

# Airmatic

## COMPACT CYLINDERS

**CDA / CDA...S- Double acting**



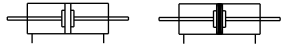
**CSA / CSA...S- Single acting (push type)**



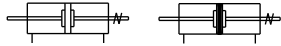
**CTA / CTA...S- Single acting (pull type)**



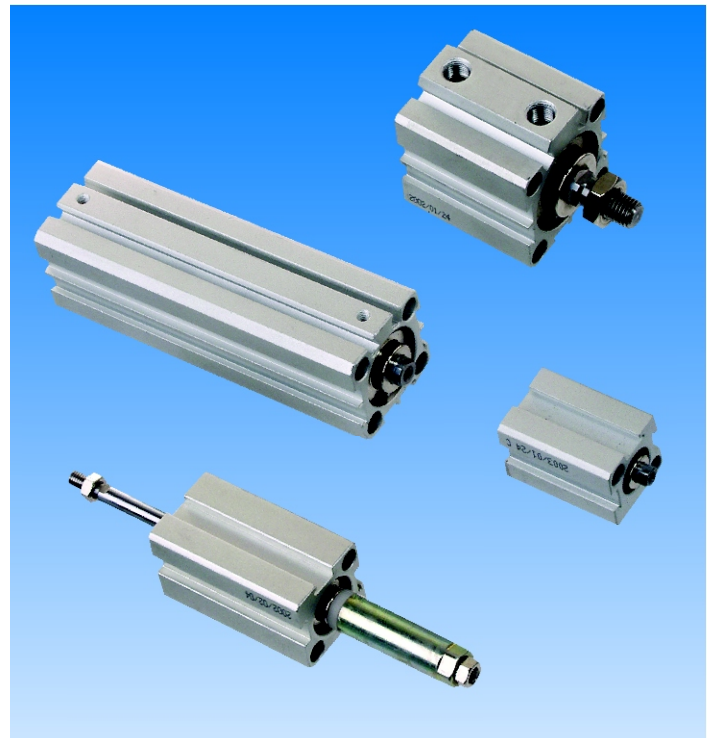
**CDAD / CDAD...S- Double ended**



**CDAJ / CDAJ...S- Double ended adj. Strk.**



**CDAT / CDAT...S- Tandem multiposition**



### Application

Compact cylinders are available from 12mm to 100mm bore sizes. They can be used in different automation applications requiring precision with economy and aesthetics. Different variations are available with sensor.

### Technical Specifications

Bore size (mm)		12	16	20	25	32	40	50	63	80	100
Action		Double acting type									
		Single acting - Push type					Single acting - Pull type				
Fluid		Compressed Air (be filtered by 40µ)									
Pressure range (Kgf/cm <sup>2</sup> )	Double acting	1 ~ 9									
	Single acting	2 ~ 9									
Proof pressure Kgf/cm <sup>2</sup>		10.5									
Temperature Range °C		0 ~ 70									
Speed range (mm/s)	Double acting	30 ~ 500				30 ~ 350			30 ~ 250		
	Single acting	100 ~ 500									
Cushion Type		Buffer									
Port Size (BSP)		M5 x 0.8			G1/8		G1/4			G3/8	

### Cylinder size and std. stroke lengths

Bore size (mm)		12	16	20	25	32	40	50	63	80	100
Double acting	Standard Stroke	5 ~ 60 mm Per 5 mm	5 ~ 85 mm Per 5 mm	5 ~ 90 mm Per 5 mm	100 ~ 110 mm Per 10 mm	5 ~ 90 mm Per 5 mm	100 ~ 130 mm Per 10 mm				
	With magnet	5 ~ 50 mm Per 5 mm	5 ~ 75 mm Per 5 mm	5 ~ 90 mm Per 5 mm	100	5 ~ 90 mm Per 5 mm	100 ~ 120 mm Per 10 mm				
Single acting	Standard Stroke	5 ~ 30 mm Per 5 mm	5 ~ 30 mm Per 5 mm	5 ~ 30 mm Per 5 mm							
	With magnet	5 ~ 30 mm Per 5 mm	5 ~ 30 mm Per 5 mm	5 ~ 30 mm Per 5 mm							
Max. stroke		60 mm	100 mm	120 mm				130 mm			

