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Rodless Air Cylinders

Rodless Cylinders

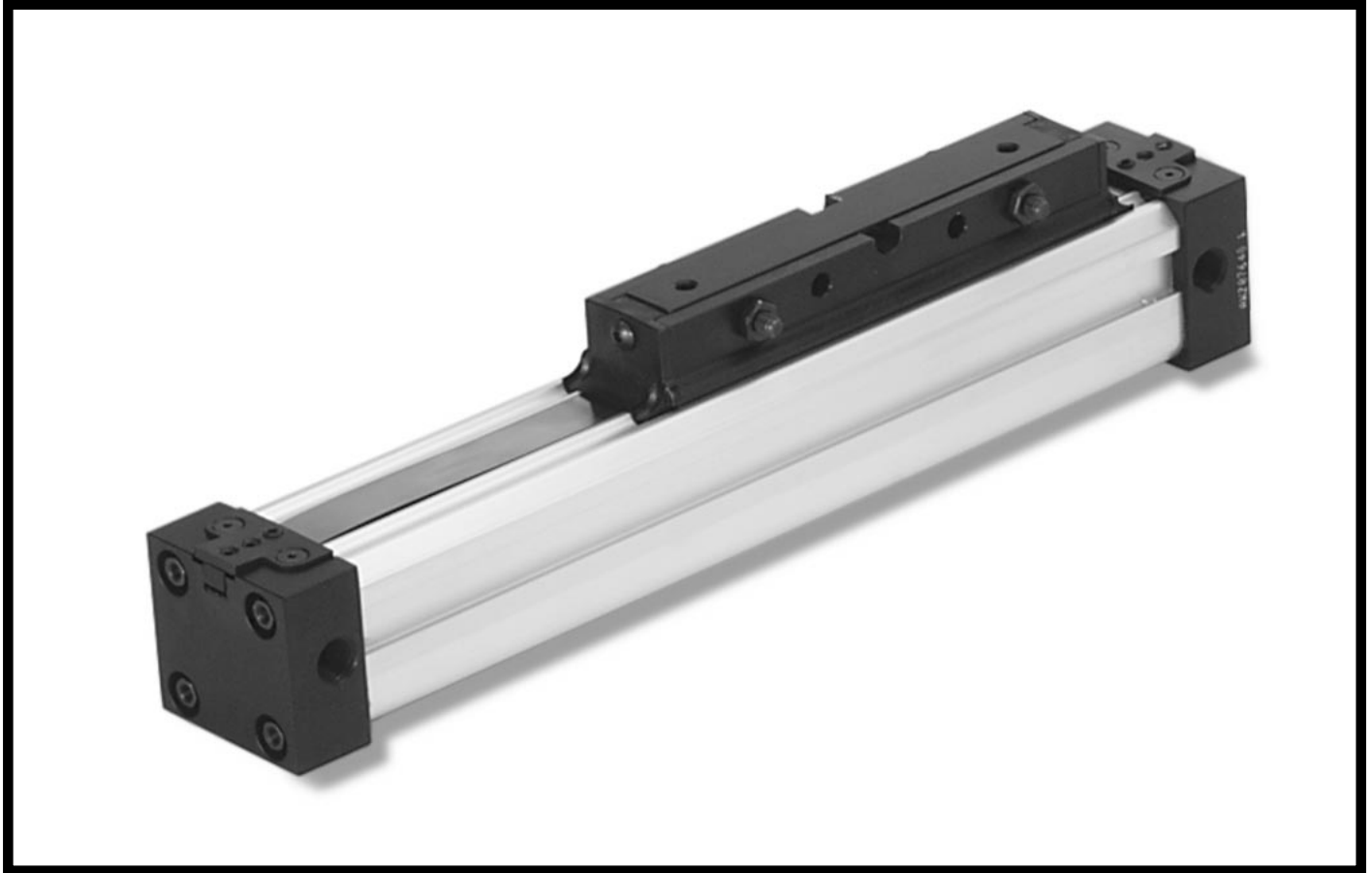
Section D Index...Page

Series RC Rodless Air Cylinder, 115 P.S.I.

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For additional information – call your local
Parker Cylinder Distributor.





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Rodless Air Cylinder Series RC

- Compact Design
- Cushions Standard
- Load Support Bearings
- Non-Lubricated Air Service
- Convenient Porting Options
- 17 Standard Mounting Styles

For Cylinder Division Plant Locations – See Section H.

Parker Series RC Rodless Air Cylinders

- **Compact Design**
Up to 50% shorter than piston rod type construction
- **Cushions Standard**
Feature retained adjusting screw
- **Piston Position Sensing**
Reed and solid state switches are available
- **Load Support Bearings**
Increase seal and cylinder life
- **Convenient Porting Options**
“Transfer-Tube” design offers piping flexibility
- **Non-Lubricated Service**
Permanently lubricated for life of the cylinder

As the world-leader in the design and manufacture of conventional tie rod cylinders, Parker Cylinder Division introduces the Parker Series RC *rodless* air cylinder. The RC Cylinder combines the engineering expertise, manufacturing experience, and commitment to quality that you've come to expect from the Parker Cylinder Division. New, innovative ideas and designs make the Series RC rodless cylinder the logical choice for the discerning user or specifier of rodless air cylinders

The RC cylinder is especially appropriate for today's dynamic pneumatic cylinder market. Features include: piston carriage support; transfer tube for convenient plumbing of air lines; cushions with retained adjusting screws as standard; unique band hold-down/wiper; and integral mounting holes.

We've designed the Rodless RC cylinder for applications where space

may be at a premium. In many instances, the RC cylinder requires nearly 50% less space than its piston rod type counterpart of the same stroke. The RC air cylinder also offers additional advantages for long-stroke requirements. The RC Rodless Air Cylinder is designed to minimize the effect of piston loading on seal wear and cylinder life. Piston rod overhang and bending are no longer factors. External rod guides and supports are not required.

The Parker Cylinder Division teams up with over 130 distributors to provide the local, personalized service that is so important in today's market. This combination ensures that, for whatever the requirement, the Parker team has the right solution and product to meet your needs.

For further information on our cylinder products and capabilities, contact your local Parker Cylinder distributor.



For additional information – call your local
Parker Cylinder Distributor.



Here's why the Parker Series RC is your best choice in rodless air cylinders

Quality value-added features include:

1. Piston Carriage Supports: Delrin® rods support and guide carriage loads (not available in 25mm bore). This unique design transfers the loading from the piston to the support rods and increases seal life. The negative effects of moderate side loading are minimized.

2. Bearing Strips: Located on the side of the piston carriage, the bearing strips slide along the slot in the cylinder tube. They reduce the effects of side loads on piston wear and cylinder life.

3. Transfer Tube: The standard Series RC cylinder features a transfer tube which allows air to be directed to both sides of the piston from one end of the cylinder. Long tubing or hose runs can be eliminated. When double-ported is required for faster piston travel, an optional end cap design is available.

4. Self-Checking Cushion Seals: Adjustable cushions, supplied as standard, decelerate piston smoothly at end of stroke.

5. Piston Seals: Cylinder can be operated without the addition of lubrication. Seals ride a thin film of PTFE impregnated lubricant for smoother piston travel and extended seal life.

6. Band Wipers: The wiper cleans and reseats the upper band, keeping dirt and contaminants from the sealing area of the cylinder. The wiper assembly also cleans the path of the Delrin® support rods ensuring the piston carriage travels smoothly.

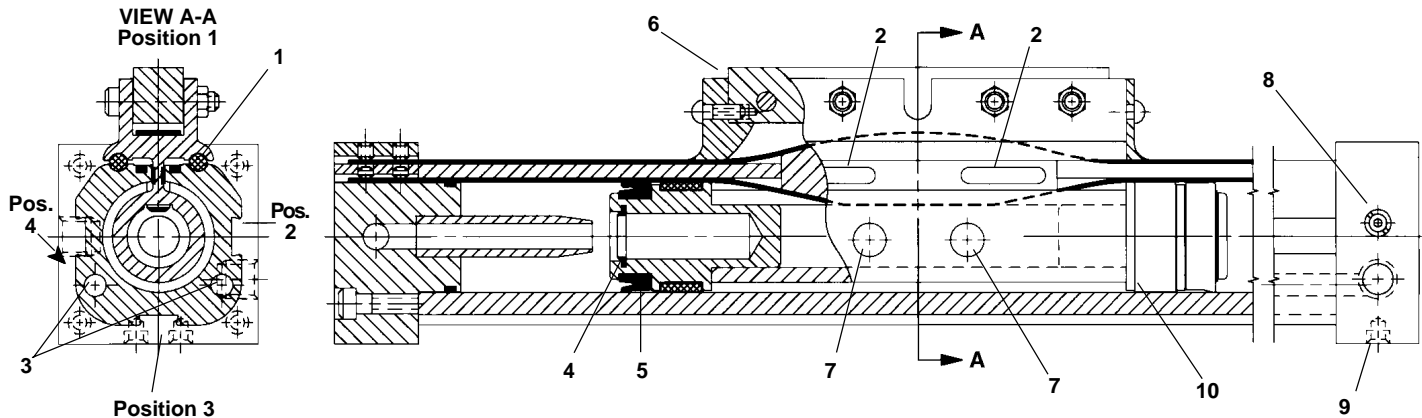
7. Magnet Piston: An optional magnet piston, with reed or solid state switches, provides piston position sensing. The switch assembly is dovetail mounted; offering many switch locations for desired

feedback without the expensive and cumbersome, add-on track mounted switches.

8. Retained Cushion Adjusting Screws: The captive screw increases safety during machine operation and maintenance. It cannot be accidentally backed out too far—cushion adjustment screw “blowout” is prevented.

9. Integral Mounting Holes: Two tapped holes on the bottom surface and four tapped holes on the face of each end cap add to mounting possibilities. The cylinder can be installed without the addition of any accessories. If needed, the optional foot mounts can be used.

10. Nylon Piston Wear Bands: Nylon piston bearings increase cylinder life and load bearing capacity by the elimination of metal-to-metal contact. Friction resistance characteristics are also enhanced.



Standard Specifications

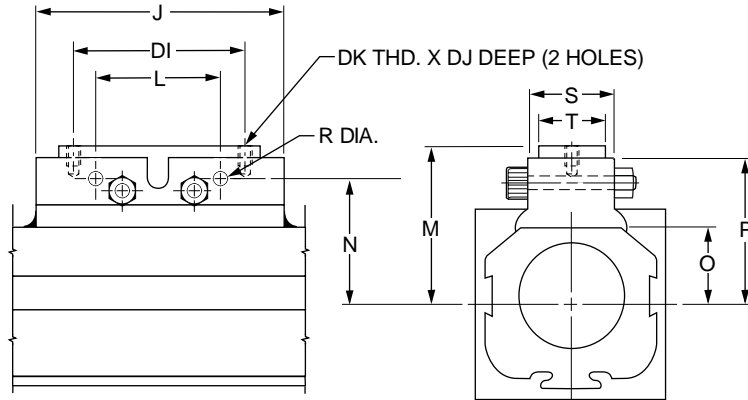
- Anodized Aluminum End Caps, Body, Piston Carriage
- Stainless Steel Sealing Band
- Buna-N Piston Seals
- Retained Adjustable Cushions
- Integral Mounting Holes
- Transfer Port
- Nominal Pressure Rating 115 PSI
- Standard Operating Temperature -10°F to 165°F
- Strokes Available Up to 24 ft.

