

Tufflink™ 360° Link Clamps

Double Acting

NEW

Double Acting Rotary Lug

- Available in 6 sizes from 600 lb to 5,000 lb capacities at 5,000 psi.
- Patented rotary lug feature delivers 360° of lever and/or body positioning.
- Maximum clamping force - Minimal footprint.
- Top flange manifold mounted or standard plumbed.
- Independent body/lever adjustment simplifies manifold mount drill passage design or plumbing position and installation.
- Levers sold separately, see Section P.
- Manifold fitting model no. 30-8711-20, adapter assembly and plugs are included and shipped with the clamp. Model 16-3228-00 and 13-3232-00 do not require the adapter assembly for manifold mounting. See drawing in section H for adapter assembly.

D-5



U.S. Patent
No. 8,678,362



Model No.	Clamp Capacity (lb.)*	Vertical Clamping Stroke (in.)**	Effective Piston Area (sq. in.) Extend	Oil Capacity (cu. in.)		Maximum Flow Rate*** (cu. in./min.)	Optional Flow Control Model No.****
				Extend	Retract		
Double Acting (D/A)							
Cylinders, actuated hydraulically both directions.							
16-3212-00	600	0.08	0.175	0.114	0.035	14	70-2037-71
16-3215-00	1000	0.10	0.274	0.213	0.077	26	70-2037-71
16-3218-00	1400	0.12	0.394	0.379	0.116	45	70-2037-71
16-3222-00	2400	0.14	0.616	0.715	0.258	86	70-2037-71
16-3228-00	3600	0.17	0.954	1.318	0.504	158	70-2037-72
16-3232-00	5000	0.20	1.247	2.144	0.729	257	70-2037-72

* Clamp capacities are listed at 5,000 psi maximum operating pressure with a standard length link clamp lever installed. Minimum operating pressure is 500 psi for double acting devices. The clamping force is adjustable by varying the hydraulic system pressure. Use of an extended length lever will result in a reduction of clamp force. See Section P for the clamping force of various lever lengths and pressures. (Actual force will vary slightly due to mechanical inefficiencies and friction.)

** Equal to +/- 3° with standard lever.

*** To insure maximum service life and trouble-free operation, restrict fluid flow to the above flow ratings when clamping. If you are unable to measure flow rates, these devices should be positioned in no less than 1/2 second. These recommendations apply when using the standard lever. When using the optional extended lever or your custom lever, please restrict the flow rates to position the lever in no less than 1 second.

**** In-port flow control requires the use of manifold mount ports.

Optional in-port flow control is a meter-in device with reverse free flow check valve.

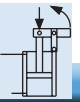


Dimensions

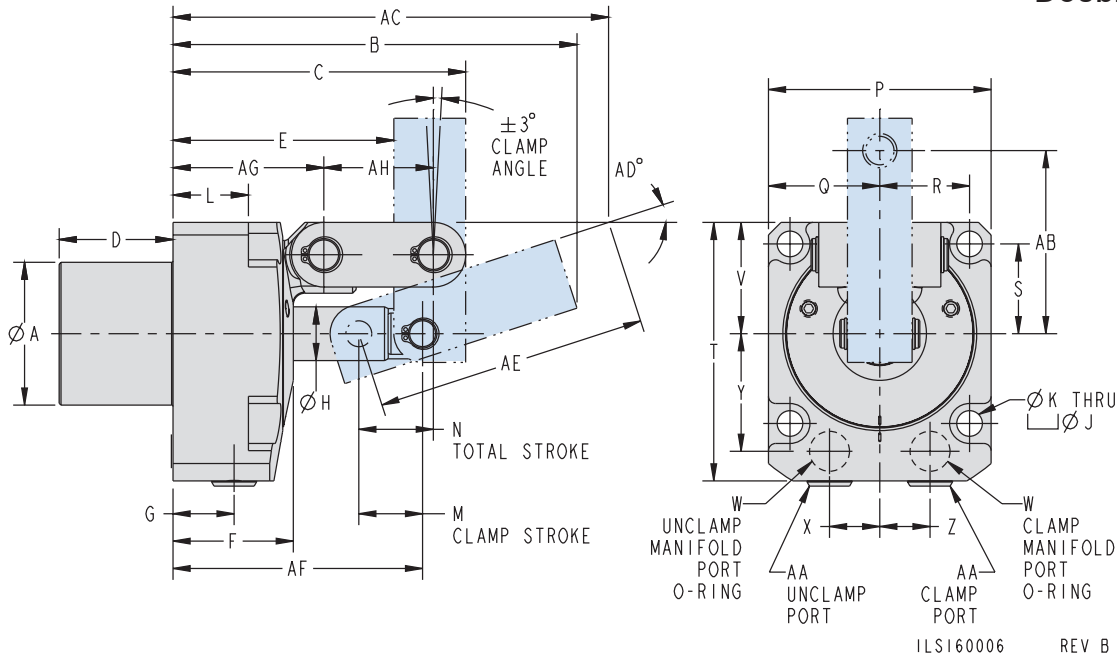
Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P
Double Acting (D/A)														
16-3212-00	1.251	3.24	2.60	0.839	2.05	1.28	0.67	0.39	0.31	0.19	0.94	0.65	0.77	1.654
16-3215-00	1.408	3.60	2.89	1.008	2.19	1.28	0.67	0.47	0.38	0.22	0.88	0.78	0.92	1.969
16-3218-00	1.566	4.16	3.21	1.248	2.42	1.32	0.67	0.59	0.44	0.28	0.83	0.96	1.11	2.441
16-3222-00	1.881	4.69	3.64	1.508	2.66	1.34	0.67	0.71	0.53	0.34	0.75	1.16	1.34	2.953
16-3228-00	2.156	5.54	4.24	1.669	3.06	1.51	0.67	0.87	0.66	0.41	0.81	1.38	1.58	3.543
16-3232-00	2.353	6.55	5.06	1.945	3.64	1.73	0.73	1.02	0.81	0.53	0.81	1.72	1.94	4.409



