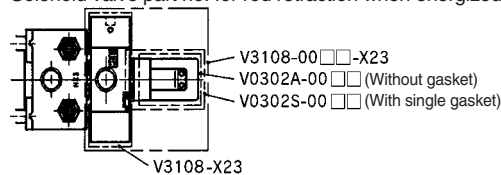
At this time, install so that the steel ball of the piston cover faces the surface from which the lead wires protrude.

Solenoid Valve for CV3, Pilot Valve Part No.

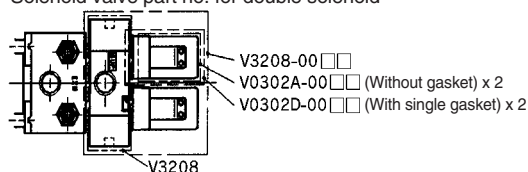
Solenoid valve part no. for rod extension when energized



Solenoid valve part no. for rod retraction when energized



Solenoid valve part no. for double solenoid

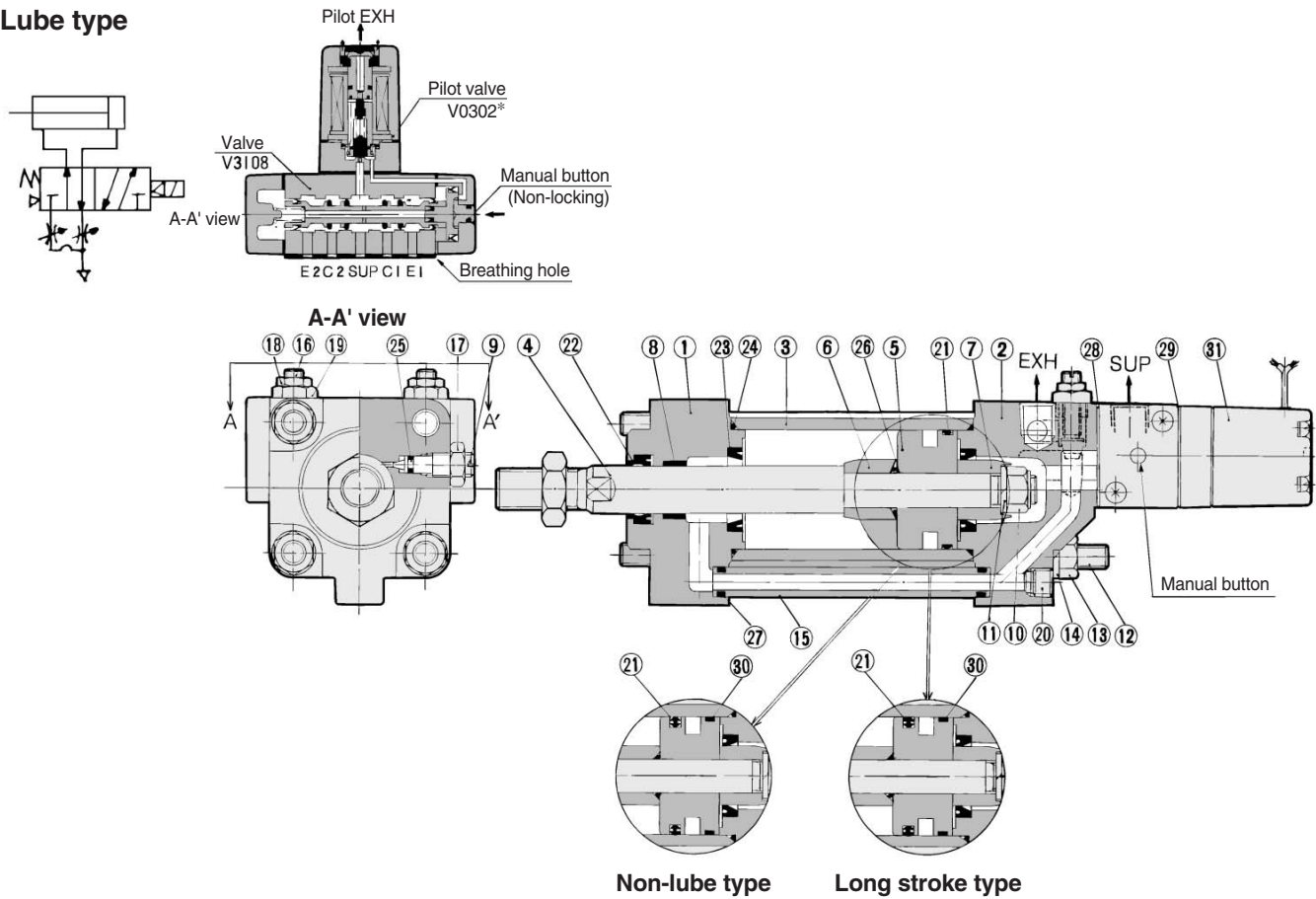


Note) Part number for the plate name of pilot valve is all V0302A.

Valve Mounted Cylinder Double Acting, Single Rod Series CV3

Construction

Lube type



Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	Matt black painted
②	Head cover	Aluminum alloy	Matt black painted
③	Cylinder tube	Aluminum alloy	Hard anodized
④	Piston rod	Carbon steel	Hard chrome plated
⑤	Piston	Aluminum alloy	Chromated
⑥	Cushion ring A	Rolled steel	Zinc chromated
⑦	Cushion ring B	Rolled steel	Zinc chromated
⑧*	Bushing	Lead-bronze casted	
⑨	Cushion valve	Rolled steel	Electroless nickel plated
⑩	Piston nut	Rolled steel	Zinc chromated
⑪	Spring washer	Steel wire	Zinc chromated
⑫	Tie-rod	Carbon steel	Chromated
⑬	Tie-rod nut	Carbon steel	Black zinc chromated
⑭	Spring washer	Steel wire	Black zinc chromated
⑮	Pipe	Carbon steel tube	Chromated
⑯	Valve	Sulfur easy chipping steel	Electroless nickel plated
⑰	Lock nut	Carbon steel	Nickel plated
⑱	Lock nut	Carbon steel	Nickel plated
⑲	Needle guide	Sulfur easy chipping steel	Electroless nickel plated
⑳	Plug	Chromium molybdenum steel	Black zinc chromated
㉑	Wear ring	Resin	

