

**Series CD  
Compact  
Design  
Air Cylinders**



**ATLAS**  
**CYLINDERS**

# New from Atlas . . . The Series CDM

## Compact Design Air Cylinder – with Switches Designed for Space Saving/Cost Saving Applications



The Series CD/CDM air cylinder is designed and built to meet your demands for space saving, low cost actuators – and to provide you with maximum reliability and cost effectiveness within minimum space requirements. The Series CD/CDM, together with the proven performer – the Series SS stainless steel round body air cylinder – gives you the opportunity to save space, reduce costs and get the reliability and premium quality that you expect from Atlas cylinder products.

Series CD/CDM air cylinders are available from strategically located regional stocking warehouses for quick delivery. For your cylinder requirements, we

are the one source you can depend on for total response-ability.

### New from Atlas

For applications when piston position sensing is required, the Series CDM, compact design Air Cylinder is the choice for a low profile, economical cylinder. Reed and solid state switches, along with the magnetic piston, provide actuation points between or at either end of the cylinder. Adjustment is simple so you can detect the presence of the piston along or at the end of the stroke and send the necessary signals for circuit control.

## FREE TEST CYLINDER!

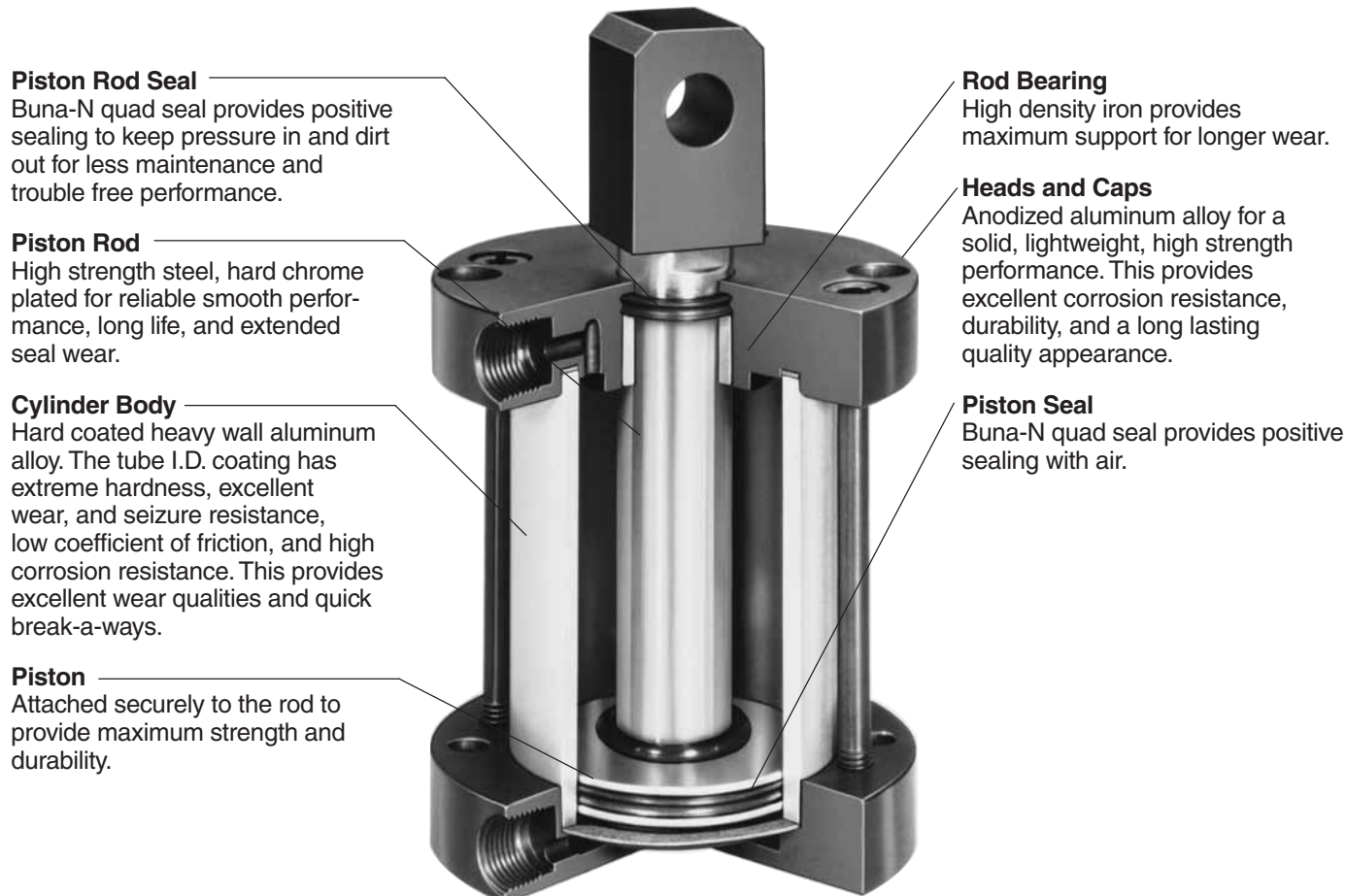
Atlas Cylinders will supply free of charge a prototype “CD/CDM” cylinder to any qualified Original Equipment manufacturer for testing purposes. Contact your local Atlas distributor for details.



