



Series P1Y

Rodless Air Cylinders

Catalog AU08-0981/NA
June 2002



- High Load Carrying Capacities
- Multi-Ported End Caps
- Flush Fit Sensor Grooves
- Cushions Standard
- Optional Shock Absorbers
- Non-Lube Air Service

 **WARNING**

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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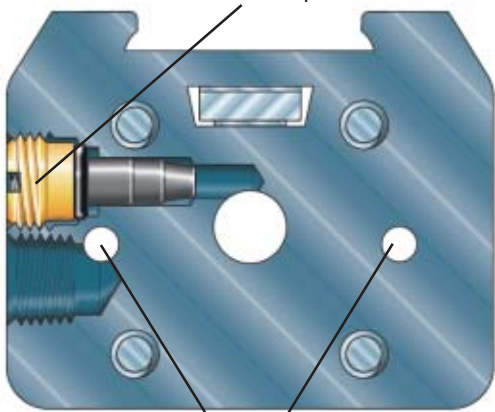
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Parker Series P1Y Rodless Air Cylinder

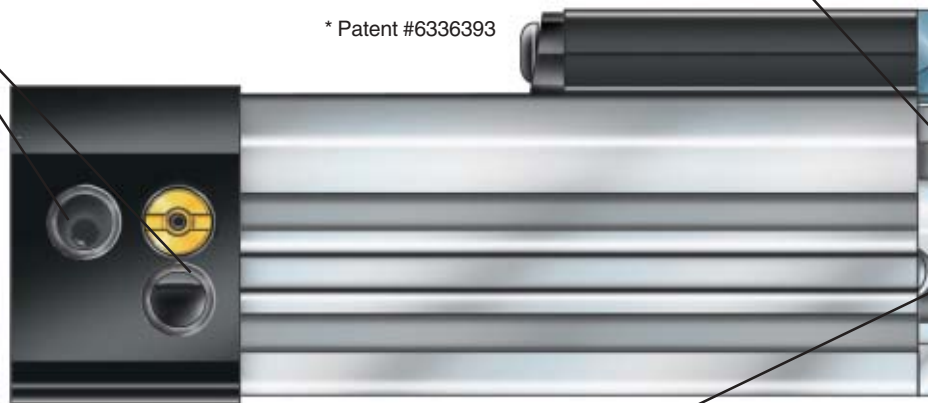
Captive Cushion Adjustment

- Cannot be “backed out” too far
- Increases safety of operation
- Cushion blowout is prevented



Dual Transfer Porting is Standard

- 4 ports per end cap (2 extend ports and 2 retract ports)
- Simplifies piping, eliminates long runs of tubing
- Options of porting on side of end cap or end cap face
- Using both ports will allow faster movement



Patented Piston-to-Carriage Assembly*

- Allows bearing and piston to locate independently within the cylinder
- Eliminates excessive side load on piston seals
- Increases life of cylinder

* Patent #6336393

Magnetic Piston Option

- Allows sensing of piston at any point along stroke
- Reed or Hall Effect Switches Available

Specifications

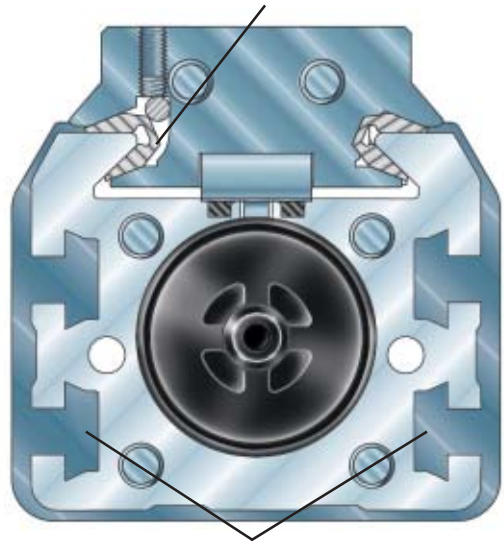
- Anodized Aluminum End Caps & Body
- Stainless Steel Sealing Bands
- Buna-N Piston Seals
- Retained Adjustable Cushions
- Integral Mounting Holes
- Transfer Porting Standard

- Compact Design
- Cushions Standard
- Optional Piston Position Sensing

- Nominal Pressure Rating: 115 PSI
- Standard Operating Temperature: -10°F to 165°F
- Strokes Available Up to 24 ft.
- Standard Fluid – Filtered, Lubricated or Non-Lubricated Air

Wraparound Bearing w/ Adjustment

- PBT polyester self-lubricating bearing with wraparound design allows for increased loading capacities
- Bearing adjustment allows compensation for wear
- Increases useful life of cylinder

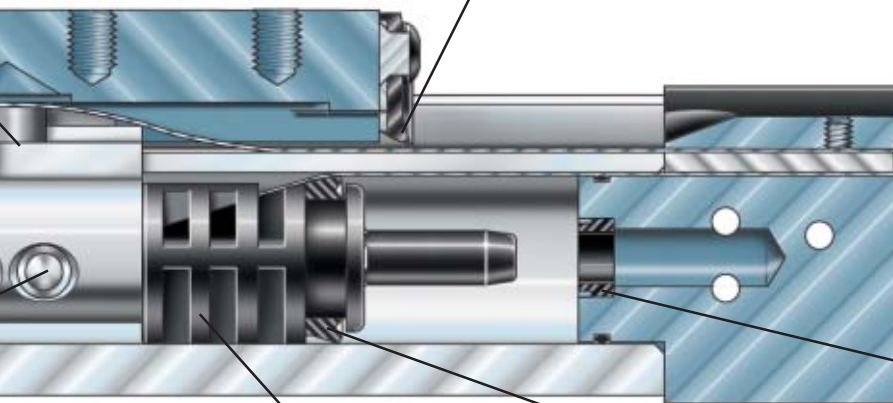


Recessed Switch Grooves

- Allows for use of switches with magnetic piston
- Switches do not protrude outside the envelope of the cylinder
- Switches can be placed anywhere along the stroke of the cylinder with no additional mounting hardware

Outer Band Wiper

- Cleans and reseats outer band
- Prevents contamination from entering cylinder



Lightweight Nylon Piston

(6/6 Glass Bead Filled Nylon)

- Less inertia for faster acceleration and deceleration
- No metal-to-metal contact for longer life
- No wear strip necessary

