Standard Swing Clamp

Threaded Body

Single and Double Acting

- Available in four capacities from 450 to 5,000 lb. with standard arm at 5,000 psi.
- Special concentric design models available to replace competitive product.
- Standard models swing 90°, swing angles of less than 90° readily available for a small additional charge, swings of more than 90° are special order products.
- To avoid cylinder damage and preserve warranty, see page C-14 regarding flow rate limits and time calculations to be observed.
- Clocking feature (page C-20) uses standard Vektek arm.

U.S. Patent Nos.
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SAE porting is all on the top of the cylinder body for easy access (bottom unclamp porting is available), no need to modify fixtures or reroute tubing to access cylinder end to unclamp.

Vent port with bronze filter gives the cylinder a place to "breathe" and helps keep chips from sucking past wipers.

Hardened V-cam tracks resist damage and give you a built in extra cam or straight line option should you accidentally damage one. Specify left, right or straight cam, we will preset the swing when you order.

Model No. Add -L, -R or -S for Swing Direction	Cylinder Capacity (lb)**	Vertical Clamping Stroke (in.)***	Total Stroke (Swing + Vertical)	Body Thread	Standard Arm Length	Effective Piston Area (sq. in.) Retract	Oil Capacity (cu. in.)**** Extend	Oil Capacity (cu. in.)**** Retract
Single Acting (S/A)					Cylinders, actuated hydraulically 1 direction, spring returned.			
15-0105-00	450	0.22	0.57	1 1/16-16	1.06	0.098	N/A	0.056
15-0109-08	1100	0.31	0.79	1 1/2-16	1.50	0.295	N/A	0.233
15-0113-11	2600	0.50	1.16	1 7/8-16	2.00	0.626	N/A	0.726
15-0113-12	2600	0.50	1.16	1 7/8-16	2.00	0.626	N/A	0.726
15-0118-00	5000	0.63	1.66	2 1/2-16	2.50	1.178	N/A	1.955
Double Acting (D/A)					Cylinders, actuated hydraulically both directions.			
15-0205-00	450	0.22	0.57	1 1/16-16	1.06	0.098	0.142	0 .056
15-0209-08	1100	0.31	0.79	1 1/2-16	1.50	0.295	0.475	0.233
15-0213-11	2600	0.50	1.16	1 7/8-16	2.00	0.626	1.423	0.726
15-0218-00	5000	0.63	1.66	2 1/2-16	2.50	1.178	3.992	1.955

WARNING! Never allow swing arm to contact workpiece or fixture during arm rotation.

** Cylinder capacities are listed at 5,000 psi maximum operating pressure, with a standard length VektorFlo® arm installed. Minimum operating pressure is 750 psi for single acting, 500 psi for double acting. The clamping force is adjustable by varying the hydraulic system pressure. To determine the approximate output force for your application, divide the cylinder capacity shown above by 5,000, and multiply the Resultant Number X Your System Operating Pressure to obtain the approximate clamping force for your application. (Actual force will vary slightly due to internal cantilever loading, friction loss and/or return springs.)

*** To allow for piece part height variations, it is recommended that the vertical travel be set at about 50% of the vertical stroke.