# Presenting the Series CD/CDM

## A True Compact Design Air Cylinder . . .

### The Cost Saving Features – “Inside and Out” are Premium Quality . . .



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### The Series CD/CDM Features and Benefits Include:

- Low Profile Design
- 6 Mounting Styles
- 8 Bore Sizes from  $\frac{9}{16}$ " to 4"
- Temperature Range – -10°F to 200°F (Series CDM 140°F max.)
- Strokes from  $\frac{1}{8}$ " to 6"
- Permanent Lubrication
- Reduces Design Height
- Light Weight
- Reduces Cylinder Overhang
- Specials Available
- Maximum Operating Pressure: 250 P.S.I. Air

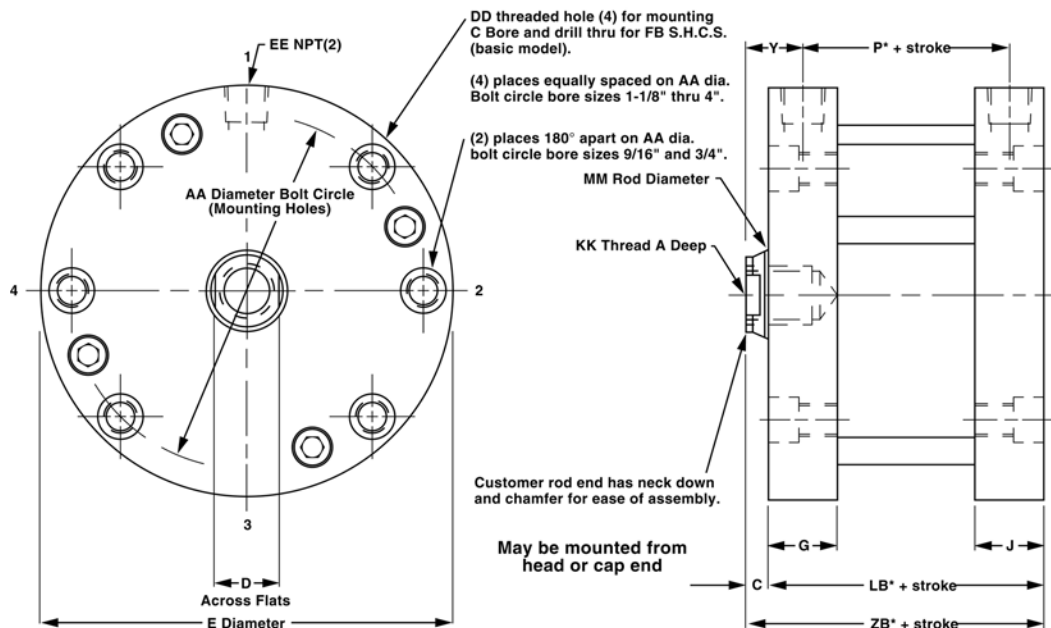
## Mounting Style N Lipseal/CDM Length Adders

# Series CD/CDM Air Cylinders

### Mounting Style N

Cylinder Dimensions  
Double Acting  
Single Rod End,  
Female Rod Style  
No. 9

Temperature: -10°F to  
200°F (optional Fluoro-  
carbon seals). All air  
cylinders are perma-  
nently  
lubricated. Series CDM  
maximum temperature  
140°F.



Bore dia.	A	C	D	E	G	J	P*	Y	AA	DD	EE	FB	KK	LB*	MM	ZB*	Bore dia.
9/16	.40	1/8	7/32	11/8	23/64	23/64	11/32	17/64	.875	#8-32	#10-32	#4	#8-32	5/8	1/4	3/4	9/16
3/4	.44	1/8	1/4	1 1/2	23/64	23/64	3/8	17/64	1.219	#10-32	#10-32	#6	#10-32	21/32	5/16	25/32	3/4
1 1/8	.62	1/8	7/16	2	1/2	1/2	27/64	3/8	1.687	#10-32	1/8	#6	5/16-24	59/64	1/2	13/64	1 1/8
1 1/2	.62	1/8	1/2	2 5/8	1/2	1/2	1/2	3/8	2.187	1/4-28	1/8	#10	3/8-24	1	5/8	1 1/8	1 1/2
2	.70	1/8	5/8	3 1/8	1/2	1/2	9/16	3/8	2.687	1/4-28	1/8	#10	1/2-20	1 1/16	3/4	1 3/16	2
2 1/2	.70	1/8	5/8	3 3/4	5/8	5/8	5/8	7/16	3.250	5/16-24	1/4	1/4	1/2-20	1 1/4	3/4	1 3/8	2 1/2
3	.75	1/8	3/4	4 1/4	43/64	43/64	21/32	7/16	3.781	5/16-24	1/4	1/4	5/8-18	19/32	7/8	1 13/32	3
4	.75	1/8	7/8	5 1/2	27/32	27/32	49/64	17/32	4.937	3/8-24	3/8	5/16	3/4-16	15/8	1	1 3/4	4

\*These dimensions are for the CD Series with standard piston. See table below for dimensions for the lipseal piston or CDM options.