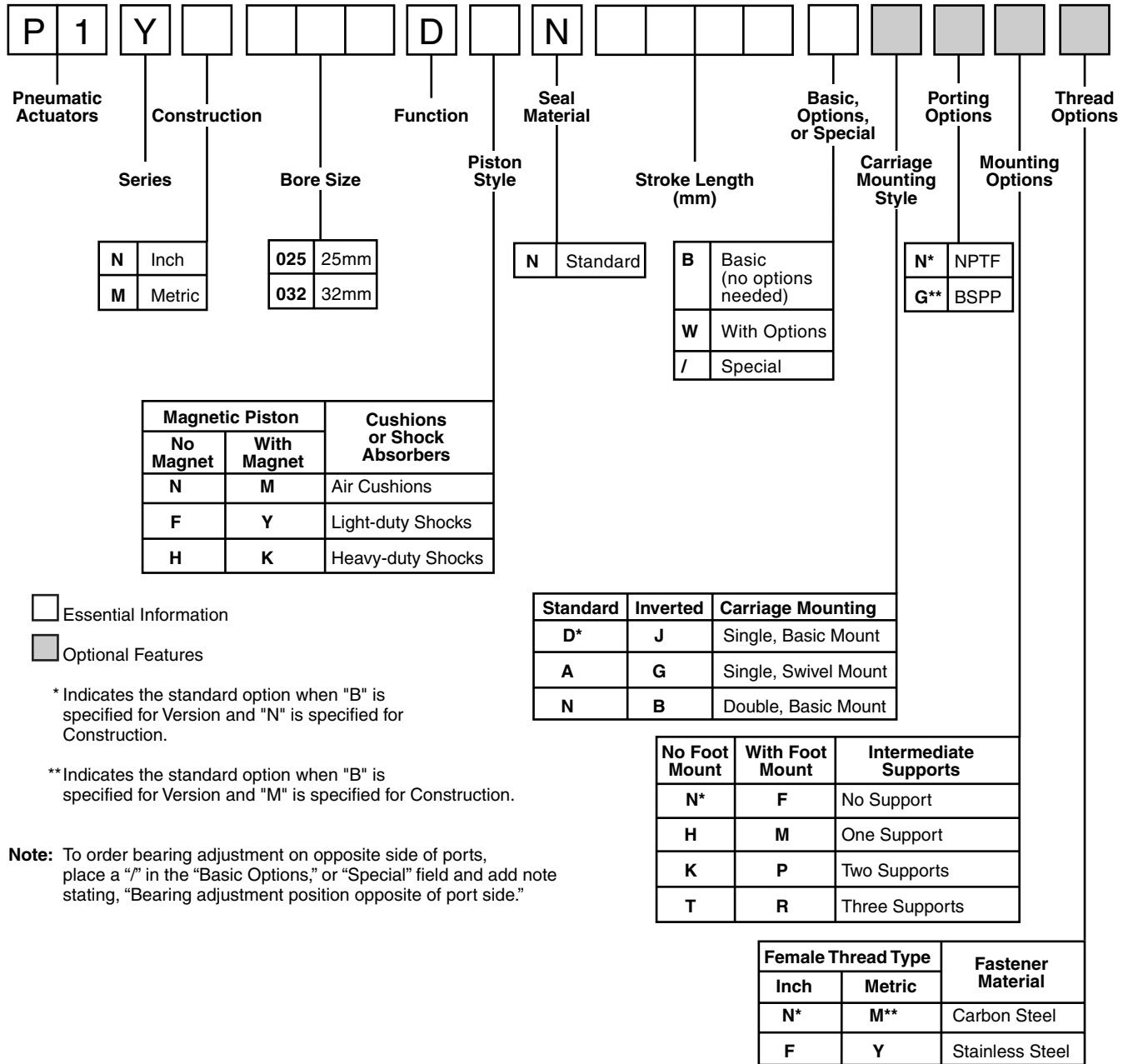
Piston Seals

- Seals allow for non-lube service
- Seals ride on a thin film of lubricant
- Extends life of cylinder
- Smoother piston travel

Self-Checking Cushion Seals

- Allows for full flow when leaving cushion
- Faster stroke times
- Reduced parts

- Dual Transfer Porting Standard
- Non-lube Service
- Optional Shock Absorbers



Essential Information
 Optional Features

* Indicates the standard option when "B" is specified for Version and "N" is specified for Construction.
 ** Indicates the standard option when "B" is specified for Version and "M" is specified for Construction.

Note: To order bearing adjustment on opposite side of ports, place a "P" in the "Basic Options," or "Special" field and add note stating, "Bearing adjustment position opposite of port side."

Ordering Example #1:

25mm bore, 350mm stroke standard cylinder with light-duty shock absorbers, non-magnetic piston, metric mounting threads and BSPP ports.

Cylinder Part # P1YM025DFN0350B

Ordering Example #2:

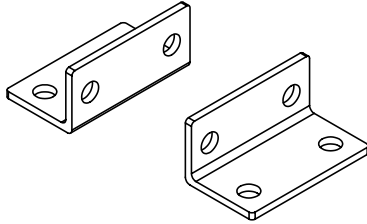
32mm bore, 1500mm stroke standard cylinder with heavy-duty shock absorbers, magnetic piston, inch mounting threads, single swivel mount carriage, NPTF ports, foot mounts, and 2 intermediate supports.

Cylinder Part # P1YN032DKN1500WANPN Quantity 1

Sensors P8S-TRFLX Quantity 2

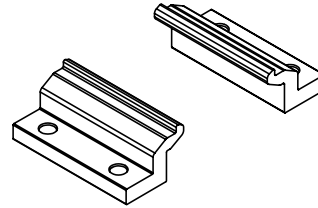
Mounting Option Kits – Single and Double Carriage

Foot Mount



Bore	Foot Mount Kits	
	Inch	Metric
25	L074830250	L07483025G
32	L074830320	L07483032G

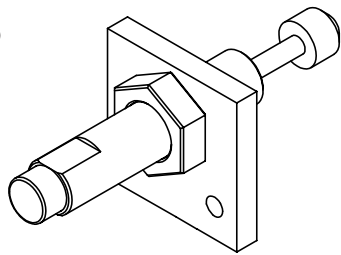
Intermediate Support



Bore	Intermediate Support Kits*	
	Inch	Metric
25	1490900025	
32	1490900032	

*Must order 2 pieces to receive as shown

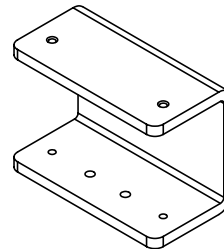
Shock Absorber Stop



Bore	Shock Absorber Kits*	
	Light Duty	Heavy Duty
25	L078070025	L078080025
32	L078070032	L078080032

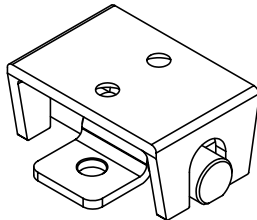
*Use for both Inch and Metric mounting styles

Inverted Mount



Bore	Inverted Carriage Kits	
	Inch	Metric
25	L077900025	L07790M025
32	L077900032	L07790M032

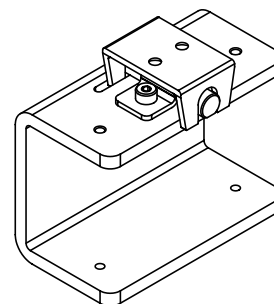
Swivel Mount*



Bore	Swivel Mount Kits	
	Inch	Metric
25	L077850025	L07785M025
32	L077850032	L07785M032

*For single carriage only

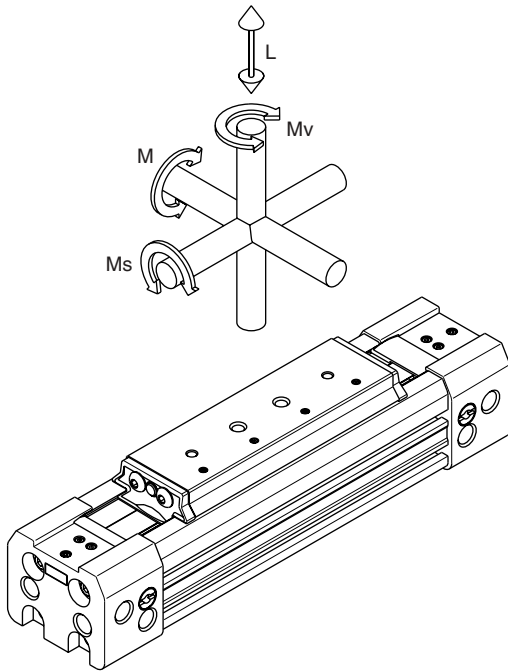
Inverted Swivel Mount*



Bore	Inverted Carriage w/ Swivel Kits	
	Inch	Metric
25	L078090025	L07809M025
32	L078090032	L07809M032