### Material Specifications

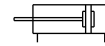
Bore size (mm)	12 to 32	40 to 100
Body	Aluminium alloy	
Piston	Aluminium alloy	
Rod	High carbon steel with hard chrome plated	
Piston oring, Gasket & bumper	NBR	
Bushing	-	Copper
Front & back cover	Copper	Aluminium alloy
C Clip	Spring steel	
Spring	Stainless steel	-
Silencer	Copper	-
Magnet	Plastic	

### Model Ordering Code Instruction

<b>CDA</b>	-	<b>25 X 50</b>	-	-	<b>B</b>	-	<b>S</b>	-	*
Bore x Stroke1		Blank Stroke2		Stroke Adj		Sensing type :		Piston rod type :	
		- Std - for CDAT and CDAW		- CDAJ		Blank - Without magnet. S - With magnet.		Blank - Female threads B - Male threads N - No threads	
<b>Types</b> <b>CDA</b> - Double acting compact cylinder <b>CSA</b> - Single acting compact cylinder - Push type <b>CTA</b> - Single acting compact cylinder - Pull type <b>CDAD</b> - Double ended <b>CDAJ</b> - Double ended with adj. stroke <b>CDAT</b> - Tandem multiposition <b>CDAW</b> - Back to back									

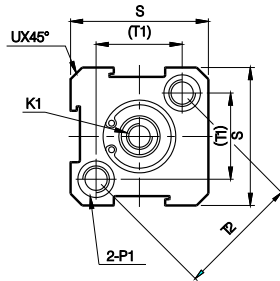
\* For sensor switch please refer page 4

## COMPACT CYLINDER - Double Acting

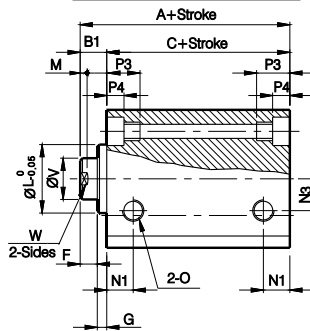


### Dimensions of Double Acting Type

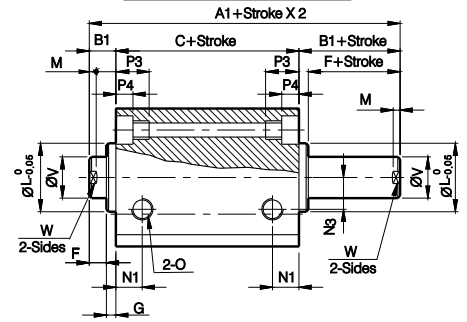
#### Ø12 - Ø16



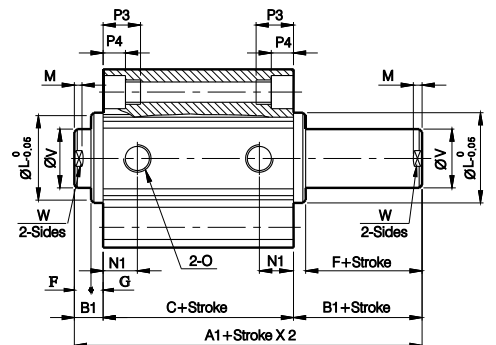
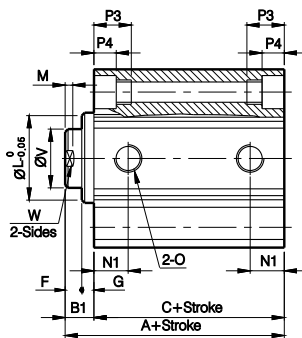
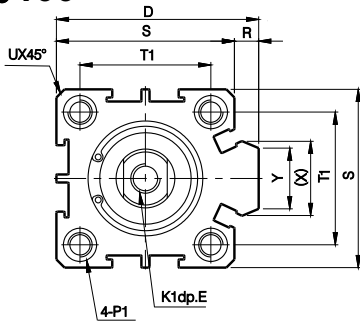
#### CDA/CDAS



