

Vacuum Regenerative Blower Pump

Models: VRB-3S, VRB-5S, VRB-11S,
VRB-5D, VRB-8D, VRB-17D



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Please record the following information, which is specific to this piece of equipment, in the space provided. Our Parts/Service Department will need these numbers to properly respond to any of your requests.

Instruction Manual: <u>VRB-IM 9 FEB 2018</u>
Model #: _____
Serial # _____

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1 INTRODUCTION

The NOVATEC VRB 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 VRB is used in conjunction with vacuum chambers, station-t 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.

2 WARNING

Always disconnect power before servicing. Only qualified technicians should service, maintain, or repair the VRB. 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 installing or operating this equipment.

3 OPERATING LIMITATIONS

3.1 Elevation and Exhaust Temperature

Do not operate the vacuum pump at elevations higher than 2500 feet above sea level. Consult factory to review high elevation applications to determine if performance limitations apply. Decreased motor FLA limits may require alternate overload protection or alternate HP models to provide adequate vacuum power.

Blower exhaust temperature and motor cooling are a function of both vacuum level and elevation. Blower exhaust temperature must not exceed 300°F to avoid premature blower failure. A thermal “snap switch” is provided on the pump’s exhaust muffler. This switch is interconnected with the starter’s control signal to stop the pump’s operation in the event exhaust temperatures extend beyond the safe range. In the event the switch ‘opens’ the pump’s control circuit due to high temperature, simple cool-down of the switch over time will restore operation.

High air inlet temperatures can also cause excess blower exhaust temperature, so closed loop systems, commonly used when conveying dehumidified materials, may require an inlet cooler, or reduced vacuum levels.



3.2 Seek Time

Seek Time is a function that allows your pump to operate for short period of time in vacuum break (no loading) mode while the system control searches for new demands. Excessive starting and stopping will reduce blower and motor life and void the warranty. Pump starts must be limited to 12 per hour to prevent premature failure. The minimum Seek Time for a pump is 240 seconds to prevent exceeding 12 starts per hour. Actual Seek Time required is dependent upon pump capacity, utilization, number of stations, capacity of each vacuum chamber, and individual station throughputs. (See your control panel instruction manual for more information on Seek Time settings.)

4 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.

5 GENERAL INSPECTION

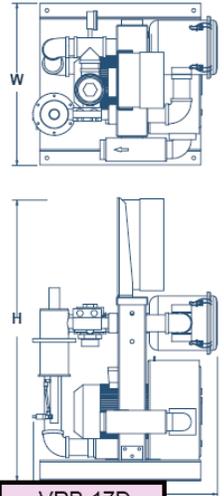
When the unit is unpacked, make a visual inspection looking for missing parts or damage which may have occurred during shipment. All electrical and mechanical connections should be checked for tightness, as vibration during transit may cause them to loosen.

6 SPECIFICATIONS

Consult factory for elevations above 3000 feet)

Model	Stages	Pump Power	Line Size O.D.	Operating CFM	Operating/Relief Vacuum		Width	Depth	Height	Shipping Weight
		Hp	in.	60Hz/50Hz	60Hz,Hg(in.)	50Hz,Hg(in.)	in.	in.	in.	lb.
VRB-3S	Single	3.5	1.5	55/55	6.5/7.5	4.5/6	24	26	40.5	140
VRB-5D	Dual	5.0	1.5	70/60	10/11	7/8.5	24	26.5	40.5	200
VRB-5S	Single	5.0	2.0	110/80	6.5/7.5	5.5/6	24	27.5	40.5	180
VRB-8D	Dual	8.5	2.0	125/115	11/12	8.5/10	28	35.5	46.5	250
VRB-11S	Single	11.5	2.5	200/140	9.5/10	7.5/8.5	28	34.5	46.5	400
VRB-17D	Dual	17.5	2.5	200	11/12	9.5/12	28	37	46.5	580

