

KINNEY®

CASE STUDY DRY CLAW VACUUM PUMP SOLUTIONS FOR THE WOODWORKING INDUSTRY

CNC ROUTER TABLES

CNC router tables or vacuum tables hold down items to allow for a variety of work to be done. A vacuum pump is the key element of many CNC router tables or vacuum tables. Determining the right vacuum pump is critical for the hold-down force of your vacuum table. A strong hold-down force allows for less movement and tighter clearances. Yet there are many factors to consider when determining the right vacuum pump:

- Surface area of hold-down
- Up-force, if the part lifts any you will leak vacuum
- CFM (cubic feet per minute) required to accommodate leaks in the table

KINNEY KVC DRY CLAW FOR CNC ROUTER TABLES

Regenerative Blowers are sometimes used in these applications, yet they aren't capable of holding as deep of vacuum, typically only down to 14" Hg or 404 Torr. Many users go to an oil-sealed rotary vane pump or a liquid ring pump which requires additional maintenance to deal with sealing liquid and is less efficient than other technologies. A better solution is a Kinney KVC dry claw to get the deeper vacuum levels, down to 27" Hg or 75 Torr, needed for increased hold-down force without the added expense of sealant oil or added cost of oil disposal. The Kinney KVC offers a large range of products with different degrees of CFM to accommodate your specific situation. Kinney KVC dry claw vacuum pump fits perfectly here for easy install and no need for oil or water as a sealing liquid. This dry technology also reduces the environmental impact to your facility. The KVC has excellent CFM/HP efficiency with easy maintenance.



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KVC Features

1. OIL-FREE COMPRESSION

No contaminants released into the discharge air or process. Providing peace of mind and worry-free maintenance.

2. CONTACTLESS OPERATION

Ensures minimal wear of parts within the pumping chamber, reducing maintenance downtime.

3. LOW MAINTENANCE

Service/Maintenance intervals up to 20,000 hrs. This leads to low cost of ownership and nearly a "set & forget" product.

4. HIGH EFFICIENCY

Top of class CFM/HP efficiency and low power consumption due to our overall rotor and cylinder designs.

5. ASSEMBLED IN THE USA

Kinney has been manufacturing product in the United States since 1907. The KVC is the latest addition to the growing Kinney portfolio.

5. ENVIRONMENTALLY FRIENDLY

Oil-free compression means no oil is needed to operate the KVC. This not only saves maintenance costs, it means no disposal of oil that may affect the environment.

7. LOW NOISE

Integrated internal discharge silencer offers some of the lowest sound levels with this technology and combined with the Kinney base and enclosure design features, can achieve sound levels as low as 76 dB(A).

8. SMALL FOOTPRINT

Unique stacked design enables a reduction of required floor space.



Kinney KVC301 dry claw vacuum pump cutaway with feature call outs.



TIGHT TOLERANCE CLAW DESIGN

Our claw shaped rotors are designed for contactless operation and are expertly designed for the tightest fitting tolerances which provides the highest efficiency in claw compression. None of the internal components make contact, extending the service interval and keeps the pump running longer. The claws are designed to pass through small dry particles without impeding operation. The claw rotors are coated with a dry film that offers corrosion protection and is ideal for moist applications such as drying processes. It also repels dust and dirt and is a barrier against unwanted material entry.



Vacuum lifting devices with suction cups utilize vacuum to easily move woodworking materials.

PICK AND PLACE

Pick and place is an application that is the same throughout many industrial markets, such as food & beverage, medical and pharmaceutical fields, packaging, automotive, woodworking, and more. Providing suction to a material through the use of vacuum handling systems is a quick and easy way to perform these tasks. In the woodworking industry these vacuum handling systems are used to efficiently assist in the movement of materials. Piping and suction cups transfer the vacuum from the pump to the product and allow for lift in the application.

KINNEY KVC DRY CLAW FOR PICK & PLACE

Kinney KVC dry claw vacuum pumps generate a high level of vacuum and can be located away from the work area. A higher CFM pump would allow for a more forgiving hold when items are picked up as it would allow for leakage on uneven surfaces between the lifting suctions and the product. The Kinney KVC dry claw is easy to install and with practically a "set it and forget it" install. There are few wear components and no need for sealant oil in the process chamber. The low noise level and small footprint on the Kinney KVC dry claw allows for the pump to be installed nearly anywhere without headache. **Dimensions**

Values shown are approximate and should not be used for construction. Certified drawings are available through your local Kinney Sales Professional. Standard model configurations listed (not all models shown).

Models KVC-60



Models KVC-100, KVC-150, KVC-251







Model	А	в	С	D	Е	F - EXHAUST	G	н	- I	J - INLET	к	L	м
KVC-60 in. / mm	17 431	16.3 415	24.7 627	8.07 205	6 153	1" MBSP	19.17 487	9.92 252	6.26 159	1" FNPT	6.3 160	9.65 245	4.41 112
KVC-100 in. / mm	23.07 586	14.53 369	29.9 759	4.53 115	10.28 261	1 ½" FNPT	29.8 757	2.62 92	7.2 183	1 1⁄2" FNPT	8.66 220	17.32 440	2.99 76
KVC-150 in. / mm	22.99 584	15.24 387	36 916	5.71 145	10.24 260	1 ½" FNPT	28.5 725	2.28 58	7.17 182	1 1⁄2" FNPT	6.3 160	15.04 382	4.57 116
KVC-251 in. / mm	25 635	14.9 378	38.3 973	5.91 150	11.0 280	2" FNPT	41.06 1043	2.56 65	7.68 195	2" FNPT	6.3 160	15.04 382	6.81 173

Specifications

Model	CFM	Ultimate Pressure	Motor	Noise Level Max	
	CFM / m3/hr	Torr / mbar	60Hz HP / 50Hz kW	dB(A)	
KVC-60	50Hz 35.3 / 60 60Hz 42.4 / 72	75 / 100	2 / 1.1	80	
KVC-100	50Hz 58.9 / 100 60Hz 70.6 / 120	113 / 150	3 / 2.2	82	
KVC-150	50Hz 88.3 / 150 60Hz 106 / 180	75 / 100	5 / 3.0	82	
KVC-251	50Hz 88.3 / 210 60Hz 150 / 255	150 / 200	7.5 / 4.0	78	
KVC-301	50Hz 170 / 290 60Hz 205 / 350	113 / 150	7.5 / 5.5	77	
KVC-401	50Hz 240 / 408 60Hz 285 / 485	150 / 200	12 / 7.5	81	
KVC-501	50Hz 295 / 501 60Hz 355 / 603	150 / 200	15 / 11	81	
KVC-1000	50Hz 559 / 950 60Hz 671 / 1140	150 / 200	30 / 18.5	83	



Kinney KVC150 dry claw vacuum pump.

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