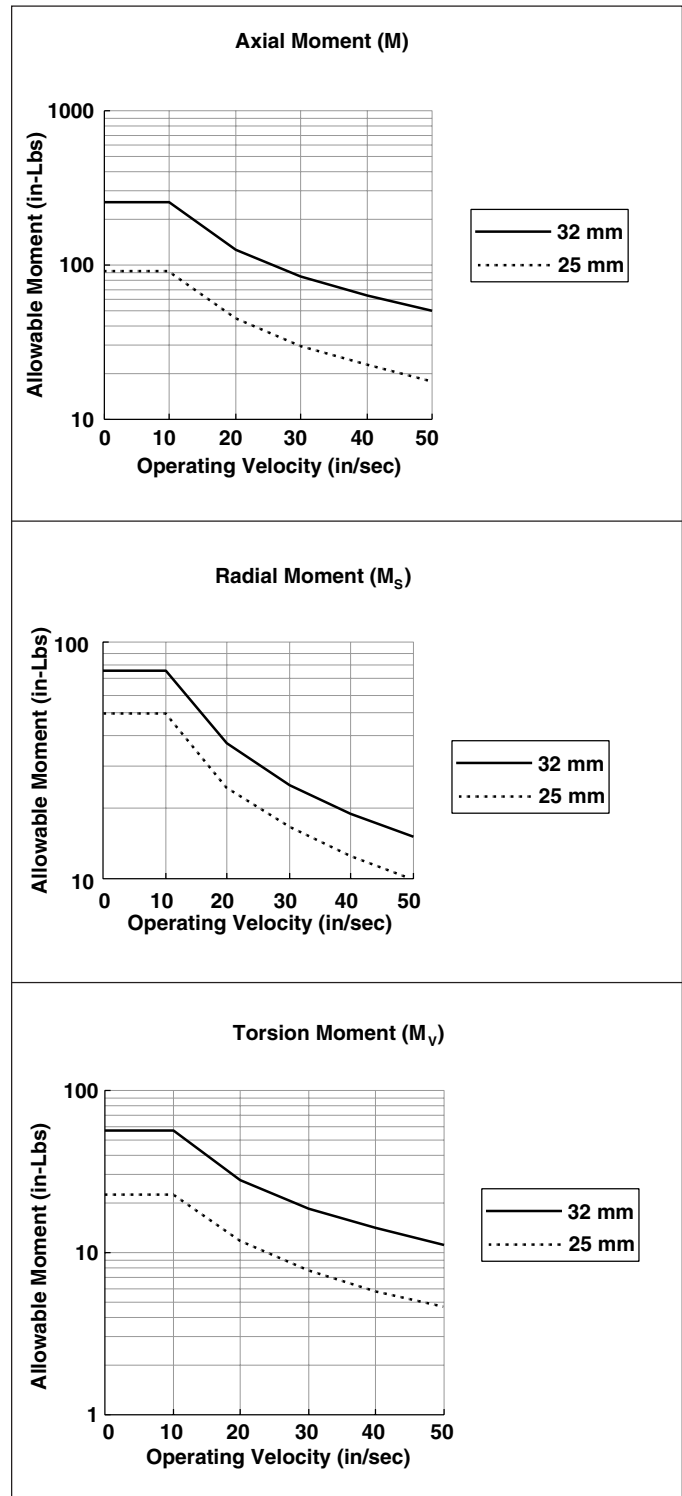
*For single carriage only

Single Carriage Load and Moment



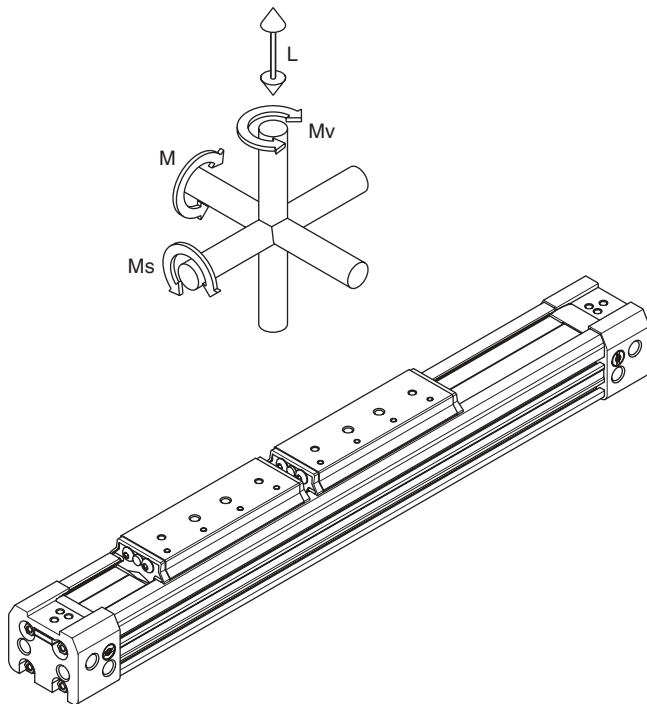
Note: For best results, locate bearing adjustment on side of carriage opposite the direction of the imposed M_s moment.

The bearing adjustment is located on the port side of the cylinder as standard (as shown). See "How to Order" page to change the bearing adjustment position.



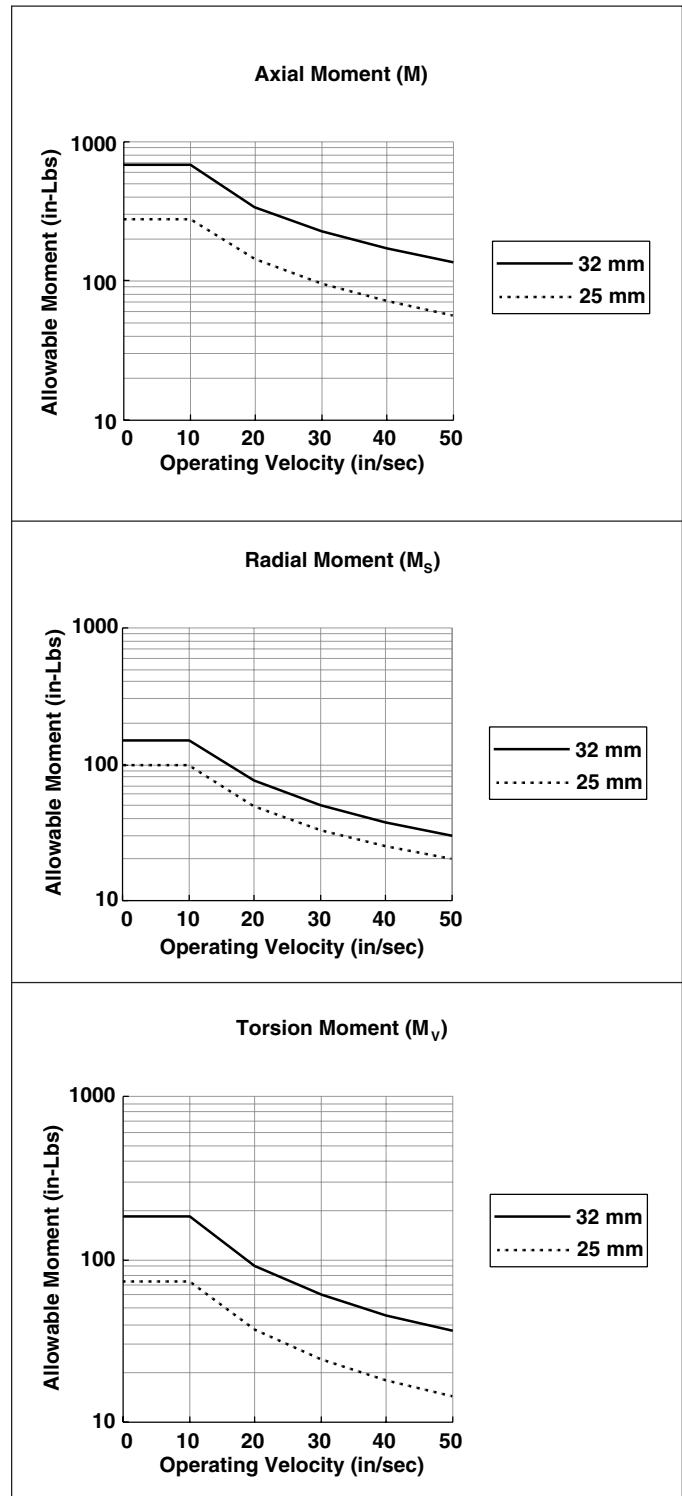
BORE SIZE	MAX. BENDING MOMENTS (IN-LBS)			LOAD (LBS)
	M	M_s	M_v	L
25mm	91	50	23	65
32mm	253	75	56	120