model number i.e. VRB-3S-D



Basic Packages	VRB-3S	VRB-5D	VRB-5S	VRB-8D	VRB-11S	VRB-17D
Base Pump w/Starter (Power isolation switch, contactor + motor O.L. protection)	VRB-3S-46-24	VRB-5D-46-24	VRB-5S-46-24	VRB-8D-46-24	VRB-11S-46-24	VRB-17D-46-24
Alternate Package: (In lieu of base pump with starter shown above) See price list #323.						
Pump w/ Starter + Disconnect (Power isolation switch, contactor + motor O.L. & short circuit protection)	VRB-3S-46-24-D	VRB-5D-46-24-D	VRB-5S-46-24-D	VRB-8D-46-24-D	VRB-11S-46-24-D	VRB-17D-46-24-D

Options

Alternate Voltage Part Numbers: Control Voltage Alternatives
VRB-Model-XX-YY

- 24 = 24 VDC (Standard)
- 11 = 115/1/60 VAC (No charge)

Power Voltage Alternatives

- 46 = 460/3/60 (Standard)
- 57 = 575/3/60 (No charge)
- 40 = 400/3/50 (Power Disconnect Model Required)
- 20 = 200/3/50 (No charge)

Example: VRB-5D-57-11-D is 5 hp, positive displacement pump with 575/3/60 power & 110 VAC control voltage, with starter disconnect.

DeviceNet Cable(s) for Pumps: (in lieu of standard cables - 24VDC only) Part # DNET-PUMP

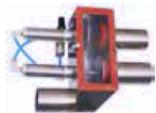
Accessories

(Separate line item on order and shipped separately. See Price List.)

DeviceNet Cable: (in lieu of standard cables -24VDC only) Part # DNET-DIN-SMC

Discharge Selection Valve for Dry Air Conveying: (EPV valve w/ connection stub to pump)

CLR Closed Loop Relief Vent: Provides pressure relief in a closed loop conveying system



Discharge Selection Valve (3" and up)

Line Diameter	DSV Part# To Match 24VDC Control Voltage	DSV Part# To match 115 /1/60 Control Voltage
1.5"	DSV-15-24	DSV-15-11
2"	DSV-20-24	DSV-20-11
2.5"	DSV-25-24	DSV-25-11



CLR Closed Loop Valve with Relief Vent

Line Diameter	CLR Model	CLR Part #
1.5"	CLR-15	LINE-CLR-15
2"	CLR-20	LINE-CLR-20
2.5"	CLR-25	LINE-CLR-25
3"	CLR-30	LINE-CLR-30
4"	Consult Factory	

7 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.

Locate the pump where it can be interconnected with the vacuum system piping easily.

Accommodations should be made to allow full access of the pump for service, especially the belt guard, starter, filter, vacuum breaker valve, vacuum blower and vacuum relief valve. The vacuum gauge should be visible, but can be carefully rotated in its fitting as required. The pump should be secured to the floor to prevent movement from vibration and isolating pads (not supplied) may be installed to minimize noise transfer to the floor, if desired.

The pump is commonly located near the vacuum conveying system's cyclone dust collector and is commonly connected directly to the cyclone lid with rigid tubing or flex hose. It is convenient to service the dust collector and the pump filter at the same time.

Compressed Air Supply:

Clean compressed air should be supplied to the VRB pump's vacuum breaker valve solenoid, providing 80 to 100 psi. A filter (not supplied) should be provided if the cleanliness of the air is questionable.