### Added Length Table for CDM or Lipseal Piston Options

Bore Dia.	CDM Option†								CD with Lipseal Piston Option†							
	P	LB	LD	XD	XJ	ZB	ZM	Min. Stroke	P	LB	LD	XD	XJ	ZB	ZM	
9/16	15/16	17/32	1 11/32	2	—	1 11/32	1 19/32	1/2	5/8	29/32	1 1/32	1 11/16	—	1 1/32	1 9/32	
3/4	31/32	1 1/4	1 13/32	2 1/32	—	1 3/8	1 21/32	1/2	21/32	15/16	1 3/32	1 23/32	—	1 1/16	1 11/32	
1 1/8	63/64	1 31/64	1 3/4	2 3/8	1 23/64	1 39/64	2	9/16	43/64	1 11/64	1 7/16	2 1/16	1 3/64	1 19/64	1 11/16	
1 1/2	1 1/8	1 5/8	1 59/64	2 13/16	1 1/2	1 3/4	2 11/64	7/16	13/16	1 5/16	1 39/64	2 1/2	1 3/16	1 7/16	1 55/64	
2	1 9/32	1 25/32	2 3/32	3 1/32	1 21/32	1 29/32	2 11/32	7/16	61/64	1 29/64	1 49/64	2 45/64	1 21/64	1 37/64	2 1/64	
2 1/2	1 21/64	1 61/64	2 21/64	3 21/64	1 3/4	2 5/64	2 37/64	1/2	1	1 5/8	2	3	1 27/64	1 3/4	2 1/4	
3	1 27/64	2 3/64	2 29/64	3 53/64	1 53/64	2 11/64	2 45/64	1/2	1 3/32	1 23/32	2 1/8	3 1/2	1 1/2	1 27/32	2 3/8	
4	1 1/2	2 23/64	2 49/64	4 11/64	2	2 31/64	3 1/64	1/2	1 11/64	2 1/32	2 7/16	3 27/32	1 43/64	2 5/32	2 11/16	

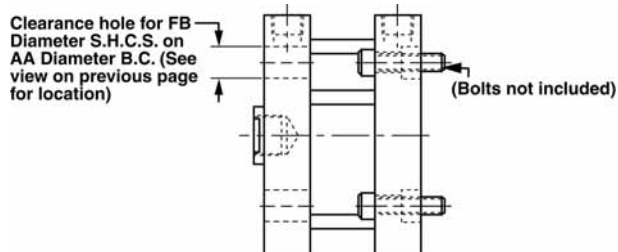
†These options not available with the hollow rod option. The CDM option also contains the lipseal piston option.

Note minimum strokes for CDM option.

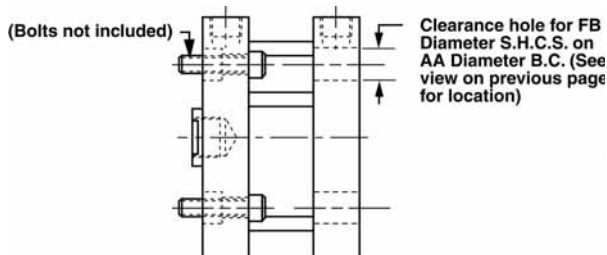
# Series CD/CDM Air Cylinders

## Mounting Styles Optional Rod End

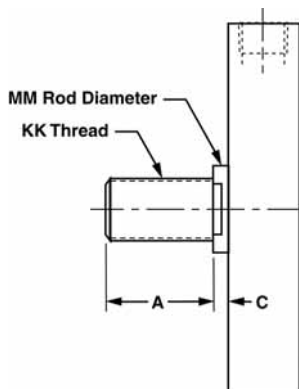
**Head Bolt  
Clearance Holes**  
Mounting Style 4F  
Available Head End



**Cap Bolt  
Clearance Holes**  
Mounting Style 4R  
Available Cap End

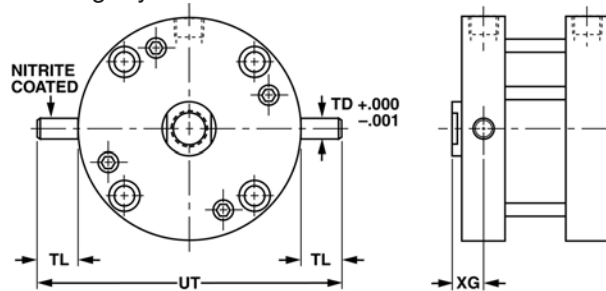


**Optional Male  
Rod End**  
Specify #4

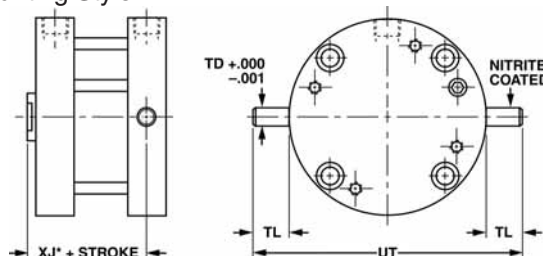


Bore dia.	A	C	KK	MM
9/16	.38	1/8	#8-32	1/4
3/4	.50	1/8	#10-32	5/16
1 1/8	.50	1/8	5/16-24	1/2
1 1/2	.50	1/8	3/8-24	5/8
2	.62	1/8	1/2-20	3/4
2 1/2	.62	1/8	1/2-20	3/4
3	.75	1/8	5/8-18	7/8
4	.75	1/8	3/4-16	1

**Head Trunnion  
Mounting Style 2F**



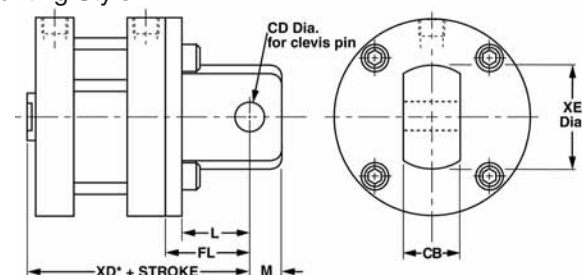
**Cap Trunnion  
Mounting Style 2R**



Bore dia.	TD	TL	UT	XG	XJ*
9/16 & 3/4	Not Available				
1 1/8	.250	1/2	3	3/8	51/64
1 1/2	.250	1/2	35/8	3/8	7/8
2	.250	1/2	41/8	3/8	15/16
2 1/2	.312	5/8	5	29/64	13/64
3	.312	5/8	5 1/2	15/32	11/16
4	.375	3/4	7	35/64	117/64

\*These dimensions are for the CD Series with standard piston. See table on opposite page for dimensions for the lipseal piston or CDM options.

