

VK SERIES HIGH PERFORMANCE SLIDING VANE VACUUM PUMPS

- Lower ultimate pressure
- High water vapor tolerance
- Wide range of pumping speeds
- Direct coupled drive option of single and three phase motors
- Three phase motor with built in unidirectional rotation device.
- Built in automatic anti suck back valve for vacuum system isolation and air admittance.
- Easily replaceable inner module 100% interchangeability on all components.
- Noiseless vibration free performance.
- Of the self availability of common spares.



PRECISE VACUUM SYSTEMS (P) LIMITED.



VK Series Rotary Vane Vacuum Pumps have world class performance characteristics.

The manufacturing of Pump components on Computerised Numerically Controlled Machines ensures stringent tolerance, thereby ensuring excellent trouble free performance Precisel and vibration free running of pumps throughout its life.

Lower ultimate pressure ensures not only better performance but also better control over various process parameters in industrial Applications.

PRECISE VACUUM rotary vane pumps have a large number of important features in common:

Compact construction:

The exceptionally high efficiency of VK Series pumps and the flanged-on motor permit the combination of compact design and high pumping speed. Standard KF small flanges to PNEUROP acceptance standard VK series Intake and outlet ports of VK Series pumps are fitted with small flanges meeting the international standard.

Negligible environmental pollution:

The built-in oil-mist filter prevents excessive oil loss in the high pressure region. The trapped oil is filtered and returned to the oil reservoir.

Portable:

All pumps from VKC/S-2 to VKC/S-16 have a carrying handle for easy transport.

Long periods between servicing:

Due to a large oil reserve and low oil consumption.

Versatile:

All VK Series models from VKC/S-2 to VKC/S-16 are available with a.c. single-phase or three-phase motors. They can be supplied for special voltages or frequencies and in explosion-proof construction etc.

Design Features:

VK Series pumps are oil-sealed rotary-vane vacuum pumps. The rotor is mounted eccentrically in the pump cylinder. The three radially sliding vanes divide the pump chamber into separate chambers. Due to the rapid rotation of the rotor the vanes are forced to slide against the cylinder wall without springs merely by means of centrifugal force. The pumping is brought about by alternately increasing and decreasing the volume of the working space which is of crescent-shaped cross section. The component parts of the pump body are sealed by O-rings. All parts are pinned to ensure easy disassembling and reassembling.

Coupling and Motor:

Pump and motor shaft are connected to one another by a flexible coupling. Special construction of this coupling and the use of specially selected materials ensure smooth and quiet running of the pump. The drive motor, a flange-mounted motor of B 5 design is directly connected by means of 4 screws onto the coupling housing of the pump. Three Phase motors supplied along with VK Series pumps are non standard high torque motors, which are fitted with unidirectional rotational device.

Quiet Operation:

NC automatic machine tools in our factory allow optimization of tolerances, reproducibility and surface finish of the component parts.

The low noise level of VK Series pumps is a result of modern manufacturing techniques and years of experience in pump production. The bearings are oil-lubricated journal bearings. Due to these constructional features VK Series pumps are so quiet that we had to apply special criteria to the selection of low noise drive motors.

Surface Corrosion:

Wherever necessary all component parts are protected against surface corrosion. For instance the pump cylinder and intermediate plates are dip-coated. Oil reservoir casting, intake- and outlet port tubulations are made of aluminium and the screws, bolts and nuts are subjected to protective surface treatment. The gaskets are solvent-resistant.

Airing/Isolation Valve (No oil suck back):

This safety valve is incorporated into the intake section of VK Series pumps. Controlled via a centrifugal switch, it immediately closes the intake port when the pump stops (for instance due to power failure), thus preventing pressure rise in the vacuum chamber or system. At the same time the VK Series pump is vented. The leak rate of the safety valve is $< 3 \times 10^{-5}$ mbar Ltr/Sec. The system is still isolated when the pump is switched off with the gas ballast valve open. Any suck-back of pump oil into the vacuum system is thus prevented.

Easy to service:

By exchanging the complete inner pump body, without special tools in a few minutes, you need not be an expert.



VKC-30 to VKC-60



VKC/S-2 to VKC/S-16



VKC/S-2 to VKC/S-60



Oil less dry vane vacuum pump available in 70lpm to 500lpm



Precise Genuine Spares

Gas Ballast Valve:

The gas ballast valve is opened or closed by turning the sealing cap when water or other vapours are to be pumped. By admitting an exactly dosage amount of secondary air the so-called gas ballast, condensation of vapours in the pump chamber is avoided. The gas ballast device also allows a "self-purification" of the pump which means the elimination of condensates from the pump oil.

Silencing:

Every VK Series pump is equipped with a silencer. By admitting a very small amount of gas to the pump chamber the "slap" noise of the oil in the pump which usually occurs at ultimate pressure is prevented. The gas used for silencing is taken from the discharge side of the pump.