**** To ensure maximum service life and trouble-free operation, restrict fluid flow per table on page C-14.

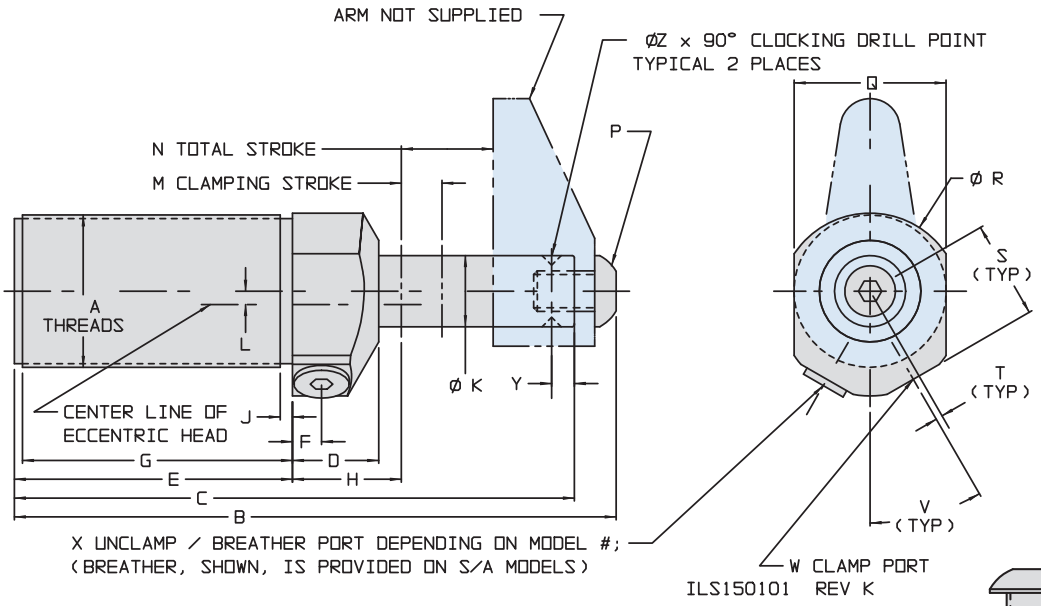
Dimensions

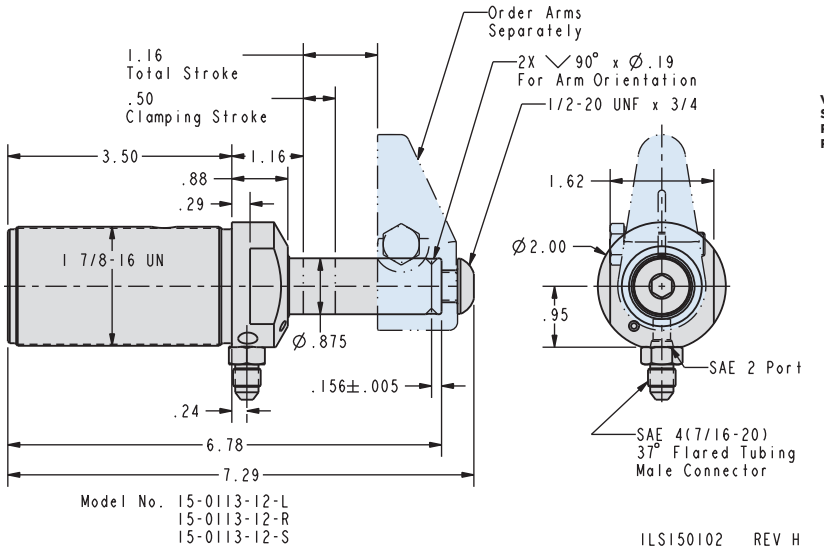
Model No. Left Swing	Model No. Right Swing	Capacity	A	B	C	D	E	F	G	H	J	K	L
Single Acting (S/A)													
15-0105-00-L	15-0105-00-R	450	1 1/16-16	4.28	4.02	0.75	2.02	0.27	1.94	0.94	0.15	0.437	0.19
15-0109-08-L	15-0109-08-R	1100	1 1/2-16	5.68	5.32	1.09	2.54	0.38	2.40	1.27	0.15	0.625	0.16
15-0113-11-L	15-0113-11-R	2600	1 7/8-16	7.33	6.81	1.06	3.35	0.36	3.21	1.30	0.15	0.875	0.16
15-0118-00-L	15-0118-00-R	5000	2 1/2-16	9.96	9.31	1.19	4.71	0.39	4.59	1.52	0.15	1.250	0.10
Double Acting (D/A)													
15-0205-00-L	15-0205-00-R	450	1 1/16-16	4.28	4.02	0.75	2.02	0.27	1.94	0.94	0.15	0.437	0.19
15-0209-08-L	15-0209-08-R	1100	1 1/2-16	5.68	5.32	1.09	2.54	0.38	2.40	1.27	0.15	0.625	0.16
15-0213-11-L	15-0213-11-R	2600	1 7/8-16	7.33	6.81	1.06	3.35	0.36	3.21	1.30	0.15	0.875	0.16
15-0218-00-L	15-0218-00-R	5000	2 1/2-16	9.96	9.31	1.19	4.71	0.39	4.59	1.52	0.15	1.250	0.10