	50mm	63mm
Single Carriage	16 ft.	20 ft.
Double Carriage	15 ft.	19 ft.
- Standard Fluid: Filtered, Lubricated or Non-Lubricated Air

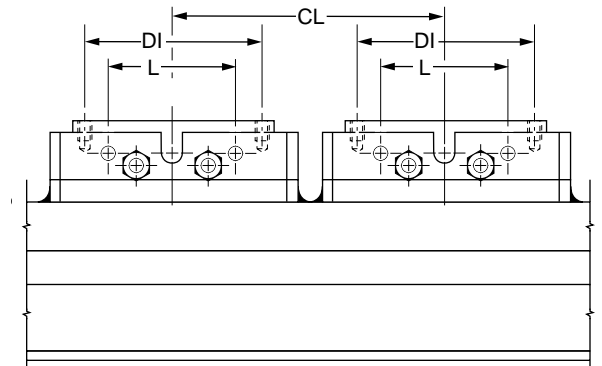
For Cylinder Division Plant Locations – See Section H.



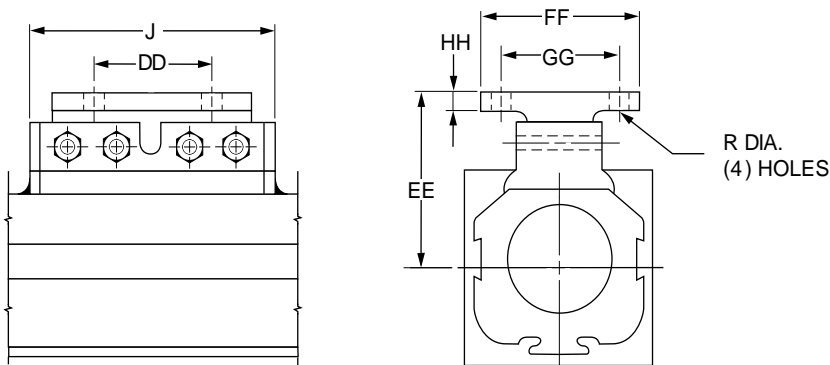
Basic Mount – Style D



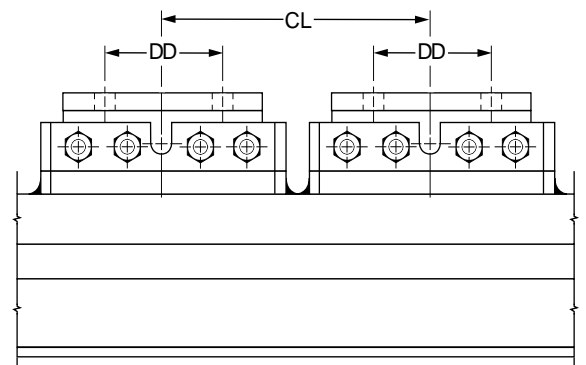
Basic Mount Double Carriage – Style N



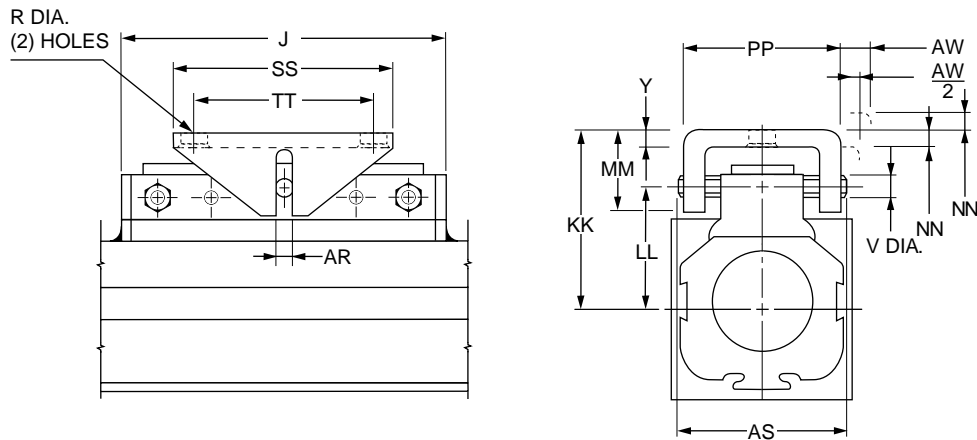
Flange Mount – Style T



Flange Mount Double Carriage – Style E



Swivel Mount – Style A



See Table 1 for dimensions

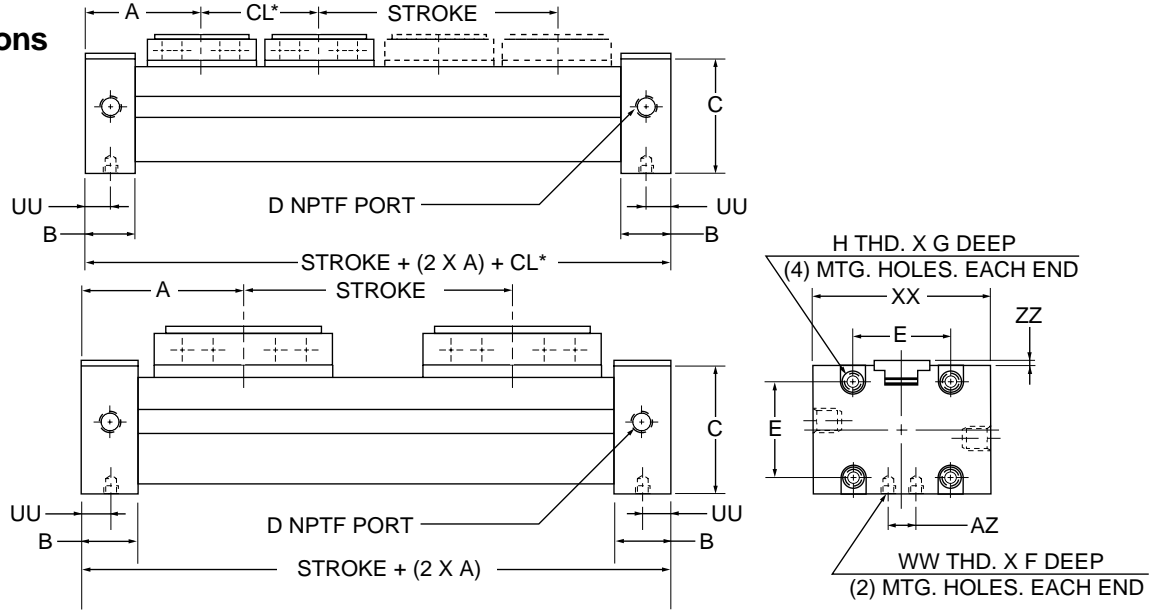
For additional information – call your local
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Series RC Rodless Air Cylinders

25, 32mm Bore Sizes
Mounting Dimensions

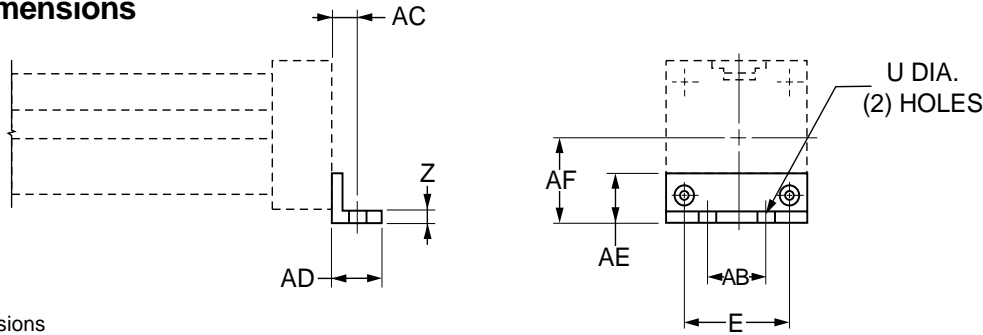
Mount Dimensions



*For double carriage mounts, the piston carriages are not connected. The "CL" dimension is the minimum distance between the centerline of each carriage. The "CL" dimension can be increased, depending upon customer mounting. The effective stroke of the cylinder will be decreased by the same distance that the "CL" dimension is increased.

See Table 2 for dimensions

Foot Mount Dimensions



See Table 2 for dimensions

Table 1. — Envelope and Mounting Dimensions

BORE	GG	HH	KK	LL	MM	NN	PP	RR	SS	TT	AR	AS	AW	J	L	M	N	O	P	R	S	T	V	DD	DI	DJ	DK	EE	FF	Y	
25 mm	in.	1.50	.19	2.05	1.50	.79	±1.0	1.46	—	1.25	.63	.20	1.65	±.19	4.98	1.97	1.50	1.30	.70	1.50	.22	1.02	.59	.31	3.00	3.15	.312	#10-32	1.75	2.00	.12
	mm	38.1	4.83	52.1	38.1	20.1	±2.54	37.1	—	31.8	16.0	5.08	41.9	±4.83	126.5	50.0	38.1	33.0	17.8	38.1	5.59	25.9	14.99	7.87	76.2	80	7.9	—	44.5	50.8	3.05
32 mm	in.	1.88	.19	2.60	1.89	1.18	±.16	1.90	—	2.75	1.97	.32	2.28	±.31	6.56	3.94	1.89	1.57	.97	1.89	.28	1.26	.72	.47	4.50	4.73	.50	1/4-20	2.20	2.50	1.16
	mm	47.8	4.83	66.0	48.0	30.0	±4.06	48.3	—	69.9	50.0	8.13	57.9	±7.87	166.6	100.1	48.0	39.9	24.6	48.0	7.11	32.0	18.3	12.0	114.3	120.14	12.7	—	55.9	63.5	4.06

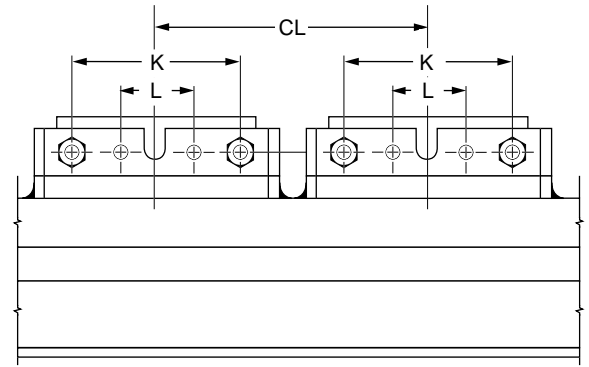
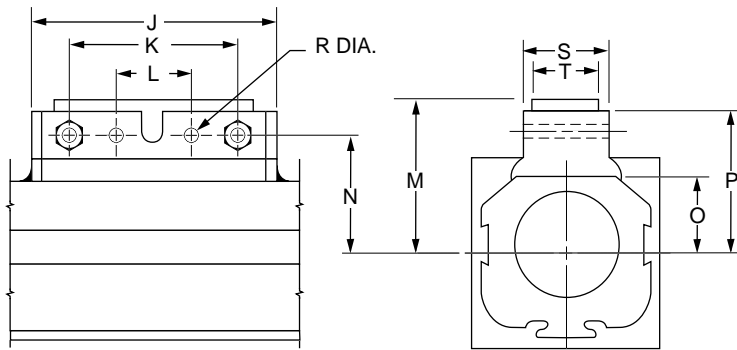
Table 2. — Envelope and Mounting Dimensions

BORE	A	B	C	D	E	F	G	H	U	AB	AC	AD	AE	AF	AZ	UU	WW	XX	Z	ZZ	Min. CL	
25 mm	in.	3.94	.97	1.58	1/8" NPTF	1.06	.25	.40	#10-32	.22	1.06	.63	.87	.71	.94	.38	.56	#10-32	2.25	.08	.06	4.94
	mm	100.1	24.6	40.1	—	26.9	6.35	10.2	—	5.5	26.9	16.0	22.1	18.1	23.9	9.7	14.2	—	57.1	2.0	1.52	125.5
32 mm	in.	4.92	1.00	2.09	1/4" NPTF	1.42	.19	.40	#10-32	.28	1.42	.47	.79	1.02	1.43	.63	.63	1/4-20	2.25	.13	.05	6.84
	mm	125.0	25.4	53.1	—	36.1	4.8	10.2	—	7.11	36.1	11.9	20.1	25.9	36.3	16.0	16.0	—	57.1	3.3	1.27	173.7

For Cylinder Division Plant Locations – See Section H.

