



Air Engineering and Supply

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Vektek Inc.:

Represented by Air Engineering and Supply

Components for high performance industrial automation with proven performance for a half century.

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Phone: 800.332.4181 Fax: 612.332.4184

www.airengr.com Email info@airengr.com

Swing Clamps

Frequently Asked Questions

Frequently Asked Questions

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Following are some of the questions we have been asked while developing the VektorAir line. Please read through them carefully before planning your system. Many common problems can be identified and corrected before you actually even order a part!

Is it necessary to check our clamping system for air leaks?

Yes. Since air used in a pneumatic system is a compressible medium, leakage will dramatically effect clamping loads. Therefore, circuits should be checked with a suitable leak detection solution such as SNOOP® or equivalent.

We shut the air supply down to our clamps once they are in position. Sometimes we notice that they are sticking. Could this be the cause?

Yes, you should avoid dead heading clamp circuits. Keep the valve engaged and air flow to the clamps during the entire clamping cycle.

After clamping, my swing clamps are moving. I cannot detect a leak. Why do I have this movement?

What have you set your minimum operating pressure at? When establishing operating pressure for the system, remember that 30 psig is the minimum and must be maintained during cycling. If you set your regulator to 30 psig and then open the valve and the pressure drops to 20 psig during clamping, you need to increase pressure until 30 psig is maintained during the entire clamping cycle. This will prevent cycle problems like the one you questioned, from happening.

We need to regulate the speed of the clamping. How is this best done?

If component speed is an issue, always regulate the speed from the opposite side of the piston where the pressure is being applied. In other words, if the return stroke is to be controlled, use the exhaust flow from the extend stroke to regulate the speed. This will give superior control and avoid problems with devices sticking.

Why are all your swing clamps double acting?

Double acting clamps gives the clamps a quick, efficient return. This is essential when working with the lower pressures associated with pneumatics.

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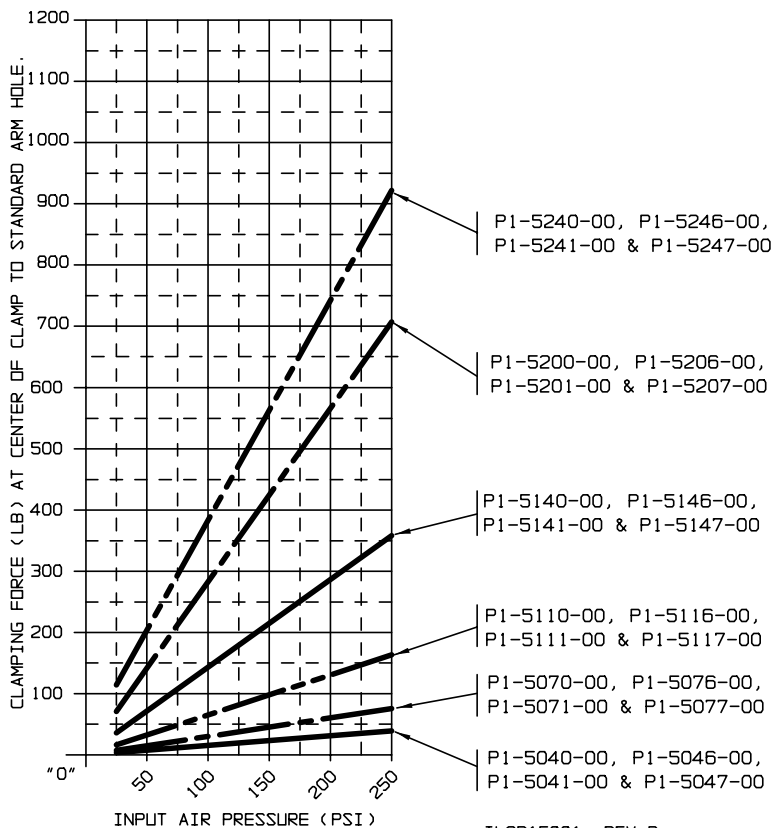
Swing Clamps