No.	Description	No. of solenoids	Rod extended when energized	Rod retracted when energized
㉓	Solenoid valve	Single	(1)	(2)
		Double		(3)

* How to order solenoid valves

Note 1) V3108-00 [Voltage] [Electrical entry]

Note 2) V3108-00 [Voltage] [Electrical entry] x 23

Note 3) V3208-00 [Voltage] [Electrical entry]

No.	Description	Material	Note
㉒	Piston seal	NBR	
㉔	Rod seal	NBR	
㉕*	Cushion seal	NBR	
㉖	Cylinder tube gasket	NBR	
㉗	Cushion valve seal	NBR	
㉘*	Piston gasket	NBR	
㉙	Pipe gasket	NBR	
㉚	Head cover gasket	NBR	
㉛	Single solenoid gasket	NBR	
	Double solenoid gasket	NBR	

* Not replaceable.

Replacement Parts: Seal Kit

Lube Type

Bore size (mm)	40	50	63	80	100
Kit no.	CV3-40-PS	CV3-50-PS	CV3-63-PS	CV3-80-PS	CV3-100-PS
Contents	Set of nos. above ㉒, ㉔, ㉕, ㉖, ㉘, ㉙, ㉚				

Non-lube Type

Bore size (mm)	40	50	63	80	100
Kit no.	CV3N40-PS	CV3N50-PS	CV3N63-PS	CV3N80-PS	CV3N100-PS
Contents	Set of nos. above ㉒, ㉔, ㉕, ㉖, ㉘, ㉙, ㉚				

* Seal kit includes ㉒, ㉔, ㉕, ㉖, ㉘, ㉙, ㉚. Order the seal kit, based on each bore size. (The parts indicated with numbers ㉕ and ㉘ are not replaceable.)

For the dimensions of DIN terminal, refer to page 10-15-59.

RE_B^A

REC

C□X

C□Y

MQ_M^Q

RHC

MK(2)

RS_G^Q

RS_A^H

RZQ

MI_S^W

CEP1

CE1

CE2

ML2B

C₅-S

CV

MVGQ

CC

RB

J

D-

-X

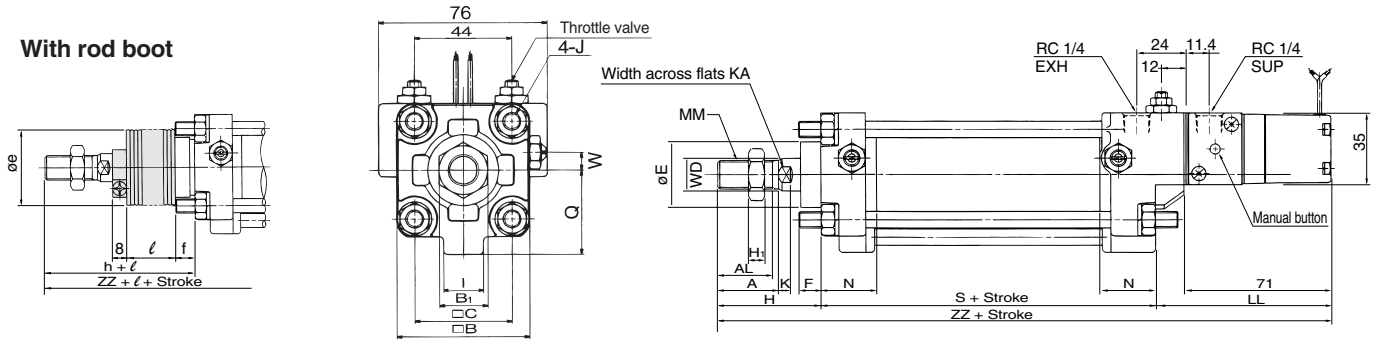
20-

Data

Series CV3

Basic Style: CV3B□

Lube type (CV3B), Non-lube type (CV3BN)



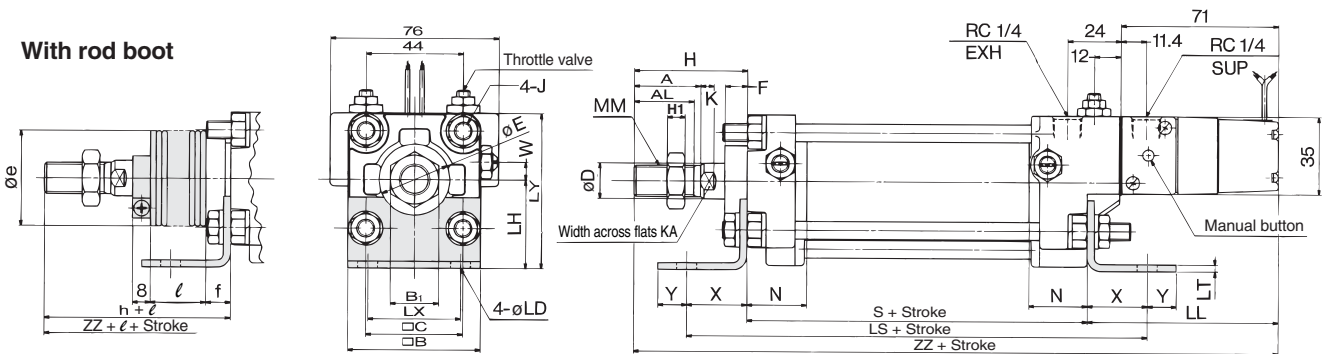
Bore size (mm)	Stroke range* (mm)	A	AL	B	B ₁	C	D	E	F	H ₁	I	J	K	KA	LL	MM	N	Q	S
40	Up to 500	30	27	60	22	44	16	32	10	8	18	M8 x 1.25	6	14	86	M14 x 1.5	27	38	84
50	Up to 600	35	32	70	27	52	20	40	10	11	18	M8 x 1.25	7	18	83	M18 x 1.5	30	43.5	90
63	Up to 600	35	32	85	27	64	20	40	10	11	18	M10 x 1.25	7	18	83	M18 x 1.5	31	49	98
80	Up to 750	40	37	102	32	78	25	52	14	13	20	M12 x 1.75	11	22	84	M22 x 1.5	37	63	116
100	Up to 750	40	37	116	41	92	30	52	14	16	20	M12 x 1.75	11	26	85	M26 x 1.5	40	73	126

Bore size (mm)	W	Without rod boot		With rod boot				
		H	ZZ	e	f	h	l	ZZ
40	8	51	221	43	11.2	59	1/4 stroke	229
50	0	58	231	52	11.2	66	1/4 stroke	239
63	0	58	239	52	11.2	66	1/4 stroke	247
80	0	71	271	65	12.5	80	1/4 stroke	280
100	0	72	283	65	14.0	81	1/4 stroke	292

* The minimum stroke of the one with rod boot is 20 mm or more.