Double Carriage Load and Moment



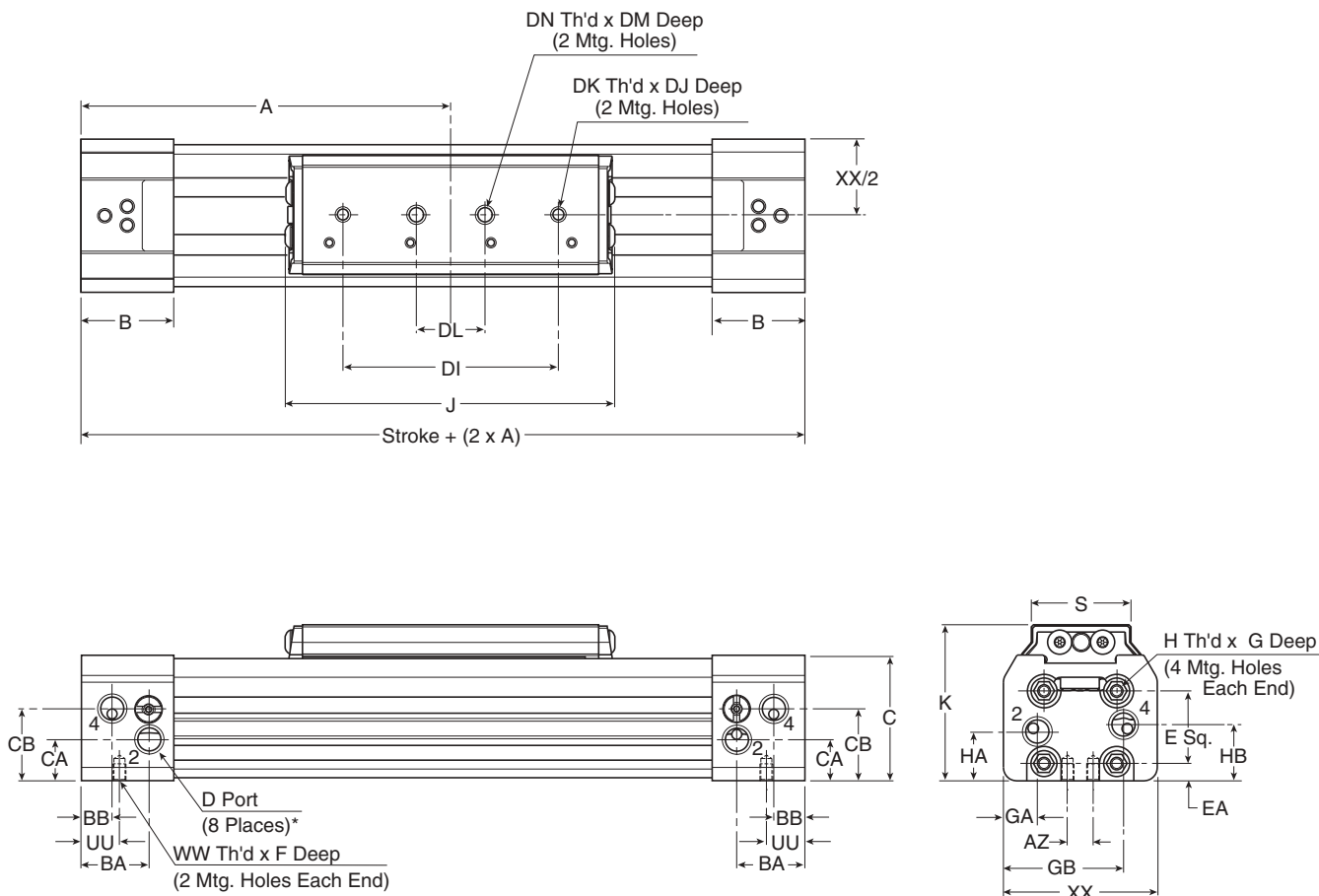
Note: For best results, locate bearing adjustment on side of carriage opposite the direction of the imposed M_s moment.

The bearing adjustment is located on the port side of the cylinder as standard (as shown). See "How to Order" page to change the bearing adjustment position.



BORE SIZE	MAX. BENDING MOMENTS (IN-LBS)			LOAD (LBS)
	M	M_s	M_v	L
25mm	288	100	73	130
32mm	688	150	181	240

Single Carriage



Basic Mount – Single & Double Carriage

BORE (mm)	A	B	C	D		E SQ.	F	G	H		J	K	S	AZ	BA		BB		CA		CB		
				NPTF	BSPP				INCH	METRIC					NPTF	BSPP	NPTF	BSPP	NPTF	BSPP	NPTF	BSPP	
25	in.	3.94	1.36	1.84	1/8"	1/8"	1.06	0.25	0.41	#10-32	M5x0.8	5.19	2.28	1.46	0.37	1.00	1.00	0.45	0.43	0.60	0.55	1.06	0.87
	mm	100.0	34.5	46.8	NPTF	BSPP	27.0	6.4	10.3	UNF		131.9	58.0	37.0	9.5	25.4	25.4	11.6	11.0	15.3	14.0	26.8	22.0
32	in.	4.92	1.78	2.46	1/4"	1/8"	1.42	0.47	0.41	#10-32	M5x0.8	6.20	2.83	1.73	0.63	1.31	1.31	0.48	0.48	0.74	0.74	1.38	1.38
	mm	125.0	45.3	62.6	NPTF	BSPP	36.1	12.0	10.3	UNF		157.4	72.0	44.0	15.9	33.2	33.2	12.1	12.1	18.8	18.8	35.0	35.0