Basic Mount – Style D

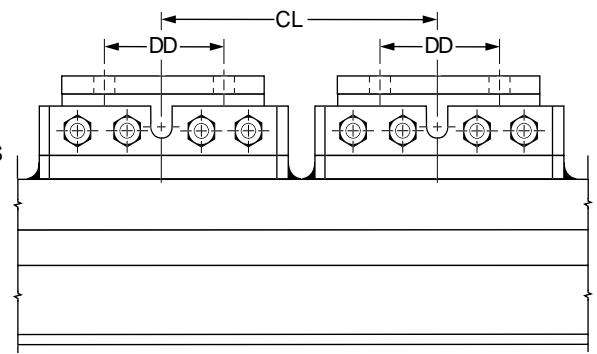
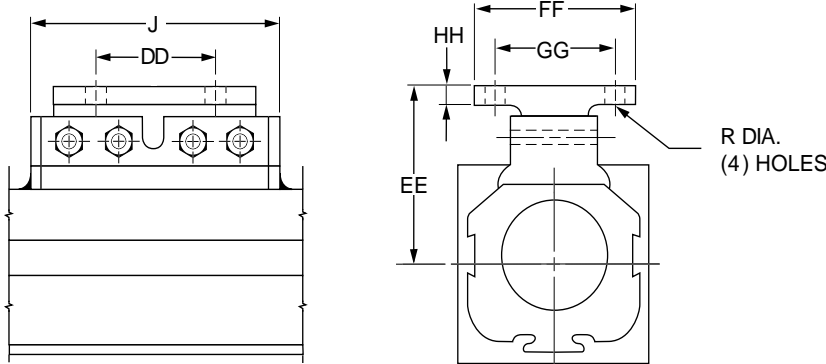
Basic Mount Long – Style N



See Table 1 for dimensions

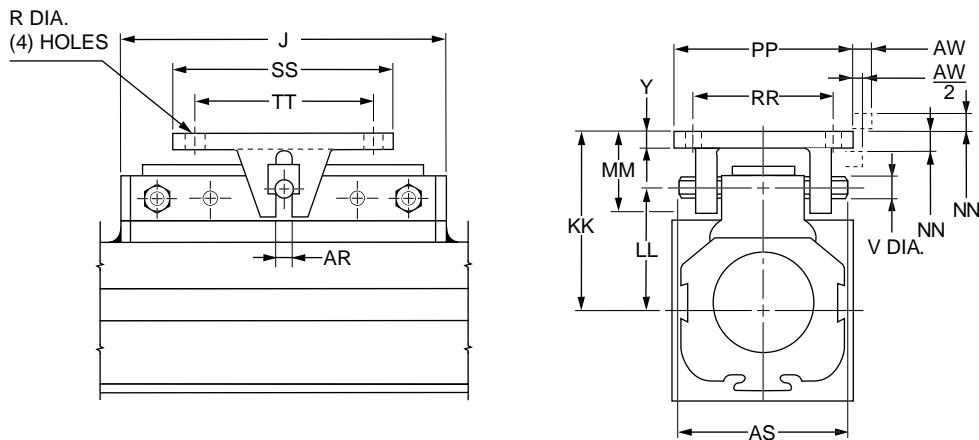
Flange Mount – Style T

Flange Mount Long – Style E



See Table 1 for dimensions

Swivel Mount – Style A



See Table 1 for dimensions

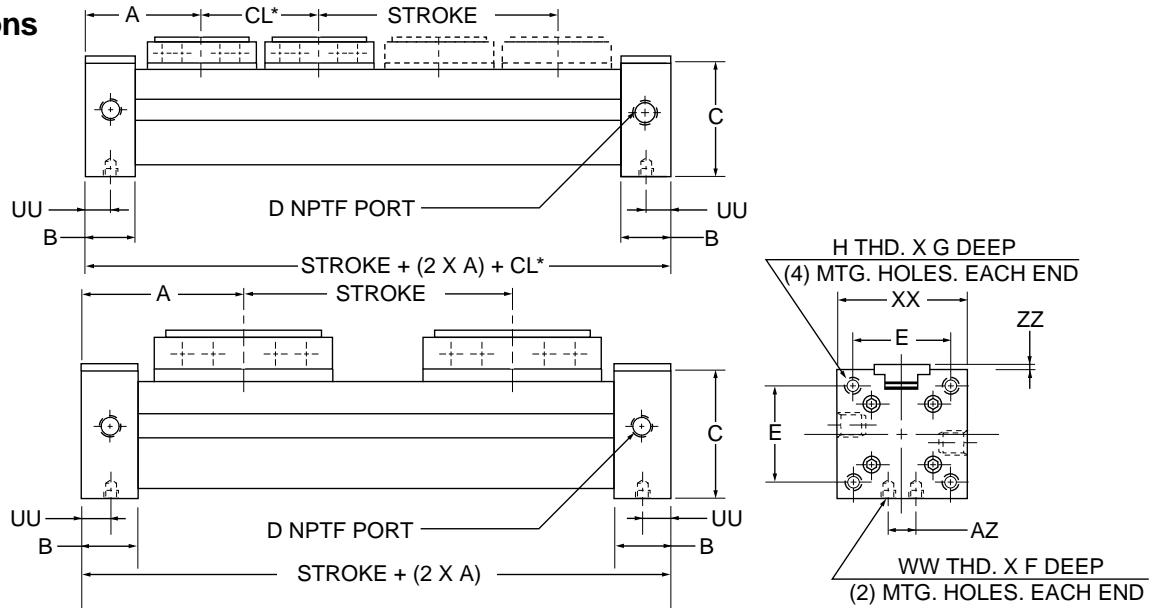
For additional information – call your local
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Series RC Rodless Air Cylinders

40, 63mm Bore Sizes
Mounting Dimensions

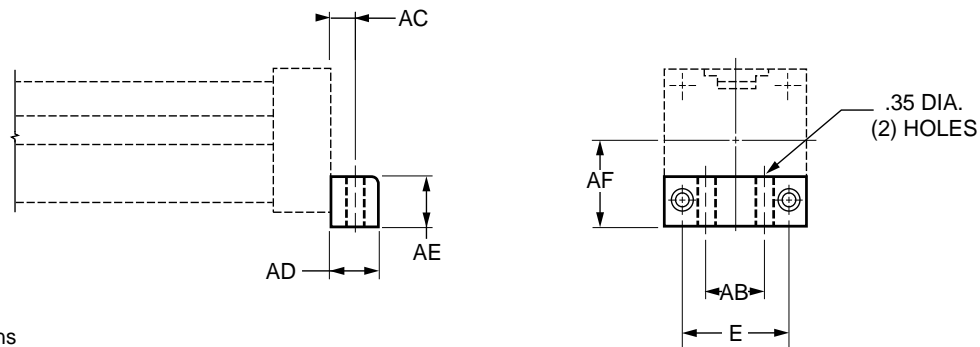
Mount Dimensions



*For double carriage mounts, the piston carriages are not connected. The "CL" dimension is the minimum distance between the centerline of each carriage. The "CL" dimension can be increased, depending upon customer mounting. The effective stroke of the cylinder will be decreased by the same distance that the "CL" dimension is increased.

See Table 2 for dimensions

Foot Mount Dimensions



See Table 2 for dimensions

Table 1. — Envelope and Mounting Dimensions

BORE		GG	HH	KK	LL	MM	NN	PP	RR	SS	TT	AR	AS	AW	J	K	L	M	N	O	P	R	S	T	V	DD	EE	FF	W	Y
40 mm	in.	1.77	.24	2.95	2.00	1.50	.30	2.76	2.17	3.54	2.95	.31	2.75	±30	6.16	4.33	2.17	2.40	1.93	1.13	2.27	.28	1.10	.71	.47	3.15	2.60	2.36	1.93	.24
	mm	45	6	75	51	38	8	70	55	90	75	8	70	±7.5	156	110	55	61	49	28.8	57.6	7	28	18	12	80	66	60	49	6
63 mm	in.	2.36	.28	3.87	2.81	1.72	.35	3.54	2.76	4.72	3.94	.38	3.23	.26	8.92	7.09	3.54	3.27	2.68	1.79	3.07	.35	1.19	.74	.63	5.12	3.51	3.15	2.68	.25
	mm	59.9	7.1	98.3	71.4	43.7	8.9	89.9	70.1	119.9	100.1	9.7	82.0	6.6	226.6	180.1	89.9	83.1	68.1	45.5	78.0	8.9	30.2	18.8	16.0	130.0	89.2	80.0	68.1	6.4

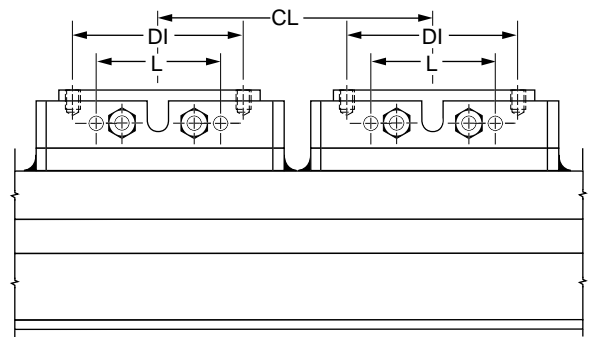
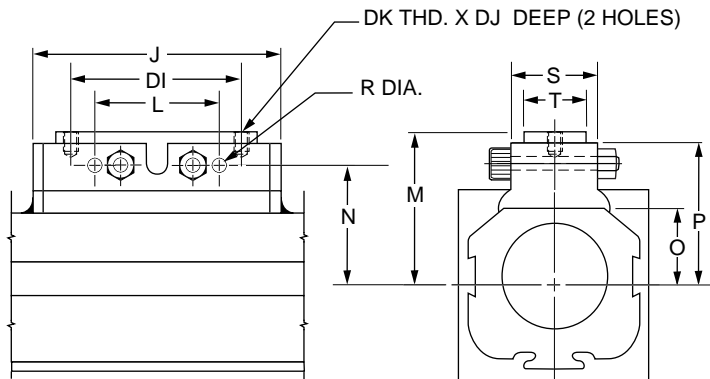
Table 2. — Envelope and Mounting Dimensions

BORE	A	B	C	D	E	F	G	H	U	AB	AC	AD	AE	AF	AZ	UU	WW	XX	CL	ZZ	
40 mm	in.	5.91	1.18	2.83	1/4NPT	2.13	.19	.50	1/4-20	.35	1.18	.49	.94	1.50	63	.59	1/4-20	2.83	8.21	.03	
	mm	150	30	72	—	54	4.8	12.7	—	9	30	12.5	24	24	38	16	15	—	72	208.6	.76
63 mm	in.	8.47	1.50	4.17	3/8NPT	3.07	.50	.87	5/16-18	.41	1.89	0.59	1.18	1.58	2.24	.63	.75	5/16-18	4.17	12.18	.01
	mm	215.1	38.1	105.9	—	78.0	12.7	22.1	—	10.4	48.0	15.0	30.0	40.1	56.9	16.0	19.1	—	105.9	309.4	.25

For Cylinder Division Plant Locations – See Section H.