Axial Foot Style: CV3L□

Lube type (CV3L), Non-lube type (CV3LN)



Bore size (mm)	Stroke range* (mm)	A	AL	B	B ₁	C	D	E	F	H ₁	J	K	LD	LH	LL	LS	LT	LX	LY
40	Up to 500 501 to 800*	30	27	60	22	44	16	32	10	8	M8 x 1.25	6	9	40	86	138	3.2	42	70
50	Up to 600 601 to 1000*	35	32	70	27	52	20	40	10	11	M8 x 1.25	7	9	45	83	144	3.2	50	80
63	Up to 600 601 to 1000*	35	32	85	27	64	20	40	10	11	M10 x 1.25	7	11.5	50	83	166	3.2	59	93
80	Up to 750 751 to 1000*	40	37	102	32	78	25	52	14	13	M12 x 1.75	11	13.5	65	84	204	4.5	76	116
100	Up to 750 751 to 1000*	40	37	116	41	92	30	52	14	16	M12 x 1.75	11	13.5	75	85	212	6	92	133

Bore size (mm)	MM	N	S	W	X	Y	Without rod boot		With rod boot				
							H	ZZ	e	f	h	l	ZZ
40	M14 x 1.5	27	84	8	27	13	51	221	43	11.2	59	1/4 stroke	229
50	M18 x 1.5	30	90	0	27	13	58	231	52	11.2	66	1/4 stroke	239
63	M18 x 1.5	31	98	0	34	16	58	239	52	11.2	66	1/4 stroke	247
80	M22 x 1.5	37	116	0	44	16	71	271	65	12.5	80	1/4 stroke	280
100	M26 x 1.5	40	126	0	43	17	72	283	65	14.0	81	1/4 stroke	292

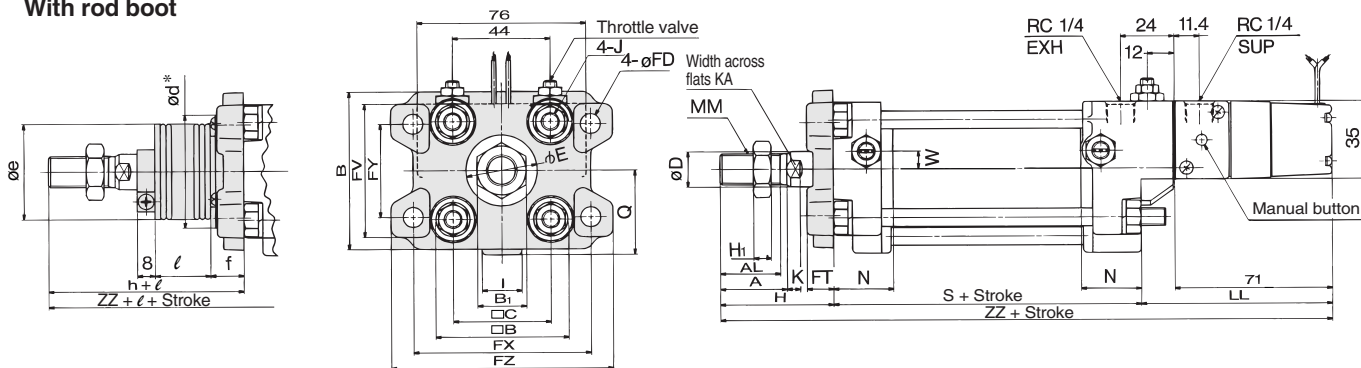
* The minimum stroke of the one with rod boot is 20 mm or more. * Long stroke

Valve Mounted Cylinder Double Acting, Single Rod Series CV3

Rod Side Flange Style: CV3F

Lube type (CV3F), Non-lube type (CV3FN)

With rod boot



Bore size (mm)	Stroke range* (mm)	A	AL	B	B ₁	C	D	E	FD	FT	FV	FX	FY	FZ	H ₁	I	J	K	
40	Up to 500 501 to 800**	30	27	71	60	22	44	16	32	9	12	60	80	42	100	8	18	M8 x 1.25	6
50	Up to 600 601 to 1000**	35	32	81	70	27	52	20	40	9	12	70	90	50	110	11	18	M8 x 1.25	7
63	Up to 600 601 to 1000**	35	32	101	85	27	64	20	40	11.5	15	86	105	59	130	11	18	M10 x 1.25	7
80	Up to 750 751 to 1000**	40	37	119	102	32	78	25	52	13.5	18	102	130	76	160	13	20	M12 x 1.75	11
100	Up to 750 751 to 1000**	40	37	133	116	41	92	30	52	13.5	18	116	150	92	180	16	20	M12 x 1.75	11