#### CDAD/CDADS



#### Ø20 - Ø100



ITEM BORE SIZE (MM)	Standard									With magnet							D	E		F	G	J	K1	L	
	A	A1	A2	A3	A4	B1	C	C0	C1	A	A1	A2	A3	A4	B1	C		C0	Stroke<10						Stroke>10
12	22	27	40	39	44	5	17	34	17	32	37	50	59	64	5	27	54	-	6	4	1	4	M3 X 0.5	10.2	
16	24	29.5	42.5	42.5	48	5.5	18.5	37	18.5	34	39.5	52.5	62.5	68	5.5	28.5	57	-	6	4	1.5	4	M3 X 0.5	11	
20	25	30.5	47.5	44.5	50	5.5	19.5	39	19.5	35	40.5	57.5	64.5	70	5.5	29.5	59	36	8 (Stroke = 5 is 6.5)	4	1.5	5	M4 X 0.7	16	
25	27	33	54	48	54	6	21	42	21	37	43	64	68	74	6	31	62	42	10 (Stroke = 5 is 7)	4	2	6	M5 X 0.8	17	
32	31.5	38.5	61.5	56	63	7	24.5	49	24.5	41.5	48.5	71.5	76	83	7	34.5	69	50	8	12	4	3	6	M6 X 1	22
40	33	40	65	59	66	7	26	52	26	43	50	75	79	86	7	36	72	58.5	9	12	4	3	8	M8 X 1.25	28
50	37	46	73	65	74	9	28	56	28	47	56	83	85	94	9	38	76	71.5	11	15	5	4	11	M10 X 1.5	38
63	41	50	77	73	82	9	32	64	32	51	60	87	93	102	9	42	84	84.5	11	15	5	4	11	M10 X 1.5	40
80	52	63	94	93	104	11	41	82	41	62	73	104	113	124	11	51	102	104	14	20	6	5	13	M14 X 1.5	45
100	63	75	105	114	126	12	51	102	51	73	85	115	134	146	12	61	122	124	18	20	7	5	13	M18 X 1.5	55

ITEM BORE SIZE (MM)	M	N1	N3	O	P										P3	P4	Q	R	S	T1	T2	U	V	W	X	Y																																	
	Both sides : Ø 6.5 Thread : M5 x 0.8 Thru. Hole : Ø 4.2										Both sides : Ø 8.2 Thread : M6 x 1.0 Thru. Hole : Ø 4.6										Both sides : Ø 10 Thread : M8 x 1.25 Thru. Hole : Ø 6.5										Both sides : Ø 11 Thread : M8 x 1.25 Thru. Hole : Ø 6.5										Both sides : Ø 14 Thread : M12 x 1.75 Thru. Hole : Ø 9.2										Both sides : Ø 17.5 Thread : M14 x 2 Thru. Hole : Ø 11.3								
12	2.8	6.3	6	M5 X 0.8	Both sides : Ø 6.5 Thread : M5 x 0.8 Thru. Hole : Ø 4.2										12	4.5	13	-	25	16.2	23	1.6	6	5	-	-																																	
16	2.8	7.3	6.5	M5 X 0.8	Both sides : Ø 6.5 Thread : M5 x 0.8 Thru. Hole : Ø 4.2										12	4.5	13	-	29	19.8	28	1.6	6	5	-	-																																	
20	2.8	7.5	-	M5 X 0.8	Both sides : Ø 6.5 Thread : M5 x 0.8 Thru. Hole : Ø 4.2										14	4.5	16	2	34	24	-	2.1	8	6	11.3	10																																	
25	2.8	8	-	M5 X 0.8	Both sides : Ø 8.2 Thread : M6 x 1.0 Thru. Hole : Ø 4.6										15	5.5	19	2	40	28	-	3.1	10	8	12	10																																	
32	2.8	9	-	G 1/8	Both sides : Ø 8.2 Thread : M6 x 1.0 Thru. Hole : Ø 4.6										16	5.5	21	6	44	34	-	2.15	12	10	18.3	15																																	
40	2.8	10	-	G 1/8	Both sides : Ø 10 Thread : M8 x 1.25 Thru. Hole : Ø 6.5										20	7.5	21	6.5	52	40	-	2.25	16	14	21.3	16																																	
50	2.8	10.5	-	G 1/4	Both sides : Ø 11 Thread : M8 x 1.25 Thru. Hole : Ø 6.5										25	8.5	21	9.5	62	48	-	4.15	20	17	30	20																																	
63	2.8	11.8	-	G 1/4	Both sides : Ø 11 Thread : M8 x 1.25 Thru. Hole : Ø 6.5										25	8.5	21	9.5	75	60	-	3.15	20	17	28.7	20																																	
80	4	14.5	-	G 3/8	Both sides : Ø 14 Thread : M12 x 1.75 Thru. Hole : Ø 9.2										25	10.5	24	10	94	74	-	3.65	25	22	36	26																																	
100	4	20.5	-	G 3/8	Both sides : Ø 17.5 Thread : M14 x 2 Thru. Hole : Ø 11.3										30	13	24	10	114	90	-	3.65	32	27	35	26																																	