Features
Capacity

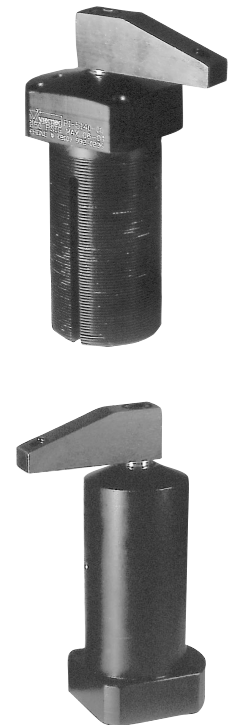
Standard Features

- Models swing 90 degrees.
- Our capscrew arm design is available for you. You may modify our arm, or we have provided you with dimensions to make your own arm.
- Special wipers and swept-line cylinder top helps keep chips from packing and coolant contaminants from entering the operation.
- Swing clamp bodies are wrought aluminum alloy with hard coating on all external and internal surfaces. This gives the clamps extended life.
- Plungers are carbon steel with hard chrome plating and hardened alloy steel bushings.
- All dynamic seals are internally lubricated and made from a specially compounded elastomer to promote smooth break away and low operational drag.
- Six bore sizes are available with two mounting styles to best adapt to your application.
- All models are available in left and right swings.
- Magnetic plungers are standard on all models, allowing you to use position indicating switches.
- Position indicating switches mount within the clamp's space envelope so switch usage doesn't encroach on the clamp's mounting envelope.
- Position switches have an LED indicator to reduce set-up time.
- All swing clamps have internal orifices to prevent cam damage caused from over speeding the clamp.
- VektorAir clamps are double acting to reduce mounting envelope and prevent non-return and slow return problems inherent with single acting clamps.
- To determine whether a left or right swing should be specified, imagine viewing the arm from above during the clamping. Arms moving clockwise are right hand swings, counter-clockwise are left hand swings.

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ILSP15001 REV B



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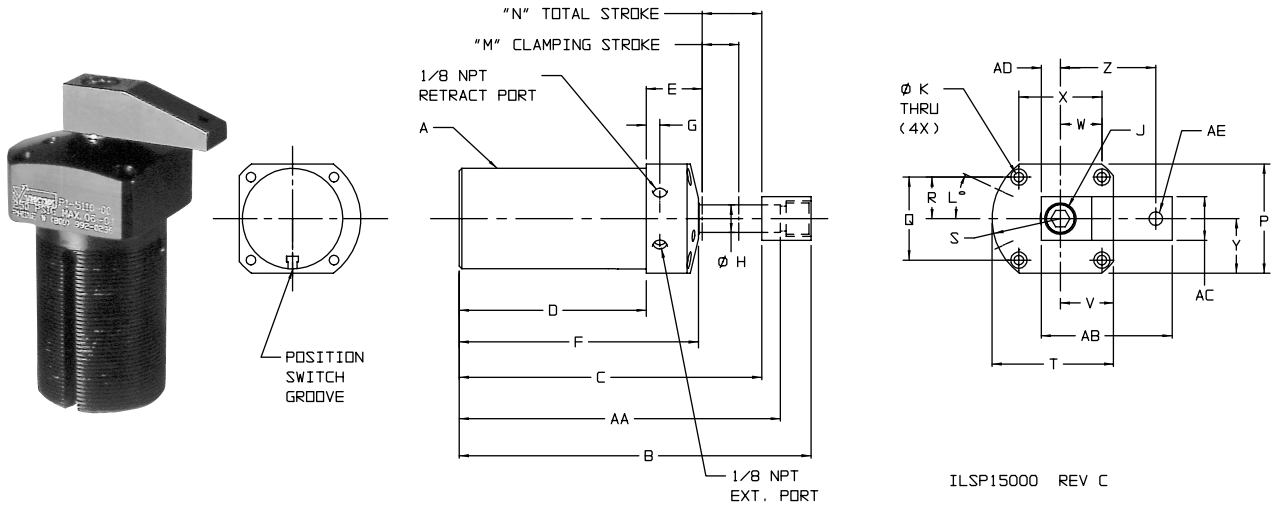
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Swing Clamps