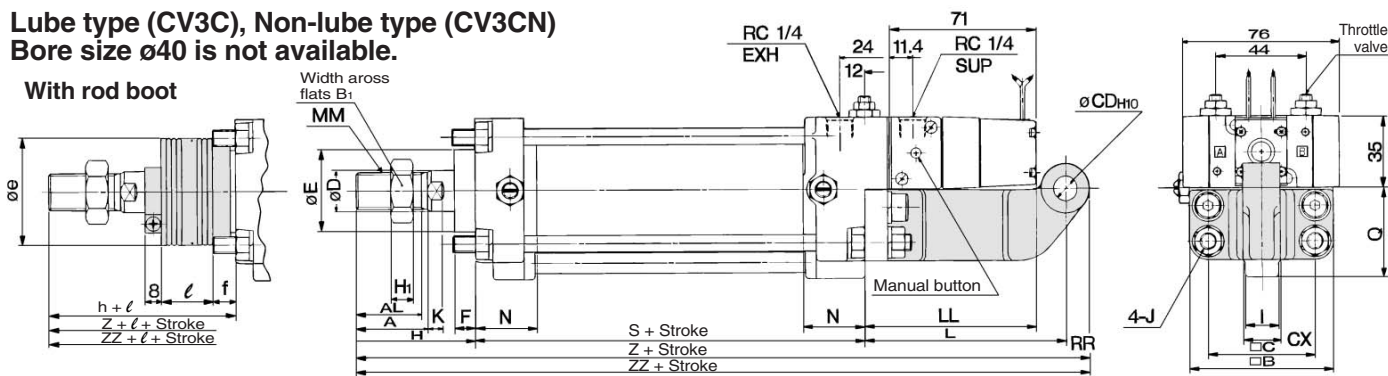
Bore size (mm)	LL	MM	N	Q	S	W	Without rod boot		With rod boot					
							H	ZZ	d**	e	f	h	ℓ	ZZ
40	86	M14 x 1.5	27	38	84	8	51	221	52	43	15	59	1/4 stroke	229
50	83	M18 x 1.5	30	43.5	90	0	58	231	58	52	15	66	1/4 stroke	239
63	83	M18 x 1.5	31	49	98	0	58	239	58	52	17.5	66	1/4 stroke	247
80	84	M22 x 1.5	37	63	116	0	71	271	80	65	21.5	80	1/4 stroke	280
100	85	M26 x 1.5	40	73	126	0	72	283	80	65	21.5	81	1/4 stroke	292

* The minimum stroke of the one with rod boot is 20 mm or more. ** Long stroke
** When drilling holes to get through the rod boot for the purpose of mounting, make the holes larger than the outer diameter (ϕd) of the rod boot mounting bracket.

Single Clevis Style: CV3C

Lube type (CV3C), Non-lube type (CV3CN)
Bore size $\phi 40$ is not available.

With rod boot



** Bore size $\phi 40$ is not available.

Bore size** (mm)	Stroke range* (mm)	A	AL	B	B ₁	C	ϕCD_{H10}	CX	D	E	F	H ₁	I	J	K	L	LL
50	Up to 600	35	32	70	27	52	12 ^{+0.070} ₀	18 ^{-0.1} _{-0.3}	20	40	10	11	18	M8 x 1.25	7	98	83
63	Up to 600	35	32	85	27	64	16 ^{+0.070} ₀	25 ^{-0.1} _{-0.3}	20	40	10	11	18	M10 x 1.25	7	100	83
80	Up to 750	40	37	102	32	78	20 ^{+0.084} ₀	31.5 ^{-0.1} _{-0.3}	25	52	14	13	20	M12 x 1.75	11	105	84
100	Up to 750	40	37	116	41	92	25 ^{+0.084} ₀	35.5 ^{-0.1} _{-0.3}	30	52	14	16	20	M12 x 1.75	11	110	85

Bore size** (mm)	MM	N	Q	RR	S	Without rod boot			With rod boot					
						H	Z	ZZ	e	f	h	ℓ	Z	ZZ
50	M18 x 1.5	30	43.5	12	90	58	246	258	52	11.2	66	1/4 stroke	254	266
63	M18 x 1.5	31	49	16	98	58	256	272	52	11.2	66	1/4 stroke	264	280
80	M22 x 1.5	37	63	20	116	71	292	312	65	12.5	80	1/4 stroke	301	321
100	M26 x 1.5	40	73	25	126	72	308	333	65	14.0	81	1/4 stroke	317	342

* The minimum stroke of the one with rod boot is 20 mm or more.

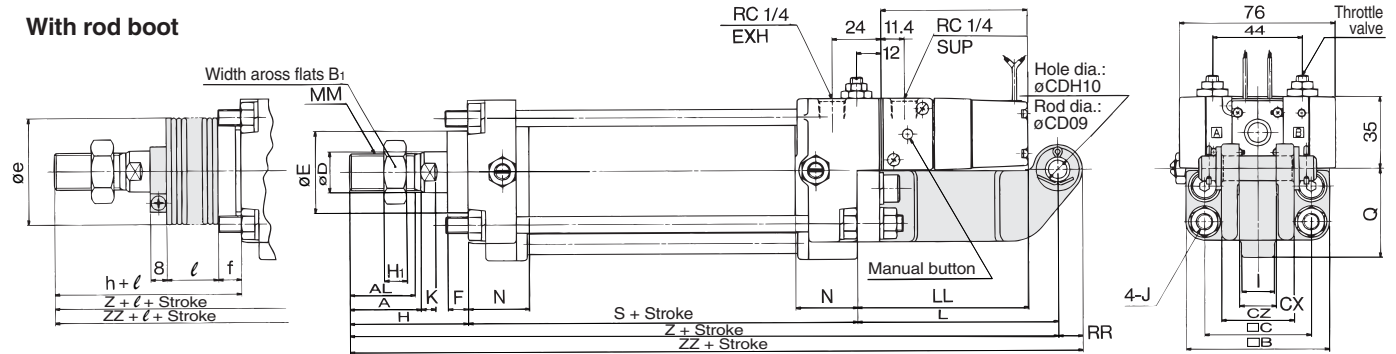
RE^A_B
REC
C□X
C□Y
MQ^Q_M
RHC
MK(2)
RS^Q_G
RS^H_A
RZQ
MI^W_S
CEP1
CE1
CE2
ML2B
C¹/₅-S
CV
MVGQ
CC
RB
J
D-
-X
20-
Data

Series CV3

Double Clevis Style: CV3D□

Lube type (CV3D), Non-lube type (CV3DN)
Bore size ø40 is not available.

