



***Prices effective
September 1, 2011***

Square Pancake[®] II Air Cylinders

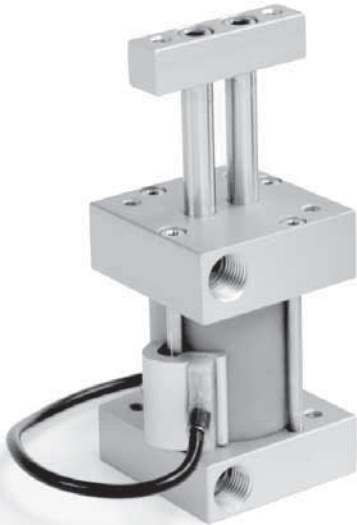


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Nonrotating , Twin Rod Series SND

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Magnetic Position Sensing

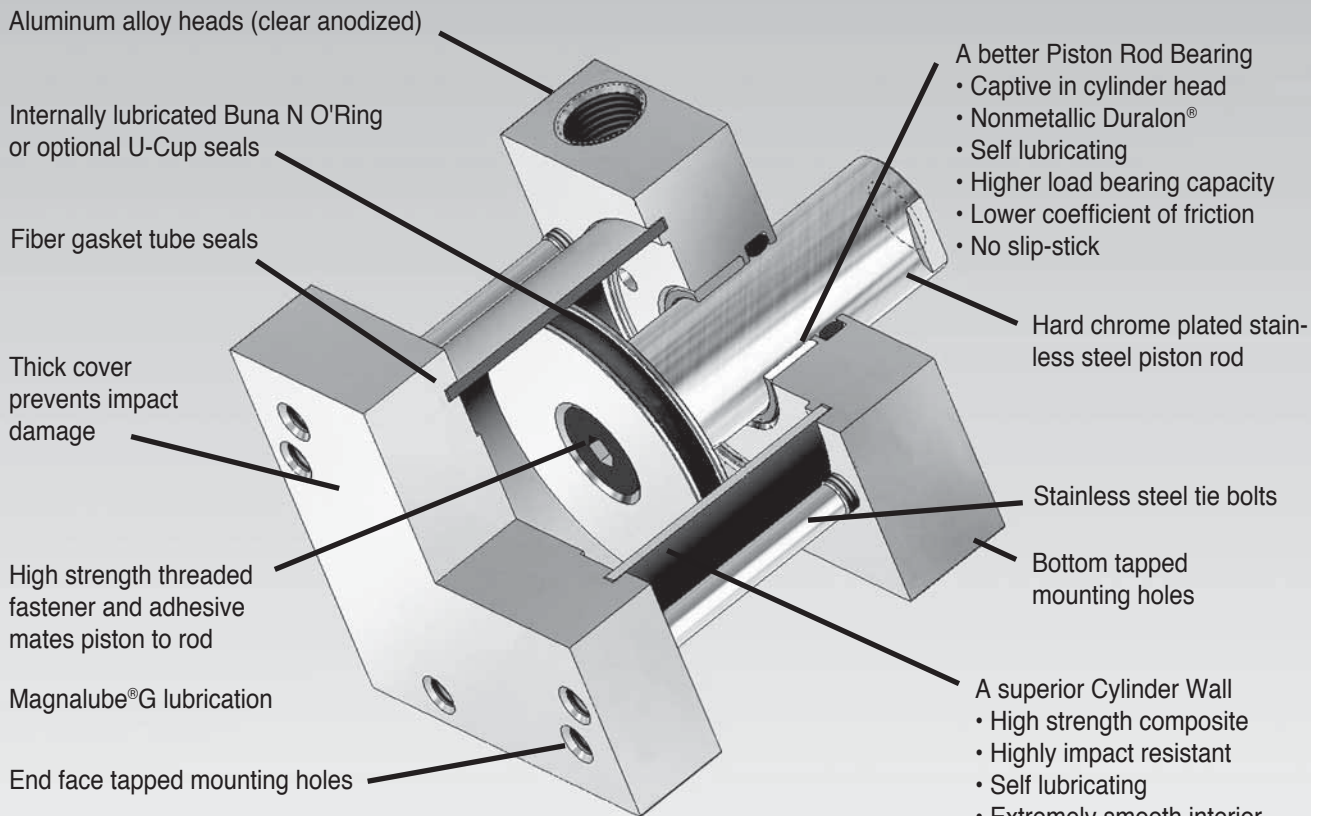
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The Square Pancake® II Direct Interchange Air Cylinders



Superior Interchangeable Industrial Air Cylinders

Innovation – For over 40 years our famous Pancakes® have dominated as the world's first compact air cylinder line. Today, backed by decades of engineering and manufacturing innovation, our new **Pancake® II** composite body air cylinders continue in the Pancake® tradition with a wide selection of models and options.

Packed with value – Stainless steel tie bolts lock precision machined heads tightly around a unique, high strength, composite cylinder barrel. The barrel's extremely smooth, self-lubricating interior surface insures highly reliable performance and extended seal life. Its high impact resistance reduces chances of cylinder failure due to dings or dents. Zero slip-stick avoids problems that metal cylinders encounter when they sit in a static condition for extended periods of time. Combined with hard chrome plated stainless steel piston rods and a unique, nonmetallic rod bearing, the new Fabco-Air cylinder assembly assures optimal operation and longer product life.

Exceptional Piston Rod Bearing – The better the bearing, the more cycle life you can expect from your air cylinders. **Pancake® II** cylinders incorporate a truly superior rod bearing material - Duralon® with the same field-proven performance you have come to expect from the six other Fabco-Air cylinder families.

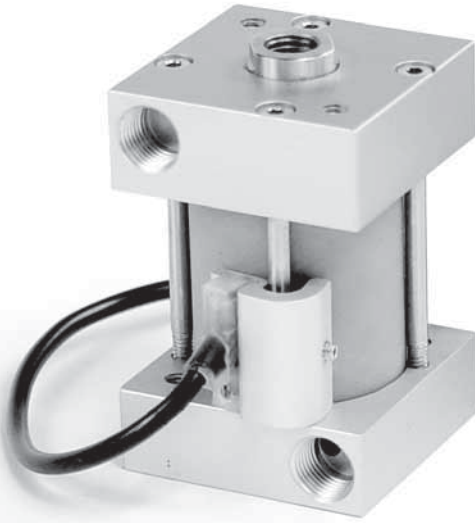
Duralon® Rod Bearings Excel

Load Capacity (psi)		Friction Properties	
Machine Design 1972/73 Bearing Reference Issue		Coefficient	Slip-stick
Porous Bronze.....	4,500	Steel-on-steel.....	.50 Yes
Porous iron.....	8,000	Bronze-on-steel.....	.35 Yes
Phenolics.....	6,000	Sintered Bronze-on-steel	
Nylon®.....	1,000	with mineral oil.....	.13 No
TFE.....	500	Bronze-on-steel	
Reinforced Telfon®.....	2,500	with mineral oil.....	.16 No
*TFE fabric.....	60,000	Copper lead alloy-on-steel	.22 Yes
Polycarbonate.....	1,000	Acetal-on-steel.....	.20 No
Acetal.....	1,000	Nylon-on-steel.....	.32 Yes
Carbon-graphite.....	600	Duralon-on-steel.....	.05 - .16 No

* Shows Duralon bearing classification. Not to be used for design purposes.

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Duralon® is a composite of a Teflon®/Dacron® fabric liner bonded to a supporting filament-wound, high strength, fiberglass and epoxy resin shell. Resistant to corrosion, moisture and temperature to 325°F, the bearing is reliable in any environment. It has an extremely high load bearing capacity, very low friction, and will not gall or score the piston rod (see physical properties in the table above).