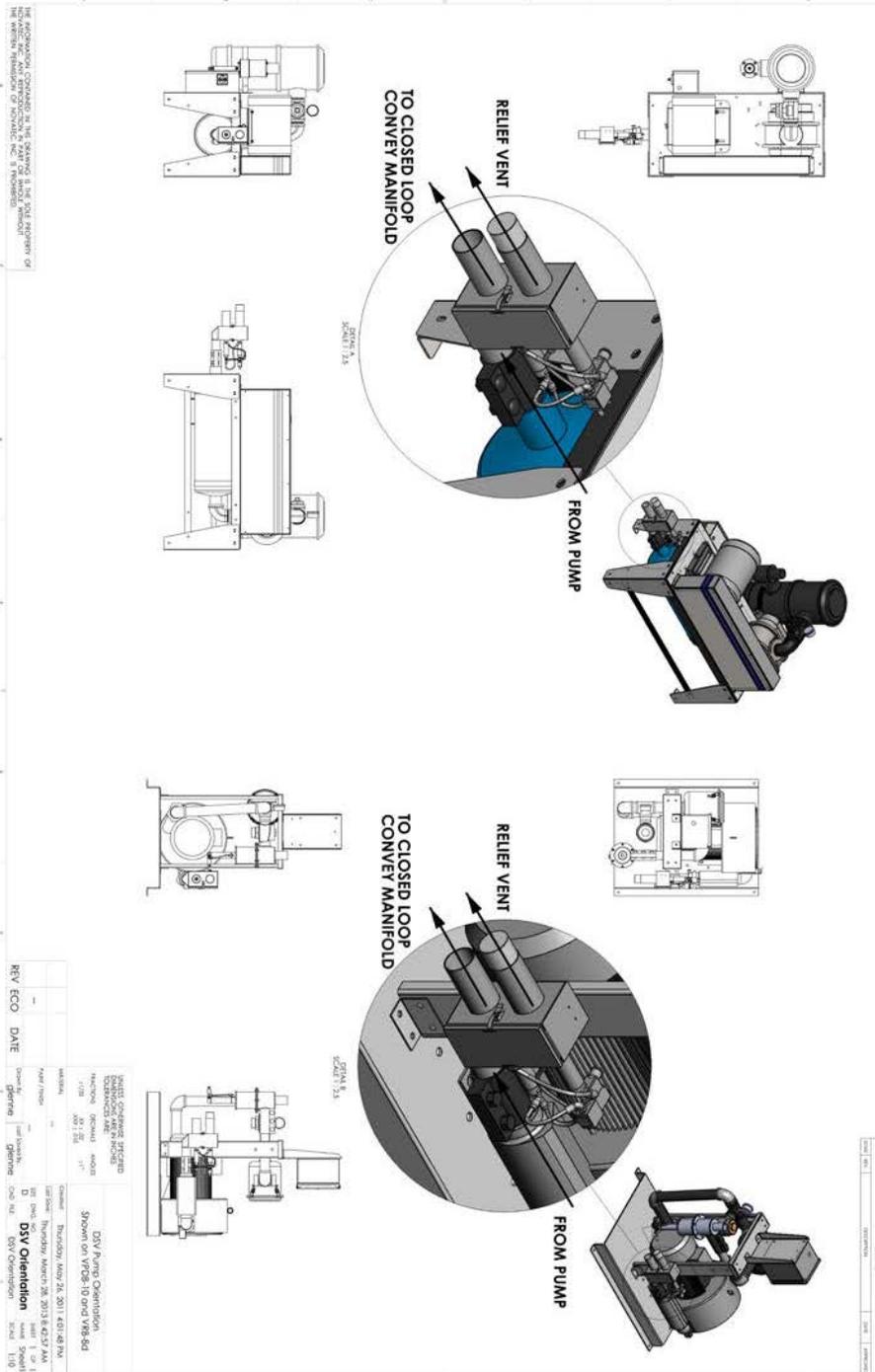
REGULATOR WARNING

The compressed air regulator has been set at the factory to allow the vacuum breaker to relieve at the specified vacuum. ***Tampering with the regulator will void the warranty.*** Only qualified Novatec service personnel may adjust the relief point via regulator pressure.

7.1 Discharge Selection Valve (DSV)

Pump exhausts to atmosphere or can be pipe outside of pump room.