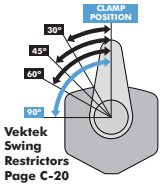
Order arms separately

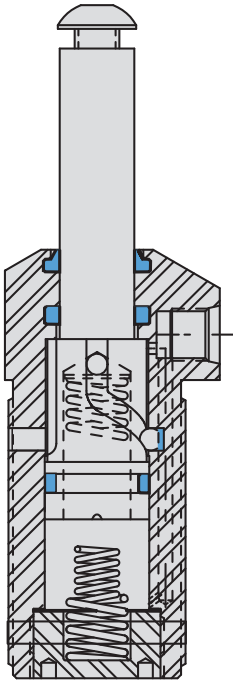
Standard Swing Clamp

Threaded Body









All dimensions are in inches. For mounting hardware details, see section L.

M	N	P	Q	R	S	T	V	W	X	Y±0.005	Z	Model No. Straight Swing
Cylinders, actuated hydraulically 1 direction, spring returned.												
0.22	0.57	1/4-28 X 3/8	1.13	1.50	0.81	N/A	25°	SAE 2	BREATHER	0.156	0.13	15-0105-00-S
0.31	0.79	3/8-24 X 5/8	1.50	1.88	1.03	0.09	35°	SAE 4	BREATHER	0.156	0.19	15-0109-08-S
0.50	1.16	1/2-20 X 3/4	1.88	2.25	1.20	0.08	30°	SAE 4	BREATHER	0.156	0.19	15-0113-11-S
0.63	1.66	5/8-18 X 1	2.50	2.75	1.42	0.05	30°	SAE 4	BREATHER	0.156	0.19	15-0118-00-S
Cylinders, actuated hydraulically both directions.												
0.22	0.57	1/4-28 X 3/8	1.13	1.50	0.81	N/A	25°	SAE 2	SAE 2	0.156	0.13	15-0205-00-S
0.31	0.79	3/8-24 X 5/8	1.50	1.88	1.03	0.09	35°	SAE 4	SAE 4	0.156	0.19	15-0209-08-S
0.50	1.16	1/2-20 X 3/4	1.88	2.25	1.20	0.08	30°	SAE 4	SAE 4	0.156	0.19	15-0213-11-S
0.63	1.66	5/8-18 X 1	2.50	2.75	1.42	0.05	30°	SAE 4	SAE 4	0.156	0.19	15-0218-00-S

Features, Patented Design and Air Ordering

Standard Features

- Large ball and cam rotational mechanism assures the swing action.
- Standard models swing 90°, swing angles of less than 90° readily available for a small additional charge, swings of more than 90° are special order products.
- The original "duck billed," cross bolt locking, top cap screw arm design, as originated by Vektek, is highly recommended due to its low mass, versatility, and ease of modification, see Page O-2.
- Special wipers and swept-line cylinder top helps keep chips from packing and coolant contaminants from entering the operation.
- Vent port with bronze filter gives the cylinder a place to "breathe" and helps keep chips and coolants from sucking past wipers (Unclamp port on double-acting models).
- Exclusive BHC™ (Black Hard Coating) on the cylinder bodies and rod bearing surface helps prevent leaks caused by scoring and scratching especially in the event of high side or "kick" loads which promote excessive scoring in many other brands. BHC™ gives a Rockwell 60C skin hardness.
- Hardened Chrome alloy steel plungers run longer with less wear and drag than other brands.
- Proprietary seal designs reduce leakage and increase seal life for longer lasting, more dependable operations.