Available in 5 styles
7 Bore sizes 3/4" thru 4"
Strokes to 4" standard

- Double acting, single rod
- Double acting, double rod
- Double acting, hole thru double rod
- Single acting, spring retracted rod
- Single acting, spring extended rod

Ratings – Standard Units all Series

- | | | | |
|---------------------|---------------------------------|---|------------------------------------|
| • Body | Self-lubricating composite | • Stroke tolerance | ± 1/64" |
| • Heads | Clear anodized aluminum alloy | • Media | Air |
| • Tie Bolts | Stainless steel | • Pressure rating, maximum | 200 psi |
| • Rod | Chrome plated stainless steel | • Minimum recommended
operating pressure | 15 psi |
| • Piston | Aluminum alloy | • Temperature rating
Cylinder | –25° to +221°F
(–32° to +105°C) |
| • Rod end | Female thread with wrench flats | • Temperature rating
Electronic sensors | –4° to +176°F
(–20° to +80°C) |
| • Ports | Position #1 | | |
| • Seals | Internally lubricated Buna-N | | |
| • Lubrication | Magnalube®-G | | |
| • Rod bushing | PTFE composite bearing | | |

Approximate Spring Forces

Bore	Maximum Force (lbs)	Spring Rate (lbs/inch) for Stroke Range			
		0.12 to 1" Stroke	1.001 to 2" Stroke	2.001 to 3" Stroke	3.001 to 4" Stroke
3/4 (2)	10.00	6.00	3.00	2.00	1.50
1-1/16 (3)	13.00	6.50	3.25	2.17	1.63
1-1/2 (4)	13.00	6.50	3.25	2.17	1.63
2 (5)	13.00	6.50	3.25	2.17	1.63
2-1/2 (6)	25.00	12.50	6.25	4.17	3.13
3 (7)	25.00	12.50	6.25	4.17	3.13
4 (8)	25.00	12.50	6.25	4.17	3.13

Cylinder Sizing Guide

Bore Diameter (inch)	3/4	1-1/16	1-1/2	2	2 -1/2	3	4
Rod Diameter (inch)	0.31	0.50	0.63	0.75	0.75	0.88	1.00
Rod Area (in ²)	0.08	0.19	0.31	0.44	0.44	0.60	0.79
Push Area (Single Rod) (in ²)	0.44	0.88	1.76	3.14	4.91	7.07	12.57
Push Area (Double Rod) (in ²)	0.36	0.69	1.45	2.66	4.47	6.47	11.78
Pull Area (in ²)	0.36	0.69	1.45	2.66	4.47	6.47	11.78

How to Order

Model Number	Series	Model	Action	Bore	Stroke	Options
	S - Square Pancake® II	S - single rod W - double rod T - double rod, hole thru	D - double acting R - single acting, spring retract (Model S only) X - single acting, spring extend (Model S only)	2 - 3/4" 3 - 1-1/16" 4 - 1-1/2" 5 - 2" 6 - 2-1/2" 7 - 3" 8 - 4"	0.125 - 1/8" 0.250 - 1/4" 0.375 - 3/8" 0.500 - 1/2" etc., thru 4.000 - 4" (see pages 6 & 7 for standard strokes)	Note: Special strokes are available on request. Contact Engineering or your local Fabco-Air Distributor.
Mounting Tapped mounting holes are standard in the basic model and need not be specified. For other mounting specify only one option code. Leave Blank - Basic Model PM - Pivot mount, pin 90° from port SM - Pivot mount, pin in-line with port Options Enter in alphabetical order B - Bumpers, both ends¹ BF - Bumper, front only¹ BR - Bumper, rear only¹ E - Magnet on piston for position sensing (see sensors page 15; length adders page 8) 3/8" stroke minimum² J - Failsafe operation (single acting, spring retract models) L - Low friction seals (see length adders page 8) M, M1, M4 - Magnet on piston and adhesive mounted dovetail extrusion to hold 1/4" dovetail sensors. (see sensors page 15; length adders page 8) 3/8" stroke min.² Q - Low temperature operation (-40°F to +200°F) TCF - Coarse female rod thread, dimension E (page 7) TCM - Male rod end with coarse thread (page 8) TFM - Male rod end with fine thread (page 8) TN - Non-threaded rod T1, T4 - Additional adhesive mounted dovetail extrusions located in position 1 or 4 V - Viton seals for media compatibility (-15°F to +225°F) W - Rod wiper, Buna N only (page 8) X - EXTRA Rod extension Example: X0.5 = 1/2" EXTRA Rod Extension X1 = 1" EXTRA Rod Extension						

How to Order

- Specify **S**, Model, Action, and Bore
- Specify optional Mounting (if required) then Stroke
- Specify the Options in alphabetical order

Ordering example #1: **SSD4-PM2.500-BFV**

Square Pancake® II single rod, double acting, 1-1/2" bore, pivot mount (pin 90° from port), 2-1/2" stroke, front bumpers, and Viton seals.

Ordering example #2: **SSD3-1.000**

Square Pancake® II single rod, double acting, 1-1/16" bore, standard tapped mounting holes, and 1" stroke.

¹ Stroke is reduced by .03 per end; .06 for option B; Spring retracted, BR only; Spring extended, BF only.

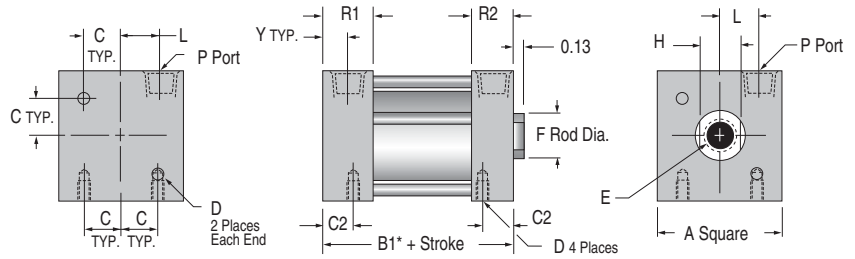
² Not available with Viton seals or low temperature seals.

Square Pancake® II Cylinders

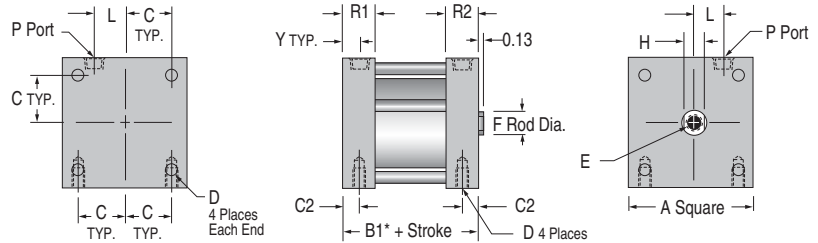
Model SSD Double Acting, Single Rod



Bore Sizes
3/4", 1-1/16",
1-1/2", 2"



Bore Sizes
2-1/2", 3", 4"

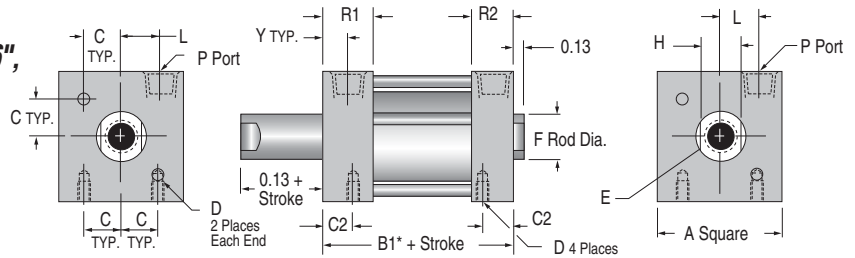


***Note: Some options effect cylinder length.**

Standard Strokes – All Models: • 1/8 • 1/4 • 3/8 • 1/2 • 5/8 • 3/4 • 7/8 • 1 • 1-1/4 • 1-1/2 • 1-3/4 • 2 • 2-1/2 • 3 • 3-1/2 • 4
Special strokes available on request. Contact Engineering or your local Fabco-Air Distributor

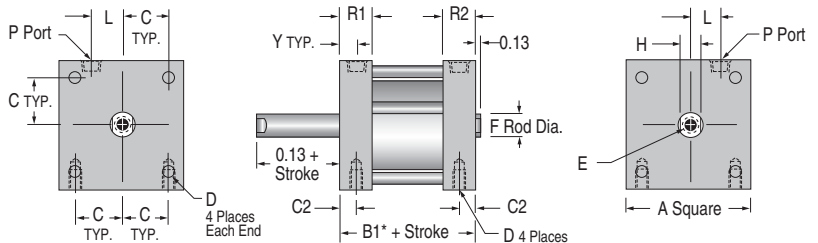
Model SWD Double Acting, Double Rod

Bore Sizes
3/4", 1-1/16",
1-1/2", 2"



Model STD Double Acting, Hole Thru Double Rod

Bore Sizes
2-1/2", 3", 4"



***Note: Some options effect cylinder length.**

Hole Thru Diameter (STD)

Bore	Female Rod Thread	Male Rod Thread
3/4 (2)	0.14	0.09
1-1/16 (3)	0.22	0.16
1-1/2 (4)	0.28	0.19
2 (5)	0.38	0.25
2-1/2 (6)	0.38	0.25
3 (7)	0.44	0.31
4 (8)	0.50	0.38