Top Flange Threaded Body Dimensions

B-3



ILSP15000 REV C

Dimensions

Model No.	Rotation	Bore	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
Double Acting (D/A) Cylinders, actuated pneumatically both directions.																	
P1-5040-00	Right Hand	.50	1-1/4 - 16	4.83	4.33	2.75	.89	3.59	.31	.25	8 - 32 x .5	.17	23	.40	.69	1.44	1.10
P1-5046-00	Left Hand	.875	1-5/8 - 16	5.45	4.76	2.80	1.14	3.91	.31	.50	5/16 - 18 x .5	.19	25	.47	.82	1.75	1.37
P1-5070-00	Right Hand																
P1-5076-00	Left Hand	1.125	1-7/8 - 16	5.45	4.76	2.80	1.14	3.91	.31	.50	5/16 - 18 x .5	.19	25	.47	.82	2.00	1.55
P1-5110-00	Right Hand																
P1-5116-00	Left Hand	1.50	2-5/16 - 16	8.17	7.05	4.28	1.27	5.47	.31	.63	3/8 - 24 x .75	.22	25	.75	1.50	2.50	1.90
P1-5140-00	Right Hand																
P1-5146-00	Left Hand	2.00	2-3/4 - 16	8.17	7.05	4.28	1.27	5.47	.31	.63	3/8 - 24 x .75	.22	25	.75	1.50	2.87	2.21
P1-5200-00	Right Hand																
P1-5206-00	Left Hand	2.50	3-1/4 - 16	8.17	7.05	4.28	1.27	5.47	.31	.75	3/8 - 24 x .75	.28	25	.75	1.50	3.40	2.61
P1-5240-00	Right Hand																
P1-5246-00	Left Hand																

Model No.	R	S	T	V	W	X	Y	Z	AA	AB	AC	AD	AE	Effective Piston Area (sq. in.)		AIR CONSUMPTION C.I. *	MAXIMUM AIR FLOW S.C.I.M.
														Extend	Retract		
Double Acting (D/A) Cylinders, actuated pneumatically both directions.																	
P1-5040-00	.55	.94	1.67	.73	.55	1.10	.72	1.13	4.59	1.59	.38	.31	8 - 32	.20	.15	.25	5
P1-5046-00	.69	1.19	2.06	.87	.69	1.37	.88	1.50	5.02	2.19	.63	.44	1/4 - 20	.60	.40	.8	17
P1-5070-00																	
P1-5076-00	.78	1.31	2.28	.97	.78	1.55	1.00	1.50	5.02	2.19	.63	.44	1/4 - 20	1.00	.80	1.5	30
P1-5110-00																	
P1-5116-00	.95	1.56	2.78	1.22	.95	1.90	1.25	2.18	7.56	2.99	.75	.44	3/8 - 16	1.77	1.46	5	97
P1-5140-00																	
P1-5146-00	1.10	1.81	3.24	1.43	1.10	2.21	1.44	2.18	7.56	2.99	.75	.44	3/8 - 16	3.14	2.83	9	180
P1-5200-00																	
P1-5206-00	1.30	2.13	3.81	1.68	1.30	2.61	1.70	2.43	7.56	3.31	.87	.50	3/8 - 16	4.91	4.47	14	281
P1-5240-00																	
P1-5246-00																	

Standard arm is supplied with clamp.