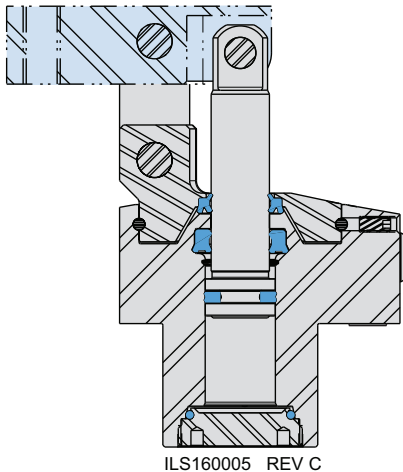
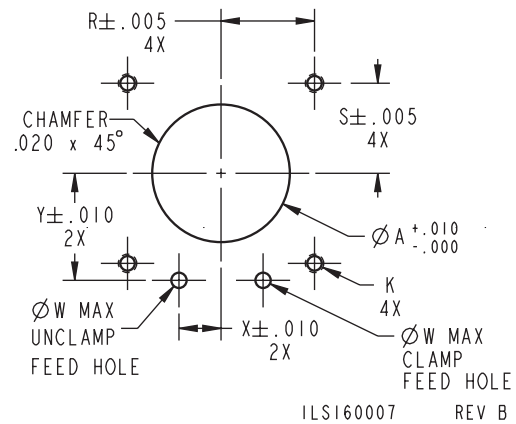
Tufflink™ 360° Link Clamps



Double Acting



For proper sealing, mating surface must be flat within 0.003 in. with a maximum 63 μ in. R_a surface finish.



Manifold Port/Bolt Mounting Dimensions

Model No.	Clamp Capacity (lb)	A	K	R	S	W	X	Y
16-3212-00	600	1.260	8-32	0.657	0.657	0.19	0.394	1.053
16-3215-00	1000	1.417	10-32	0.797	0.797	0.19	0.433	1.093
16-3218-00	1400	1.575	1/4-20	0.985	0.985	0.19	0.551	1.289
16-3222-00	2400	1.890	5/16-18	1.188	1.188	0.19	0.630	1.644
16-3228-00	3600	2.165	3/8-16	1.438	1.438	0.25	0.709	1.841
16-3232-00	5000	2.362	1/2-13	1.797	1.797	0.25	0.787	2.077

Q	R	S	T	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
Cylinders, actuated hydraulically both directions.																
0.827	0.657	0.657	2.205	0.827	2-011	0.394	1.053	0.39	SAE 4	1.38	3.39	19	1.97	2.244	1.516	0.846
0.984	0.797	0.797	2.402	0.984	2-011	0.433	1.093	0.43	SAE 4	1.63	3.88	18	2.44	2.421	1.555	1.063
1.220	0.985	0.985	2.835	1.220	2-011	0.551	1.289	0.55	SAE 4	2.01	4.34	19	2.83	2.736	1.654	1.201
1.476	1.188	1.118	3.445	1.476	2-011	0.630	1.644	0.63	SAE 4	2.32	5.03	19	3.45	3.051	1.752	1.457
1.772	1.438	1.438	3.976	1.772	2-204	0.709	1.841	0.71	SAE 4	2.83	5.68	20	3.92	3.533	1.978	1.752
2.205	1.797	1.797	4.646	2.205	2-204	0.787	2.077	0.79	SAE 4	3.41	6.76	21	4.79	4.193	2.303	2.126



Link Clamps



Frequently Asked Questions

D-1

The link clamp arm pivots up and out of the way to accommodate hard-to-reach or hard-to-hit clamping points. Link clamps contain the beam mechanism often preferred by fixture builders. This self-contained beam eliminates the need to build or design a clamp mechanism as part of the fixture. Vekttek's unique body and pivot design provides the least side-to-side axial deflection and the most rigid product on the market today.