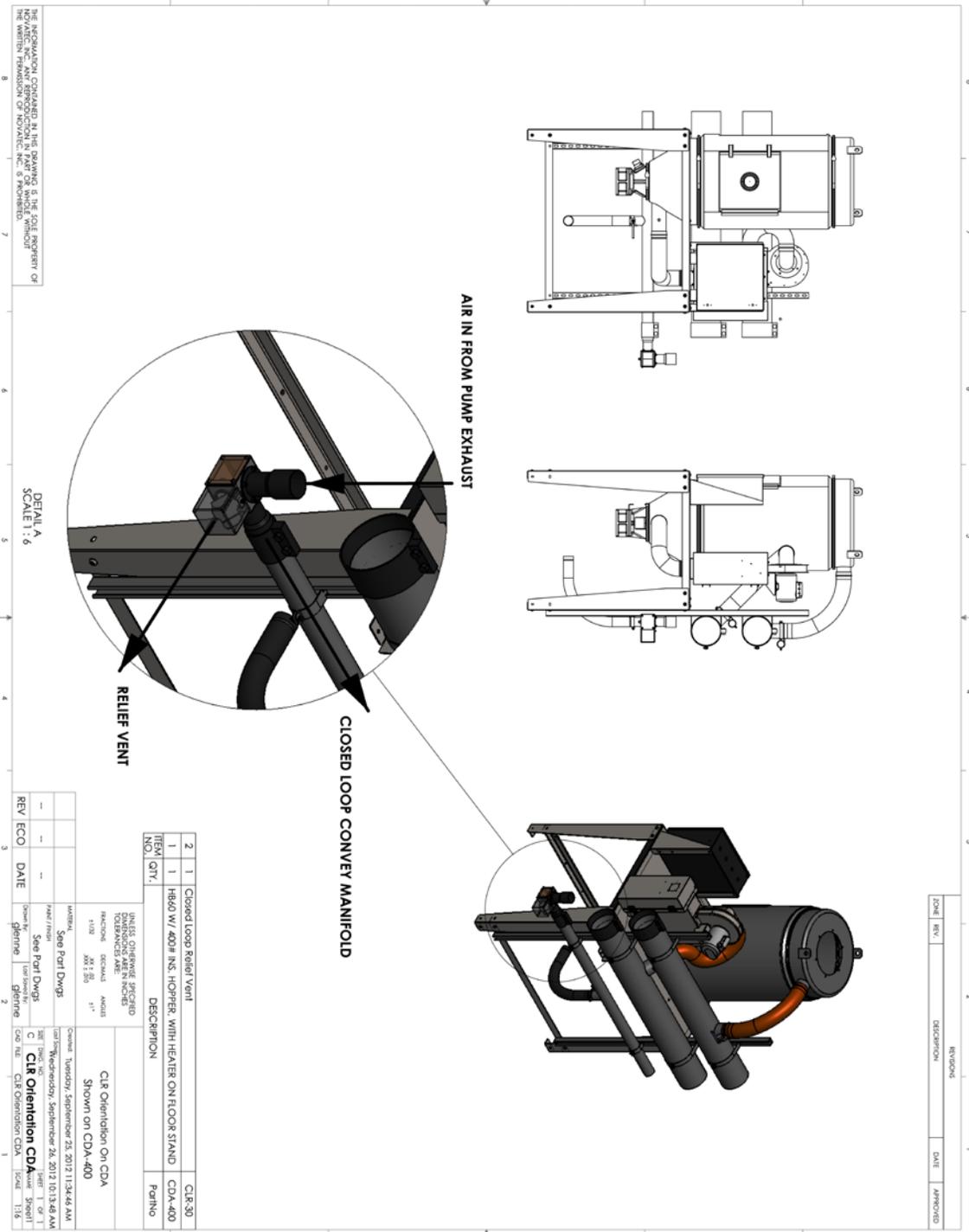
- Requires a separate Relief Vent in a closed system.
- Includes 3-Bolt Coupler and pump adapter fitting.
- For use with either VRB or VPDB pumps.



7.2 Closed Loop Relief Vent (CLR)

Provides Pressure Relief in a Closed Loop Conveying System.

- Install near take-off devices in a closed loop system.
- Install one per row of take-offs that share a common closed loop manifold.