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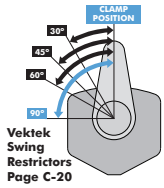
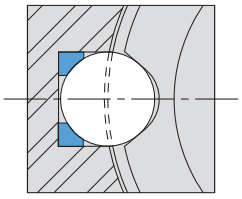
Patented V-groove Cam Design

- V shaped design provides a tougher mechanism. The ball runs deep in the track eliminating cam to ball edge loading.
- Resists flow related damage better (Please follow recommended flow rates for longest swing clamp life.).
- Lasts longer and will withstand operator induced "crashes" from improperly loaded parts with less damage.
- Provides planar rather than edge contact with the cam follower.
- Will withstand swing interference better than other cam designs.
- External cam swing clamp models (pages C-15 to C-26) have hardened V-cam tracks that resist damage and give you a built in extra cam (opposite swing direction) or straight line option should you accidentally damage one.
- Internal cam swing clamps (pages C-27 to C-32) have double V-cams providing extra strength, but must be ordered in the required swing direction. Low profile 5,000 and 7,500 lb. swing clamps do not have built in multiple direction cams.
- Vektek changes the "state of the art" in ball and cam swing clamps making them work better at reasonable prices.



Vektek Swing Restrictors Page C-20



SWING CLAMP "V" GROOVE
ILS150103 REV B

Clamp Time and Fluid Flow Rates for Standard Swing Clamps

Swing Clamp Capacity (lb)	Standard Arm		Extended Arm	
	Fastest Allowable Clamp Time (sec.)	Maximum Permissable Flow Rate (cm^3/min)	Fastest Allowable Clamp Time (sec.)	Maximum Permissable Flow Rate (cm^3/min)
450	0.4	8	0.9	4
1100	0.6	25	1.2	11
2600	0.6	70	1.4	32
5000	0.7	180	1.4	81
7500	0.7	180	1.6	81

ILS150108 REV C

- For upreach and double arms, use extended arm flows and times.
- When using custom arms the extended arm flows and times are to be considered the limiting factor.
- The actual time to position the clamp will vary by custom arm configuration and may require customer testing in specific application to establish limits.

NOTE: Arm Length and Pressure Limitation Graphs on page O-3

Air Ordering Information

Vektek offers the VektorAir™ line of pneumatic clamping devices and accessories, rated to run up to 250 psi. The product line includes an intensifier to boost standard shop air up to 250 psi. Call for a catalog. If you currently use our hydraulic models adapted for air, you may continue to do so, contact our sales office for air ordering information.

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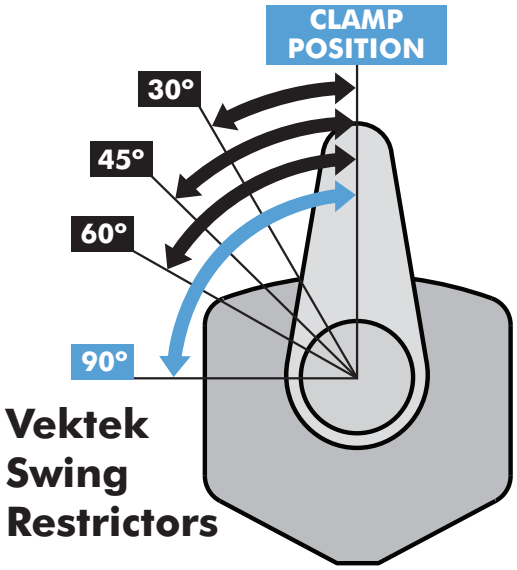
Swing Clamp Restrictors

Swing Restrictors add just one more element of flexibility when using Vektek Swing Clamps. Normally shipped with the swing angle set to 90°, you can have swing restrictors added to your clamps to limit the the arm swing to 30°, 45° or 60° of rotation. Restrictors that are factory installed on new clamps will have the clamp specially marked to avoid intermingling clamps with varying swing angles in your shop. Contact your Vektek Customer Service specialist should you need swing angles greater than 90°.