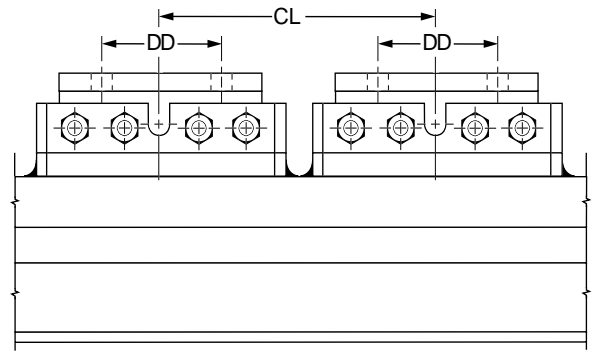
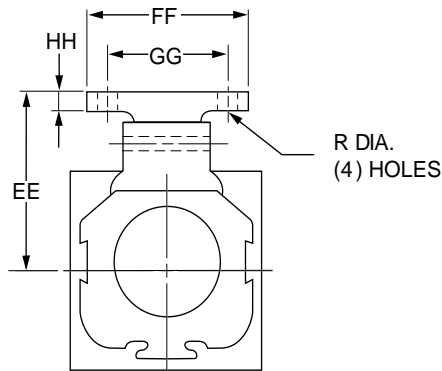
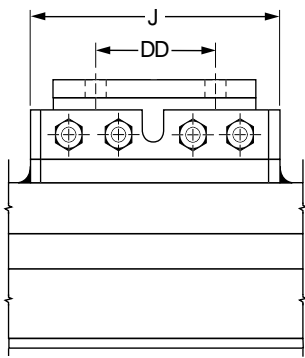
Basic Mount – Style D

Basic Mount Double Carriage – Style N

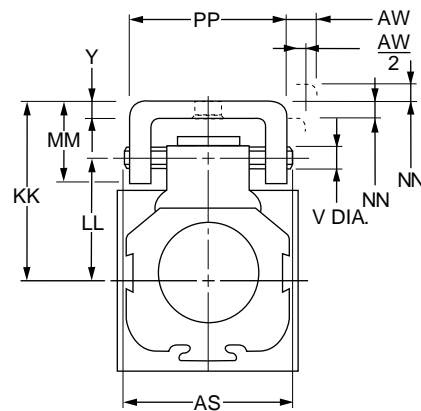
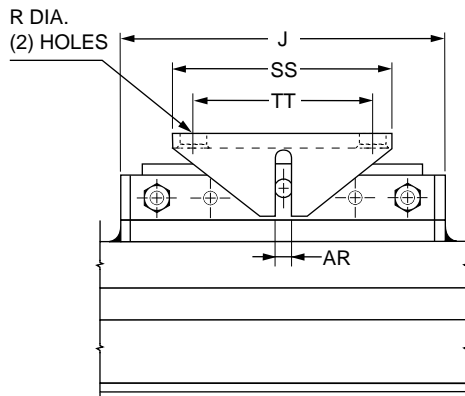


Flange Mount – Style T

Flange Mount Double Carriage – Style E



Swivel Mount – Style A



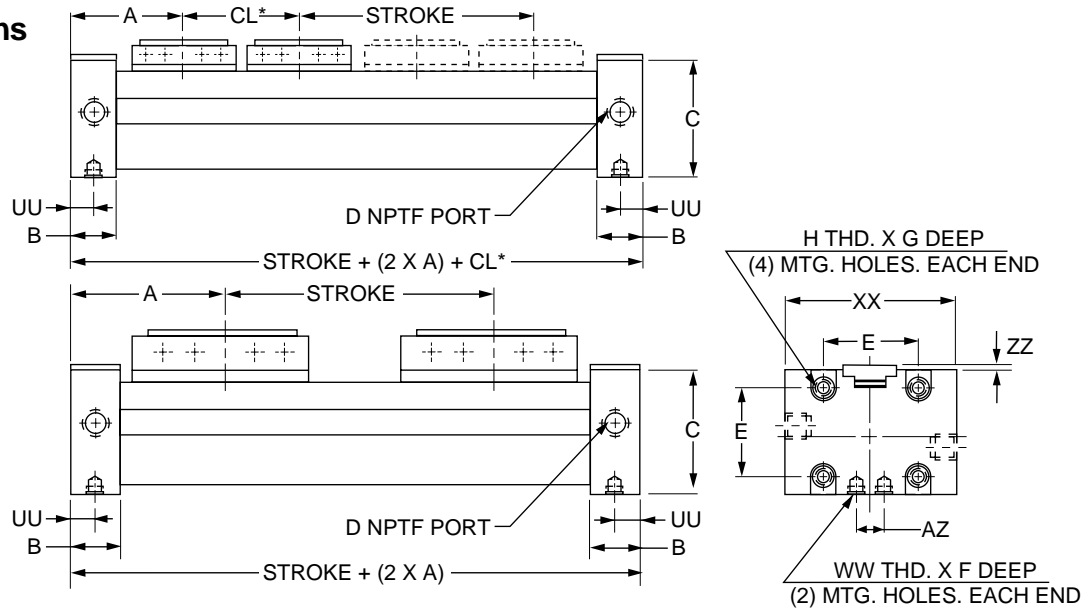
See Table 1 for dimensions

For additional information – call your local
Parker Cylinder Distributor.

Series RC Rodless Air Cylinders

50mm Bore Size
Mounting Dimensions

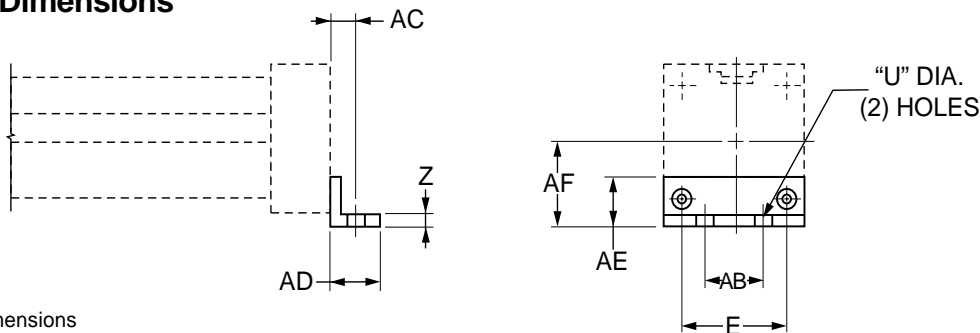
Mount Dimensions



*For double carriage mounts, the piston carriages are not connected. The "CL" dimension is the minimum distance between the centerline of each carriage. The "CL" dimension can be increased, depending upon customer mounting. The effective stroke of the cylinder will be decreased by the same distance that the "CL" dimension is increased.

See Table 2 for dimensions

Foot Mount Dimensions



See Table 2 for dimensions

Table 1. — Envelope and Mounting Dimensions

BORE		GG	HH	KK	LL	MM	NN	PP	SS	TT	AR	AS	AW	J	L
50mm	inch	2.36	0.28	3.54	2.56	1.69	0.24	2.27	3.94	3.15	0.38	2.83	0.24	8.61	5.51
	mm	59.9	7.1	89.9	65.0	42.9	6.1	57.7	100.1	80.0	9.7	71.9	6.1	218.7	140.0

BORE		M	N	O	P	R	S	T	V	DD	DI	DJ	DK	EE	FF	Y
50mm	inch	2.56	2.17	1.41	2.56	0.35	1.34	0.74	0.63	5.12	6.30	.69	⁵ / ₁₆ -18	3.02	3.15	0.19
	mm	65.0	55.1	35.8	65.0	8.9	34.0	18.8	16.0	130.0	160.0	17.48	—	76.7	80.0	4.8

Table 2. — Envelope and Mounting Dimensions

BORE		A	B	C	D	E	F	G	H	U	AB	AC	AD	AE	AF	AZ	UU	WW	XX	Z	ZZ	Min. CL
50mm	inch	6.70	1.25	3.07	³ / ₈ NPT	2.13	0.50	0.50	⁵ / ₁₆ -18	0.35	2.13	0.71	1.10	1.34	2.01	0.63	0.63	⁵ / ₁₆ -18	3.38	0.14	.16	9.9
	mm	170.1	31.75	77.97	—	54.1	12.7	12.7	—	8.89	54.1	18.0	27.9	34.0	51.1	16.0	16.0	—	85.9	3.6	3.96	251.5

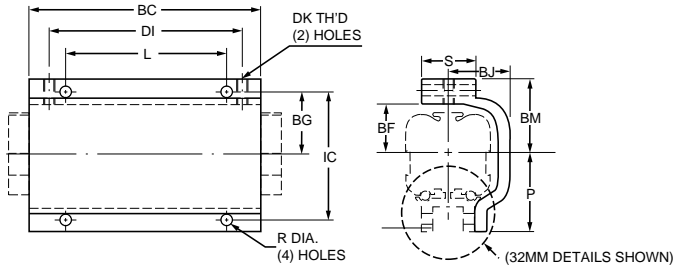
For Cylinder Division Plant Locations – See Section H.