**Cap Pivot Eye  
Mounting Style 1**



Bore dia.	L	M	CB	CD	FL	XD*	XE
9/16	1/2	1/4	3/8	3/16	21/32	113/32	19/32
3/4	1/2	1/4	3/8	3/16	21/32	17/16	3/4
1 1/8	1/2	1/4	3/8	3/16	49/64	113/16	3/4
1 1/2	13/16	7/16	3/4	3/8	11/16	23/16	13/8
2	13/16	7/16	3/4	3/8	11/8	25/16	13/8
2 1/2	13/16	7/16	3/4	3/8	11/4	25/8	13/8
3	19/32	9/16	1	5/8	121/32	31/16	17/8
4	1-9/32	9/16	1	5/8	111/16	37/16	17/8

Order clevis pin from accessories when required.

\*These dimensions are for the CD Series with standard piston. See table on opposite page for dimensions for the lipseal piston or CDM options.



# **Dimensions** **Spring Data** **CDM Dimensions**

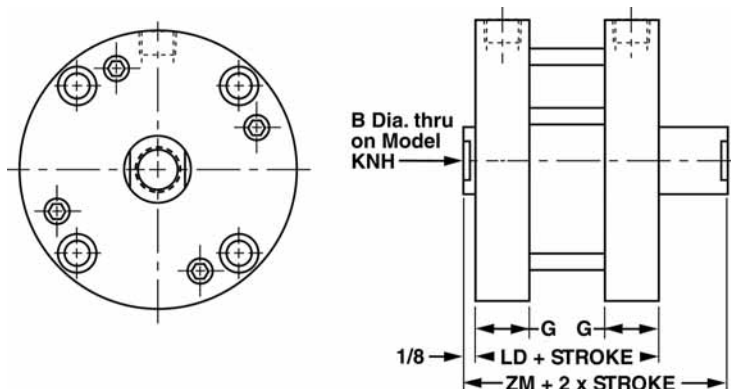
# **Series CD/CDM** **Air Cylinders**

## **Mounting Style KN** **or Style KNH (Hollow Rod)**

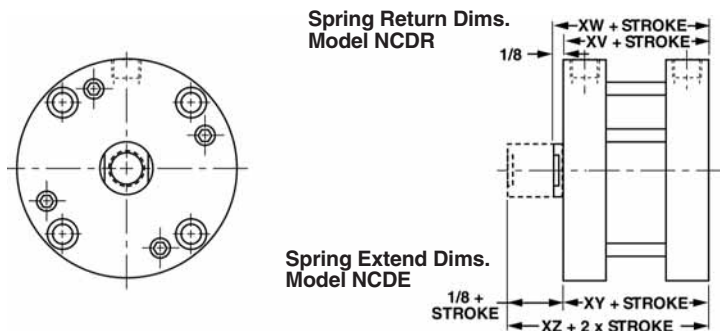
Bore dia.	B	G	LD**	ZM**
9/16	*	23/64	3/4	1
3/4	9/64	23/64	13/16	1 1/16
1 1/8	7/32	1/2	13/16	1 7/16
1 1/2	9/32	1/2	1 19/64	1 35/64
2	3/8	1/2	1 3/8	1 5/8
2 1/2	3/8	5/8	1 5/8	1 7/8
3	7/16	43/64	1 11/16	1 15/16
4	1/2	27/32	2 1/32	2 9/32

\*Hollow rod not available.

\*\*These dimensions are for the CD Series with standard piston. See table on previous page for dimensions for the lipseal piston or CDM options.



## **Spring Return or** **Spring Extend Data** (Available through 2" stroke)



1/8" to 1" stroke							Over 1" to 2" stroke							Add this length to XV, XW, XY, XZ for Lipseal Piston
Bore dia.	Spring return		Spring extend		Max. spring force	Spring rate lb/in	Spring return		Spring extend		Max. spring force	Spring rate lb/in		
	XV	XW	XY	XZ			XV	XW	XY	XZ				
9/16	1	1 1/8	57/64	1 1/64	5.7 lb.	4.25 lb/in.	1 11/16	1 13/16	1 37/64	1 45/64	5.7 lb.	1.75 lb./in.	9/32	
3/4	1 1/64	1 9/64	59/64	1 3/64	9 lb.	6 lb./in.	1 45/64	1 53/64	1 39/64	1 47/64	9 lb.	2.5 lb./in.	9/32	
1 1/8	1 23/64	1 31/64	1 9/32	1 13/32	10 lb.	6 lb./in.	1 63/64	2 7/64	1 29/32	2 1/32	10 lb.	2.5 lb./in.	1/4	
1 1/2	1 25/64	1 33/64	1 11/32	1 15/32	13 lb.	5.5 lb./in.	2 1/64	2 9/64	1 31/32	2 3/32	12 lb.	2.25 lb./in.	5/16	
2	1 11/64	1 19/64	1 13/32	1 17/32	13 lb.	5.5 lb./in.	1 51/64	1 59/64	2 1/32	2 5/32	12 lb.	2.25 lb./in.	25/64	
2 1/2	1 3/8	1 1/2	1 23/32	1 27/32	17.5 lb.	6 lb./in.	2	2 1/8	2 11/32	2 15/64	16 lb.	2.5 lb./in.	3/8	
3	1 1/2	1 5/8	1 55/64	1 63/64	24 lb.	6.5 lb./in.	2 1/8	2 1/4	2 31/64	2 39/64	23 lb.	2.75 lb./in.	7/16	
4	1 27/32	1 31/32	2 13/64	2 21/64	24 lb.	6.5 lb./in.	2 15/32	2 19/32	2 53/64	2 61/64	23 lb.	2.75 lb./in.	13/32	