Water-Vapour Tolerance:

When operated with gas ballast VK Series rotary vane pumps attain high water vapour tolerance. This term is defined as the maximum inlet pressure at which a rotary gas ballast pump under normal ambient conditions can continuously pump water vapour without condensation occurring in the pump. The water vapour tolerance of VK Series rotary vane pumps is up to 65 mbar. (See details in technical information)

Maintenance :

A large oil sight glass, oil filling and oil drain plugs are fitted on one side of the pump to allow easy inspection and maintenance. This is of particular importance, where space is restricted, such as in packaged pump sets, enclosed systems and narrow frames.

Modular System::

VK Series pump models are subdivided into three production series:

VKS2 VKC2, VKS4 VKC4

VKS8 VKC8, VKS16 VKC16

VKS30 VKC30, VKS60 VKC60

This makes it possible to use within one series many identical components such as pump cylinders, rotors, vanes, gas ballast valves, oil filters, intake- and exhaust tubulations and safety valves. This also applies to coupling housings, couplings, centrifugal switches, oil sight glass etc. The same set of gaskets is used for all pump models in the same production series. This design principle allows economical production and simplifies the stocking of spare parts for our customers and for ourselves, even more so as our designers took care to minimize the number of component parts used in the assembly of each pump.

Standard Specification:

VK Series pumps have KF small flange connections on inlet and outlet ports, including centering rings, O-ring gaskets and clamping rings, so that vacuum components with KF small flanges can be directly connected. A dirt filter is fitted into the intake port of each pump.

In addition, an adapting centering ring and an adapting centering ring with dirt filter for the intake port are supplied with each pump. Adapting centering rings are used to connect components with different nominal bores. All pumps up to the VKC16 are provided with carrying handle for easy transport. VK Series pumps with AC single-phase motors and on-off switch are supplied ready to operate with mains cable.

PRECISE VACUUM provides unmatched after sales service & spares for long term use of our pumps

Oils for Vacuum Pumps :

All vacuum Pumps must be essentially used with special oils for the overall maintenance of Pump Performance. Some of the prime requirements of the oil are low vapour pressure, excellent lubrication at all operating temperatures and negligibly low water absorption. These oils have been specially developed FOR ALL TYPES OF VACUUM PUMPS. Available in 5,20 &200 Ltr. Containers.

Accessories for Pump Protection and Process Improvement :

It is of importance to note that when the pump is used for the pumping in chemical & dusty environment, sufficient care should be taken to ensure that suction and discharge lines of the pumps are protected from condensing / accumulating dust / chemical fumes / other environment. It is thus recommended to use various following accessories along with pump.

Vacuum Oil Filtration Units :

The ON Line Filtration Systems are extensively utilized for purification of contaminated oils of Vacuum Pumps. The system can be used even when the Vacuum Pump is being used in process. Useful for all types of Vacuum pumps sizes / models.

Condensate Trap :

Depending upon application, the condensate Trap can be used on Inlet or Exhaust Lines. Its function is to eliminate condensate from being allowed to enter pump or from being injected into atmosphere. Available for all types of Vacuum pumps sizes / models.

Exhaust Filters :

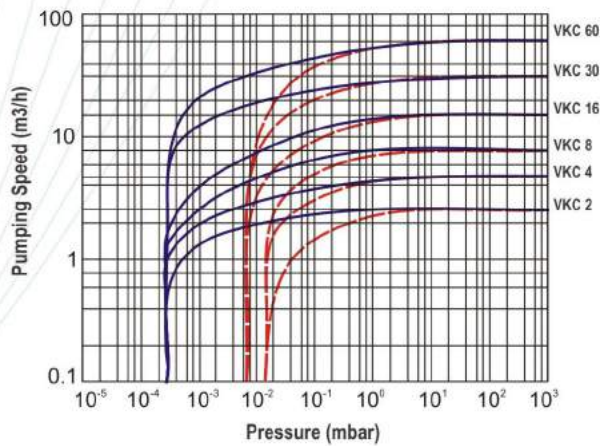
The oil and other exhaust fumes are separated out before being exhausted from pump, to ensure cleaner environments. The filter element is replaceable. The filter elements are manufactured by borosilicate glass fibre elements and remove 99.97% aerosol of 0.3 to 0.6 micron size. They are also offered for other types & makes of Vacuum Pumps.