Inverted Carriage Mounting Styles

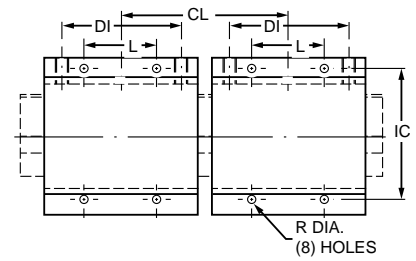
Series RC Rodless Air Cylinder

Inverted Basic Mount – Style J

25mm & 32mm Bore Sizes

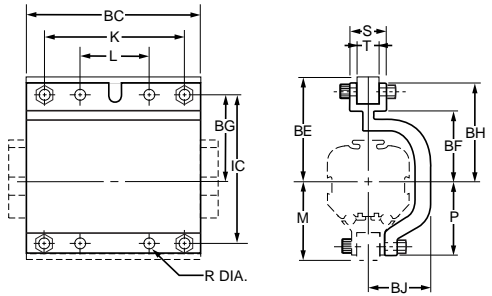


Inverted Basic Mount Double Carriage – Style B

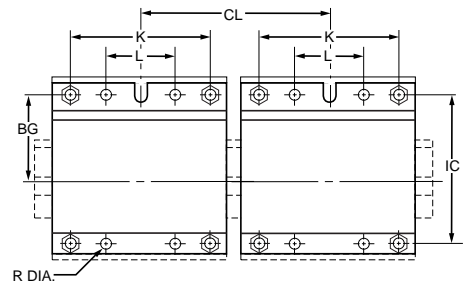


Inverted Basic Mount – Style J

40mm & 63mm Bore Size

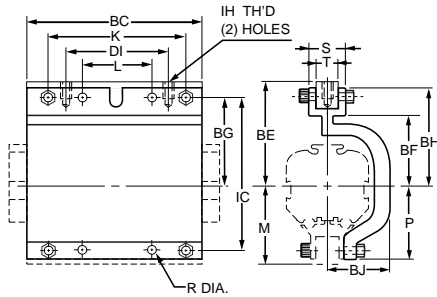


Inverted Basic Mount Double Carriage – Style B

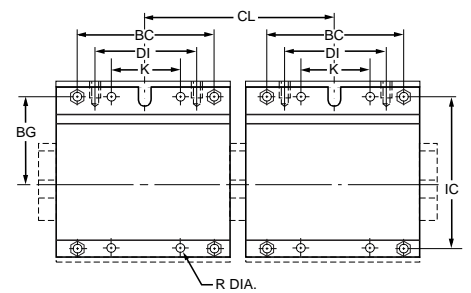


Inverted Basic Mount – Style J

50mm Bore Size

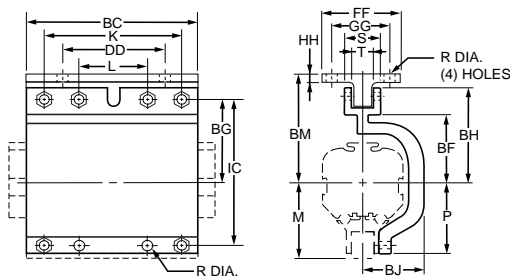


Inverted Basic Mount Double Carriage – Style B

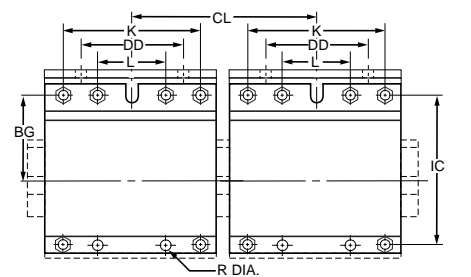


Inverted Flange Mount – Style L

40mm, 50mm & 63mm Bore Sizes



Inverted Flange Mount Double Carriage – Style K



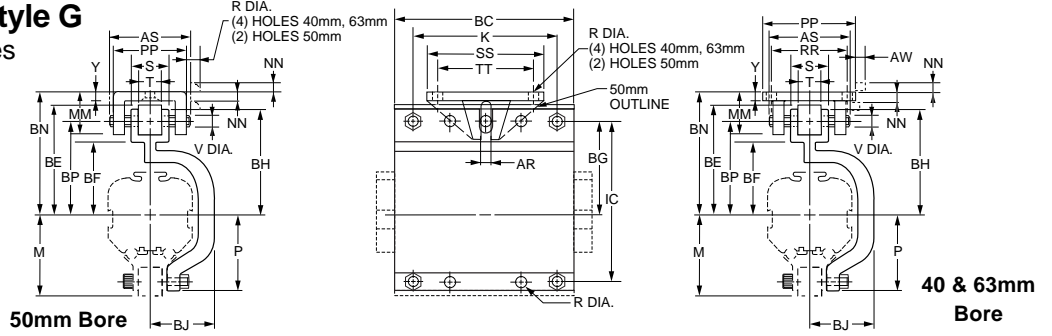
For additional information – call your local
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Series RC Rodless Air Cylinders

Inverted Piston Carriage Mounting Styles Intermediate Supports

Inverted Swivel Mount – Style G 40mm, 50mm & 63mm Bore Sizes



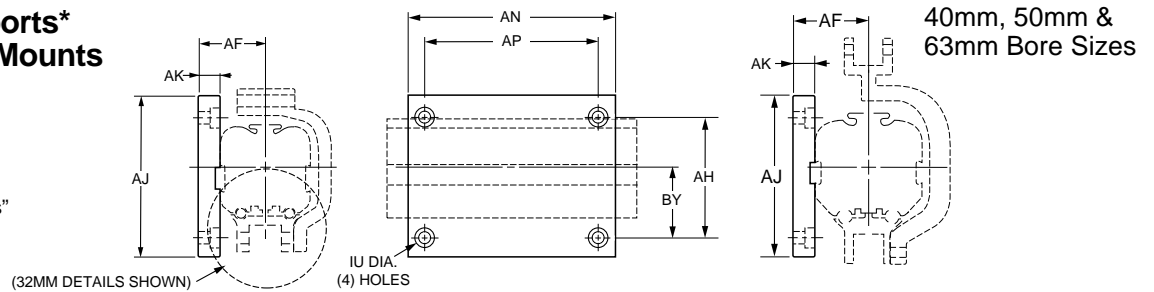
Inverted Carriage Mounts – Dimensions

BORE		K	L	M	P	R	S	T	V	Y	AR	AS	AW	BC	BE	BF	BG	BH
25mm	in.	–	1.97	–	1.50	.22	1.02	–	–	–	–	–	–	4.25	–	1.07	1.30	–
	mm	–	50.0	–	38.1	5.59	25.9	–	–	–	–	–	–	107.95	–	27.2	33	–
32mm	in.	–	3.94	–	1.89	.28	1.26	–	–	–	–	–	–	5.67	–	1.25	1.57	–
	mm	–	100.1	–	48.0	7	32	–	–	–	–	–	–	144	–	31.75	39.9	–
40mm	in.	4.33	2.17	2.40	2.27	.28	1.10	.71	.47	.24	.31	2.75	±.30	5.43	3.34	2.31	2.87	3.19
	mm	110	55	61	57.6	7	28	18	12	6	8	70	±7.5	137.9	84.9	58.7	72.9	81
50mm	in.	5.51	3.75	2.56	2.56	0.35	1.34	0.74	0.63	0.19	0.38	2.83	±0.24	7.24	3.63	2.46	3.24	3.63
	mm	139.9	95.25	65.0	65.0	8.9	34.0	18.8	16.0	4.8	9.7	71.9	±6.1	183.9	92.2	62.5	82.3	92.2
63mm	in.	7.09	3.54	3.27	3.07	0.35	1.19	0.74	0.63	0.21	0.38	3.23	±0.26	8.19	4.61	3.23	4.01	4.41
	mm	180.0	89.9	83.1	78.0	8.9	30.0	18.8	16.0	5.5	9.7	82.0	±6.6	208.0	117.1	82.0	101.9	112

BORE		BJ	BM	BN	BP	CL	DD	DI	DJ	DK	FF	GG	HH	IC	MM	NN	PP	RR	SS	TT
25mm	in.	1.38	1.50	–	–	4.94	–	3.15	–	#10-32	–	–	–	2.60	–	–	–	–	–	–
	mm	35.1	38.1	–	–	125.5	–	80	–	–	–	–	–	66	–	–	–	–	–	–
32mm	in.	1.50	1.89	–	–	6.84	–	4.73	–	1/4-20	–	–	–	3.14	–	–	–	–	–	–
	mm	38.1	48.0	–	–	173.7	–	120.14	–	–	–	–	–	79.8	–	–	–	–	–	–
40mm	in.	1.99	3.54	3.89	2.95	8.2	3.15	–	–	–	2.36	1.77	.24	4.80	1.50	±.30	2.76	2.17	3.54	2.95
	mm	50.5	89.92	98.81	74.93	208.6	80	–	–	–	60	45	6	122	38	±8	70	55	90	75
50mm	in.	2.56	4.09	4.61	3.63	9.90	5.12	6.3	.69	5/16-18	3.15	2.36	0.28	5.41	1.69	±0.24	2.27	–	3.94	3.15
	mm	65.0	103.9	117.1	92.2	251.5	130.0	160.0	17.48	–	80.0	59.9	7.1	137.4	42.9	±6.1	57.7	–	100.1	80.0
63mm	in.	3	4.85	5.21	4.15	12.18	5.12	–	–	–	3.15	2.36	0.28	6.69	1.72	±0.35	3.54	2.76	4.72	3.94
	mm	76.2	123.2	132.3	105.4	309.4	130.0	–	–	–	80.0	59.9	7.1	169.9	43.7	±8.9	89.9	70.1	119.9	100.1

Intermediate Supports* Inverted Carriage Mounts

*Consult "Placing of Supports" section of this catalog to determine the need for intermediate supports.



Inverted Carriage Intermediate Supports – Dimensions

Bore	Dimensions								
		AF	AH	AJ	AK	AN	AP	BY	IU
25mm	in.	1.44	2.38	3.13	0.50	3.00	2.25	1.34	0.28
	mm	36.6	60.5	79.5	12.7	76.2	57.15	34	7.1
32mm	in.	1.55	2.88	3.75	0.50	5.00	4.25	1.65	0.28
	mm	39.37	73.2	95.25	12.7	127	107.95	41.91	7.1
40mm	in.	1.80	2.88	3.75	0.50	5.00	4.25	1.54	0.28
	mm	45.72	73.2	95.25	12.7	127	107.95	39.1	7.1
50mm	in.	2.01	3.75	4.75	0.5	5.13	4.25	1.86	0.35
	mm	51.1	95.3	120.6	12.7	130.3	107.9	47.2	8.9
63mm	in.	2.38	4.13	5.38	0.50	5.13	4.25	2.14	0.35
	mm	60.45	104.9	136.7	12.7	130.3	107.9	54.4	8.9

Load & Moment Data for Intermediate Mount (Inverted Piston)*

Bore	Maximum Bending Moment MS (ft.-lbs.)	Load (lbs.)
25mm	.75	65
32mm	3	115
40mm	3	169
50mm	8	215
63mm	9.5	215

*See following page.

For Cylinder Division Plant Locations – See Section H.



Series RC Rodless Air Cylinder

Load and Moment Data

Application of Parker Series RC Cylinders requires that external loading forces be considered. Exceeding design stresses by overloading the cylinders may affect the construction integrity and operation of the cylinder. Shown below are various loading characteristics inherent to rodless cylinder applications and Series RC load capacities. Load and Moment Data apply to both standard and inverted piston carriage construction. Each application should be within the limits for the appropriate bore size. Exceeding these boundaries can result in premature cylinder wear and/or failure of the cylinder.

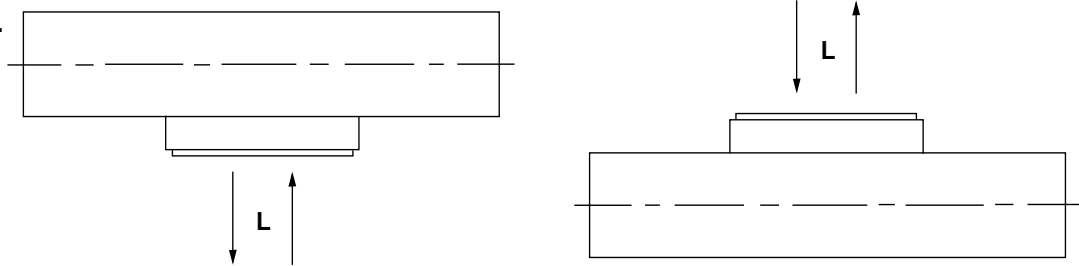
CAUTION

The force of deceleration, especially if a large mass is attached to the carriage, should be considered when calculating loads to be carried by the rodless cylinder. A large mass, in conjunction with a high deceleration force, can cause damage to the cylinder and/or the loss of control of the load. Either can result in equipment damage and danger to nearby personnel.