Dimensions (inches)

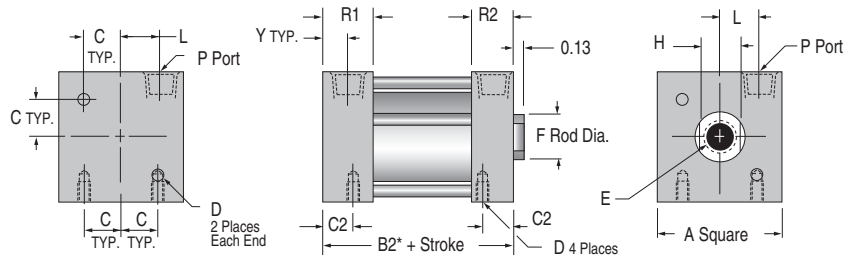
Bore	A	B1*	B2* for Stroke Range				B3* for Stroke Range				C	C2	D
			0-1	1.001-2	2.001-3	3.001-4	0-1	1.001-2	2.001-3	3.001-4			
3/4 (2)	1.25	0.75	1.00	1.56	2.13	2.69	1.25	1.81	2.38	2.94	0.38	0.28	#6-32 UNC
1-1/16 (3)	1.50	1.25	1.25	1.88	2.50	3.13	1.75	2.38	3.00	3.63	0.50	0.38	#8-32 UNC
1-1/2 (4)	2.00	1.25	1.25	1.88	2.50	3.13	1.75	2.38	3.00	3.63	0.69	0.31	#10-24 UNC
2 (5)	2.50	1.31	1.31	1.94	2.56	3.19	1.81	2.44	3.06	NA	0.88	0.38	1/4-20 UNC
2-1/2 (6)	3.25	1.66	1.66	2.54	3.41	4.29	2.39	3.27	3.29	NA	1.18	0.42	5/16-18 UNC
3 (7)	3.75	1.71	1.71	2.58	3.46	4.33	2.44	3.31	3.33	NA	1.44	0.44	5/16-18 UNC
4 (8)	5.00	2.00	2.00	2.88	3.75	4.63	2.75	3.62	3.63	NA	1.81	0.50	7/16-14 UNC

Standard Series SSD, SSR, SSX, SWD, STD Basic Dimensions

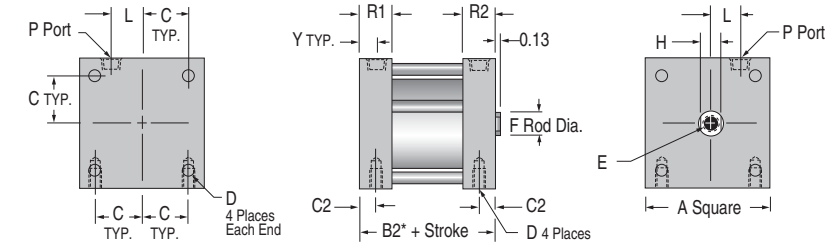
Model SSR Single Acting, Spring Retract

Bore Sizes
3/4", 1-1/16",
1-1/2", 2"

***Note:** Some options effect cylinder length. See table on page 4 for spring forces.



Bore Sizes
2-1/2", 3", 4"

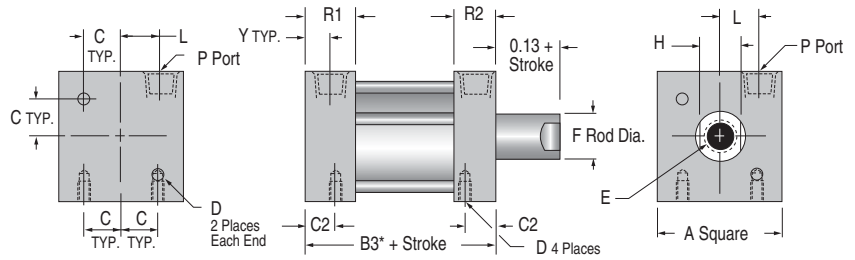


Standard Strokes – All Models*: • 1/8 • 1/4 • 3/8 • 1/2 • 5/8 • 3/4 • 7/8 • 1 • 1-1/4 • 1-1/2 • 1-3/4 • 2 • 2-1/2 • 3 • 3-1/2 • 4
(*Note For SSX Models: 3" stroke max on 2" to 4" bores) Special strokes available on request. Contact Engineering or your local Fabco-Air Distributor

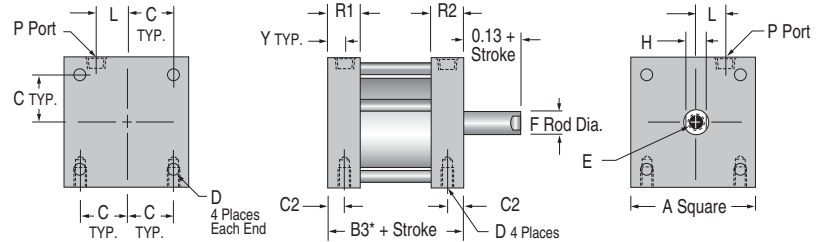
Model SSX Single Acting, Spring Extend

Bore Sizes
3/4", 1-1/16",
1-1/2", 2"

***Note:** Some options effect cylinder length. See table on page 4 for spring forces.



Bore Sizes
2-1/2", 3", 4"



Approximate Cylinder Weights (ounces) SSD, SSR, SWD, STD, SSX

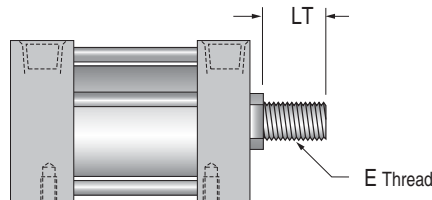
Bore	SSD, SSR		SWD, STD			SSX	
	Base	Adder per 1/8 of Stroke	Base	Adder per 1/8 of Stroke Model SWD	Adder per 1/8 of Stroke for Model STD	Base	Adder per 1/8 of Stroke
3/4 (2)	2.11	.08	2.50	.18	.13	2.11	.08
1-1/16 (3)	4.89	.24	5.47	.37	.25	5.28	.24
1-1/2 (4)	9.70	.32	10.08	.55	.42	9.98	.32
2 (5)	13.63	.40	15.36	.64	.50	14.40	.40
2-1/2 (6)	27.46	.48	32.83	.74	.59	29.95	.48
3 (7)	38.59	.64	47.33	1.01	.76	42.05	.64
4 (8)	68.74	.80	84.19	1.20	.92	74.59	.80

Dimensions (inches)

Bore	E Standard	E Coarse	E Depth for stroke range		F	H	L	P Port	R1	R2	Y
			1/8 - 1/2	5/8+							
3/4 (2)	#10-32 UNF	#10-24 UNC	0.30 - 0.46	0.46	0.31	0.25	0.30	#10-32	0.42	0.42	0.14
1-1/16 (3)	5/16-24 UNF	5/16-18 UNC	0.37 - 0.63	0.70	0.50	0.44	0.50	1/8 NPT	0.50	0.58	0.25
1-1/2 (4)	3/8-24 UNF	3/8-16 UNC	0.37 - 0.70	0.70	0.63	0.50	0.73	1/8 NPT	0.50	0.58	0.25
2 (5)	1/2-20 UNF	1/2-13 UNC	0.30 - 0.63	0.70	0.75	0.63	0.77	1/8 NPT	0.63	0.63	0.25
2-1/2 (6)	1/2-20 UNF	1/2-13 UNC	0.42 - 0.70	0.70	0.75	0.63	0.75	1/4 NPT	0.84	0.84	0.31
3 (7)	5/8-18 UNF	5/8-11 UNC	0.45 - 0.73	0.73	0.88	0.75	0.88	1/4 NPT	0.88	0.88	0.31
4 (8)	3/4-16 UNF	3/4-10 UNC	0.40 - 0.70	0.80	1.00	0.88	1.25	3/8 NPT	1.00	1.00	0.44

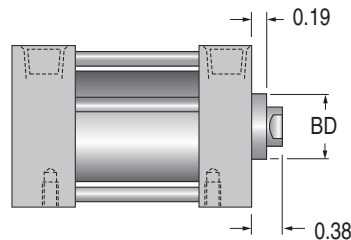
Model Options

Male Rod Ends (Option TCM or TFM)



Thread Sizes			
Bore	E Thread		LT
	TCM (Coarse)	TFM (Fine)	
3/4 (2)	#10-24 UNC	#10-32 UNF	0.38
1-1/16 (3)	5/16-18 UNC	5/16-24 UNF	0.50
1-1/2 (4)	3/8-16 UNC	3/8-24 UNF	0.50
2 (5)	1/2-13 UNC	1/2-20 UNF	0.63
2-1/2 (6)	1/2-13 UNC	1/2-20 UNF	0.63
3 (7)	5/8-11 UNC	5/8-18 UNF	0.75
4 (8)	3/4-10 UNC	3/4-16 UNF	0.75

Rod Wiper (Option W) Buna-N only



Boss Dia.	
Bore	BD
3/4 (2)	0.69
1-1/16 (3)	0.88
1-1/2 (4)	1.00
2 (5)	1.13
2-1/2 (6)	1.13
3 (7)	1.25
4 (8)	1.38

Deviations from Standard Dimensions (Options L, E, M)

† A minimum stroke of 3/8" is required to sense end-of-stroke positions.