BORE (mm)	CL	DI	DJ	DK		DL	DM	DN		EA	GA **		GB ***		HA **		HB ***		UU	WW †		XX	
				INCH	METRIC			INCH	METRIC		NPTF	BSPP	NPTF	BSPP	NPTF	BSPP	NPTF	BSPP		NPTF	BSPP		
25	in.	5.31	3.15	0.31	#10-32	M6x1.0	1.00	0.31	1/4-20	M6x1.0	0.26	0.50	1.13	1.75	—	0.71	1.00	0.82	—	0.56	#10-32	M5x0.8	2.25
	mm	135.0	80.0	8.0	UNF		25.4	8.0	UNC		6.5	12.6	28.6	44.6	—	18.1	25.5	21.0	—	14.3	UNF		57.2
32	in.	6.84	4.73	0.31	1/4-20	M6x1.0	1.00	0.35	5/16-18	M8x1.25	0.32	0.48	0.48	1.77	1.77	0.97	0.97	1.13	1.13	0.63	1/4-20	M6x1.0	2.25
	mm	173.7	120.1	8.0	UNC		25.4	9.0	UNC		8.2	12.1	12.1	45.1	45.1	24.6	24.6	28.6	28.6	15.9	UNC		57.2

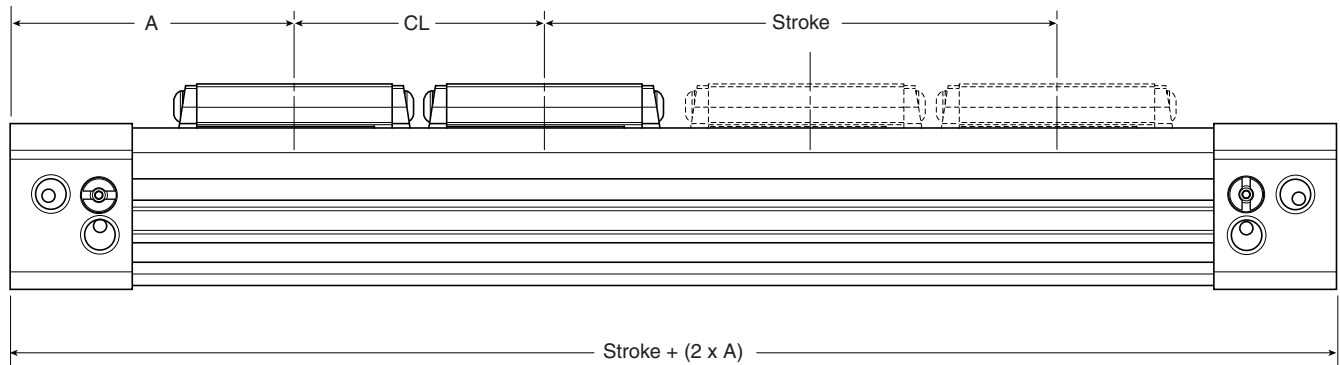
* 25mm bore, BSPP ported cylinder only has 6 ports. Only 1 port in cap end faces.

** This dimension is for port 2 in the view shown. It will also be valid for port 4 on the opposite end cap where applicable.

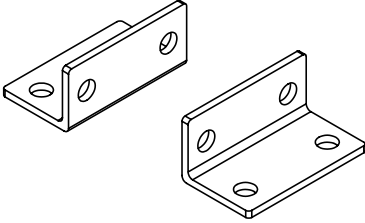
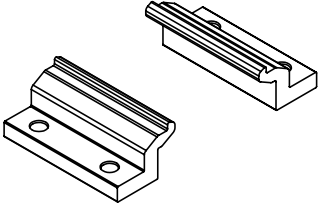
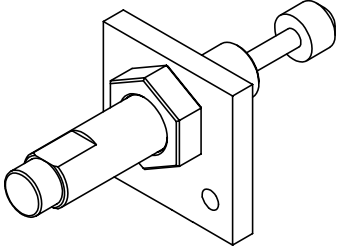
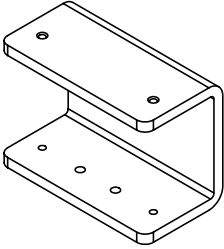
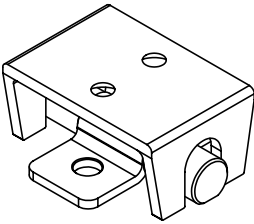
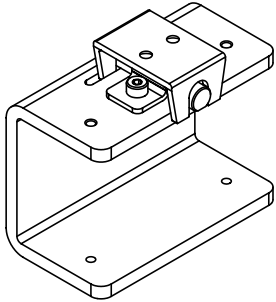
*** This dimension is for port 4 in the view shown. It will also be valid for port 2 on the opposite end cap where applicable.

† Tapped mounting hole dimensions change with porting option.

Double Carriage

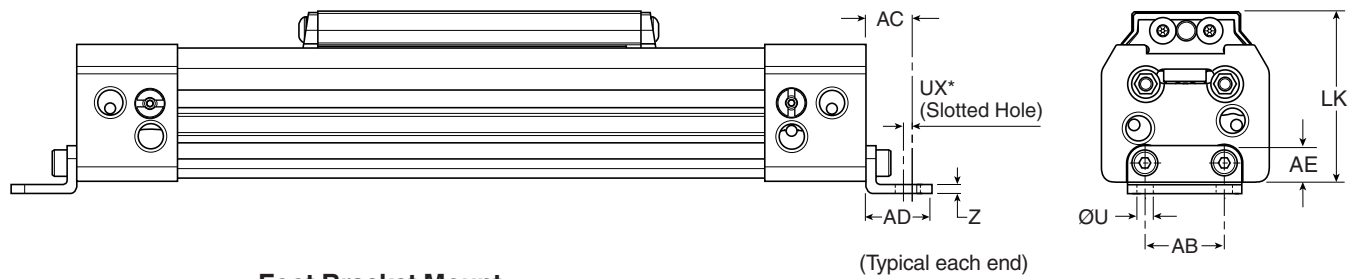


Mounting Option Kits – Single and Double Carriage

<p>Foot Mount</p> 	<p>Intermediate Support</p> 	<p>Shock Absorber Stop</p> 
<p>Inverted Mount</p> 	<p>Swivel Mount*</p> 	<p>Inverted Swivel Mount*</p> 

*Single Carriage Design Only

Foot Mounts - Option F

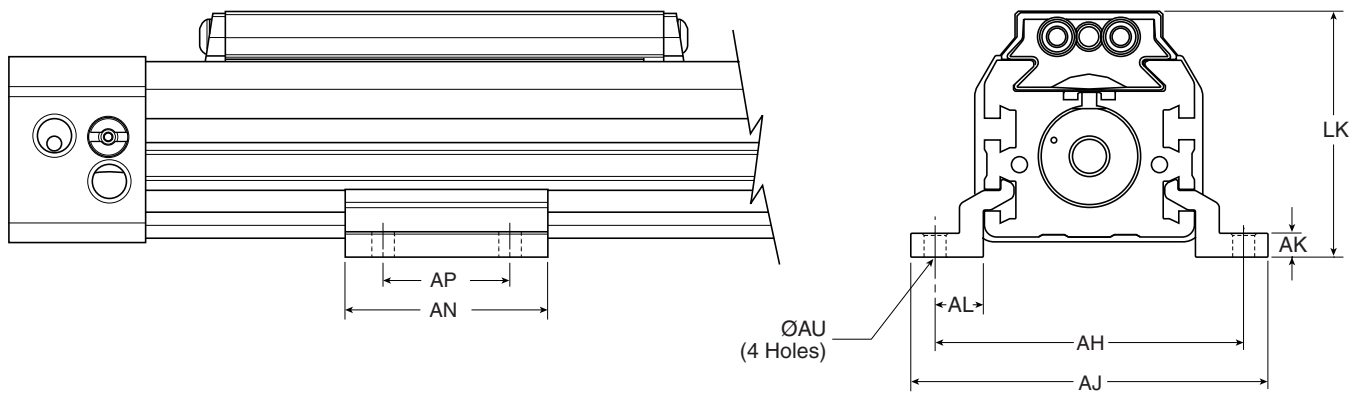


Foot Bracket Mount

BORE (mm)		U	Z	AB	AC	AD	AE	LK	UX*
25	in.	0.22	0.12	1.06	0.63	0.87	0.65	2.44	0.12
	mm	5.6	3.1	27.0	16.0	22.0	16.4	61.9	3.0
32	in.	0.28	0.13	1.42	0.47	0.79	1.02	3.22	—
	mm	7.0	3.2	36.1	11.9	20.1	25.9	81.8	—

*Slotted hole on 25mm bore only.