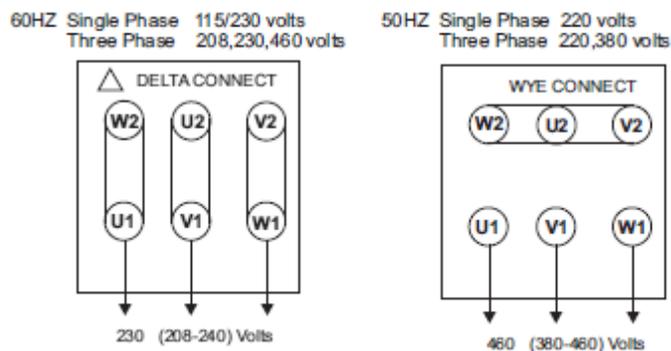


8 ELECTRICAL INSTALLATION

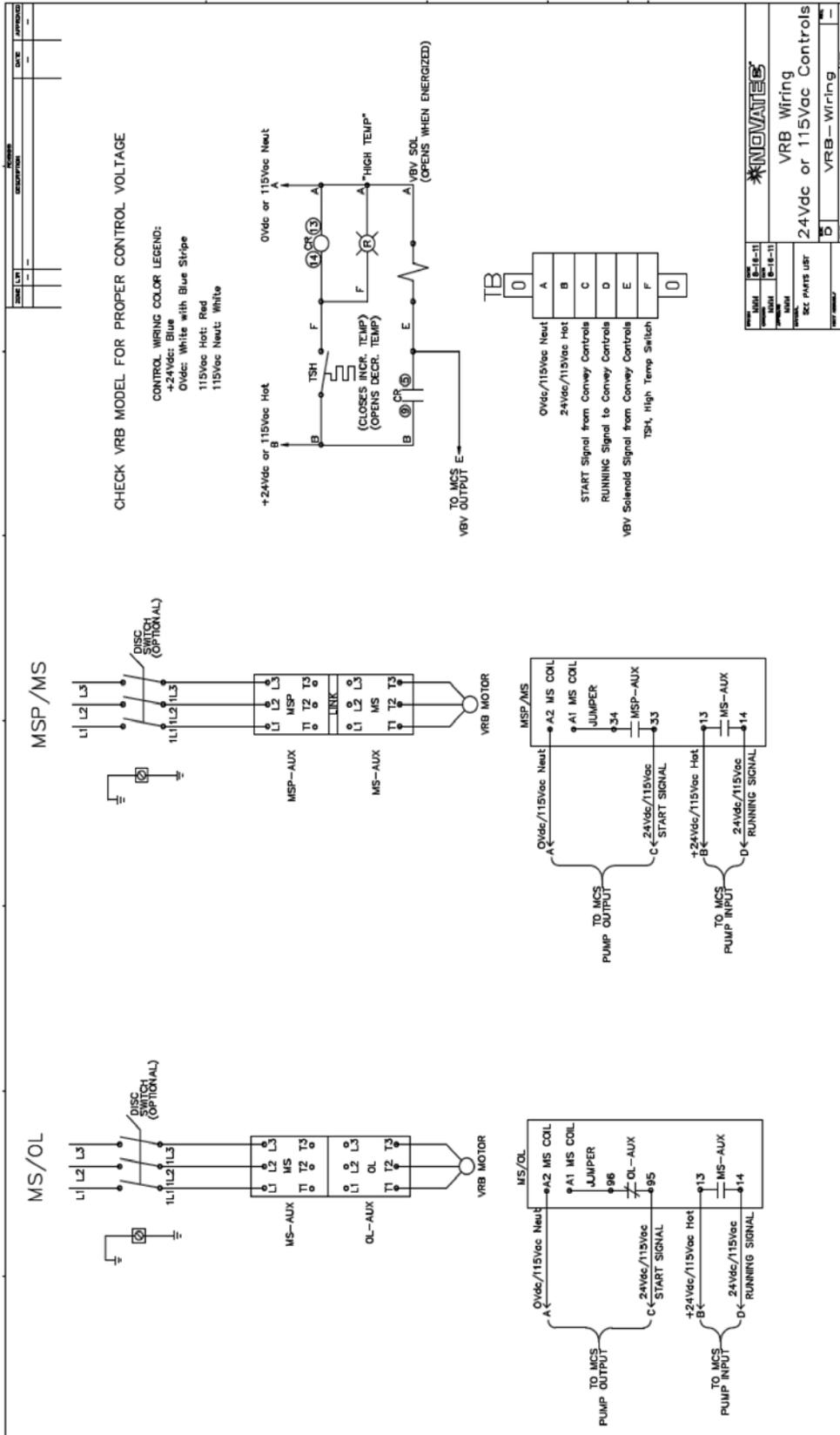
Connect the proper power supply (check nameplate) through a main line disconnect (field supplied) to terminal connections L1, L2, L3 and ground into the VRB electrical enclosure that contains the motor starter. The VRB blower motor is pre-wired to the starter. Connect control wiring from the control panel (see separate control instructions) to the VRB electrical enclosure and solenoid 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 pump.