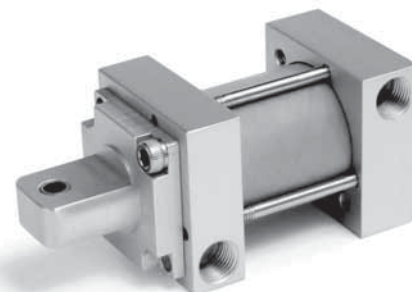
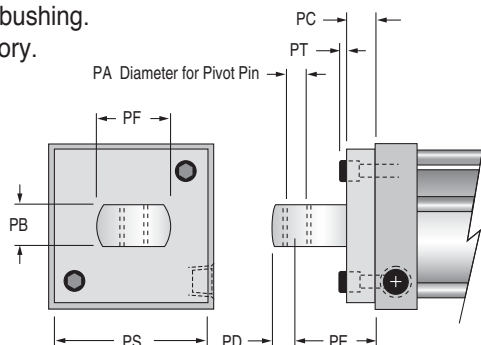
Length Adder (inches)		
Bore	Low Friction Seals L	Magnetic Position Sensing† with and without Low Friction Seals
		E, M, EL or LM
3/4 (2)	0.25	0.75
1-1/16 (3)	0.38	0.50
1-1/2 (4)	0.38	0.63
2 (5)	0.38	0.63
2-1/2 (6)	0.38	0.88
3 (7)	0.50	0.88
4 (8)	0.50	0.88

Mounting Options

PM Pivot Mount -

Pin 90° from Port

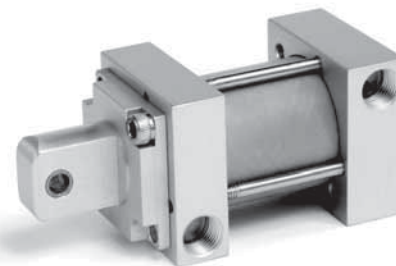
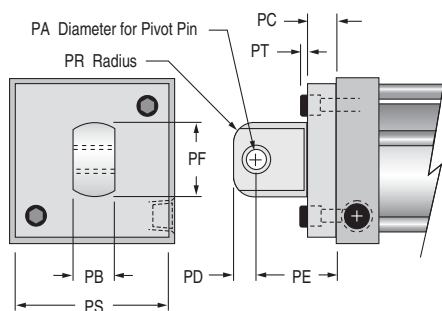
Complete with bronze pivot bushing.
Also available as an accessory.
See page 14.



SM Pivot Mount -

Pin in line with Port

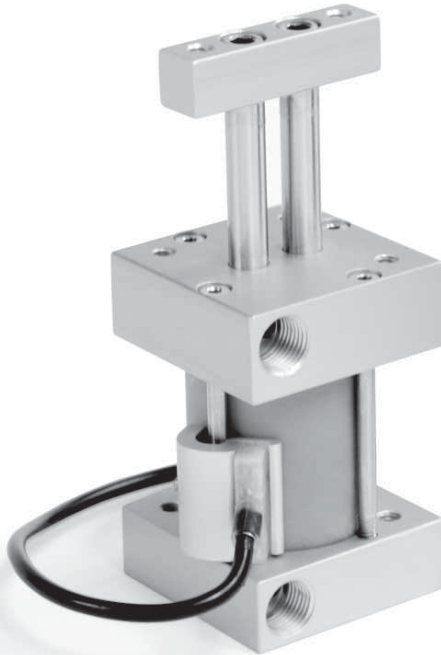
Complete with bronze pivot bushing.
Also available as an accessory.
See page 14.



Dimensions (inches)

Bore	PA	PB	PC	PD	PE	PF	PR	PS	PT
3/4 (2)	0.19	0.38	0.19	0.25	0.75	0.75	0.19	1.13	0.02
1-1/16 (3)	0.19	0.38	0.25	0.25	0.81	0.75	0.19	1.25	0.02
1-1/2 (4)	0.38	0.75	0.25	0.44	1.19	1.38	0.38	1.75	0.03
2 (5)	0.38	0.75	0.31	0.44	1.38	1.38	0.38	2.25	0.08
2-1/2 (6)	0.38	0.75	0.38	0.44	1.31	1.38	0.38	3.00	0.05
3 (7)	0.63	1.00	0.38	0.56	1.69	1.88	0.38	3.50	0.05
4 (8)	0.63	1.00	0.44	0.56	1.75	1.88	0.38	4.50	0.12

Square Pancake® II Cylinders



Nonrotating, double acting 4 Bore sizes 3/4" thru 2" Strokes to 4" standard

Twin piston rods are incorporated into the cylinder head to achieve NON-ROTATION. The rods are securely fastened to the piston and tied together externally by a rod end tool bar. The tool bar insures that the rods move in tandem and provides an ideal mounting surface for any attachments required by your application. The tool bar is furnished with threaded mounting holes or optional counter-bored mounting holes.

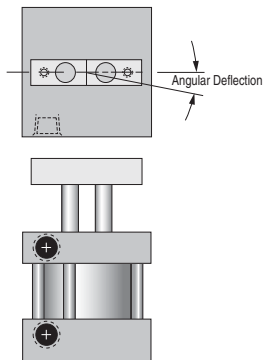
End face and bottom surface tapped mounting holes allow accurate and convenient vertical, horizontal and parallel alignment.

Ratings – Standard Units all Series

- Body Self-lubricating composite
- Heads Clear anodized aluminum alloy
- Tie Bolts Stainless steel
- Rod Chrome plated stainless steel
- Piston Stainless steel
- Rod end Tool bar
- Ports Position #1
- Seals Internally lubricated Buna-N
- Lubrication Magnalube®-G
- Rod bushing Bronze
- Stroke tolerance $\pm 1/64"$
- Media Air
- Pressure rating, maximum 200 psi
- Minimum recommended operating pressure 15 psi
- Temperature rating Cylinder -25° to $+221^{\circ}\text{F}$
(-32° to $+105^{\circ}\text{C}$)
- Temperature rating Electronic sensors -4° to $+176^{\circ}\text{F}$
(-20° to $+80^{\circ}\text{C}$)

Allowable Torsion Load and Rotational Tolerance

Side loading should be avoided for any cylinder application. The smaller diameter twin rods will have more deflection due to side load than the one standard rod in a comparable **Square Pancake® II** cylinder. However, the SND Series is designed to work satisfactorily against pure torsional loads. Maximum torsional load per bore size is shown in the following table.