With rod boot



** Bore size ø40 is not available.

Bore size** (mm)	Stroke range* (mm)	A	AL	B	B ₁	C	CD	CX	CZ	D	E	F	H ₁	I	J	K	L
50	Up to 600	35	32	70	27	52	12	18 ^{+0.3} _{+0.1}	35.5	20	40	10	11	18	M8 x 1.25	7	98
63	Up to 600	35	32	85	27	64	16	25 ^{+0.3} _{+0.1}	50	20	40	10	11	18	M10 x 1.25	7	100
80	Up to 750	40	37	102	32	78	20	31.5 ^{+0.3} _{+0.1}	63	25	52	14	13	20	M12 x 1.75	11	105
100	Up to 750	40	37	116	41	92	25	35.5 ^{+0.3} _{+0.1}	71	30	52	14	16	20	M12 x 1.75	11	110

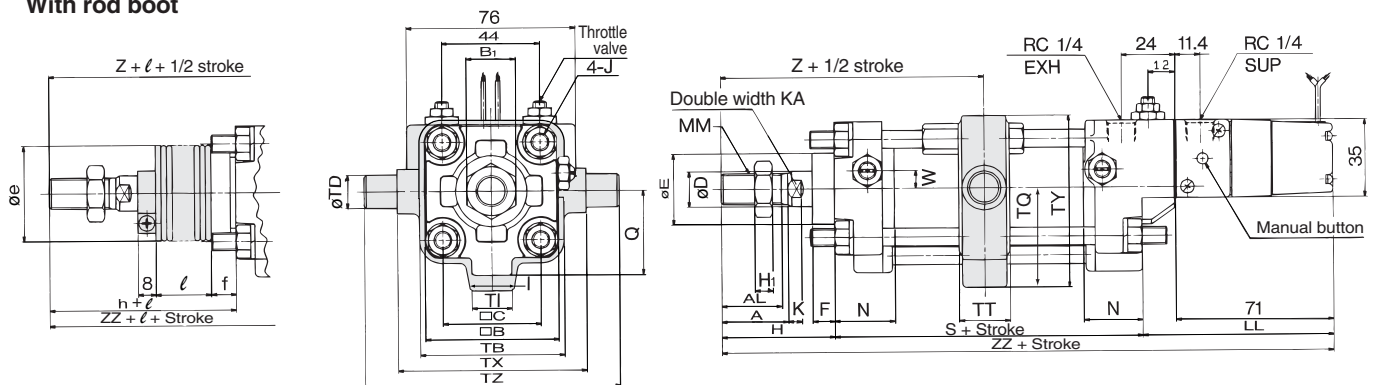
Bore size** (mm)	LL	MM	N	Q	RR	S	Without rod boot			With rod boot					
							H	Z	ZZ	e	f	h	ℓ	Z	ZZ
50	83	M18 x 1.5	30	43.5	12	90	58	246	258	52	11.2	66	1/4 stroke	254	266
63	83	M18 x 1.5	31	49	16	98	58	256	272	52	11.2	66	1/4 stroke	264	280
80	84	M22 x 1.5	37	63	20	116	71	292	312	65	12.5	80	1/4 stroke	301	321
100	85	M26 x 1.5	40	73	25	126	72	308	333	65	14.0	81	1/4 stroke	317	342

* Clevis pin and snap ring (cotter pin for 40) are shipped together. The minimum stroke with rod boot is 20 mm or more.

Center Trunnion Style: CV3T□

Lube type (CV3T), Non-lube type (CV3TN)

With rod boot



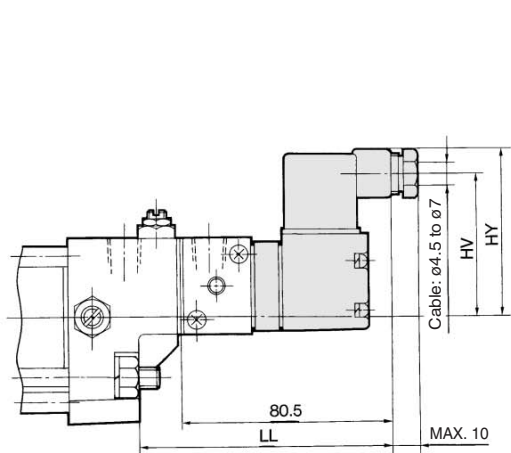
Bore size (mm)	Stroke range* (mm)	A	AL	B	B ₁	C	D	E	F	H ₁	J	K	LL	MM	N	S	TB
40	25 to 500	30	27	60	22	44	16	32	10	8	M8 x 1.25	6	86	M14 x 1.5	27	84	65
50	25 to 600	35	32	70	27	52	20	40	10	11	M8 x 1.25	7	83	M18 x 1.5	30	90	75
63	50 to 600	35	32	85	27	64	20	40	10	11	M10 x 1.25	7	83	M18 x 1.5	31	98	90
80	50 to 750	40	37	102	32	78	25	52	14	13	M12 x 1.75	11	84	M22 x 1.5	37	116	110
100	50 to 750	40	37	116	41	92	30	52	14	16	M12 x 1.75	11	85	M26 x 1.5	40	126	130

Bore size (mm)	øTD _{es}	TI	TQ	TT	TX	TY	TZ	W	I	Q	Without rod boot			With rod boot					
											H	Z	ZZ	e	f	h	ℓ	Z	ZZ
40	15 ^{-0.032} _{-0.059}	20	45	23	85	77.5	115	8	18	38	51	93	221	43	11.2	59	1/4 stroke	101	229
50	15 ^{-0.032} _{-0.059}	20	50	23	95	87.5	125	0	18	43.5	58	103	231	52	11.2	66	1/4 stroke	111	239
63	18 ^{-0.032} _{-0.059}	20	57	28	110	102	146	0	18	49	58	107	239	52	11.2	66	1/4 stroke	115	247
80	25 ^{-0.040} _{-0.073}	24	69.5	35	140	124.5	190	0	20	63	71	129	271	65	12.5	80	1/4 stroke	138	280
100	25 ^{-0.040} _{-0.073}	24	79.5	43	162	144.5	212	0	20	73	72	135	283	65	14.0	81	1/4 stroke	144	292

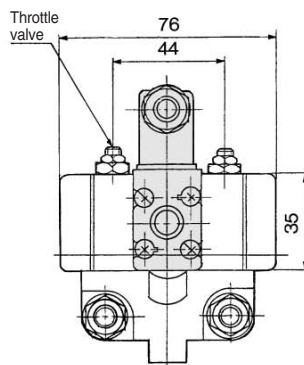
* The minimum stroke of the one with rod boot is 20 mm or more.