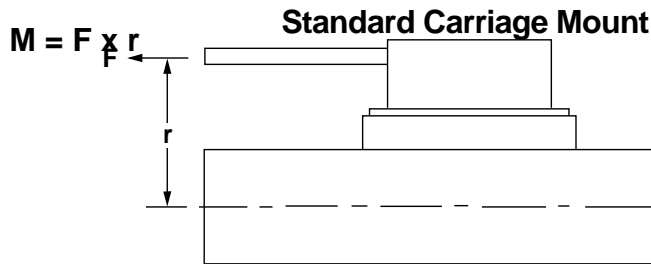
High deceleration forces may occur, but are not limited to the initial set-up of a machine. To minimize the potential danger, the following steps are suggested in addition to normal set-up procedures.

- A. The rodless cylinder should be plumbed with flow controls in a "meter out" mode.
- B. 1. Open the cushion needle valve adjustment screw 1/4 of a turn from completely closed.
2. Open the flow control valves 1/2 of a turn from completely closed.
- C. Cycle the cylinder.
- D. To adjust the speed of the cylinder, slowly open the flow control valves. To adjust the cushion, slowly adjust the cushion needle valve screw.
- E. Repeat the procedure until the required piston velocity and cushion performance is achieved.

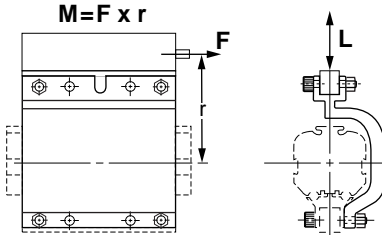
Maximum Load – L



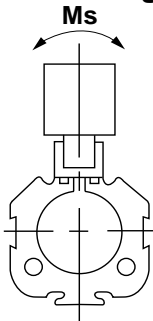
Maximum Bending Moment – M



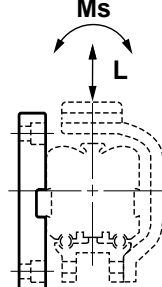
Inverted Carriage Mount



Maximum Bending Moment – M_s

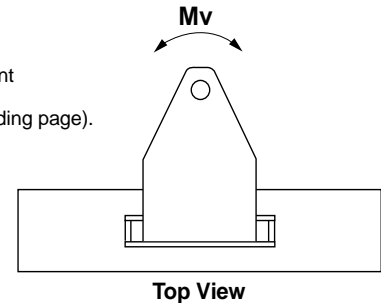


*Intermediate Mount Inverted Carriage



*NOTE: Intermediate Mount Inverted Piston Load and Moment Data (see preceding page).

Maximum Torsional Moment – M_v



Bore mm	Maximum Bending Moment					Maximum Torsion Stress		Max. Load-L Lbs.	Inverted Carriage Max. Load-L Lbs.
	Standard Carriage		Double Carriage		Inverted Carriage	Standard Carriage	Double Carriage		
	M Ft. Lbs.	M _s Ft. Lbs.	M Ft. Lbs.	M _s Ft. Lbs.					
25	11	.75	28	1.5	11	2.25	3.75	65	18
32	26.5	3	60	6	26.5	10	50	115	57
40	44	3	100	6	44	10	30	169	66
50	85	8	170	16	85	26	122	270	143
63	148	9.5	296	19	148	29	133	370	192

For additional information – call your local
Parker Cylinder Distributor.



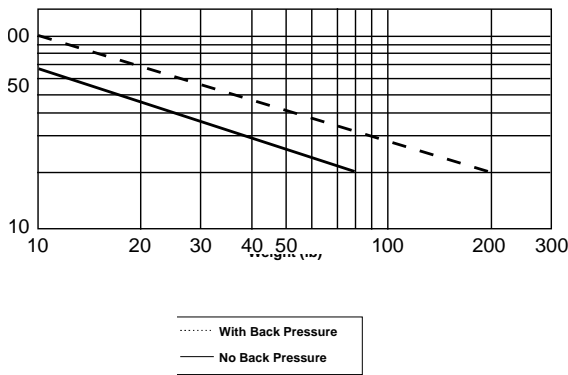
Series RC Rodless Air Cylinders

Cushion Data

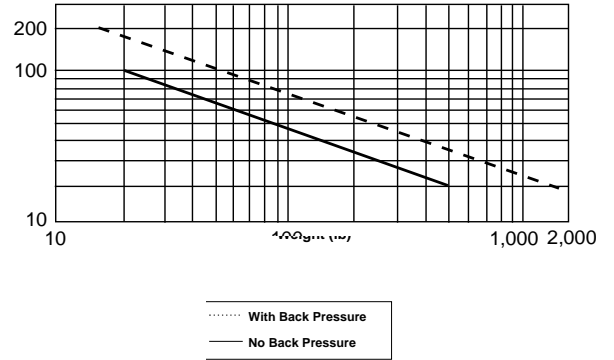
Cushion Data

Check the graph at right to determine whether a cylinder will adequately stop a load without damage to the cylinder. To determine the weight of the load and the maximum speed of the piston carriage, enter the graph at the base and project vertically to the required speed. This point of intersection should fall below the appropriate back pressure line.

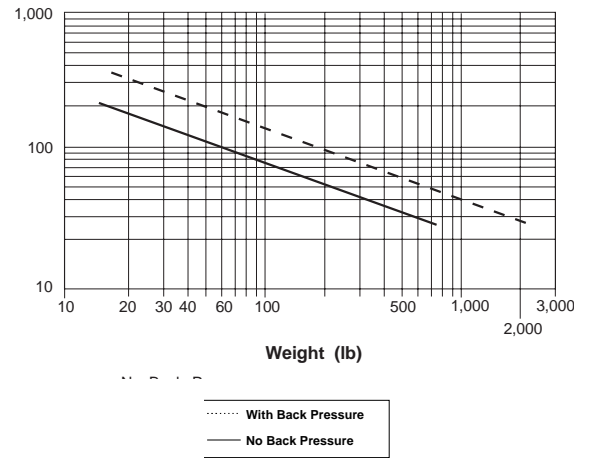
Cushion Data
Kinetic Energy Graph (25 mm Bore)



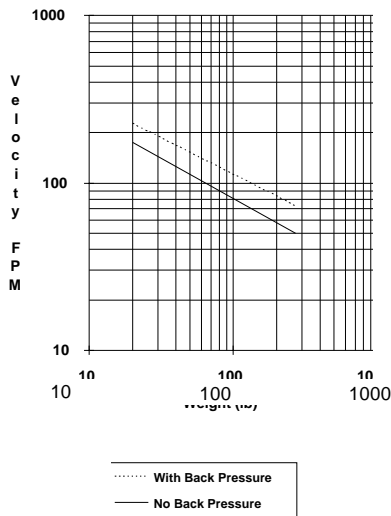
Cushion Data
Kinetic Energy Graph (32 mm Bore)



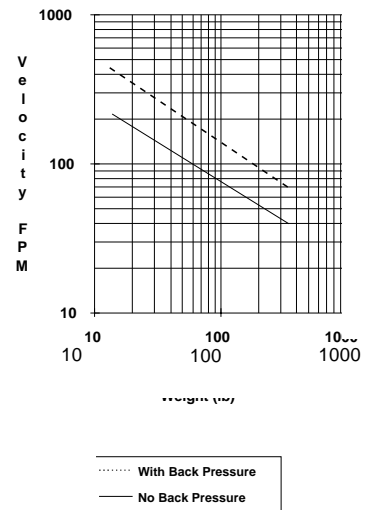
Cushion Data
Kinetic Energy Graph (40 mm Bore)



Cushion Data
Kinetic Energy Graph (50 mm Bore)



Cushion Data
Kinetic Energy Graph (63 mm Bore)



For Cylinder Division Plant Locations – See Section H.

Series RC Rodless Air Cylinder

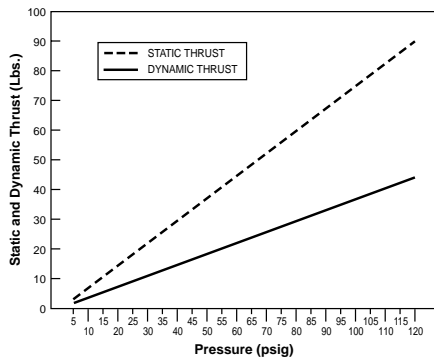
Force Data

Force Data

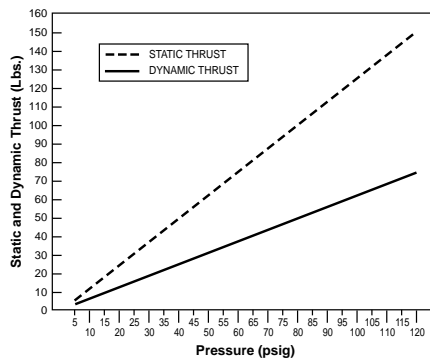
To determine the thrust available from your Series RC cylinder, enter the graph along the base at the pressure to be supplied at the inlet of the cylinder. Project vertically to the appropriate thrust line. The corresponding value on the left axis is the available force from the cylinder. Static thrust values indicate the force available when the cylinder is not in motion. (Note: Rodless cylinders are *not* recommended for load holding applications. If used in this type of application a continuous pressure supply must be maintained).

Dynamic thrust values indicate the maximum recommended load capacity for a cylinder in motion. In a dynamic condition, there is pressure on the back side of the piston (dependent upon the plumbing and valving used in the system) which must be overcome in addition to moving a load. These factors, coupled with the compressibility of air and cylinder friction, result in dynamic thrust being a percentage of static thrust. This graph assumes average conditions relative to air line sizes, system layout, component sizes, friction, etc. The resulting dynamic thrust is approximately 50% of corresponding static values.