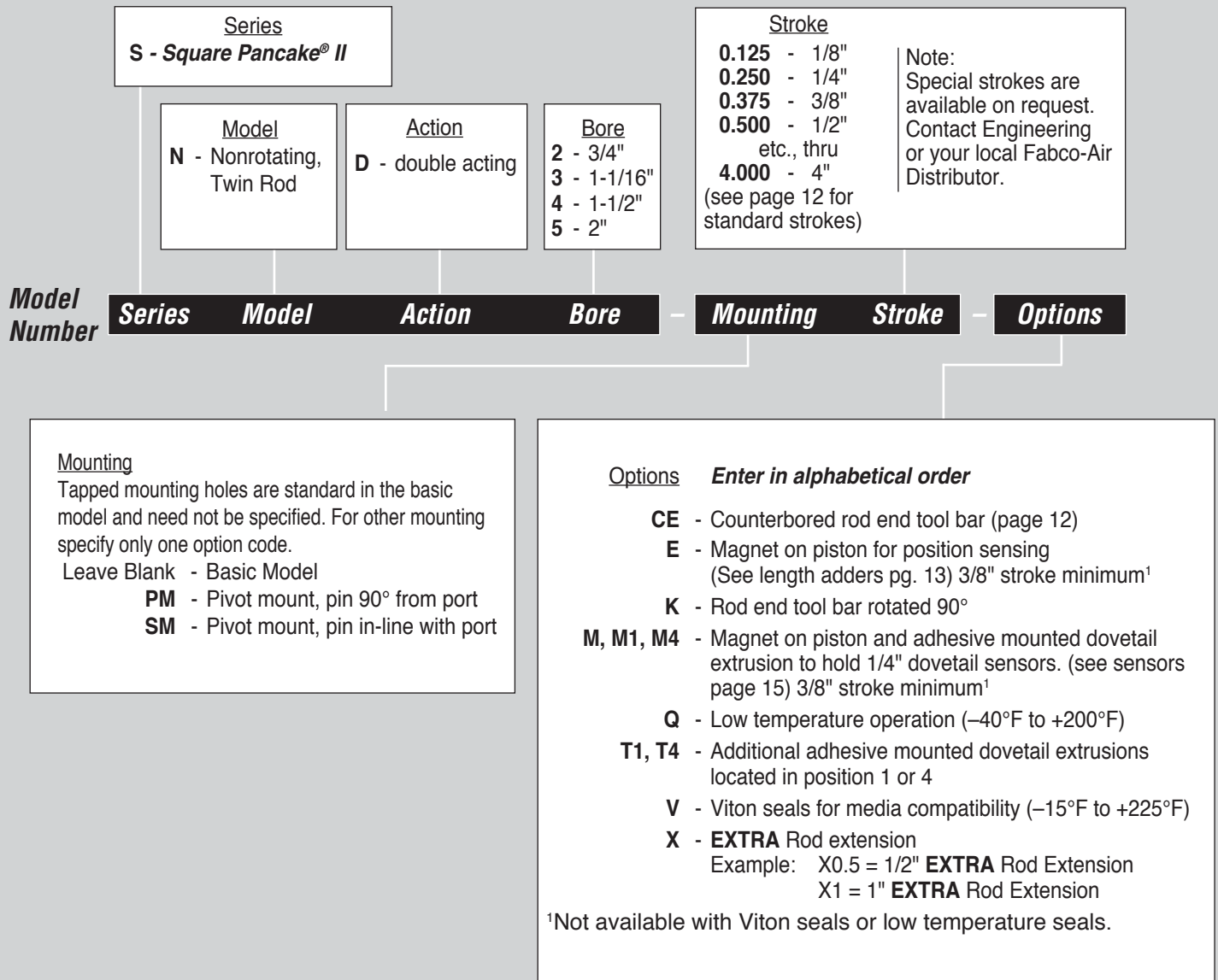
Approximate Angular Deflection (Degrees) due to max. torsional load							
Bore	Torsional Load Max.	Stroke					
		0 to 1-1/2	2	2-1/2	3	3-1/2	4
3/4	0.3 in-lbs	less than 0.22	0.51	0.98	1.67	2.62	3.88
1-1/16	1.0 in-lbs	less than 0.15	0.33	0.64	1.09	1.71	2.53
1-1/2	5.0 in-lbs	less than 0.08	0.18	0.36	0.61	0.95	1.41
2	10.0 in-lbs	less than 0.03	0.07	0.13	0.22	0.34	0.50

Freeplay Rotational Tolerance				
Bore	3/4" (2)	1-1/16" (3)	1-1/2" (4)	2" (5)
Max. Rotation	$\pm 1^{\circ}$	$\pm 3/4^{\circ}$	$\pm 1/2^{\circ}$	$\pm 1/2^{\circ}$

Cylinder Sizing Guide

Bore Diameter (inch)	3/4	1-1/16	1-1/2	2
Rod Diameter (inch)	0.19	0.25	0.38	0.50
Rod Area (inch)	0.05	0.10	0.22	0.38
Push Area (inch)	0.44	0.88	1.76	3.14
Pull Area (inch)	0.39	0.78	1.54	2.76

How to Order



How to Order

1. Specify **S**, Model, Action and Bore
2. Specify optional Mounting (if required), then Stroke
3. Specify the Options in alphabetical order

Ordering example #1: **SND3-PM0.375-V**

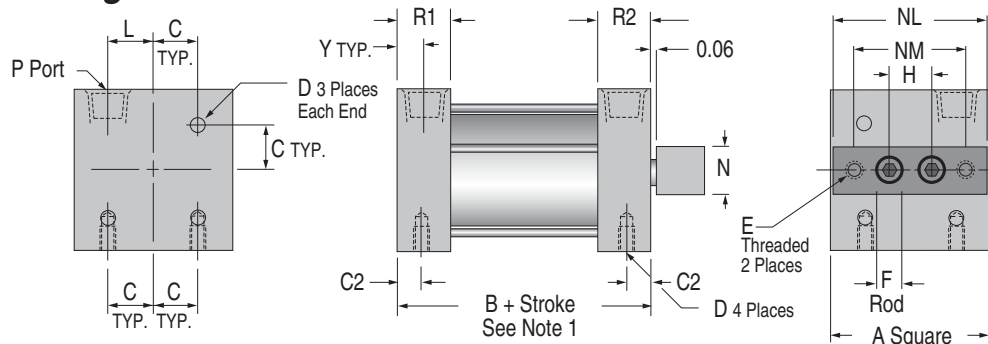
This model number specifies a Square® Pancake II nonrotating, double acting, cylinder with tool bar, 1-1/16" bore, pivot mounting, 3/8" stroke and Viton seals.

Ordering example #2: **SND5-2.000**

This model number specifies a Square® Pancake II nonrotating, double acting, cylinder with tool bar, 2" bore, standard tapped mounting holes, and 2" stroke.

Basic Model SND

Twin Rod, Nonrotating Double Acting

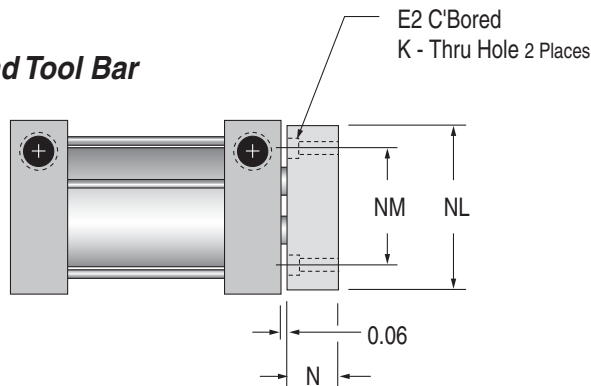


Note 1: Magnetic Position Sensing Length Adders see page 13.
A minimum stroke of 3/8" is required to sense end-of-stroke positions

Standard Strokes – All Models: • 1/8 • 1/4 • 3/8 • 1/2 • 5/8 • 3/4 • 7/8 • 1 • 1-1/4 • 1-1/2 • 1-3/4 • 2 • 2-1/2 • 3 • 3-1/2 • 4
Special strokes available. Contact Engineering or your local Fabco-Air distributor for information.

Model Options

Option CE Counterbored Rod End Tool Bar



C'Bore Hole Dimensions (inches)

Bore	E2 C'Bore	K	For SHCS
3/4 (2)	0.24 x 0.15 dp	0.15	#6
1-1/16 (3)	0.29 x 0.18 dp	0.18	#8
1-1/2 (4)	0.40 x 0.27 dp	0.26	1/4
2 (5)	0.49 x 0.33 dp	0.33	5/16

**Approximate Cylinder
Weights (ounces)**

Bore	Base	Adder per 1/8 of Stroke
3/4 (2)	3.39	0.1
1-1/16 (3)	7.59	0.5
1-1/2 (4)	14.78	0.7
2 (5)	22.65	0.9

Dimensions (inches)

Bore	A	B	C	C2	D	E Thread	F	H
3/4 (2)	1.25	0.75	0.38	0.28	#6-32 UNC	#6-32 UNC	0.19	0.332
1-1/16 (3)	1.50	1.25	0.50	0.38	#8-32 UNC	#8-32 UNC	0.25	0.422
1-1/2 (4)	2.00	1.25	0.69	0.31	#10-24 UNC	1/4-20 UNC	0.38	0.562
2 (5)	2.50	1.31	0.88	0.38	1/4-20 UNC	5/16-18 UNC	0.50	0.750