* Per complete cycle



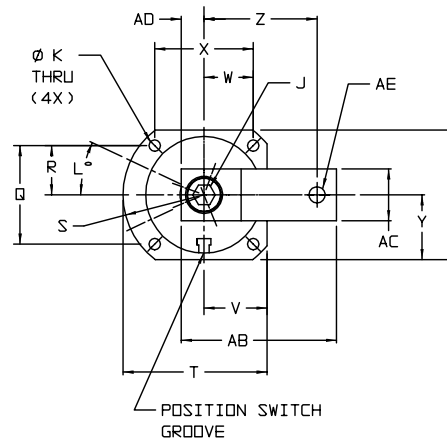
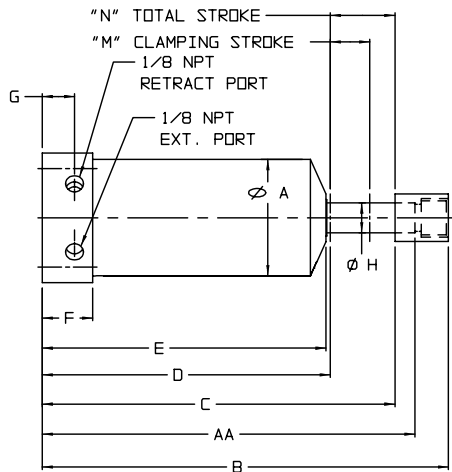
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8/01

Swing Clamps

Bottom Flange Dimensions



B-4

ILSP15200 REV B

Dimensions

Model No.	Rotation	Bore	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
Double Acting (D/A) Cylinders, actuated pneumatically both directions.																	
P1-5041-00	Right Hand	.50	1.19	4.83	4.33	3.64	3.59	.84	.56	.25	8 - 32 x .5	.17	23	.40	.69	1.44	1.10
P1-5047-00	Left Hand	.50	1.19	4.83	4.33	3.64	3.59	.84	.56	.25	8 - 32 x .5	.17	23	.40	.69	1.44	1.10
P1-5071-00	Right Hand	.875	1.56	5.45	4.76	3.94	3.91	.91	.56	.50	5/16 - 18 x .5	.19	25	.47	.82	1.75	1.37
P1-5077-00	Left Hand	.875	1.56	5.45	4.76	3.94	3.91	.91	.56	.50	5/16 - 18 x .5	.19	25	.47	.82	1.75	1.37
P1-5111-00	Right Hand	1.125	1.81	5.45	4.76	3.94	3.91	.91	.56	.50	5/16 - 18 x .5	.19	25	.47	.82	2.00	1.55
P1-5117-00	Left Hand	1.125	1.81	5.45	4.76	3.94	3.91	.91	.56	.50	5/16 - 18 x .5	.19	25	.47	.82	2.00	1.55
P1-5141-00	Right Hand	1.50	2.25	8.17	7.05	5.55	5.47	.97	.62	.63	3/8 - 24 x .75	.22	25	.75	1.50	2.50	1.90
P1-5147-00	Left Hand	1.50	2.25	8.17	7.05	5.55	5.47	.97	.62	.63	3/8 - 24 x .75	.22	25	.75	1.50	2.50	1.90
P1-5201-00	Right Hand	2.00	2.69	8.17	7.05	5.55	5.47	.97	.62	.63	3/8 - 24 x .75	.22	25	.75	1.50	2.87	2.21
P1-5207-00	Left Hand	2.00	2.69	8.17	7.05	5.55	5.47	.97	.62	.63	3/8 - 24 x .75	.22	25	.75	1.50	2.87	2.21
P1-5241-00	Right Hand	2.50	3.19	8.17	7.05	5.55	5.47	.97	.62	.75	3/8 - 24 x .75	.28	25	.75	1.50	3.40	2.61
P1-5247-00	Left Hand	2.50	3.19	8.17	7.05	5.55	5.47	.97	.62	.75	3/8 - 24 x .75	.28	25	.75	1.50	3.40	2.61