## COMPACT CYLINDER - Double Acting



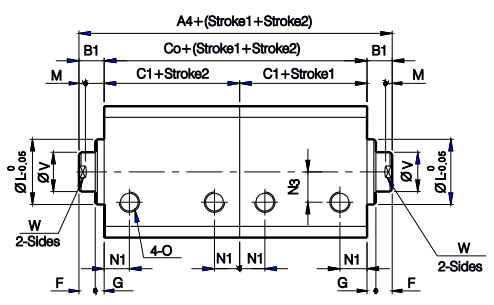
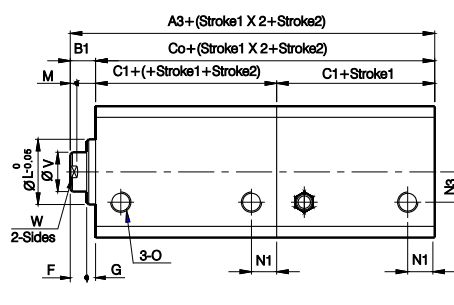
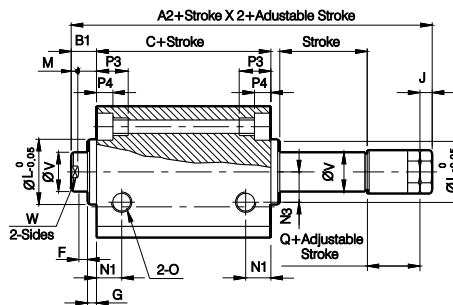
### Dimensions of Double Acting Type

Ø12 - Ø16

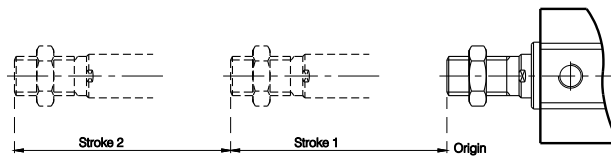
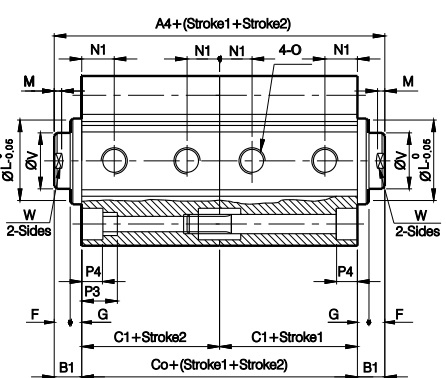
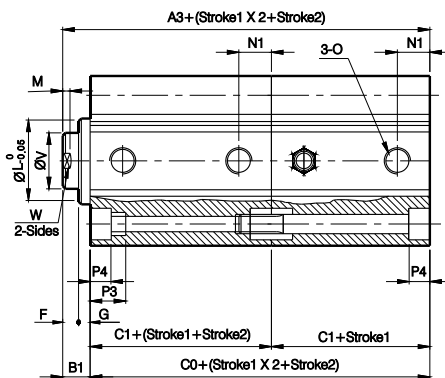
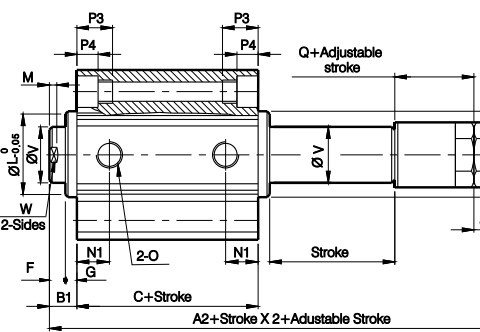
CDAJ/CDAJS

CDAT/CDATS

CDAW/CDAWS



Ø20 - Ø100

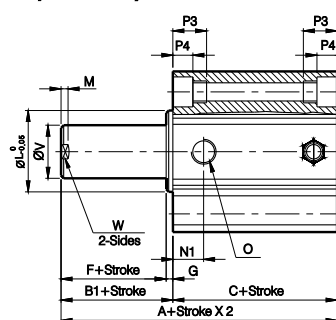
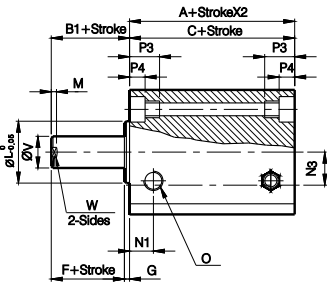