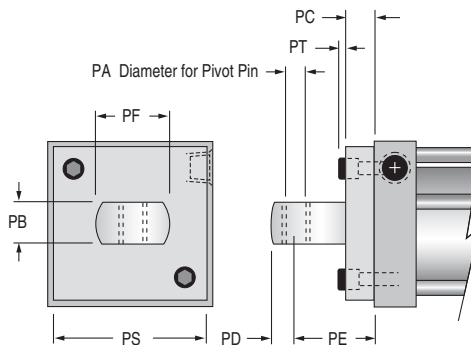
Bore	L	N	NL	NM	P	R1	R2	Y
3/4 (2)	0.35	0.38	1.25	0.88	#10-32 UNF	0.42	0.42	0.14
1-1/16 (3)	0.45	0.38	1.44	1.06	1/8 NPT	0.50	0.58	0.25
1-1/2 (4)	0.60	0.50	2.00	1.50	1/8 NPT	0.50	0.58	0.25
2 (5)	0.76	0.63	2.50	1.88	1/8 NPT	0.63	0.63	0.25

Mounting Options

PM Pivot Mount -

Pin 90° from Port

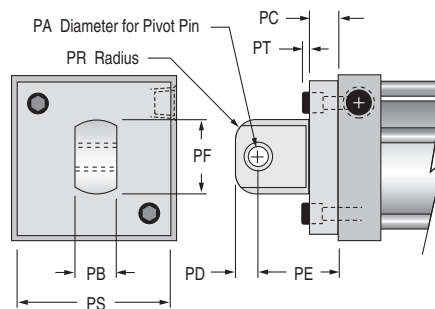
Complete with bronze pivot bushing.
Also available as an accessory.
See page 14.



SM Pivot Mount -

Pin in line with Port

Complete with bronze pivot bushing.
Also available as an accessory.
See page 14.



Dimensions (inches)

Bore	PA	PB	PC	PD	PE	PF	PR	PS	PT
3/4 (2)	0.19	0.38	0.19	0.25	0.75	0.75	0.19	1.13	0.02
1-1/16 (3)	0.19	0.38	0.25	0.25	0.81	0.75	0.19	1.25	0.02
1-1/2 (4)	0.38	0.75	0.25	0.44	1.19	1.38	0.38	1.75	0.03
2 (5)	0.38	0.75	0.31	0.44	1.38	1.38	0.38	2.25	0.08

Deviations from Standard Dimensions (Options E or M)

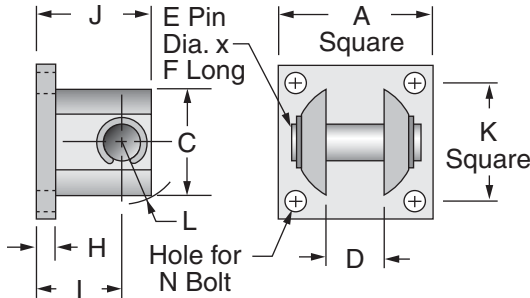
† A minimum stroke of 3/8" is required
to sense end-of-stroke positions.

Length Adder (inches)

Bore	Magnetic Position Sensing†
	E or M
3/4 (2)	0.75
1-1/16 (3)	0.50
1-1/2 (4)	0.63
2 (5)	0.63

Clevis Bracket

Anodized aluminum alloy
Chrome plated steel pin included



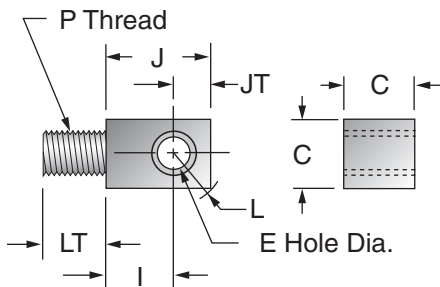
The bracket is intended for mounting with either a rod eye or pivot mount; it is not intended to mount directly with the rear cylinder head.

Dimensions (inches)

Kit No.	Bore	A	C	D	E	F	H	I	J	K	L	N
CB-3	3/4 (2)	1.00	0.71	0.39	0.187	0.93	0.16	0.56	0.78	0.75	0.42	#6
	1-1/16 (3)											
CB-6	1-1/2 (4)	1.75	1.37	0.75	0.375	1.63	0.22	0.94	1.34	1.38	0.80	#10
	2 (5)											
CB-8	2-1/2 (6)	2.50	2.10	1.00	0.625	2.42	0.25	1.25	1.81	2.00	1.19	1/4
	3 (7)											
	4 (8)											

Rod Eye

Steel with bronze pivot bushing and nut

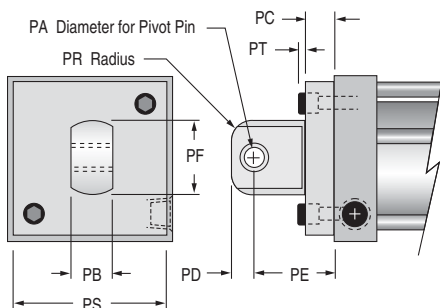


Dimensions (inches)

Kit No.	Bore	C	E	I	J	JT	L	LT	P
RE-2	3/4 (2)	0.38	0.187	0.47	0.72	0.25	0.32	0.38	#10-32 UNF
RE-3	1-1/16 (3)	0.38	0.187	0.47	0.72	0.25	0.32	0.63	5/16-24 UNF
RE-4	1-1/2 (4)	0.75	0.375	0.72	1.16	0.44	0.58	0.63	3/8-24 UNF
RE-6	2 (5)	0.75	0.375	0.72	1.16	0.44	0.58	0.75	1/2-20 UNF
RE-7	2-1/2 (6)	1.00	0.625	1.00	1.63	0.63	0.80	0.88	5/8-18 UNF
RE-8	3 (7)	1.00	0.625	1.00	1.63	0.63	0.80	0.88	3/4-16 UNF
	4 (8)	1.00	0.625	1.00	1.63	0.63	0.80	0.88	3/4-16 UNF

Pivot Mount Attachment with Mounting Screws

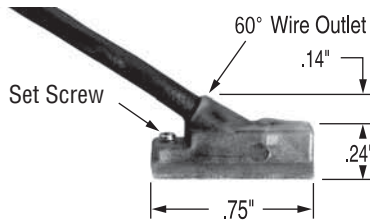
Anodized Aluminum Alloy



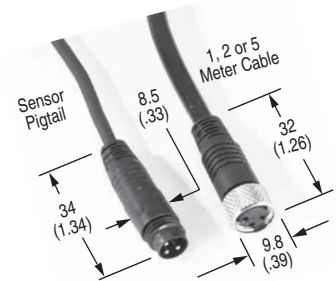
Dimensions (inches)

Kit No.	Bore	PA	PB	PC	PD	PE	PF	PR	PS	PT
PA-2	3/4 (2)	0.19	0.38	0.19	0.25	0.75	0.75	0.19	1.13	0.02
PA-3	1-1/16 (3)	0.19	0.38	0.25	0.25	0.81	0.75	0.19	1.25	0.02
PA-4	1-1/2 (4)	0.38	0.75	0.25	0.44	1.19	1.38	0.38	1.75	0.03
PA-5	2 (5)	0.38	0.75	0.31	0.44	1.38	1.38	0.38	2.25	0.08
PA-6	2-1/2 (6)	0.38	0.75	0.38	0.44	1.31	1.38	0.38	3.00	0.05
PA-7	3 (7)	0.63	1.00	0.38	0.56	1.69	1.88	0.38	3.50	0.05
PA-8	4 (8)	0.63	1.00	0.44	0.56	1.75	1.88	0.38	4.50	0.12

Sensor Specifications & Ordering Information

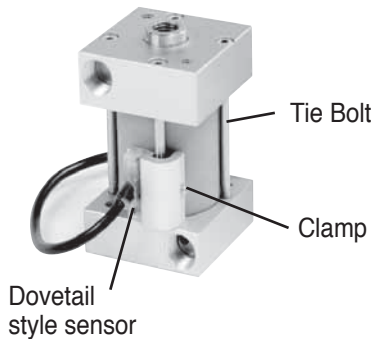


- Encased in a plastic housing, dovetail style electronic sensors are corrosion resistant. 60° wire outlet allows close mounting.
- Two methods of mounting are available:
 1. Tie bolt mounted clamps (Option -E)
 2. Adhesive mounted dovetail extrusions (Option -M)
- **Order sensors separately from the table below**



Ordering Guide – Dovetail Style Magnetic Sensor with LED					Sensor Temperature Range -20° to +80° C (-4° to +176° F)	Female Cordsets for Quick Disconnect
Sensor Type	Prewired 9 ft. Part No.	Quick Disconnect Part No.*	Wire Leads	Electrical Characteristics		
Electronic	949-000-031	949-000-331	3	Sourcing PNP 6-24 VDC, 0.20 Amp Max current, 0.5 Voltage Drop		
Electronic	949-000-032	949-000-332	3	Sinking NPN 6-24 VDC, 0.20 Amp Max current, 0.5 Voltage Drop		
Note*: Quick disconnect styles are supplied with 6 inch pigtail with male connector. Order female cordsets separately.						