Model No.	R	S	T	V	W	X	Y	Z	AA	AB	AC	AD	AE	Effective Piston Area (sq. in.)		AIR CONSUMPTION C.I.*	MAXIMUM AIR FLOW S.C.I.M.
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Double Acting (D/A) Cylinders, actuated pneumatically both directions.																	
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P1-5047-00	.55	.94	1.67	.73	.55	1.10	.72	1.13	4.59	1.59	.38	.31	8 - 32	.20	.15	.25	5
P1-5071-00	.69	1.19	2.06	.87	.69	1.37	.88	1.50	5.02	2.19	.63	.44	1/4 - 20	.60	.40	.8	17
P1-5077-00	.69	1.19	2.06	.87	.69	1.37	.88	1.50	5.02	2.19	.63	.44	1/4 - 20	.60	.40	.8	17
P1-5111-00	.78	1.31	2.28	.97	.78	1.55	1.00	1.50	5.02	2.19	.63	.44	1/4 - 20	1.00	.80	1.5	30
P1-5117-00	.78	1.31	2.28	.97	.78	1.55	1.00	1.50	5.02	2.19	.63	.44	1/4 - 20	1.00	.80	1.5	30
P1-5141-00	.95	1.56	2.78	1.22	.95	1.90	1.25	2.18	7.56	2.99	.75	.44	3/8 - 16	1.77	1.46	5	97
P1-5147-00	.95	1.56	2.78	1.22	.95	1.90	1.25	2.18	7.56	2.99	.75	.44	3/8 - 16	1.77	1.46	5	97
P1-5201-00	1.10	1.81	3.24	1.43	1.10	2.21	1.44	2.18	7.56	2.99	.75	.44	3/8 - 16	3.14	2.83	9	180
P1-5207-00	1.10	1.81	3.24	1.43	1.10	2.21	1.44	2.18	7.56	2.99	.75	.44	3/8 - 16	3.14	2.83	9	180
P1-5241-00	1.30	2.13	3.81	1.68	1.30	2.61	1.70	2.43	7.56	3.31	.87	.50	3/8 - 16	4.91	4.47	14	281
P1-5247-00	1.30	2.13	3.81	1.68	1.30	2.61	1.70	2.43	7.56	3.31	.87	.50	3/8 - 16	4.91	4.47	14	281

Standard arm is supplied with clamp.

* Per complete cycle



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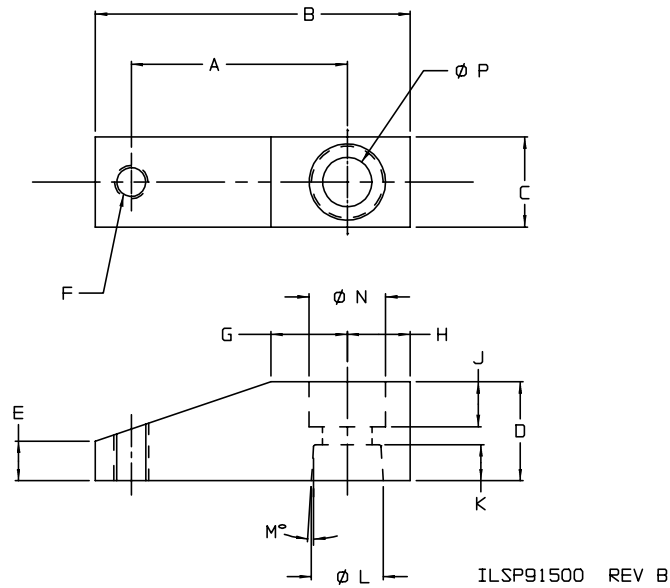
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8/01

Swing Clamps

Arm Dimensions

B-5



FOR ARMS WITH LONGER THAN STD. "A" DIMENSION, USE THE FOLLOWING FORMULA TO DETERMINE THE MAXIMUM OPERATING PRESSURE OF THE CLAMP FROM CLAMP FORCE PRESSURE CHART.

$$Z/A1 = \text{MAX. CLAMP FORCE LB.}$$

WHERE A1 = SPECIAL ARM LENGTH.