Dust and Chemical Filters :

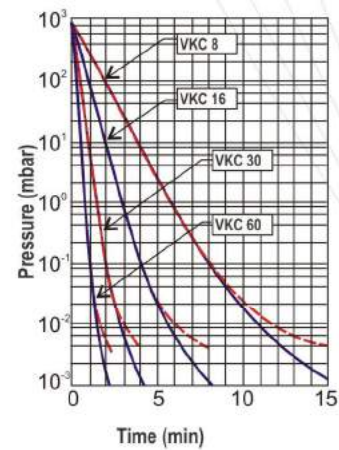
For reliable blocking of dirt and dust from entering into pump, dust filters are used. The same filter is also used to block other chemical fumes by providing proper adsorbing surface. Though these filters do drop the pumping speeds to some extent, the filters greatly enhance the pump and oil life. Periodic replacement of chemicals is however essential.

spares, Repairs & Rebuilding of old Imported Vacuum Pumps:

In order to offer a reliable and highly economical alternative to the spares from original manufacturers, we, through our international sourcing, can offer equivalent Spare Parts of Roots, Piston and Vane type Vacuum Pumps for Alcatel, Varian, Busch-100,300, LH-sv 100, 200, 300, LH D2A/C 060A/C, Edwards, Leybold, Sargent Welch & Stokes. Several worn out or unserviceable components can also be repaired and restored to original specifications.



Pumping Speed Characteristics



Pump Down Time of 100 Ltr volume

Technical Specifications

Measured according to PNEUROP Standards

Technical Specification: VKC series – Two Stage Pump

	VKC-2	VKC-4	VKC-8	VKC-16	VKC-30	VKC-60	VKC-90
Nominal Speed (m ³ /hr)	3.2	6.4	10	20	38	76	91.2
Pumping Speed (m ³ /hr)	2.5	4.7	7.6	15.2	30	60	72
Water vapour Tolerance (mbar)	40	20	40	20	40	33	33
Ultimate Partial Pressure (mbar) (Without Gas Ballast)	2.5x10 ⁻⁴	2.5x10 ⁻⁴	2.5x10 ⁻⁴	2.5x10 ⁻⁴	2.5x10 ⁻⁴	2.5x10 ⁻⁴	2.5x10 ⁻⁴
Ultimate Total Pressure (mbar) (With Gas Ballast)	1.3x10 ⁻²	1.3x10 ⁻²	1.3x10 ⁻²	6.5x10 ⁻³	6.5x10 ⁻³	6.5x10 ⁻³	6.5x10 ⁻³
Oil Fill (Maximum)	0.6	0.7	1.1	1.3	3.4	4.1	4.1
Motor Power (KW) 50Hz ,1Phase/ 3 Phase	0.25/0.25	0.25/0.25	0.75/0.37	0.75/0.55	-/1.1	-/2.2	-/2.2 (60 Hz)
Motor Speed (RPM)	1500	1500	1500	1500	1500	1500	1800 (60Hz)
Weight 1 Phase/3 Phase (Kgs.)	18/15	20/17	36/26	38/28	--/75	-/90	-/90
Dimension (mm) L x W x H	400x135x215	430x135x215	440x172x247	480x172x247	600x242x350	740x242x350	740x240x350
Intake/Exhaust port (mm)	16 KF	16 KF	25 KF	25 KF	40 KF	40 KF	40 KF

Technical Specification: VKS series – Single Stage Pump

	VKS-2	VKS-4	VKS-8	VKS-16	VKS-30	VKS-60	VKS-90
Nominal Speed (m ³ /hr)	3.2	6.4	10	20	38	76	91.2
Pumping Speed (m ³ /hr)	2.5	4.7	7.6	15.2	30	60	72
Water vapour Tolerance (mbar)	33	33	40	40	40	65	65
Ultimate Partial Pressure (mbar) (Without Gas Ballast)	4.0x10 ⁻²	4.0x10 ⁻²	4.0x10 ⁻²	4.0x10 ⁻²	4.0x10 ⁻²	2.5x10 ⁻²	2.5x10 ⁻²
Ultimate Total Pressure (mbar) (With Gas Ballast)	1.0x10 ⁰	8.0x10 ⁻¹	8.0x10 ⁻¹	8.0x10 ⁻¹	6.5x10 ⁻¹	6.5x10 ⁻¹	6.5x10 ⁻¹
Oil Fill (Maximum)	0.320	0.5	0.8	1.2	2.3	3.1	3.1
Motor Power (KW) 50Hz ,1Phase/ 3 Phase	0.18/0.18	0.25/0.25	0.55/0.37	0.55/0.55	-/1.1	-/2.2	-/2.2 (60 Hz)
Motor Speed (RPM)	1500	1500	1500	1500	1500	1500	1800 (60Hz)
Weight 1 Phase/3 Phase (Kgs.)	13/11	18/14	27/20	35/28	--/62	-/77	-/77
Dimension (mm) L x W x H	310x135x215	380x135x215	360x172x247	450x172x247	500x242x350	630x242x350	630x242x350
Intake/Exhaust port (mm)	16 KF	16 KF	25 KF	25 KF	40 KF	40 KF	40 KF



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