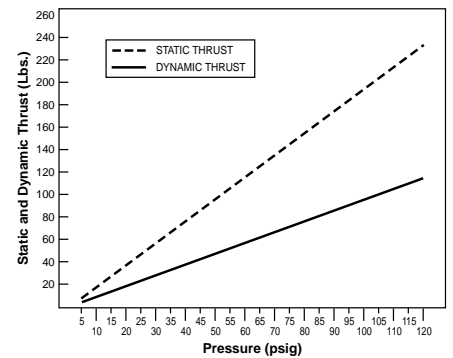
**Force at Various Pressures
Thrust Developed (25 mm Bore)**



**Force at Various Pressures
Thrust Developed (32 mm Bore)**

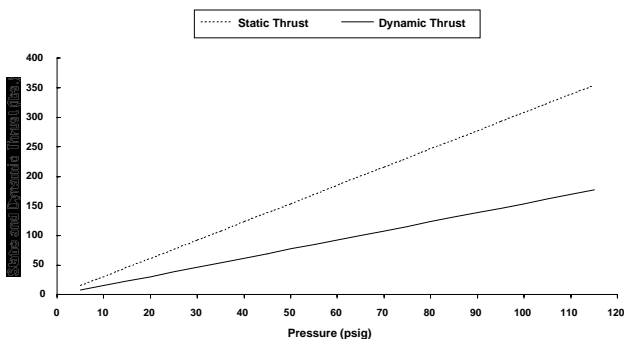


**Force at Various Pressures
Thrust Developed (40 mm Bore)**



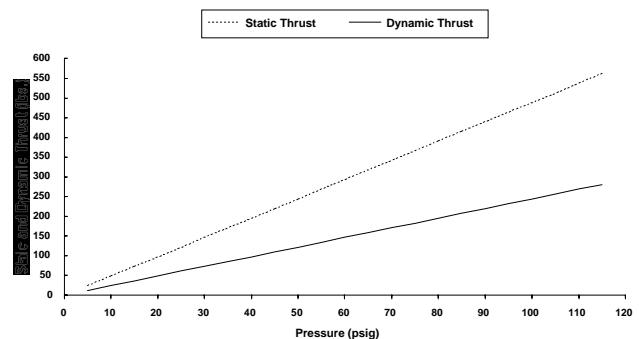
**Force at Various Pressures
Thrust Developed (50 mm Bore)**

Force At Various Pressures Thrust Developed (50mm Bore)



**Force at Various Pressures
Thrust Developed (63 mm Bore)**

Force At Various Pressures Thrust Developed (63mm Bore)



For additional information – call your local
Parker Cylinder Distributor.



Series RC Rodless Air Cylinders

Switches

RC Series Switch Specifications

	Reed Switch Assembly L074800000	Solid State Switch Assembly L074810000 NPN Sinking L074820000 PNP Sourcing	Reed Switch Assembly L074800000	Solid State Switch Assembly L074810000 NPN Sinking L074820000 PNP Sourcing
Switching Logic	Normally open, SPST (Form A)	NPN or PNP	Operating Temperature	14° to 140°F (-10° to 60°C)
Supply Voltage Range	85 to 125 VAC or 5-30 VDC ¹	10-30 VDC	Storage Temperature	-4° to 140°F (-20° to 60°C)
On-State Voltage Drop	1.7 V Maximum	See Circuits Below	Enclosure Protection	Nema 6, IEC IP67
Current Output Range	—	Up to 100 mA at 12 VDC Up to 200 mA at 24 VDC	Lead Wire	2 conductor, 24 Gauge
Burden Current	—	7 mA at 12 VDC 16 mA at 24 VDC	Lead Wire Length	39 Inches, 1 Meter
Power Rating	10 Watts (Resistive) 5 Watts (Capacitive)		Color of Cable	Black
Switching Current Range	30 mA to 200 mA (Resistive) 30 mA to 100 mA (Capacitive)		Switching Response	300 Hz Maximum
Leakage Current	0	10µA	Shock Resistance	30g
LED Function	Red, Target Present	Red, Target Present	Vibration Resistance	10-55 Hz, 1.5 mm Double Amplitude
Minimum Current to Light LED	18 mA	1 mA		

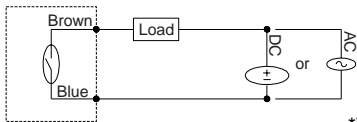
¹Polarity is restricted to DC operation: (+) to Brown (White*) (-) to Blue (Black*)
If these connections are reversed the contacts will close, but the LED will not light.
For switches with connectors and cordsets, see Complementary Products Section.

Circuits

Reed Switch

Part No. L074800000

NOTE: Polarity must be observed for DC operation only.

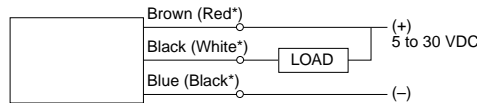


NPN Sinking Output

Part No. L074810000

Color of Cable Black

"On" State Voltage Drop 0.7V Maximum



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

PNP Sourcing Output

Part No. L074820000

Color of Cable Gray

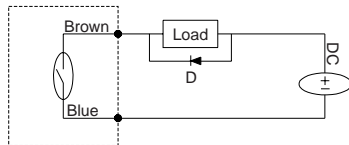
"On" State Voltage Drop 0.2V Maximum



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)

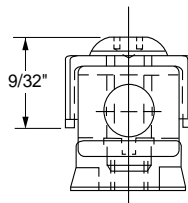
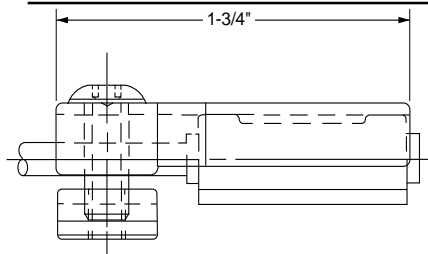
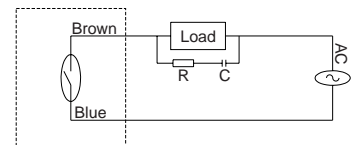
Put a resistor and capacitor in parallel with the load. Select the resistor and capacitor according to the load.

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.

For Cylinder Division Plant Locations – See Section H.



Series RC Rodless Air Cylinder

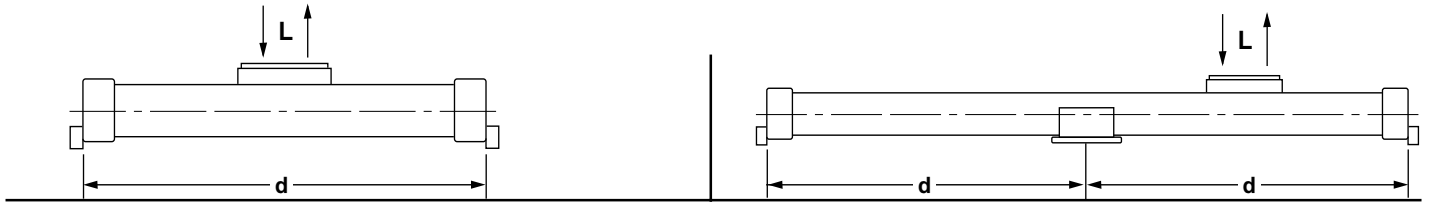
Supports

Placing of Supports

A main advantage of the Parker Series RC air cylinder is its ability to act as its own support member as it spans the length of the carriage travel. The cylinder body does not require support over its entire stroke.

In the example below, a cylinder with an end to end dimension of "d", and with a load "L" can span a distance

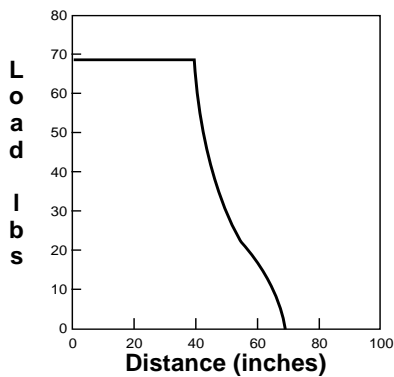
of "d" with no intermediate support required. If the stroke of the cylinder is in excess of distance "d" or if Load "L" increases even if "d" remains constant, an intermediate support member must be placed so that the distance "d" is not exceeded for the corresponding Load (L).



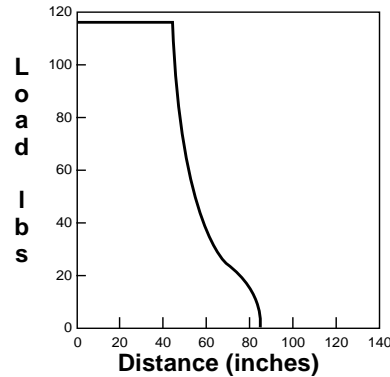
Parker Series RC cylinders can be fitted with intermediate supports that attach to dovetail mounts along the side of the cylinder. Consult the charts below to determine if intermediate supports are required on your cylinder. Points along the curve indicate the maximum distance allowed between supports for a corresponding load (L).

Intermediate supports are designed for use with the orientation shown below. For an application with any other orientation, consult factory.

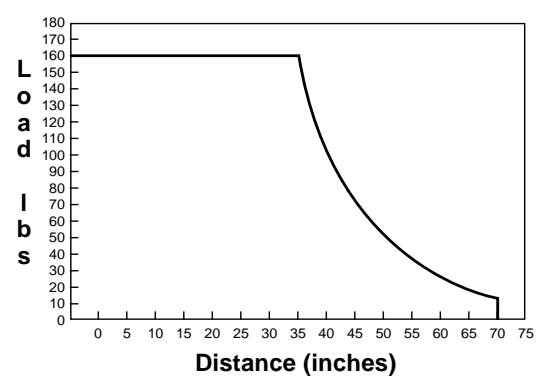
**Intermediate Support
Loading Conditions (25 mm Bore)**



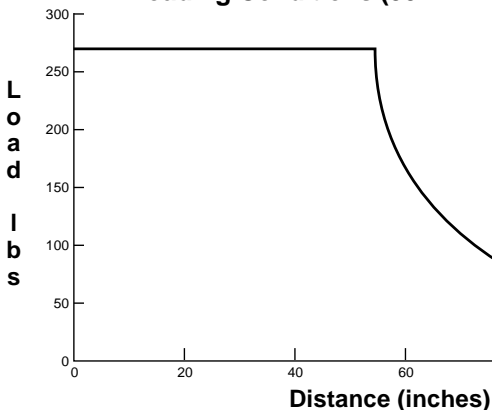
**Intermediate Support
Loading Conditions (32 mm Bore)**



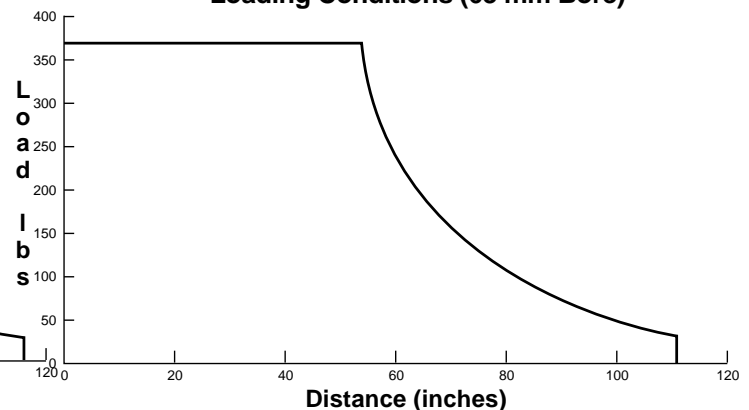
**Intermediate Support
Loading Conditions (40 mm Bore)**



**Intermediate Support
Loading Conditions (50 mm Bore)**



**Intermediate Support
Loading Conditions (63 mm Bore)**



For additional information – call your local
Parker Cylinder Distributor.