## **CDM Option\*†**

Bore dia.	1/8" to 1" stroke						Over 1" to 2" stroke			
	Spring return			Spring extend			Spring return		Spring extend	
	XV	XW	Min. Stroke	XY	XZ	Min. Stroke	XV	XW	XY	XZ
9/16	1 11/32	1 23/32	5/16	1 31/64	1 39/64	3/16	2 9/32	2 13/32	2 11/64	2 19/64
3/4	1 39/64	1 47/64	1/8	1 33/64	1 41/64	3/16	2 19/64	2 27/64	2 13/64	2 21/64
1 1/8	1 59/64	2 3/64	1/8	1 27/32	1 31/32	1/8	2 35/64	2 43/64	2 15/32	2 19/32
1 1/2	2 1/64	2 9/64	1/8	1 31/32	2 3/32	1/4	2 41/64	2 49/64	2 19/32	2 23/32
2	1 57/64	2 1/64	1/8	2 1/8	2 1/4	1/4	2 33/64	2 41/64	2 3/4	2 7/8
2 1/2	2 5/64	2 13/64	1/8	2 27/64	2 35/64	3/16	2 45/64	2 53/64	3 3/64	2 15/16
3	2 17/64	2 25/64	1/8	2 5/8	2 3/4	1/8	2 57/64	3 1/64	3 1/4	3 3/8
4	2 37/64	2 45/64	1/8	2 15/16	3 1/16	1/8	3 13/64	3 21/64	3 9/16	3 11/16

\*These options not available with the hollow rod option. The CDM option also contains the lipseal piston option.

†Note minimum strokes for CDM option.

## How To Order Non-Standard Rods

# Series CD/CDM Air Cylinders

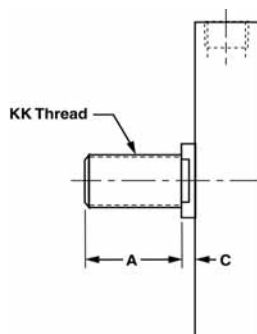
## How To Order Series CD/CDM Cylinders

Bore Size	Double Rod	Mounting Style	Series	Piston	Seals	Bumpers	Spring	Special	Rod Thread Style	Stroke
1.50	K	N	CD	L*	V	B	E	S	9	x 1.25"
Specify: 0.56" 0.75" 1.12" 1.50" 2.00" 2.50" 3.00" 4.00"	Use "K" symbol only if double rod cylinder is required.	N = Basic (Std.) or Specify: Single Rod Styles; 4F, 4R, 2F, 2R, 1 or Double Rod Styles; KN, K4R, K2F or Hollow Rod Styles; KNH, K4RH, K2FH	Specify "CD" or "CDM"	Leave blank for Standard* Piston Seal or Specify: L = Lipseal Piston Seal	Leave blank for Standard Seals or Specify: V = Class 5 Seals	Leave blank for cylinder without bumpers or Specify: "B" = both ends or "H" = head end only or "C" = cap end only†	Leave blank for cylinders without spring or Specify: "E" = Spring Extend or "R" = Spring Return	Use "S" symbol only if special feature is required.	Specify Rod End Thread Style: "9" = Standard Female Rod End or "4" = Optional Male Rod End or "3" = Special Rod End (specify dimensions or furnish sketch)	Specify in inches.

\*Lipseal piston standard on Series CDM. "L" designator is not required. †Not available on spring extend.

## Non-Standard Rods

For non-standard rod ends, please specify rod thread style 3 and provide the KK, A, and C dimensions as needed.

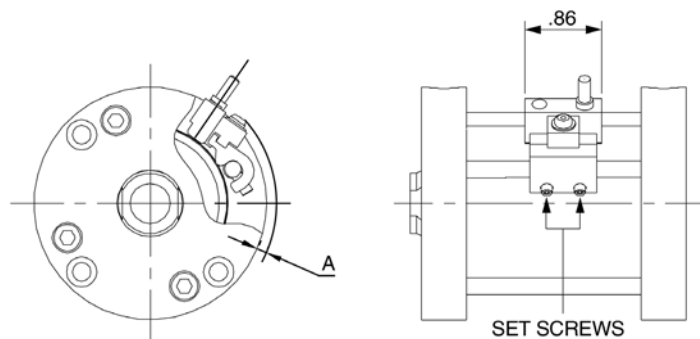


## Tie Rod Torque

Bore	(inch pounds)
9/16	8 - 10
3/4	20 - 25
1 1/8	20 - 25
1 1/2	35 - 40
2	35 - 40
2 1/2	50 - 60
3	70 - 80
4	150 - 160

# Series CD/CDM Air Cylinders

## Switch Mounting Seal Kits Technical Info



To sense piston position mount switch along tie rod using 2 each small set screws.