Option -E Magnet on piston – use tie bolt mounted clamps



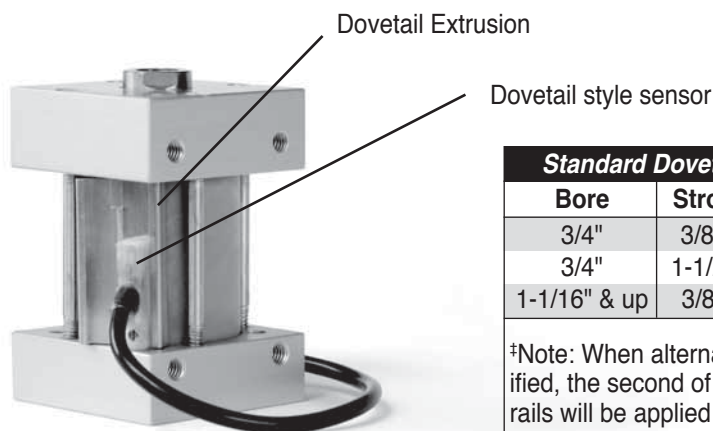
To apply dovetail style sensors first locate clamp in rough position on any of the tie bolts and lock it in place with the set screw.

Next, make fine adjustment by sliding the sensor within the clamp and lock in place with its set screw.

Clamp Selection Guide			
Kit No.	900-F00-000	900-G00-000	900-H00-000
To Fit Bore	3/4, 1-1/16, 1-1/2, 2	2-1/2, 3	4

Order clamps and sensors separately

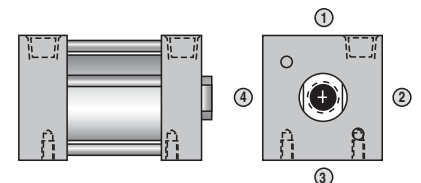
Option -M Magnet on piston and adhesive mounted dovetail extrusions



Standard Dovetail Rail Positions		
Bore	Stroke Range	Position
3/4"	3/8" to 1-1/4"	2 & 4 [‡]
3/4"	1-1/2" & above	2
1-1/16" & up	3/8" & above	2

[‡]Note: When alternate positions are specified, the second of two required dovetail rails will be applied at position 2. (Contact factory for other combinations.)

Specify Option M for mounting rail(s) located in standard position(2).



Specify option M1 or M4 for mounting rail in alternate positions 1 or 4 respectively. Additional dovetail rails may be applied by specifying options T1 or T4.

Order sensors separately

Square Pancake® II Cylinders

List Prices - Series SSD, SSR, SSX, SWD, STD

Prices effective September 1, 2011

Basic Model	Base Price by Bore Size						
	3/4 (2)	1-1/16 (3)	1-1/2 (4)	2 (5)	2-1/2 (6)	3 (7)	4 (8)
SSD	\$53.10	\$63.40	\$79.10	\$91.15	\$126.70	\$147.45	\$268.20
SSR (0 to 1" Stroke)	55.85	68.25	84.80	103.45	135.90	160.15	286.80
SSR (1-1/8 to 4" Stroke)	61.95	76.80	101.45	119.45	143.90	168.75	295.30
SSX (0 to 1" Stroke)	60.95	75.60	94.30	106.80	148.20	177.15	311.40
SSX (1-1/8 to 4" Stroke)	68.45	83.70	103.30	119.55	156.25	185.60	320.05
Add per 1/8" of Stroke (SSD, SSR, SSX)	0.35	0.45	0.65	0.85	0.95	1.05	1.30
SWD	76.65	87.45	106.40	126.45	178.20	207.50	343.00
Add per 1/8" of Stroke	0.35	0.45	0.85	1.05	1.05	1.15	1.50
STD	77.00	94.00	114.55	135.75	186.95	218.05	355.25
Add per 1/8" of Stroke	0.35	0.45	0.85	1.05	1.05	1.15	1.50

Mounting Options	Adders by Bore Size						
	3/4 (2)	1-1/16 (3)	1-1/2 (4)	2 (5)	2-1/2 (6)	3 (7)	4 (8)
PM, SM (Pivot Mount)	16.15	17.65	22.35	25.05	29.55	35.60	48.50

Options No charge for Options TCF, TN	Adders by Bore Size						
	3/4 (2)	1-1/16 (3)	1-1/2 (4)	2 (5)	2-1/2 (6)	3 (7)	4 (8)
B (both ends)	10.35	22.00	22.00	29.10	29.45	29.45	48.40
BF (front only)	6.50	15.60	15.50	22.60	22.60	22.60	36.15
BR (rear only)	3.95	6.50	6.50	6.50	6.90	6.90	12.25
E (Magnetic Piston Sensing)	4.75	4.75	7.00	11.70	15.55	20.35	23.10
J (with Standard Seals)	0.25	0.30	0.30	0.35	0.35	0.35	0.40
J (with Viton Seals)	0.60	0.85	0.85	1.00	1.00	1.15	3.15
L (Low Friction Seals)	3.55	4.35	4.95	5.85	6.70	8.00	9.20
M, M1, M4 (Mag. Piston Sensing)	6.55	6.55	9.60	16.15	22.75	27.45	30.35
Q (Low Temperature Seals)							
SSR - Spring Retract	2.85	3.50	4.45	5.50	6.95	8.60	10.70
SSX - Spring Extend	3.15	3.95	4.90	6.10	7.50	9.45	11.85
SSD - Double Acting	3.20	4.05	5.05	6.30	7.90	9.85	12.30
SWD, STD - Double Rod	4.05	5.05	6.30	7.90	9.85	12.30	15.40
Q (Low Temp. Seals with L Option)							
SSR - Spring Retract	6.10	7.45	9.40	11.80	14.70	18.40	23.00
SSX - Spring Extend	6.70	8.35	10.40	12.95	16.20	20.25	25.35
SSD - Double Acting	6.95	8.60	10.75	13.50	16.90	21.05	26.40
SWD, STD - Double Rod	8.60	10.75	13.50	16.90	21.05	26.40	33.00
TCM, TFM (Male Rod Thread each end)	4.35	4.90	5.30	7.35	7.00	8.20	9.75
T1, T4 (Sensor Mounting Rail per rail)	3.80	3.80	3.80	3.80	3.80	3.80	3.80
V (with Standard Seals)							
SSR - Spring Retract	2.20	3.75	6.15	8.20	11.05	15.35	20.90
SSX - Spring Extend	3.10	4.95	7.50	9.70	12.35	17.05	22.75
SSD - Double Acting	4.35	6.35	10.20	13.40	17.10	25.15	31.50
SWD, STD - Double Rod	5.15	7.55	11.55	14.90	18.50	27.10	33.60
V (with Low Friction Seals)							
SSR - Spring Retract	6.10	10.20	12.95	20.40	24.85	28.40	37.00
SSX - Spring Extend	6.90	11.35	14.45	21.95	26.30	31.00	38.85
SSD - Double Acting	12.10	19.20	23.95	37.90	45.20	53.05	63.75
SWD, STD - Double Rod	12.80	20.35	25.35	39.55	46.55	54.75	65.70
W (Rod Wiper, single rod)	7.50	9.20	9.65	11.55	11.55	13.30	14.05
W (Rod Wiper, double rod)	14.95	18.45	19.30	22.80	22.95	26.50	28.00
X (each 1/2" or fraction thereof - each end)	0.80	0.90	1.05	1.30	1.25	1.35	1.75

List Prices - Nonrotating Series SND

Basic Model	Base Price by Bore Size				Mounting Options	Adders by Bore Size			
	3/4 (2)	1-1/16 (3)	1-1/2 (4)	2 (5)		3/4 (2)	1-1/16 (3)	1-1/2 (4)	2 (5)
SND	\$78.35	\$100.55	\$119.55	\$137.90	PM, SM (Pivot Mount)	16.10	17.65	22.35	25.05
Adder per 1/8" of stroke	0.35	0.45	0.85	0.95					