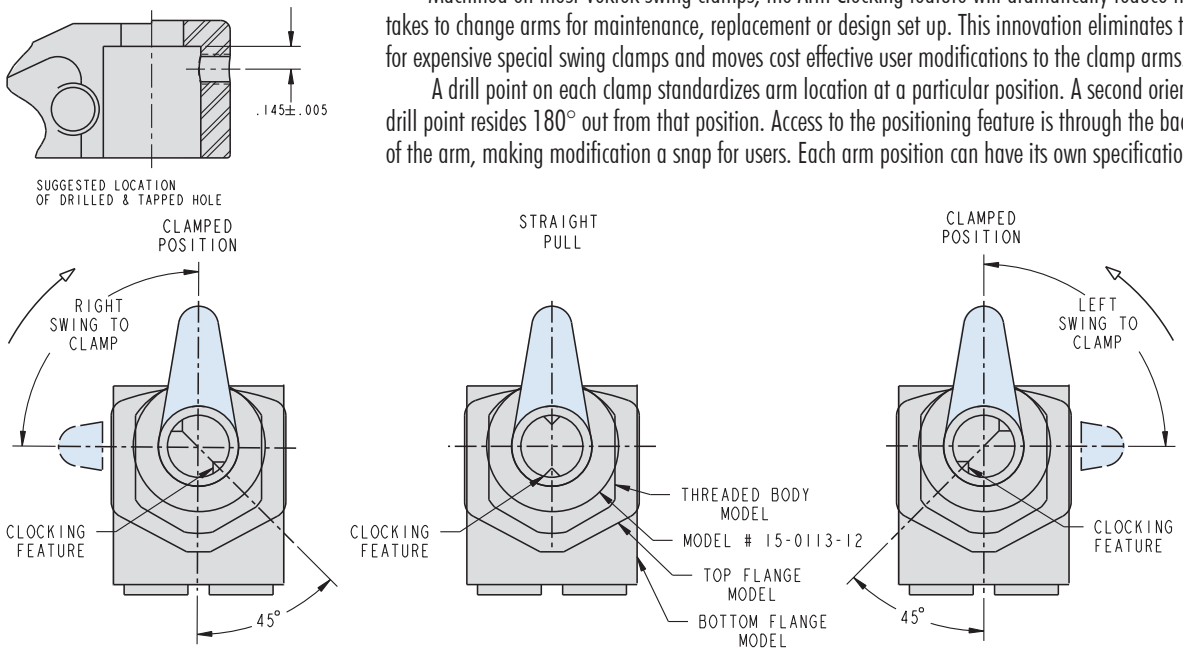
Swing Clamp Swing Restrictors

Model No	Clamp Capacity	Swing Restriction
81-5505-30	450/2kN	30°
81-5505-45	450/2kN	45°
81-5505-60	450/2kN	60°
81-5509-30	1100/4.9kN	30°
81-5509-45	1100/4.9kN	45°
81-5509-60	1100/4.9kN	60°
81-5513-30	2600/11.6kN	30°
81-5513-45	2600/11,6kN	45°
81-5513-60	2600/11.6kN	60°
81-5518-30	5000/22kN	30°
81-5518-31	LP SC 5000/22kN	30°
81-5518-45	5000/22kN	45°
81-5518-46	LP SC, 5000/22kN	45°
81-5518-60	5000/22kN	60°
81-5518-61	LP SC, 5000/22kN	60°
81-5521-30	LP SC 7500/33kN	30°
81-5521-45	LP SC 7500/33kN	45°
81-5521-60	LP SC 7500/33kN	60°

Clocking

Machined on most Vektek swing clamps, the Arm Clocking feature will dramatically reduce the time it takes to change arms for maintenance, replacement or design set up. This innovation eliminates the need for expensive special swing clamps and moves cost effective user modifications to the clamp arms.

A drill point on each clamp standardizes arm location at a particular position. A second orientation drill point resides 180° out from that position. Access to the positioning feature is through the back or side of the arm, making modification a snap for users. Each arm position can have its own specification.



Swing Clamp Arm Clocking Feature

Drill points shown in the clamped position.
Second Clocking feature 180 from the first clocking feature.

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