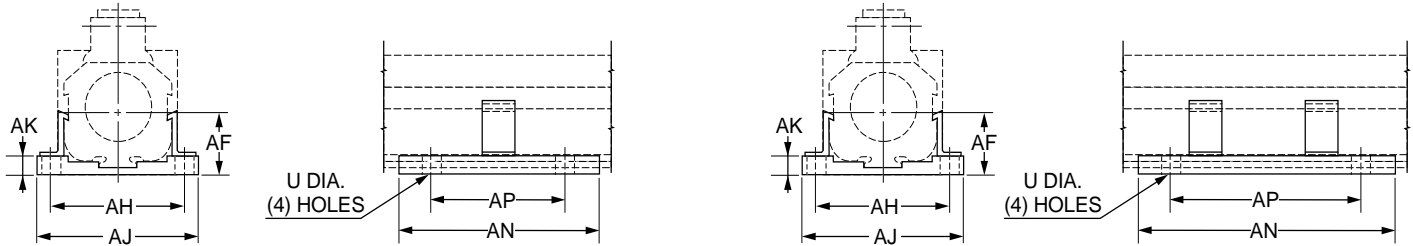
Series RC Rodless Air Cylinders

Supports

Intermediate Support

25mm & 32mm Bore Size

40mm, 50mm & 60mm Bore Size



BORE		AF	AH	AJ	AK	AN	AP	U
25mm	in.	.94	2.38	3.00	.24	2.00	1.25	.22
	mm	23.9	60.5	76.2	6.10	50.8	31.8	5.59
32mm	in.	1.43	2.69	3.38	.46	2.50	1.75	.22
	mm	36.3	68.3	85.9	11.7	63.5	44.5	5.59
40mm	in.	1.50	3.12	3.87	.43	6.30	4.75	.35
	mm	38	80	98	11	160	121	9
50mm	in.	2.01	3.63	4.38	.57	6.25	4.75	.35
	mm	51.1	92.2	111.3	14.5	158.8	120.7	8.9
63mm	in.	2.24	4.38	5.13	.53	6.25	4.75	.35
	mm	56.9	111.3	130.3	13.5	158.8	120.7	8.9

Weights in Lbs.

Mounts	Base Weights (Lb.)					K	G	Lb. Per Inch of Stroke
	D,T,A	N,E	J	B	L			
25mm	2.5	3.7	3.1	4.8	N/A	N/A	N/A	0.20
32mm	5.4	7.8	6.4	9.8	N/A	N/A	N/A	0.25
40mm	7.5	11.4	9.3	15.2	9.3	15.2	9.3	0.30
50mm	11.1	15.6	14.1	21.6	14.1	21.6	14.1	0.48
63mm	19.8	27.4	23.6	35.0	23.6	35.0	23.6	0.65

D

For Cylinder Division Plant Locations – See Section H.

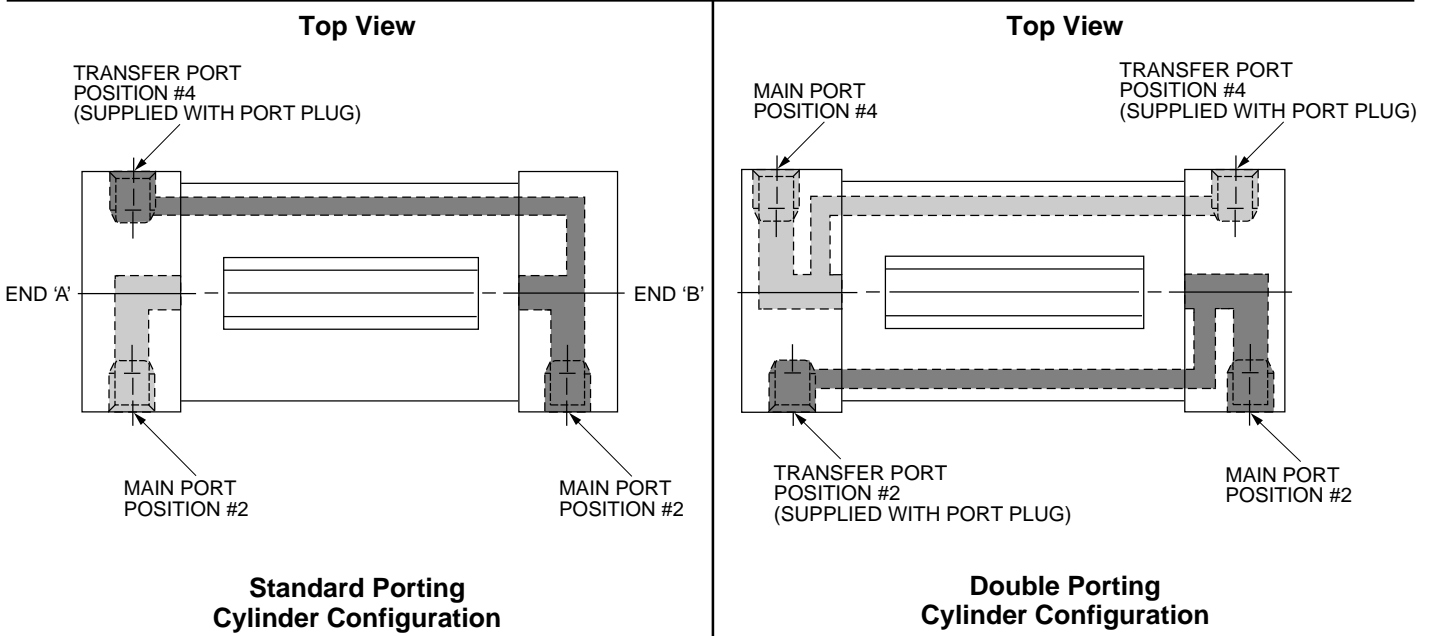
Porting Configurations Cylinder Selection

Series RC Rodless Air Cylinder

Porting Configurations

The Series RC cylinder is available in two porting/end cap configurations. In the standard configuration, End A is at your left when looking at the cylinder and viewing both ports. Looking at the face of the cap on End A with the tube slot at the top, position 1 is on top, with 2, 3, and 4 continuing in a clockwise direction. With the standard porting configuration, air can be directed to and exhausted from the "End A" side of the piston by using port #2 on "End A". Air can be directed to and exhausted from the "End B" side of the piston by using either or both ports #2 on "End B" or #4 on "End A".

	MAIN	TRANSFER
25mm	1/8" NPTF	1/8" NPTF
32mm	1/4" NPTF	1/8" NPTF
40mm	1/4" NPTF	1/4" NPTF
50mm	3/8" NPTF	1/4" NPTF
63mm	3/8" NPTF	3/8" NPTF



The double porting configuration has the same end caps on both sides. With the double porting configuration, each side of the piston can be fed and exhausted by two

ports as explained in the example above describing the "End B" side of the piston. Main pressure ports are located on opposite sides of the cylinder.

Cylinder Selection

Here's How to Select Your Parker Series RC Cylinder

1. Consult Force Chart to determine the bore required.
2. Cushions are standard on the Series RC cylinder. Check the cushion data chart to verify that the cushions are sufficient to decelerate the load. If not, external means of deceleration must be considered.
3. Choose the cylinder mounting style and piston carriage.
4. For cylinders requiring switches, configure switch code for switches required.
5. Determine if intermediate supports are necessary. For cylinders with the standard piston carriage, intermediate supports will be supplied in position #3 only. If the inverted piston carriage is used, select position #2 or position #4. Other intermediate support positions are available as a special order.
6. Consult the porting configuration diagrams for an illustration of available flow characteristics. Choose between the standard porting and the double porting configuration.

For additional information – call your local
Parker Cylinder Distributor.



Series RC Rodless Air Cylinders

How To Order

Ordering Procedure for Series RC Rodless Air Cylinders

To properly select a model number for the Series RC cylinder the following information must be supplied:

- Bore:** Specify bore in millimeters.
- Cushions:** All Series cylinders feature cushions as standard. "C" should be entered in both "cushion" columns of the model number.
- Mounting Style:** Specify "F" for cylinder only; "FM" for cylinder supplied with foot mounts.
- Mounting Modifications:** Leave blank for standard porting configuration. Specify "D" for Double Porting Configuration.
- Combination Mounting:** No combination mounting required, leave blank. If required, select "C" for intermediate supports. These are available in position #3 only.
- Combination Mounting:**
Quantity: Specify qty. (1-9) – (If required)
Location: Standard Piston Carriage – Enter "3". (Only position available.)
 Inverted Piston Carriage – Enter "2" or "4".
- Series RC:** Used in all Series RC model numbers.
- Piston Carriage:**
- | | | | |
|--------|------------------------------------|--------|--|
| | Standard Piston Carriage | | Inverted Piston Carriage |
| Select | D = Basic Mount | Select | J = Inverted Basic Mount |
| | N = Basic Mount – Double Carriage | | B = Inverted Basic Mount – Double Carriage |
| | T = Flange Mount | | L = Inverted Flange Mount* |
| | E = Flange Mount – Double Carriage | | K = Inverted Flange Mount – Double Carriage* |
| | A = Swivel Mount | | G = Inverted Swivel Mount* |
- Ports:** U = NPTF ports are standard.
- Special Modifications:** Leave blank—no special modifications required. *Not available in 25mm and 32mm bore.
 Enter "S" for special modifications. Below the model number describe the modifications. The standard Series RC cylinder will not actuate piston sensing switches. For a cylinder modified for switch operation, with or without switches, specify a switch code from the information in Table 1.
- Stroke:** Enter stroke in inches.

Table 1 —

Example

RSR1

2

Quantity

RCRS	Cylinder prepared for reed switch operation.	Leave blank
RCSS	Cylinder prepared for solid state switch operation.	
RSR1	Magnet piston and L074800000 reed switches included.	Number of dovetail mounts/switches. Specify quantity of dovetails with switches required. (1-9)
SSN1	Magnet piston and L074810000 NPN switches included.	
SSP1	Magnet piston and L074820000 PNP switches included.	

How To Order

PARKER SERIES RC ORDERING INFORMATION												
BORE	CUSHIONS END A	MOUNTING STYLE	MOUNTING MODIFICATIONS	COMBINATION MOUNTING	COMBINATION MOUNTING		SERIES	PISTON CARRIAGE	PORTS	SPECIAL MODIFICATIONS	CUSHIONS END B	STROKE
					QUANTITY	LOCATION						
40	C	F					RC	D	U		C	20
SPECIFY IN MM	STANDARD SPECIFY "C"	SPECIFY F = CYLINDER ONLY	LEAVE BLANK FOR STANDARD PORTING CONFIGURATION	NO COMBINATION MOUNTING REQUIRED, LEAVE BLANK	NONE REQUIRED, LEAVE BLANK		USED IN ALL RC MODEL NUMBERS	SPECIFY MOUNT: STANDARD CARRIAGE D N T E A	U = NPTF	NO MODIFICATIONS LEAVE BLANK.	STANDARD "C"	SPECIFY IN INCHES
25 MM		FM = CYLINDER WITH FOOT MOUNT	SPECIFY D = DOUBLE PORTING CONFIGURATION	IF REQUIRED, SPECIFY C = INTERMEDIATE SUPPORTS	IF REQUIRED, SPECIFY 1st DIGIT QTY. (1-9)			INVERTED CARRIAGE J B L* K* G*		SPECIAL MODIFICATIONS, INCLUDING MAGNETIC PISTON, ENTER "S".		
32 MM					2nd DIGIT = LOCATION			*Not available in 25mm & 32mm.		LIST MODIFICATIONS: SWITCH CODES EXAMPLE: S = RSR1-2 (SEE TABLE #1 ABOVE)		
40 MM												
50 MM												
63 MM												

For Cylinder Division Plant Locations – See Section H.

