



Positive Displacement Vacuum Pump
Models: VPD-3, VPD-5, VPD-7.5, VPD-10, VPD-15, VPD-25
TECHNICAL MANUAL



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INTRODUCTION

Novatec's VPD Series Vacuum Pump is designed to pneumatically convey plastic pellets or powders in a vacuum conveying system. It does this by creating a vacuum to "pull" air through the piping system. Plastic pellets or powders are introduced into the moving air stream in various ways, including through the use of probes, pick-up tubes, and rotary air locks. The VPD is used in conjunction with vacuum chamber station valves, etc. to form the conveying system, which is controlled with either Master Control or Distributed Control Panels. Several vacuum power units may be designed into the system as required. Vacuum conveying systems typically distribute material from silos, surge bins, blenders, or drying hoppers to processing machinery.

WARNING

Always disconnect power before servicing. Only qualified technicians should service, maintain, or repair the VPD. Before using this equipment, read in detail the product bulletins and other information found in this manual. A safe installation is necessary before operating the equipment. The instructions should be understood and followed before operating the equipment. The instructions should be understood and followed before installing or using this equipment.

UNPACKING

Caution should be exercised to see that the equipment is not handled roughly. The crate must be removed carefully. The machine must not be used to pry against when removing the crate. The vacuum power unit is usually shipped completely assembled and requires no further attention prior to installation.

GENERAL INSPECTION

When the unit is unpacked, make a visual inspection looking for missing parts or damage which may have occurred during shipment. All electrical and mechanical connections should be checked for tightness, as vibration during transit may cause them to loosen.

MECHANICAL INSTALLATION

Only qualified technicians familiar with local and national codes should install the equipment. Connect the vacuum lines as shown on the installation drawings. Connect the compressed air (80-120 psig) to air actuated valves as required.

ELECTRICAL INSTALLATION

Connect the proper power supply (check nameplate) through a main line disconnect (field supplied) to terminal connections L1, L2, L3 and ground into the VPD control cabinet that contains the motor starter. This is the only power required, as the unit is completely pre-wired. Connect additional control wiring from the remote mounted master control panel to the vacuum power unit as shown on the electrical wiring schematic for the master control panel. Verify the correct rotation of the motor with the directional labels on the assembly.

ENGINEERING DATA SHEET
VPD

Utilities:

Compressed Air: 80-120 PSIG

Electric: Verify nameplate information

Horse Power	Voltage	FLA	KVA
2HP	208/3/60	6.6	2.4
	230/3/60	6.0	2.4
	460/3/60	3.0	2.4
	575/3/60	2.4	2.4
3HP	208/3/60	9.4	3.5
	230/3/60	8.5	3.5
	460/3/60	4.3	3.5
	575/3/60	3.5	3.5
5HP	208/3/60	14.3	5.0
	230/3/60	13.0	5.0
	460/3/60	6.5	5.0
	575/3/60	5.0	5.0
7.5HP	208/3/60	21.3	7.8
	230/3/60	19.4	7.8
	460/3/30	9.7	7.8
	575/3/60	7.8	7.8
10HP	208/3/60	29.5	10.7
	230/3/60	26.8	10.7
	460/3/60	13.4	10.7
	575/3/60	10.7	10.7
15HP	208/3/60	43.3	15.7
	230/3/60	39.4	15.7
	460/3/60	19.7	15.7
	575/3/60	15.8	15.7
25HP	208/3/60	71.9	26.1
	230/3/60	65.4	26.1
	460/3/60	32.7	26.1
	575/3/60	26.2	26.1

SPECIFICATIONS

Horse Power	CFM	MAX Vacuum ("Hg)	Line Size
2HP	55	8"	1 ½"
3HP	55	12"	1 ½"
5HP	100	12"	2"
7.5HP	160	12"	2 ½"
10HP	160	12"	2 ½"
15HP	240	14"	3"
25HP	440	14"	4"

NOTE:

Specifications will be reduced for standard pump assemblies run on 50Hz. Information shown is for standard PD vacuum pumps. Refer to special job drawings for custom unit information if applicable. Verify nameplate information on motor before installing and operating. All information is subject to change without notice.

CAUTION:

Always disconnect power before servicing. Only qualified technicians should service the equipment.

PARTS LIST
VPD

QTY	DESCRIPTION	PART NUMBER						
		2HP	3HP	5HP	7.5HP	10HP	15HP	25HP
1	Blower, Roots	00985	00985	00985	01780	01780	01780	01981
1	Motor 208/230/460/3/60	01912	01913	01910	01915	01916	01917	01918
1	Motor 575/3/60	04821	04202	04199	04823	03596	04200	04201
1	Vacuum Relief Valve	01788	50008	50008	50139	50139	50139	50139
1	Vacuum Gage	50011	50011	50011	50011	50011	50011	50011
1	Silencer (Muffler)	01786	50007	50007	50134	50134	50135	01982
2	V-Belt	50174	50174	50174	02773	N/A	N/A	N/A
3	V-Belt	N/A	N/A	N/A	N/A	02773	01978	03014
1	Solenoid VBV							
	115 VAC	08236	08236	08236	08236	08236	08236	08236
	24 VDC	08238	08238	08238	08238	08238	08238	08238
1	AirCylinder VBV	08945	08945	08945	08945	08945	02018	05744
1	Motor Starter							
	208V	00834	00834	01944	01945	01950	01917	01949
	230V	00838	00834	01944	01945	01947	01917	01949
	460V	00843	00838	00834	00942	01944	01917	01946
	575V	00826	00843	00838	00834	00942	04200	01947
1	Filter Element	03175	03176	03176	03177	03177	03178	03210

NOTE: Information shown is for standard vacuum power units. Refer to special job drawings for custom unit information. Verify information on existing part before ordering and installing replacement. All information is subject to change without notice.