Intermediate Supports - Options H, K, L

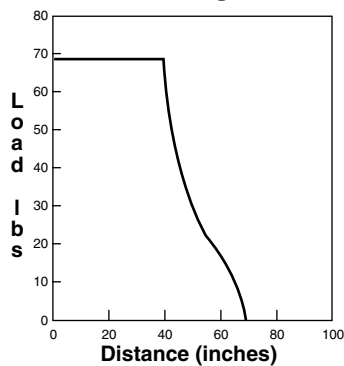


Intermediate Support

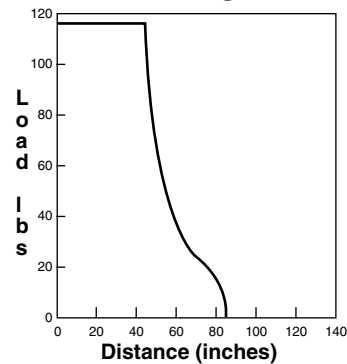
BORE (mm)		AH	AJ	AK	AL	AN	AP	AU	LK
25	in.	3.06	3.54	0.24	0.72	2.00	1.25	0.22	2.44
	mm	77.8	90.0	6.0	18.2	50.8	31.8	5.6	61.9
32	in.	3.17	3.65	0.35	0.72	2.50	1.75	0.22	3.22
	mm	80.6	92.8	9.0	18.2	63.5	44.5	5.6	81.8

Maximum Distance Between Supports (inches)

25mm Bore Loading Conditions

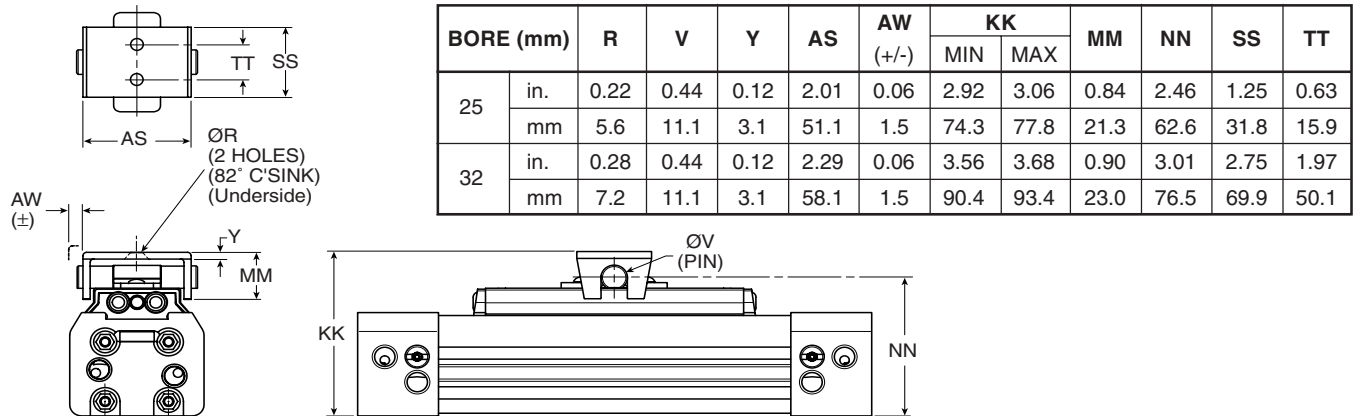


32mm Bore Loading Conditions

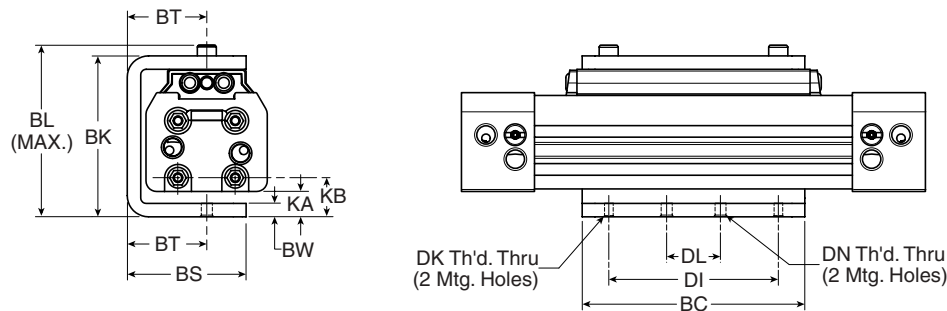


Single Carriage, Swivel Mount - Style A

Swivel Mount



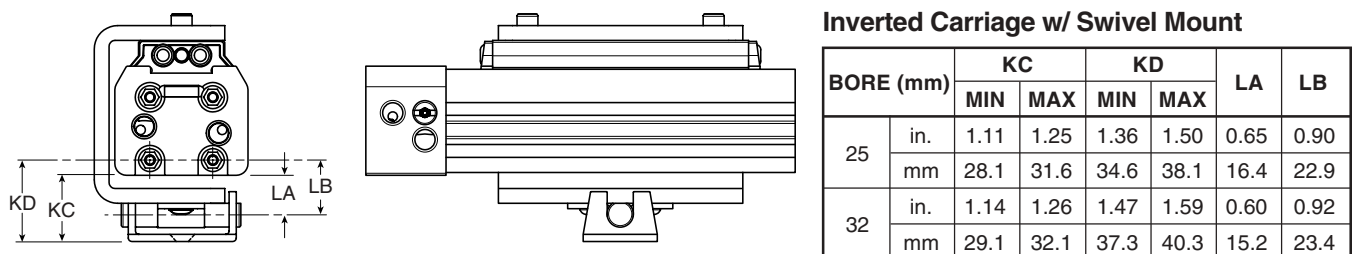
Inverted Carriage, Basic Mount - Style J



Inverted Carriage Mount

BORE (mm)	BC	BK	BL MAX	BS	BT	BW	DI	DK		DL	DN		KA	KB	
								INCH	METRIC		INCH	METRIC			
25	in.	4.13	3.00	3.19	2.20	1.48	0.25	3.15	#10-32 UNF	M6x1.0	1.00	1/4-20 UNC	M6x1.0	0.47	0.72
	mm	105.0	76.2	81.1	56.0	37.5	6.4	80.0			25.4			11.9	18.4
32	in.	5.51	3.50	3.75	2.40	1.53	0.25	4.73	1/4-20 UNC	M6x1.0	1.00	5/16-18 UNC	M8x1.25	0.42	0.74
	mm	140.0	88.9	95.3	60.9	38.9	6.4	120.1			25.4			10.6	18.8