Valve Mounted Cylinder Double Acting, Single Rod Series CV3

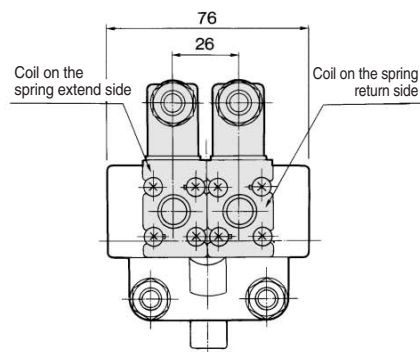
Electrical Entry: Dimensions for DIN



Single



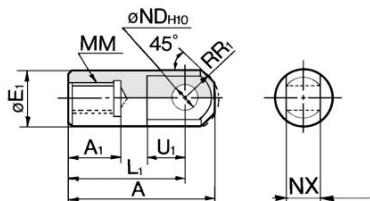
Double



Bore size (mm)	LL	HV	HY
40	95.5	55	64
50	92.5	60	69
63	92.5	68	77
80	93.5	76	85
100	94.5	83	92

Accessory Dimensions

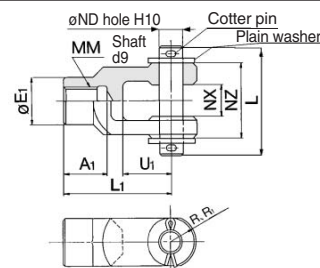
I Type Single Knuckle Joint



Material: Free cutting sulfur steel

Part no.	Applicable bore size (mm)	A	A ₁	øE ₁	L ₁	MM	R ₁	U ₁	øND _{H10}	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}

Y Type Double Knuckle Joint

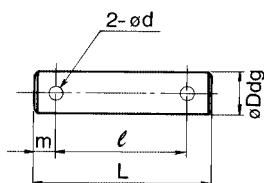


Material: Cast iron

Part no.	Applicable bore size (mm)	A ₁	E ₁	L ₁	MM	RR1	U ₁	ND	NX	NZ	L	Coter pin size	Plain washer size
Y-04C	40	22	24	55	M14 x 1.5	13	25	12	16 ^{+0.3} ₀	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	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	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	61	83	ø4 x 30ℓ	Polished round 20

* Knuckle pin, cotter pin, and plain washer are shipped together.

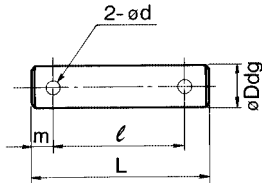
Clevis Pin



Material: Carbon steel

Part no.	Applicable bore size (mm)	øDd9	L	ød	ℓ	m	Applicable plain washer	Applicable cotter pin
CDP-3A	50	12 ^{-0.050} _{-0.093}	55.5	3	47.5	4.0	Polished round 12	3 x 18
CVD-06	63	16 ^{-0.050} _{-0.093}	75	4	65	5.0	Polished round 16	4 x 22
CVD-08	80	20 ^{-0.065} _{-0.117}	94	5	79	7.5	Polished round 20	5 x 30
CVD-10	100	25 ^{-0.085} _{-0.117}	105	5	90	7.5	Polished round 24	5 x 35

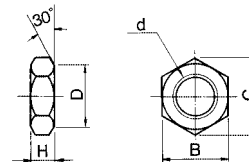
Knuckle Pin



Material: Carbon steel

Part no.	Applicable bore size (mm)	øDd9	L	ℓ	m	ød (Drill through)	Applicable plain washer	Applicable cotter pin
CDP-3A	40, 50, 63	12 ^{-0.050} _{-0.093}	55.5	47.5	4	3	Polished round 12	ø3 x 18ℓ
CDP-5A	80	18 ^{-0.050} _{-0.093}	76.5	66.5	5	4	Polished round 18	ø4 x 25ℓ
CDP-6A	100	20 ^{-0.065} _{-0.117}	83	73	5	4	Polished round 20	ø4 x 30ℓ

Rod End Nut



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	31
NT-10	100	M26 x 1.5	16	41	47.3	39

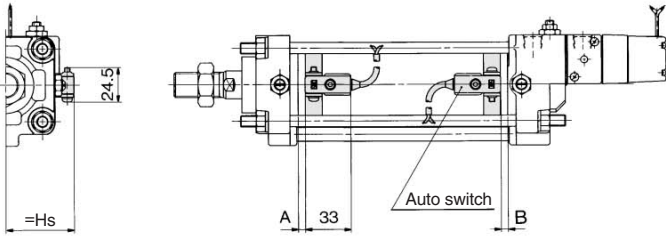
- RE^A_B
- REC
- C□X
- C□Y
- MQ^Q_M
- RHC
- MK(2)
- RS^Q_G
- RS^H_A
- RZQ
- MI^W_S
- CEP1
- CE1
- CE2
- ML2B
- C¹_{5-S}
- CV
- MVGQ
- CC
- RB
- J
- D-
- X
- 20-
- Data

Series CV3

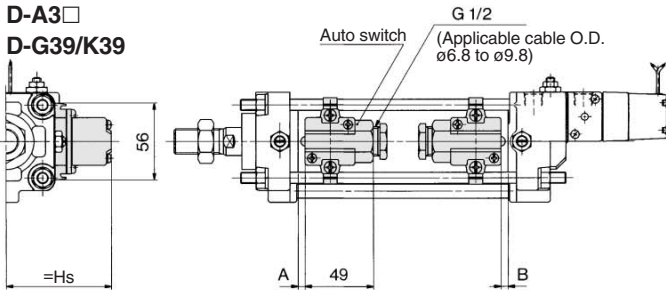
Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