### Switch Mounting Data

Bore Size	A	Piston Travel at Midstroke (in.) (Switch On) (±.01)	Minimum Activation Distance from End of Stroke (in.)	
			Head	Cap
9/16	.32	.20	.13	.13
3/4	.25	.23	.13	.13
1 1/8	.20	.32	.13	.13
1 1/2	.10	.32	.07	.07
2	.10	.35	.06	.06
2 1/2	.03	.42	.06	.06
3	.03	.47	.12	.12
4	.00	.47	.12	.12

### Seal Kit Part Numbers for Series CD/CDM Air Cylinders

Bore Size	Rod Dia.	Single Piston Seal Design Seal Kit Consists of 2 each: Rod Seals, Tube Seals and 1 each: Piston Seal		Lipseal Piston/Magnetic Piston Design Seal Kit consists of 2 each: Rod Seals, Tube Seals and Piston Seals		Tie Rod Torque (in./lb.)
		Part Number		Part Number		
		Class 1*	Class 5**	Class 1*	Class 5**	
9/16"	1/4"	SKS05CD251	SKS05CD255	KS05CDL251	KS05CDL255	8-10
3/4"	5/16"	SKS07CD311	SKS07CD315	KS07CDL311	KS07CDL315	20-25
1 1/8"	1/2"	SKS12CD501	SKS12CD505	KS12CDL501	KS12CDL505	20-25
1 1/2"	5/8"	SKS15CD621	SKS15CD625	KS15CDL621	KS15CDL625	35-40
2"	3/4"	SKS20CD751	SKS20CD755	KS20CDL751	KS20CDL755	35-40
2 1/2"	3/4"	SKS25CD751	SKS25CD755	KS25CDL751	KS25CDL755	50-60
3"	7/8"	SKS30CD781	SKS30CD875	KS30CDL871	KS30CDL875	70-80
4"	1"	SKS40CD101	SKS40CD105	KS40CDL101	KS40CDL105	150-160

\*Class 1 Seals: Buna-N

\*\*Class 5 Seals: Fluorocarbon

### Technical Data

#### Push/Pull forces

Bore dia.	Rod area	Piston area push/pull	PSI										
			40	50	60	80	100	125	150	175	200	250	
9/16		Push	.248	10	12.5	15	20	25	31	37	43	50	62
	.049	Pull	.200	8	10	12	16	20	25	30	35	40	50
3/4		Push	.442	17.5	22	26.5	35	44	55	66	77	88	111
	.076	Pull	.366	14.6	18	22	29	37	46	55	64	73	92
1 1/8		Push	.994	40	50	60	80	99	124	149	174	200	249
	.196	Pull	.798	32	40	48	64	80	100	120	140	160	200
1 1/2		Push	1.767	71	88	106	141	177	221	265	309	353	443
	.307	Pull	1.460	58	73	88	117	146	182	219	256	292	365
2		Push	3.141	126	157	188	251	314	393	471	550	628	785
	.442	Pull	2.699	108	135	162	216	270	337	405	472	540	675
2 1/2		Push	4.908	196	245	294	393	491	613	736	859	982	1227
	.442	Pull	4.466	178	223	268	357	447	558	670	781	893	1116
3		Push	7.069	283	353	424	566	707	884	1060	1237	1414	1767
	.601	Pull	6.486	259	324	389	519	649	811	973	1135	1297	1622
4		Push	12.57	503	628	754	1006	1257	1571	1885	2200	2514	3142
	.781	Pull	11.78	471	589	707	942	1178	1484	1767	2062	2356	2945

#### Weight chart – basic cylinders

Bore dia.	N basic weight in ounces*	Add. per 1/8 inch of stroke (ounces)
9/16	1.1	.08
3/4	2.0	.1
1 1/8	5.0	.2
1 1/2	8.5	.4
2	11.7	.5
2 1/2	18.6	.6
3	25.1	.7
4	51.1	1.1

\* Base weight includes 1/8 inch of stroke.



## Switch Specifications

### Part Numbers

Bore	Reed (Low AMP)	NPN Sinking	PNP Sourcing
9/16"	L077030000	L076950000	L076990000
3/4", 1 1/8"	L077040000	L076960000	L077000000
1 1/2", 2"	L077050000	L076970000	L077010000
2 1/2", 3", 4"	L077060000	L076980000	L077020000

Note: For switches with connectors and cordsets, See Complementary Products Section.

Model Number	Reed Switch (Low AMP)	NPN	PNP
Switching Logic	N.O. SPST (Form A)	N.O. NPN (Sinking)	N.O. PNP (Sourcing)
Supply Voltage Range	3 - 125 V AC/DC	6 - 30 VDC	6 - 30 VDC
On-State Voltage Drop	1.7 V Max.	1.2 V max.	
Current Output Range	–	150 mA	150 mA
Burden Current	–	7 mA at 12 V 14 mA at 24 V	
Power Rating*	5 W (2.5 W) 5 VA (2.5 VA)	–	
Switching Current Range*	5-40 mA (5-20 mA)	–	
Leakage Current	0	1.0 mA	1.0 mA
LED Function	Red (Target Present)	Red (Target Present)	Green (Target Present)
Minimum Current to Light LED	3 mA	1 mA	1 mA
Operating Temperature	-10 to 60°C (14 to 140°F)	-10 to 60°C (14 to 140°F)	
Storage Temperature	-20 to 60°C (-4 to 140°F)	-20 to 70°C (-4 to 158°F)	
Enclosure Protection	IEC standard IP 67 NEMA 6P		
Lead Wire	2 conductor, 24 gauge	3 conductor, 24 gauge	
Lead Wire Length	59 inches, 1.5 meter		
Color of Cable	Gray	Black	
Switching Response	Max. 300 Hz	Max. 1k Hz	
Shock Resistance	30 G (300 m/s²)	50 G (490 m/s²)	
Vibration Resistance	Double Amplitude 1.5 mm (Frequency 10 to 55 Hz 1 scanning, 1 minute)		

\*Number in parentheses pertains to inductive loads.