Single Inverted Carriage, Swivel Mount - Style G



Selection Criteria

The Shock Absorber Advantage

- Increase equipment throughput
- Smoother deceleration of loads
- Self compensates for load changes
- Prevents impact damage
- Minimize shock loads on equipment
- Improves product performance

Four Steps to Great Performance

Step 1. Gather the Application Parameters

- Total load weight (pounds)
- Final velocity at impact (inches/second)*
- Cycle rate (cycles per hour)

Step 2. Select the Shock Absorber

- See charts on the next page
- Pick the light-duty or heavy-duty shock

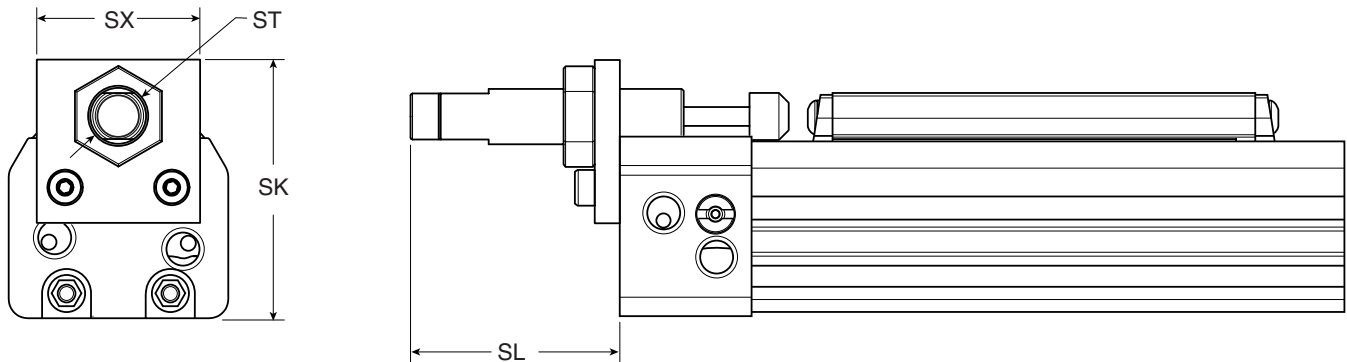
Step 3. Verify the Cycle Rate

- If less than 2,000 cycles per hour, go to step 4.
- If more than 2,000 cycles per hour, consult factory

Step 4. Choose the Appropriate Option in Model Code

*If final velocity cannot be easily calculated, double the average velocity.

Dimensional Data



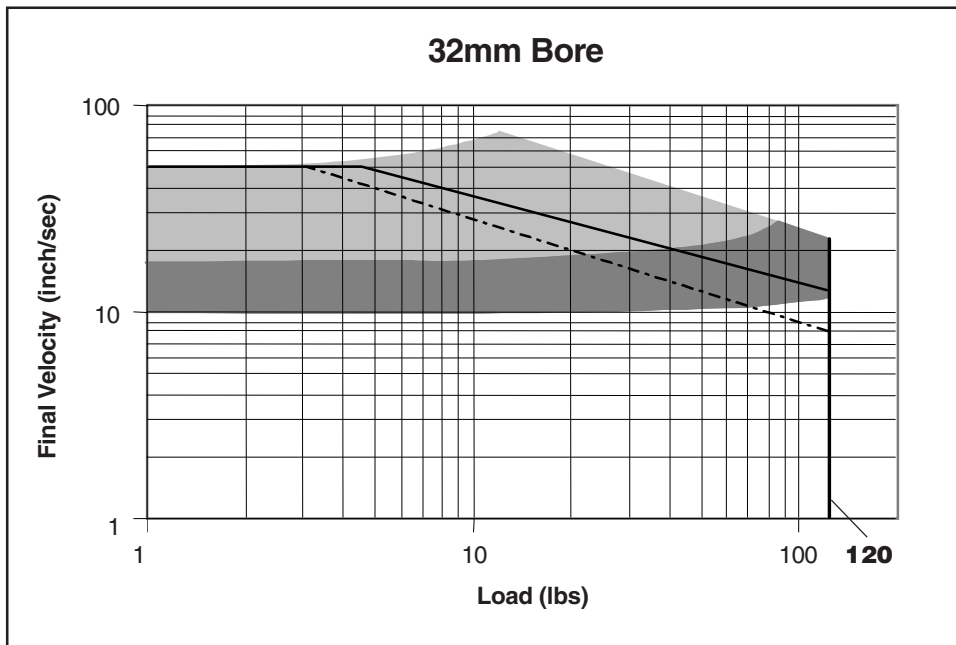
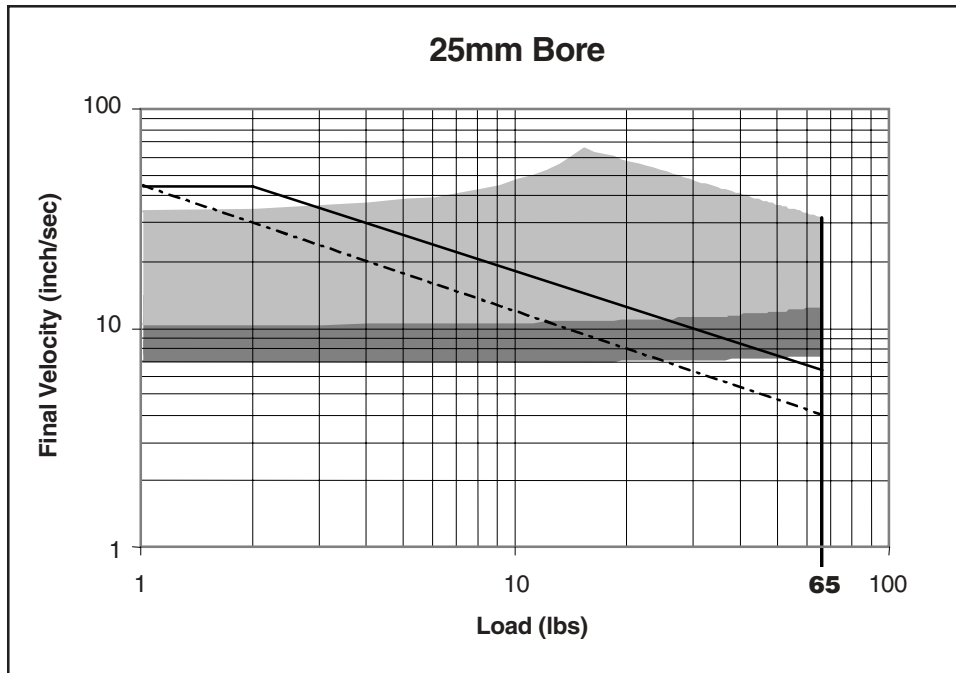
Note: End ports are unavailable on 25mm bore with shock absorber option.

Shock Absorber End Plate Mount

BORE (mm)	SK	SL*		ST	SX	
		MIN	MAX			
25	in.	2.59	1.60	2.04	M14x1.5	1.63
	mm	65.8	40.6	51.8		41.3
32	in.	3.46	1.08	1.52	M14x1.5	2.00
	mm	87.8	27.5	38.7		50.8

*Maximum performance is obtained at minimum distance.
 If shock absorber is adjusted below the minimum distance, damage may occur. Adjust shock absorber by using wrench flats and lock nut provided.