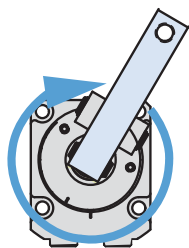
The new Tufflink™ 360° is outfitted with a rotary lug to provide full rotational positioning of the lever. Compare the flexibility of Tufflink™ 360° to others on the market that provide limited positioning.

When should I use a Link Clamp?

A link clamp is often preferred when you must reach over, not swing over or around a height obstacle. Reaching down into a die casting, between two mounting lugs, or a direct overhead load are good examples where these devices are required. Keep in mind that the vertical clearance must be greater when you are bringing a part into position, but direct drop-in loading is easily accomplished by an operator or robot.

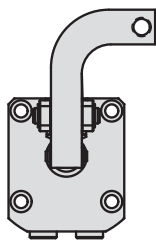
What benefit does the rotary lug offer?

The rotary lug on Tufflink™ 360° simplifies manifold mount drill passage planning and design. The body can be rotated independent of clamping lever for optimal manifold mount port location. Giving the designer greater flexibility and cutting costs in complex fixture designs. The rotary lug also simplifies plumbing location and pipe routing because the body can be rotated independent of clamping lever for optimal positioning. The rotary lug allows the clamping lever to be positioned anywhere, 360° around the mounting flange. When workpiece holding must be offset from the device centerline, simply rotate the rotary lug and lever; don't use an offset lever requiring pressure reduction. The rotary lug feature saves time and money after the fixture is built by allowing greater flexibility for last minute adjustments in workpiece design or casting variations.



Vekttek Solution
Rotary Lug

No More
Eccentric
Levers



Competitive
Solution
ILS160000 REV B

How is the rotary lug better than the eccentric levers offered by the competition?

Never derate a Link Clamp again due to an offset lever design. The clamp lever can now be rotated to adjust for part changes or last minute variations. Because it maintains symmetric loading on levers, pivots and pins, clamp life is vastly improved and failures eliminated.

How do I adjust the position of the rotary lug?

Rotary adjustment is easy, just loosen the two setscrews near the pivot on the rotary lug. Use a wrench on the end of the lever to rotate lever to desired orientation and tighten setscrews. We recommend tightening the setscrews while clamping over a workpiece at operating pressure.

What is the vertical stroke of a link clamp?

The maximum part variation is included in the vertical stroke, when outside the specification, the force generated by the clamp will be reduced and may result in reduced clamp life.

When using a high flow pump, which is better, a swing clamp or a link clamp?

Avoid the high flow pump. The link clamp positions with less mechanical resistance, but mass, acceleration, and sudden stops affect all clamps adversely. Make your decision based on your acceptance of the shortened life cycle.

Is the link clamp more accurate than swing clamps?

In some cases it may be preferred, its link mechanism still has a limited amount of play and may not be as precise as you desire. This type of decision is application dependent.

The part thickness varies on my application. Which component will work best for my situation, the swing clamp or the link clamp?

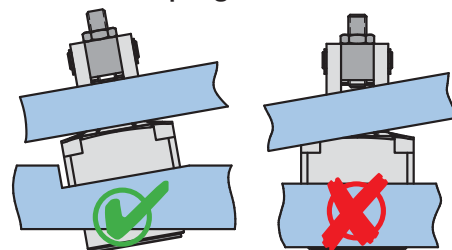
Swing clamps have more part variation tolerance; with nominal installation height being at 1/2 of straight stroke, it can tolerate $\pm 1/2$ stroke variations. The limit on link clamps is spelled out on the individual catalog page.

When should a link clamp not be used?

If you are clamping on a draft angle, the angle will exert undue stresses on the linkage mechanism. Please avoid stressing guidance mechanisms of either swing clamps or link clamps as these stresses will cause premature failure not covered by warranty due to misuse or abuse.

TuffLink™ 360°

Clamping on a Draft



CORRECT

INCORRECT

ILS160001 REV B