MAINTENANCE AND INSPECTION SCHEDULE

It is recommended that maintenance and inspection is done on a scheduled basis. Maintenance requirements will naturally vary widely for each installation and specific operating conditions. It is suggested that a complete inspection be performed with the necessary maintenance at the end of the first day, the first week, the first month and the first 3 months. These inspections will be indicative of how often future maintenance will be necessary.

EVERY WEEK

Inspect the Filter cartridge. Clean or replace as required. Remove any fines collected from the catch pan. This time interval should be shortened if experience indicates unusual dust loading. Check the system for air leaks and correct as required.

EVERY MONTH

Inspect the vacuum breaker valve filter/silencer. Clean or replace as required.

EVERY 3 MONTHS

Units equipped with permanently lubricated motor bearings do not need lubrication. All motors should be examined on an individual basis.

Units equipped with ball bearing motors are factory greased and should be re-lubricated with a high-grade ball bearing grease rated for temperature and duty cycle required.

WHEN ADDING LUBRICANT

1. Remove filter plugs at the bearings and install grease fittings suitable to your grease gun. Also, remove the drain plugs at the bearings.
2. Add ball bearing grease until all of the old grease is expelled through the drain hole.
3. Run motor with drain plug removed to eliminate excess grease.
4. Clean and replace drain plugs.

Check motor (s) amperage (see Engineering Data Sheet).

EVERY 6 MONTHS

Check for loose electrical connections. Tighten all bolts and nuts. Check V belts. Adjust or replace as required.

BLOWER MAINTENANCE

ROOTS/DRESSER BLOWERS

Before starting pump, be sure oil has been put in the gearbox, as OIL MAY HAVE BEEN DRAINED FOLLOWING FACTORY SHOP TESTS.

NOTE: ALL BLOWERS SENT AS REPLACEMENTS ARE SHIPPED WITHOUT OIL.

Root's recommends using lubrication oil manufactured by Royal Purple that is called SYNFILM GT 220. The Novatec Part Number for this oil is 03-0991 and is available in quart containers. If you choose to use another brand of oil, be sure it is a good grade industrial type rust, oxidation, and foam inhibited, non-detergent oil such as Mobil DTE BB, Texaco R&O 220, Amoco 220 or equal. See Table below:

Recommended Oil Grades

Ambient Temperature ° F.	Viscosity Range SSU at 100° F.	ISO No.
(°C)	(38°C)	
Above 90° (32°)	1000 – 1200	320
32° to 90° (0° to 32°)	700 – 1000	220
0° to 32° (-18° to 0°)	500 – 700	150
Below 0° (-18°)	300 – 500	100

Warranty:

as of 10/28/2008

NOVATEC, INC. offers COMPREHENSIVE PRODUCT WARRANTIES on all of our plastics auxiliary equipment. We warrant each NOVATEC-manufactured product to be free from defects in materials and workmanship, under normal use and service for the periods listed under “Warranty Periods”. The obligation of Novatec, under this warranty, is limited to repairing or furnishing, without charge, a similar part to replace any part which fails under normal use due to a material or workmanship defect, within its respective warranty period. It is the purchaser’s responsibility to provide Novatec with immediate written notice of any such suspected defect. Warranted replacement parts will be billed and shipped F.O.B. point of manufacture. A credit will be issued when the purchaser returns the suspect defective part. Novatec shall not be held liable for damages or delay caused by defects. No allowance will be made for repairs or alterations without the written consent or approval of Novatec.

The provisions in equipment specifications are descriptive, unless expressly stated as warranties. The liability of Novatec to the purchaser, except as to title, arising out of the supplying of the said equipment, or its use, whether based upon warranty, contract or negligence, shall not in any case exceed the cost of correcting defects in the equipment as herein provided. All such liability shall terminate upon the expiration of said warranty periods. Novatec shall not in any event be held liable for any special, indirect or consequential damages. Commodities not manufactured by Novatec are warranted and guaranteed to Novatec by the original manufacturer and then only to the extent that Novatec is able to enforce such warranty or guaranty. Novatec, Inc. has not authorized anyone to make any warranty or representation other than the warranty contained here. Non-payment of invoice beyond 90 days will invalidate the warranty. A renewed warranty can be purchased directly from Novatec.

VPD Series Vacuum Pumps...2 years

Exclusions: Routine maintenance/replacement parts are excluded from the warranty. These include, but are not limited to: hoses, desiccant, filters, filter elements, wiper seals, gaskets, dew point sensors, infrared lamps, motors and motor brushes. In addition, the use of abrasive materials will void the warranty of any product not specifically sold/designed for use with the specified abrasive material. Novatec reserves the right to limit the warranty if the customer installs replacement parts that do not meet the specifications of the original parts supplied by Novatec.

***Specific Exclusions:**

VPD warranty is voided if lubrication is not maintained according to pump manufacturer’s specifications.

VPD warranty is voided if inlet filter is not in place and in good condition during 100% of operation.

VPD warranty does not include filter element or drive belts.

VPD warranty is voided if mechanical check valve fails due to airborne contamination (oil, dust, etc).

This warranty shall not apply to equipment:

1. Repaired or altered without written approval of NOVATEC unless such repair or alteration was, in our judgment, not responsible for the failure
2. Which has been subject to misuse, negligence, accident or incorrect wiring by others
3. Warranty is void if processing rates exceed manufacturer-recommended levels or if damage is caused by ineffective power isolation and/or power spikes/sags or incorrect installation.

Form# 200810 Warranty