Performance Data

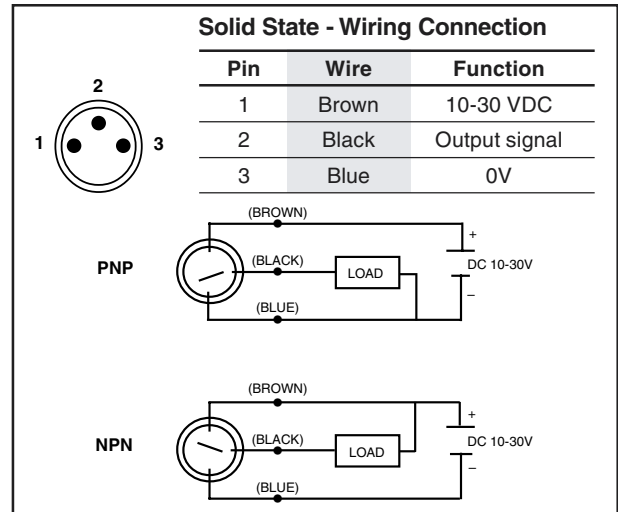


- Air Cushion w/o back pressure
(flow controls or other meter out device)
- - - - - Air Cushion w/back pressure
(flow controls or other meter out device)

- Light Duty Shock Absorber
(Light Load, High Velocity)
- Heavy Duty Shock Absorber
(High Load, Low Velocity)

Solid State Sensors

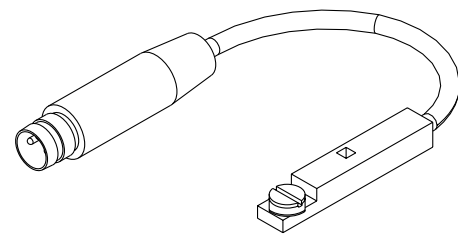
Type	Electronic
Output Function	Normally Open
Switching Output	PNP/NPN
Operating Voltage	5 - 30VDC
Continuous Current	200 mA
Response Sensivity	2.8 mT
Switching Frequency	5 KHz
Power Consumption	10 mA
Voltage Drop	2 V
Ripple	10% of Operating Voltage
Hysteresis	1.5 mm
Repeatability	0.1 mm
EMC	EN 60 947-5-2
Short-circuit Protection	Yes
Power-up Pulse Suppression	Yes
Reverse Polarity Protection	Yes
Enclosure Rating	IP 67
Shock and Vibration Stress	30g, 11 ms, 10 to 55 Hz, 1 mm
Ambient Temperature Range	-25° to +85°C (-13° to 167°F)
Housing Material	PA 12, Black
Connector Cable	PVC
Connector	PUR cable w/8 mm



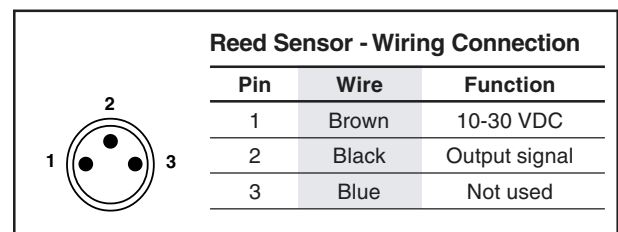
Sensor Part Number	Type	Wiring
P8S-GPSHX	PNP	.27m lead with connector
P8S-GPFLX	PNP	3m flying leads
P8S-GPFTX	PNP	10m flying leads
P8S-GNSHX	NPN	.27m lead with connector
P8S-GNFLX	NPN	3m flying leads
P8S-GNFTX	NPN	10m flying leads

Reed Sensors

Type	Reed
Output Function	Normally Open
Output Voltage	10 - 120 VAC
	10 - 30 VDC
Continuous Current	100 mA
Response Sensivity	2.5 mT
Switching Frequency	400 Kz
Voltage Drop	3 V
Ripple	10% of Operating Voltage
Hysteresis	1.5 mm
Repeatability	0.2 mm
EMC	EN 60 947-5-2
Reverse Polarity Protection	Yes
Enclosure Rating	IP 67
Shock and Vibration Stress	30g, 11 ms, 10 to 55 Hz, 1 mm
Ambient Temperature Range	-25° to +85°C (-13° to 167°F)
Housing Material	PA 12, Black
Connector Cable	PVC
Connector	PUR cable w/8 mm connector



Sensor shown with connectors. Flying leads are also available.



Sensor Part Number	Type	Wiring
P8S-GRSHX	REED	.27m lead with connector
P8S-GRFLX	REED	3m flying leads
P8S-GRFTX	REED	10m flying leads

⚠ Contact suppression is strongly recommended for reed switch applications with inductive loads (solenoids) or cable lengths in excess of 5 m (16.4 ft). Reed switches exhibit a 3V voltage drop. This voltage drop will be cumulative for switches in series; e.g., 12 V for 4 switches.

REGIONAL PLANTS**California**

221 Helicopter Circle
Corona, CA 92880
Tel.: (909) 280-3800
Fax: (909) 280-3808
Fax: (800) 869-9886

Connecticut

80 Shaker Road
Enfield, CT 06082
Tel.: (860) 749-2215
Fax: (800) 323-0105

Georgia

1300 Six Flags Road
Lithia Springs, GA 30122
Tel.: (770) 819-3400
Fax: (800) 437-3498

Indiana

Goodland Plant
715 South Iroquois Street
Goodland, IN 47948
Tel.: (219) 297-3182
Fax: (800) 328-8120

Michigan

900 Plymouth Road
Plymouth, MI 48170
Tel.: (734) 455-1700
Fax: (734) 455-1007

North Carolina

325 Elizabeth Brady Drive
Hillsborough, NC 27278
Tel.: (919) 732-9371
Fax: (919) 732-9377

Ohio

1000 Home Avenue
Akron, OH 44310
Tel.: (330) 253-4375
Fax: (330) 253-4883

Oregon

13908 N. Lombard
Portland, OR 97203
Tel.: (503) 285-0884
Fax: (800) 323-0195

CANADA

1000 6th St. East at 9th
Owen Sound, Ontario
Canada N4K 5P1
Tel.: (519) 376-2691
Fax: (519) 371-2664

2001 Rue de L'Aviation
Dorval, Quebec
Canada H9P 2X6
Tel.: (514) 684-3000
Fax: (514) 684-4191

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Parker Hannifin Corporation

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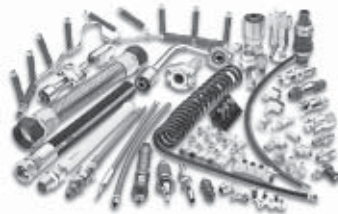
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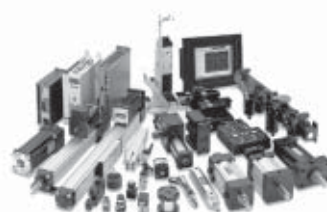
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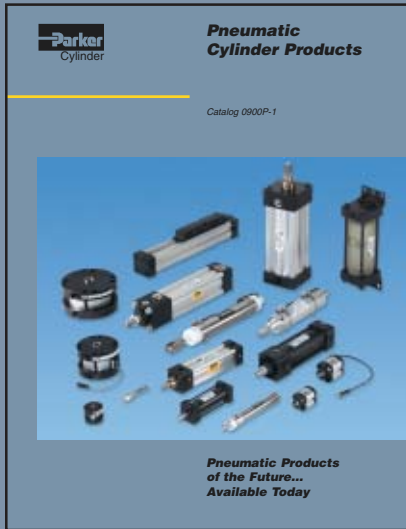


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