<Band mounting style>

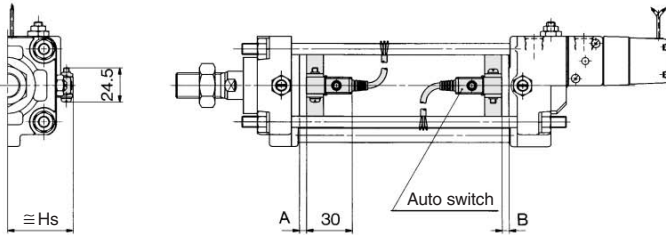
D-B5□/B64/B59W



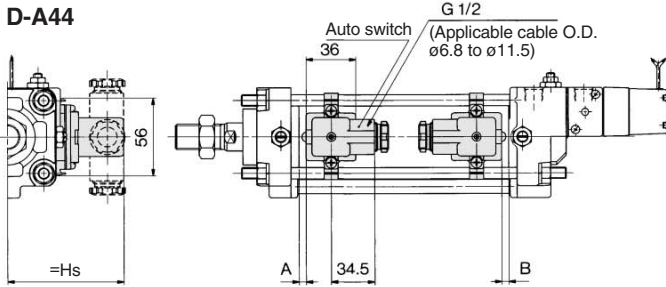
D-A3□
D-G39/K39



D-G5□/K59
D-G5□W/K59W
D-G59F/G5NTL

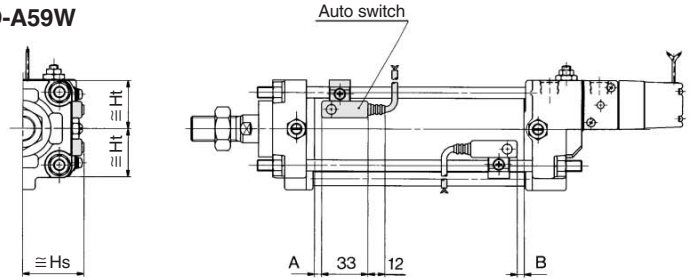


D-A44

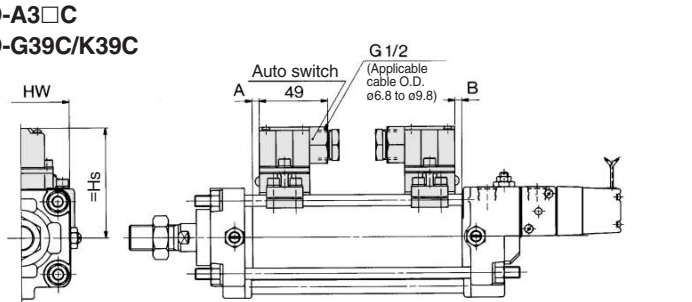


<Tie-rod mounting style>

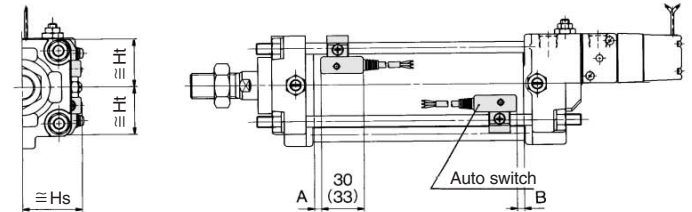
D-A5□, D-A6□
D-A59W



D-A3□C
D-G39C/K39C

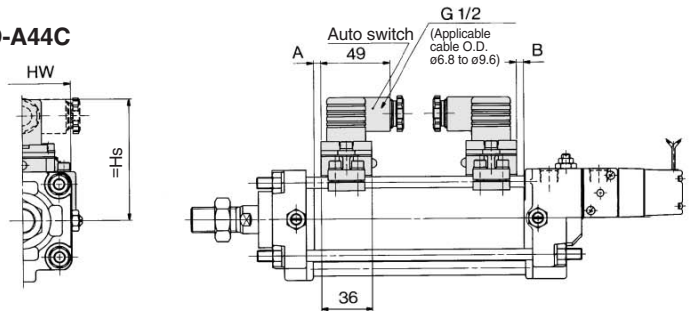


D-F5□/J5□
D-F5NTL
D-F5□W/J59W
D-F59F

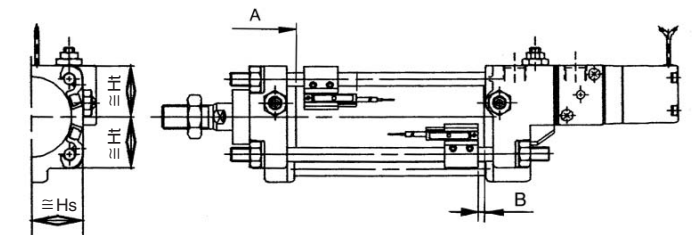


() : Denotes the values of D-F5LF.

D-A44C



D-Z7/Z8
D-Y59□/Y69□/Y7P/Y7PV
D-Y7□W/Y7□WV



Valve Mounted Cylinder Double Acting, Single Rod Series CV3

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

Proper Auto Switch Mounting Position

Auto switch model	D-A5□, D-A6□ D-A3□/A3□C D-A44/A44C D-G39/G39C D-K39/K39C		D-B5□/B64 D-G5□W D-K59W D-G59F		D-F5□ D-J5□ D-F5□W D-J59W D-F59F		D-G5□ D-K59 D-G5NTL		D-A59W		D-F5NTL		D-B59W D-Z7□/Z80 D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W D-Y7□WV	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
40	0 (0)	1 (0)	0 (0.5)	1.5 (0)	3.5 (6.5)	7.5 (4.5)	0 (2)	3 (0)	1 (4)	5 (2)	8.5 (11.5)	12.5 (9.5)	0.5 (3.5)	4.5 (1.5)
50	0 (0)	1 (0)	0 (0.5)	1.5 (0)	3.5 (6.5)	7.5 (4.5)	0 (2)	3 (0)	1 (4)	5 (2)	8.5 (11.5)	12.5 (9.5)	0.5 (3.5)	4.5 (1.5)
63	0 (2.5)	5.5 (1.5)	0 (3)	6 (2)	5.5 (9)	12 (8)	1 (4.5)	7.5 (3.5)	3 (6.5)	9.5 (5.5)	10.5 (14)	17 (13)	2.5 (6)	9 (5)
80	2 (6)	8.5 (4)	2.5 (6.5)	9 (4.5)	8.5 (12.5)	15 (10.5)	4 (8)	10.5 (6)	6 (10)	12.5 (8)	13.5 (17.5)	20 (15.5)	5.5 (9.5)	12 (7.5)
100	4 (7.5)	10.5 (6.5)	4.5 (8)	11 (7)	10.5 (14)	17 (13)	6 (9.5)	12.5 (8.5)	8 (11.5)	14.5 (10.5)	15.5 (19)	22 (18)	7.5 (11)	14 (10)