\*Wire colors in parentheses pertain to switches manufactured before 10/15/93.

## Circuits

### Reed Switch

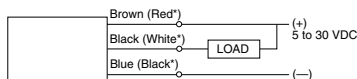
NOTE: Polarity must be observed for DC operation only.



### NPN Sinking Output

Color of Cable ..... Black

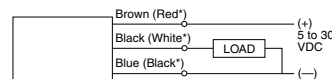
"On" State Voltage Drop ..... 1.2V Maximum



### PNP Sourcing Output

Color of Cable ..... Black

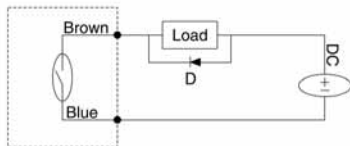
"On" State Voltage Drop ..... 1.2V Maximum



## Circuit for Switching Contact Protection (Inductive Loads)

(Required for proper operation 24V DC)

Put Diode parallel to loads following polarity as shown below.



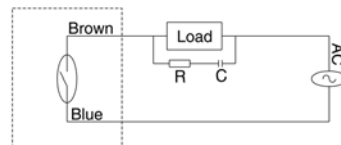
D: Diode: select a Diode with the breakdown voltage and current rating according to the load.

Typical Example—100 Volt, 1 Amp Diode

CR: Relay coil (under 0.5W coil rating)

(Recommended for longer life 125 VAC)

Put a resistor and capacitor in parallel with the load. Select the resistor and capacitor according to the load.



Typical Example:

CR: Relay coil (under 2W coil rating)

R: Resistor 1 KΩ – 5 KΩ, 1/4 W

C: Capacitor 0.1 μF, 600 V

## Caution

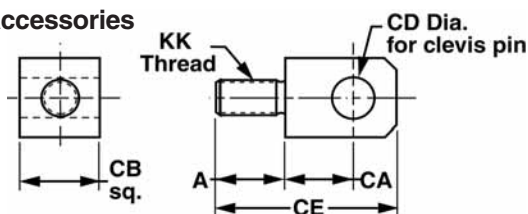
- Use an ammeter to test reed switch current. Testing devices such as incandescent light bulbs may subject the reed switch to high in-rush loads.
- **NOTE:** When checking an unpowered reed switch for continuity with a digital ohmmeter the resistance reading will change from infinity to a very large resistance (2 M ohm) when the switch is activated. This is due to the presence of a diode in the reed switch.
- Anti-magnetic shielding is recommended for reed switches exposed to high external RF or magnetic fields.
- The magnetic field strength of the piston magnet is designed to operate with our switches. Other manufacturers' switches or sensors may not operate correctly in conjunction with these magnets.

- Current capabilities are relative to operational temperatures.
- Use relay coils for reed switch contact protection.
- The operation of some 120 VAC PLC's (especially some older Allen-Bradley PLC's) can overload the reed switch. The switch may fail to release after the piston magnet has passed. This problem may be corrected by the placement of a 700 to 1K OHM resistor between the switch and the PLC input terminal. Consult the manufacturer of the PLC for appropriate circuit.
- Switches with long wire leads (greater than 15 feet) can cause capacitance build-up and sticking will result. Attach a resistor in series with the reed switch (the resistor should be installed as close as possible to the switch). The resistor should be selected such that R (ohms) > E/0.3.

# Series CD/CDM Air Cylinders

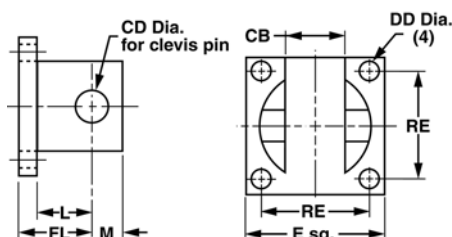
## Accessories Bumpers

### Cylinder Accessories Rod Eye



Bore	Part #	A	CA	CB	CD	CE	KK
9/16	L073810008	3/8	15/32	3/8	3/16	1 13/32	#8-32
3/4	L073810010	3/8	15/32	3/8	3/16	1 13/32	#10-32
1 1/8	L073810020	9/16	15/32	3/8	3/16	1 9/32	5/16-24
1 1/2	L073810024	5/8	23/32	3/4	3/8	1 25/32	3/8-24
2-2 1/2	L073810032	1 1/16	23/32	3/4	3/8	1 27/32	1/2-20
3	L073810040	3/4	1	1	5/8	2 3/8	5/8-18
4	L073810048	3/4	1	1	5/8	2 3/8	3/4-16