Dimensions															
Model No	Model Bore Ø	A	B	C	D	E	F	G	H	J	K	L	M	N	P
91-5005-03	.50	1.13	1.59	.38	.50	.20	8-32	.31	.31	.16	.26	.249/.250	3.5	.31	.180
91-5009-03	.875 & 1.125	1.50	2.19	.63	.69	.27	1/4-20	.53	.44	.31	.26	.499/.500	3.5	.53	.344
91-5015-03	1.5 & 2.0	2.18	2.99	.75	1.13	.45	3/8-16	.63	.44	.38	.52	.624/.625	1.8	.63	.390
91-5025-03	2.5	2.43	3.31	.87	1.13	.45	3/8-16	.63	.50	.38	.52	.749/.750	1.8	.63	.390

FOR ARMS WITH LONGER THAN STD. "A" DIMENSION, USE THE FOLLOWING FORMULA TO DETERMINE THE MAXIMUM OPERATING PRESSURE OF THE CLAMP FROM CLAMP FORCE PRESSURE CHART.

$$Z/A1 = \text{MAX. CLAMP FORCE LB.}$$

WHERE A1 = SPECIAL ARM LENGTH

Clamp Model No	Z
P1-5040-00, P1-5046-00, P1-5041-00, P1-5047-00	37
P1-5070-00, P1-5076-00, P1-5071-00, P1-5077-00	112
P1-5110-00, P1-5116-00, P1-5111-00, P1-5117-00	240
P1-5140-00, P1-5146-00, P1-5141-00, P1-5147-00	780
P1-5200-00, P1-5206-00, P1-5201-00, P1-5207-00	1543
P1-5240-00, P1-5246-00, P1-5241-00, P1-5247-00	2282



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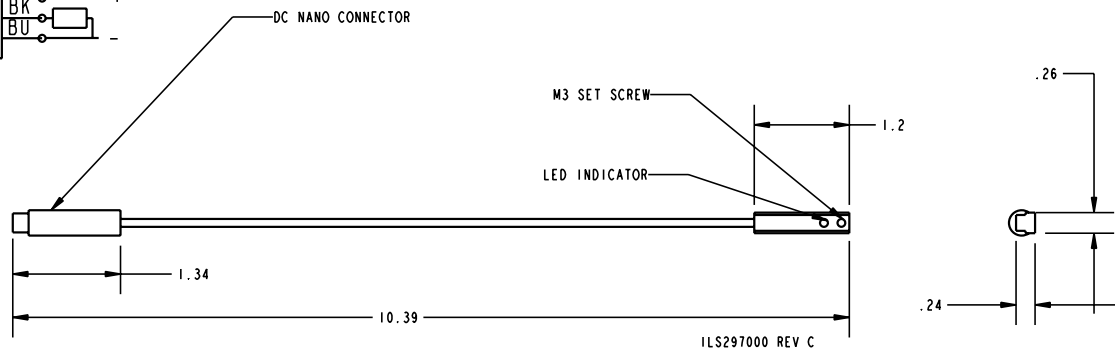
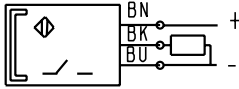
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Swing Clamps

Position Sensor

B-6

WIRING CONNECTION



MODEL NUMBER 29-7001-00 POSITION SENSING SWITCH

NORMALLY OPEN 10 TO 30 VDC SWITCH FOR USE IN SENSING POSITION OF SWING CLAMP OR CYLINDER EQUIPED WITH MAGNETIC PISTON. TURN ON TIME LESS THAN OR EQUAL 0.2 MS, TURN OFF TIME 0 MS. ONE SWITCH REQUIRED FOR EACH POSITION TO BE SENSED.
SWITCH MUST BE USED WITH CABLE PART NUMBER 27-6424-00, FOR WIRING CONNECTION. CABLE IS 196 INCHES LONG AND HAS DC NANO CONNECTOR ON ONE END AND OPEN WIRES ON OTHER.
.188 SENSING RANGE.



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