Options No charge for Options CE, K	Adders by Bore Size			
	3/4 (2)	1-1/16 (3)	1-1/2 (4)	2 (5)
E (Magnetic Piston Sensing)	\$4.75	\$4.75	\$7.00	\$11.70
M, M1, M4 (Mag. Piston Sensing)	6.55	6.55	9.70	16.15
Q (Low temperature seals)	5.60	7.05	8.75	10.95
T1, T4 (Sensor mounting rail per rail)	3.80	3.80	3.80	3.80
V (Viton Seals)	5.15	7.55	11.55	14.90
X (each 1/2" or fraction thereof)	0.80	0.90	1.05	1.30

Sensor Prices

Electronic Sensor Type	Prewired Part No.	Price	Quick Disconnect Part No.	Price
Sourcing	949-000-031	\$25.00	949-000-331	\$32.85
Sinking	949-000-032	25.00	949-000-332	32.85

Female Cord Set	Part No.	Price
1 Meter	CFC-1M	\$15.05
2 Meters	CFC-2M	16.85
5 Meters	CFC-5M	21.30

Sensor Mounting Clamp			
Bore	3/4, 1-1/16, 1-1/2, 2	2-1/2, 3	4
Kit Number	900-F00-000	900-G00-000	900-H00-000
Price	\$5.55	\$5.55	\$5.55

Accessory Prices

Clevis Bracket		
Kit No.	Bore	Price
CB-3	3/4 (2) 1-1/16 (3)	\$17.00
CB-6	1-1/2 (4) 2 (5) 2-1/2 (6)	24.05
CB-8	3 (7) 4 (8)	30.40

Rod Eye		
Kit No.	Bore	Price
RE-2	3/4 (2)	\$12.60
RE-3	1-1/16 (3)	12.60
RE-4	1-1/2 (4)	13.20
RE-6	2 (5) 2-1/2 (6)	13.20
RE-7	3 (7)	14.75
RE-8	4 (8)	14.75

Pivot Mount Attachment Kits		
Kit No.	Bore	Price
PA-2	3/4 (2)	\$16.30
PA-3	1-1/16 (3)	17.95
PA-4	1-1/2 (4)	23.30
PA-5	2 (5)	27.60
PA-6	2-1/2 (6)	39.90
PA-7	3 (7)	59.00
PA-8	4 (8)	73.60

Seal Kits – Series SSD, SSR, SSX, SWD, STD

Options	Kit Numbers and Prices by Bore Size						
	3/4"	1-1/16"	1-1/2"	2"	2-1/2"	3"	4"
Standard	SS-2-SK \$7.10	SS-3-SK \$6.70	SS-4-SK \$7.35	SS-5-SK \$8.45	SS-6-SK \$8.95	SS-7-SK \$10.60	SS-8-SK \$12.85
Viton (V)	SS-2-SKV \$12.25	SS-3-SKV \$14.35	SS-4-SKV \$18.95	SS-5-SKV \$23.30	SS-6-SKV \$27.40	SS-7-SKV \$37.70	SS-8-SKV \$46.45
Low Temperature (Q)	SS-2-SKQ \$11.15	SS-3-SKQ \$11.80	SS-4-SKQ \$13.65	SS-5-SKQ \$16.30	SS-6-SKQ \$18.80	SS-7-SKQ \$22.95	SS-8-SKQ \$28.25
Low Friction (L)	SS-2-SKL \$10.65	SS-3-SKL \$11.15	SS-4-SKL \$12.30	SS-5-SKL \$14.30	SS-6-SKL \$15.70	SS-7-SKL \$18.60	SS-8-SKL \$22.10
Low Friction-Viton (L, V)	SS-2-SKLV \$19.90	SS-3-SKLV \$27.50	SS-4-SKLV \$32.70	SS-5-SKLV \$48.00	SS-6-SKLV \$55.50	SS-7-SKLV \$65.35	SS-8-SKLV \$78.55
Low Friction-Low Temperature (L, Q)	SS-2-SKLQ \$15.70	SS-3-SKLQ \$17.55	SS-4-SKLQ 20.85	SS-5-SKLQ \$25.35	SS-6-SKLQ \$30.00	SS-7-SKLQ \$37.00	SS-8-SKLQ \$45.90

Seal Kits – Nonrotating Series SND

Options	Kit Numbers and Prices by Bore Size			
	3/4"	1-1/16"	1-1/2"	2"
Standard	SN-2-SK \$5.80	SN-3-SK \$6.20	SN-4-SK \$6.65	SN-5-SK \$7.65
Viton (V)	SN-2-SKV \$10.95	SN-3-SKV \$13.75	SN-4-SKV \$18.25	SN-5-SKV \$22.50
Low Temperature (Q)	SN-2-SKQ \$11.40	SN-3-SKQ \$13.20	SN-4-SKQ \$15.45	SN-5-SKQ \$18.60

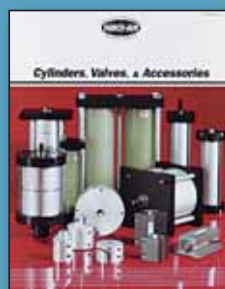
18

This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin black lines. There are 20 columns and 20 rows of squares, creating a total of 400 square units. The grid is perfectly aligned and covers the entire area of the page without any margins or additional markings.

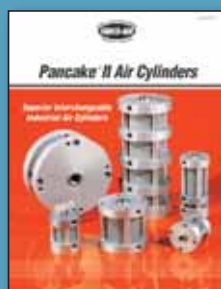


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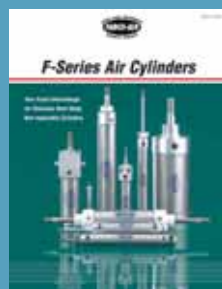
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Catalog Pan2-2*



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Catalog SSB-03*



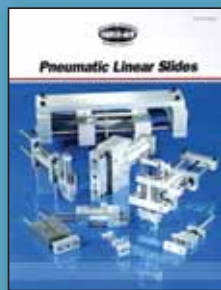
*ISO 6431 Cylinders
Catalog # FAQR-09*



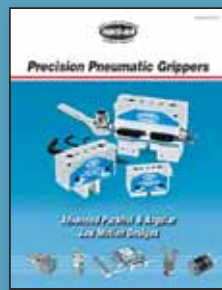
*Twin Rod, Non-Rotating Air
Cylinders - Catalog # FDF-09
and Catalog # FDXS-09*



*Multi-Power® Air Presses
Catalog # FP16*



*Linear Slides - 6 Families
Catalog # LS-03*



*Pneumatic Grippers,
Parallel Jaw and Angular
Motion - Catalog # GR-8*



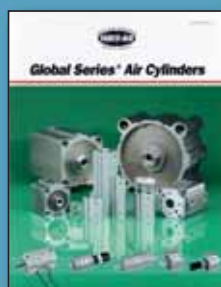
*Pneumatic
Angular Grippers
Catalog # FKA-09*



*ISO 6432 Cylinders
Catalog # FAE-09*



*NFPA Interchangeable Air
Cylinders - Catalog # NF-6*



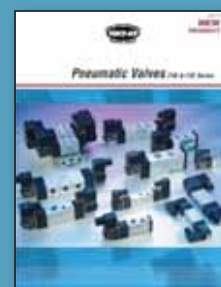
*Global Series™ Metric Air
Cylinders - Catalog # GC-15*



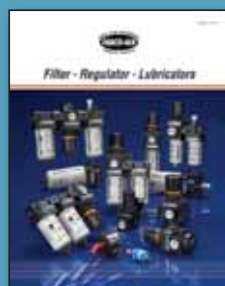
*Swing Clamps
Bulletin # SC-DB04*



*Manifold Solenoid Valves
Catalog # FVS-Y-09*



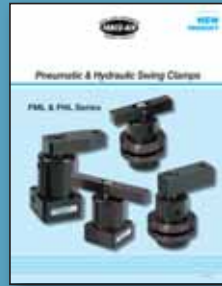
*Air Pilot & Solenoid Valves
Catalog # FVA.E-09*



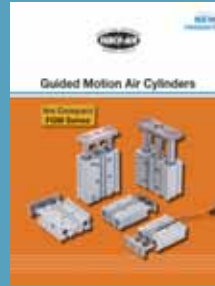
*Modular Air Preparation
System - FRLs
Catalog # FRL-06*



*Stopper Cylinders
Catalog # ST-SC*



*Swing Clamps,
Pneumatic & Hydraulic
Catalog # FML.H*



*Guided Motion Air Cylinders
Catalog # FGM-10*



*Air Slide Tables
Catalog # FGXS-10*