### Dimensions of Single Acting Type

CSA/CSAS

Ø12 - Ø16

Ø20 - Ø40



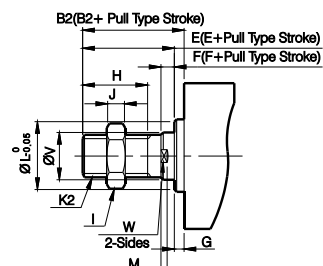
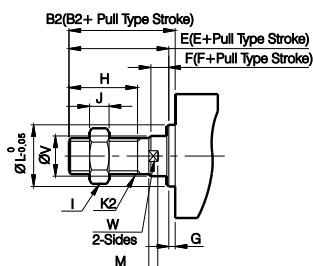
ITEM BORE SIZE STROKE	Standard				With magnet			
	A		C		A		C	
	<10	>10	<10	>10	<10	>10	<10	>10
12	32	42	27	37	42	52	37	47
16	34	44	28.5	38.5	44	54	38.5	48.5
20	35	45	29.5	39.5	45	55	39.5	49.5
25	37	47	31	41	47	57	41	51
32	41.5	51.5	34.5	44.5	51.5	61.5	44.5	54.5
40	43	53	36	46	53	63	46	56

### Dimensions of Single Acting Type

CTA/CTAS

Ø12 - Ø16

Ø20 - Ø100



ITEM BORE SIZE SIZE (MM)	B2	E	F	G	H	I	J	K2	L	M	V	W
12	17	16	4	1	10	8	4	M5 X 0.8	10.2	2.8	6	5
16	17.5	16	4	1.5	10	8	4	M5 X 0.8	11	2.8	6	5
20	20.5	19	4	1.5	13	10	5	M6 X 1	16	2.8	8	6
25	23	21	4	2	15	12	6	M8 X 1.25	17	2.8	10	8
32	25	22	4	3	15	17	6	M10 X 1.25	22	2.8	12	10
40	35	32	4	3	25	19	8	M14 X 1.5	28	2.8	16	14
50	37	33	5	4	25	27	11	M18 X 1.5	38	2.8	20	17
63	37	33	5	4	25	27	11	M18 X 1.5	40	2.8	20	17
80	44	39	6	5	30	32	13	M22 X 1.5	45	4	25	22
100	50	45	7	5	35	36	13	M26 X 1.5	55	4	32	27

## COMPACT CYLINDER

Criteria for selection : Cylinder Thrust

$$F \text{ (Cylinder Thrust Kg)} = P \text{ (Pressure Kg/cm}^2\text{)} \times A \text{ (Piston area cm}^2\text{)}$$

Bore size mm	Rod size mm	Operation		Pressure area cm <sup>2</sup>	Operating pressure Kg/cm <sup>2</sup>						
					1.0	2.0	3.0	4.0	5.0	6.0	7.0
12	6	Single acting	Push	1.13	-	0.70	1.83	2.96	4.09	5.22	6.35
			Pull	0.85	-	0.14	0.99	1.84	2.69	3.54	4.39
		Double acting	Push	1.13	-	2.26	3.39	4.52	5.65	6.78	7.91
			Pull	0.85	-	1.7	2.55	3.4	4.25	5.1	5.95
16	6	Single acting	Push	2.01	-	1.36	3.37	5.38	7.39	9.40	11.41
			Pull	1.73	-	0.80	2.53	4.26	5.99	7.72	9.45
		Double acting	Push	2.01	-	4.02	6.03	8.04	10.05	12.06	14.07
			Pull	1.73	-	3.46	5.19	6.92	8.65	10.38	12.11
20	8	Single acting	Push	3.14	-	2.87	6.01	9.15	12.29	15.43	18.57
			Pull	2.64	-	1.87	4.51	7.15	9.97	12.43	15.07
		Double acting	Push	3.14	-	6.28	9.42	12.56	15.70	18.84	21.98
			Pull	2.64	-	5.28	7.92	10.56	13.20	15.84	18.48
25	10	Single acting	Push	4.90	-	5.80	10.70	15.60	20.50	25.40	30.30
			Pull	4.12	-	4.24	8.36	12.48	16.60	20.72	24.84
		Double acting	Push	4.90	-	9.80	14.70	19.60	24.50	29.40	34.30
			Pull	4.12	-	8.24	12.36	16.48	20.60	24.72	28.84
32	12	Single acting	Push	8.04	-	11.21	19.25	27.29	35.33	43.37	51.41
			Pull	6.90	-	8.93	15.83	22.73	29.63	36.53	43.43
		Double acting	Push	8.04	-	16.08	24.12	32.16	40.20	48.24	56.28
			Pull	6.90	-	13.80	20.70	27.60	34.50	41.40	48.30
40	16	Single acting	Push	12.56	-	20.08	32.64	45.20	57.76	70.32	82.88
			Pull	10.55	-	16.06	26.61	37.16	47.71	58.26	68.81
		Double acting	Push	12.56	12.56	25.12	37.68	50.24	62.80	75.36	87.92
			Pull	10.55	10.55	21.10	31.65	42.20	52.75	63.30	73.85
50	20	Double acting	Push	19.63	19.63	39.26	58.89	78.52	98.15	117.78	137.41
		Pull	16.49	16.49	32.98	49.47	65.96	82.45	98.94	115.43	
63	20	Double acting	Push	31.17	31.17	62.34	93.51	124.68	155.85	187.02	218.19
		Pull	28.03	28.03	56.06	84.09	112.12	140.15	168.18	196.21	
80	25	Double acting	Push	50.26	50.26	100.52	150.78	201.04	251.30	301.56	351.82
		Pull	45.36	45.36	90.72	136.08	181.44	226.80	272.16	317.52	
100	32	Double acting	Push	78.53	78.53	157.06	235.59	314.12	392.65	471.18	549.71
		Pull	70.49	70.49	140.98	211.47	281.96	352.45	422.94	493.43	