- Note 1) (): Denotes the values of non-lube type.
 Note 2) D-G5□W, K59W, G58A and G59F can not be attached on ø40 and ø50 lube type cylinder.
 Note 3) D-B5□ type, D-G5□ type, D-K5□ type are mountable only upon a receipt of order. (Not mountable after the time of shipment)

Auto Switch Mounting Height

Auto switch model	D-B5□/B64 D-B59W D-G5□ D-K59 D-G5NTL D-G5□W D-K59W D-G59F		D-A3□ D-G39 D-K39		D-A44		D-A5□ D-A6□ D-A59W		D-F5□ D-J5□ D-F5□W D-J59W D-F59F D-F5NTL		D-A3□C D-G39C D-K39C		D-A44C		D-Z7□/Z80 D-Y59□ D-Y7P D-Y7□W		D-Y69□ D-Y7PV D-Y7IWV	
	Hs	Hs	Hs	Hs	Ht	Hs	Ht	Hs	Hw	Hs	Hw	Hs	Ht	Hs	Ht			
40	38	72.5	80.5	40	31	38.5	31	73	69	81	69	30	30	30.5	30			
50	43.5	78	86	43.5	35	42.5	35	78.5	77	86.5	77	34	34	35	34			
63	50.5	85	93	49	42	48	42	85.5	91	93.5	91	41	41	42.5	41			
80	59	93.5	101.5	55.5	50	54	50	94	107	102	107	49.5	48.5	51	48.5			
100	69.5	104	112	63	57.5	62	57.5	104	121	112	121	58.5	56	59	56			

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 D-A3□C/D-A44C	9	10	11	11	11
D-A5□/A6□					
D-B5□/B64					
D-A59W	13	13	14	14	15
D-B59W	14	14	17	16	18
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV	8	7	5.5	6.5	6.5
D-F5□/J5□ D-F5□W/J59W D-F5NTL/F59F	4	4	4.5	4.5	4.5
D-G5□/K59 D-G5□W/K59W D-G5NTL/G59F	5	6	6.5	6.5	7
D-G39/K39 D-G39C, D-K39C	9	9	10	10	11

* 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.

Other than the models listed in "How to Order", the following auto switches are applicable.

For detailed specifications, refer to page 10-20-1.

Type	Model	Electrical entry (Fetching direction)	Features
Reed switch	D-A53/A56	Grommet (In-line)	Without indicator light
	D-A64/A67		
	D-B64		
	D-Z80		
Solid state switch	D-F59/F5P/J59	Grommet (In-line)	—
	D-F59W/F5PW/J59W		
	D-F5NTL		With timer
	D-G5NTL		
	D-Y69A/Y7PV/Y69B		
D-Y7NWV/Y7PWV/Y7BWV	Grommet (Perpendicular)	2-color indication	

* With pre-wire connector is also available in solid state auto switches.
 For details, refer to page 10-20-66.

* Normally closed (NC = b contact), solid state switch (D-Y7G/Y7H type) are also available. For details, refer to page 10-20-41.

RE_B^A

REC

C□X

C□Y

MQ_M^Q

RHC

MK(2)

RS_G^Q

RS_A^H

RZQ

MI_S^W

CEP1

CE1

CE2

ML2B

C₅-S

CV

MVGQ

CC

RB

J

D-

-X

20-

Data

Series CV3

Minimum Stroke For Auto Switch Mounting

n: Number of auto switches

Auto switch model	No. 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-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-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-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	
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	100		100	110
		Same side	100	100		100	110
	n	Different sides	$35 + 30 (n-2)$ n = 2, 3, 4...	$100 + 30 (n-2)$ n = 2, 4, 6, 8...		$100 + 30 (n-2)$ n = 2, 4, 6, 8...	$110 + 30 (n-2)$ n = 2, 4, 6, 8...
		Same side	$100 + 100 (n-2)$ n = 2, 3, 4...	$100 + 100 (n-2)$ n = 2, 4, 6, 8...		$110 + 100 (n-2)$ n = 2, 4, 6, 8...	
1	10	100		100	110		
D-A44	2	Different sides	35	90		100	110
		Same side	55	90		100	110
	n	Different sides	$35 + 30 (n-2)$ n = 2, 3, 4...	$90 + 30 (n-2)$ n = 2, 4, 6, 8...		$100 + 30 (n-2)$ n = 2, 4, 6, 8...	$110 + 30 (n-2)$ n = 2, 4, 6, 8...
		Same side	$55 + 50 (n-2)$ 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		
D-A3□C D-G39C D-K39C	2	Different sides	20	100		100	110
		Same side	100	100		100	110
	n	Different sides	$20 + 35 (n-2)$ n = 2, 3, 4...	$100 + 35 (n-2)$ n = 2, 4, 6, 8...		$100 + 35 (n-2)$ n = 2, 4, 6, 8...	$110 + 35 (n-2)$ 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...		$110 + 100 (n-2)$ n = 2, 4, 6, 8...	
1	10	100		100	110		
D-A44C	2	Different sides	20	90		100	110
		Same side	55	90		100	110
	n	Different sides	$25 + 35 (n-2)$ n = 2, 3, 4...	$90 + 35 (n-2)$ n = 2, 4, 6, 8...		$100 + 35 (n-2)$ n = 2, 4, 6, 8...	$110 + 35 (n-2)$ n = 2, 4, 6, 8...
		Same side	$55 + 50 (n-2)$ 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		
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...