### Clevis Bracket (Supplied with Pin)

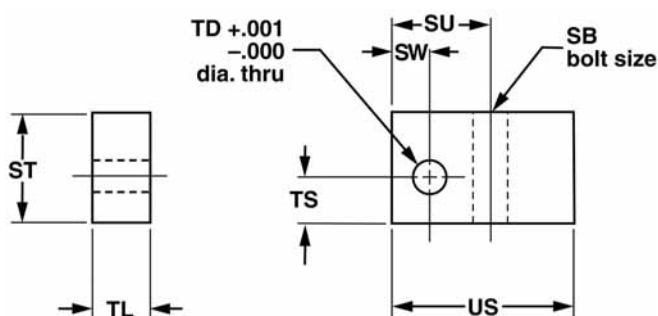


Part #	E	L	M	CB	CD	DD	FL	RE
L073820012	1	13/32	7/32	25/64	3/16	9/64	9/16	3/4
L073820024	1 3/4	25/32	13/32	49/64	3/8	11/64	15/16	1 3/8
L073820040	2 1/2	1	9/16	1 1/64	5/8	17/64	1 1/4	2

Use L073820012 on 9/16", 3/4" and 1 1/8" bore; L073820024 on 1 1/2", 2" and 2 1/2" bore and L073820040 on 3" and 4" bore.

**NOTE:** The Clevis Bracket is an accessory for the rod eye or the cap pivot eye and cannot be mounted directly to the cylinder.

### Trunnion Bracket



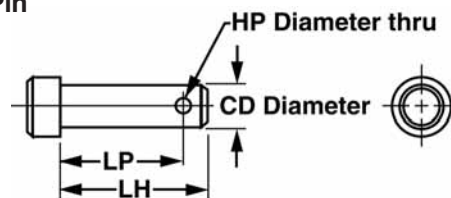
Part #	SB	ST	SU	SW	TD	TL	TS	US
L073840016	1/4	7/8	13/16	5/16	.251	1/2	3/8	1 1/2
L073840020	5/16	1	15/16	3/8	.313	5/8	29/64	1 5/8
L073840024	3/8	1 1/4	1 1/16	7/16	.376	3/4	35/64	1 7/8

Use L073840016 on 1 1/8", 1 1/2" and 2" bore.

Use L073840020 on 2 1/2" and 3" bore.

Use L073840024 on 4" bore.

### Clevis Pin



Part #	CD	HP	LH	CD
L073830012	3/16	3/32	1	29/32
L073830024	3/8	5/32	1 5/8	1 15/32
L073830040	5/8	5/32	2	1 27/32

### Noise Dampening Bumpers

Bumpers both ends – B  
Bumpers head end – H  
Bumper cap end – C\*

Bumpers are available at either or both ends of the cylinder to reduce noise for quieter operation. Bumper material is a 70 durometer nitrile. The table shows the distance the stroke is reduced when incorporating bumpers. This varies with operating pressure as indicated in table. Example: 1.50 NCDB 9 x .50" stroke. Bumpers both ends cylinder will have a working stroke of .43" instead of .50" operating at 80 psi. For special applications call the factory.

**NOTE:** Bumpers shorten actual strokes and are not practical on short stroke with low operating pressure.

Bumpers with Cap End or Both Ends will add the "BC" length in chart to "C" dimension.

Bumpers on Double End Cylinders will add the "BH" length in chart to the "C" dimension (rod extension).

#### Stroke Reduction (in.) Using Bumpers

Bore dia.	Bumper location	Operating PSI					
		0	20	40	60	80	100
0.56	At cap	0.03	0.03	0.02	0.02	0.02	0.02
	At head	0.07	0.07	0.06	0.05	0.05	0.04
	Both	0.10	0.09	0.08	0.08	0.07	0.07
0.75	At cap	0.03	0.02	0.02	0.02	0.01	0.01
	At head	0.07	0.07	0.05	0.05	0.04	0.04
	Both	0.10	0.09	0.07	0.06	0.05	0.05
1.12	At cap	0.05	0.04	0.04	0.02	0.05	0.01
	At head	0.10	0.08	0.08	0.07	0.07	0.06
	Both	0.15	0.12	0.11	0.09	0.08	0.07
1.50	At cap	0.06	0.05	0.04	0.03	0.02	0.02
	At head	0.10	0.08	0.06	0.06	0.06	0.05
	Both	0.16	0.13	0.10	0.09	0.07	0.07
2.00	At cap	0.06	0.05	0.04	0.03	0.02	0.01
	At head	0.10	0.07	0.06	0.05	0.05	0.04
	Both	0.16	0.12	0.09	0.08	0.06	0.05
2.50	At cap	0.06	0.05	0.04	0.02	0.02	0.01
	At head	0.11	0.07	0.06	0.05	0.05	0.04
	Both	0.17	0.11	0.10	0.07	0.06	0.05
3.00	At cap	0.10	0.08	0.06	0.05	0.04	0.03
	At head	0.14	0.09	0.04	0.07	0.06	0.06
	Both	0.24	0.16	0.13	0.12	0.10	0.09
4.00	At cap	0.11	0.10	0.09	0.08	0.07	0.07
	At head	0.26	0.24	0.23	0.21	0.20	0.18
	Both	0.37	0.34	0.32	0.29	0.27	0.25

\*Not available on spring extend.

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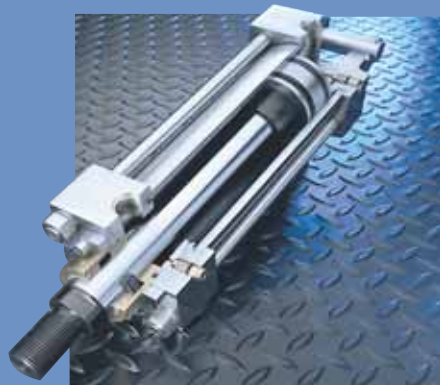
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