## Specifications - SENSOR SWITCH

Sensor Switch Type	Operating Voltage Range	Operating Current Range	Switch characteristic				Temp. range	Vibration resistance		Indicator lamp	Lead wire	Cycle life time
			Response Time	Bouncing Time	Releasing Time	Frequency		Non repeated shock	Repeated shock			
RS - J	DC:5V~30V AC:5V~380V	DC:5~50mA AC:5~40mA	0.3 ms Max	0.3 ms Max	0.05 ms Max	3~250Hz	0~60 °C	30G	7G(10~55Hz) 5300 + 300Hz	LED	2M	5X10 <sup>6</sup> Times
RS - G	DC:3V~30V AC:5V~240V	DC:5~40mA AC:5~50mA										

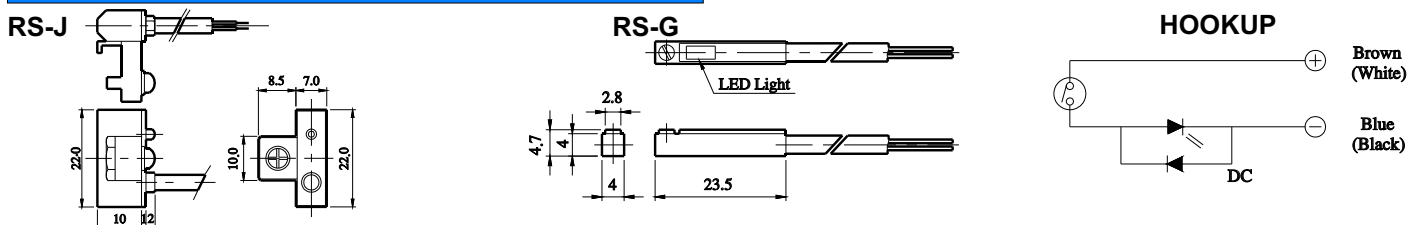
## Mountings (Sensor Switch)



## Spare Service Kits

- |                      |                      |
|----------------------|----------------------|
| <b>Double Acting</b> | <b>Single Acting</b> |
| CDA - 12 SK          | CSA - 12 SK          |
| CDA - 16 SK          | CSA - 16 SK          |
| CDA - 20 SK          | CSA - 20 SK          |
| CDA - 25 SK          | CSA - 25 SK          |
| CDA - 32 SK          | CSA - 32 SK          |
| CDA - 40 SK          | CSA - 40 SK          |
| CDA - 50 SK          | CSA - 50 SK          |
| CDA - 63 SK          | CSA - 63 SK          |
| CDA - 100 SK         | CSA - 100 SK         |
- Service cylinder kit consist of Rod packing, Piston 'O' ring, Cover & rod gasket.

## Dimensions (Sensor Switch)



## Model Ordering Code Instruction

RS	-	J	
T		T	
Sensor switch Model		Type	
RS		J : Std. Type	Direct Insert Type
		G : Bury type	

## Shah Pneumatics

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