8.1 WIRING OF 3 PHASE VOLTAGE MOTORS

The blower motor is designed to operate on these voltages at +/- 5 Volts and +/- 2 Hz.



Note: 575V motors are single voltage and provide for no alternate voltages.





8.2 Connections

Compressed Air: 80-120 PSIG

Electrical: Verify nameplate information

Horse Power (Model)	Voltage	FLA	KVA
3.5HP (VRB-3S)	208/3/60	10.5	3.8
	230/3/60	9.5	3.8
	460/3/60	4.7	3.7
	575/3/60	3.6	3.6
	200/3/50	8.7	3.0
	400/3/50	4.3	3.0
5HP (VRB-5S)	208/3/60	14.9	5.4
	230/3/60	13.5	5.4
	460/3/60	6.8	5.4
	575/3/60	5.2	5.2
	200/3/50	13.8	4.8
	400/3/50	6.9	4.8
11.5HP (VRB-11S)	208/3/60	36.3	13.1
	230/3/60	33	13.1
	460/3/60	16.5	13.1
	575/3/60	13	12.9
	200/3/50	29.7	10.4
	400/3/50	14.8	10.4
5HP (VRB-5D)	208/3/60	14.9	5.4
	230/3/60	13.5	5.4
	460/3/60	6.8	5.4
	575/3/60	4	4.0
	200/3/50	10.7	3.7
	400/3/50	5.3	3.7
8.5HP (VRB-8D)	208/3/60	28.6	10.3
	230/3/60	26	10.3
	460/3/60	13	10.3
	575/3/60	10	9.9
	200/3/50	23.1	8.1
	400/3/50	11.4	8.1
17.5HP (VRB-17D)	208/3/60	60.5	19.1
	230/3/60	55	19.1
	460/3/60	27.5	19.1
	575/3/60	18	17.9
	200/3/50	51.5	18.0
	400/3/50	25.7	18.0

9 STANDARD SPECIFICATIONS (2000 ft. ASL and below)

HP (MODEL)	Operating CFM @ 60Hz	Operating CFM @ 50Hz	Operating / Relief Vacuum @ 60Hz Inches of Hg	Operating / Relief Vacuum @ 50Hz Inches of Hg	Line Size OD
3.5 HP (VRB-3S)	55	55	6.5" / 7.5"	4.5" / 6"	1.5"
5.0 HP (VRB-5S)	110	80	6.5" / 7.5"	5.5" / 6"	2.0"
11.5 HP (VRB-11S)	200	140	9.5" / 10"	7" / 8.5"	2.5"
5.0 HP (VRB-5D)	70	60	10" / 11"	7" / 8.5"	1.5"
8.5 HP (VRB-8D)	125	115	11" / 12"	8.5" / 10"	2.0"
17.5 HP (VRB-17D)	200	200	11" / 12"	9.5" / 12"	2.5"

NOTE:

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.

10 OPERATING AT HIGHER ELEVATIONS (2500 Ft Above Sea Level Or More)

Atmospheric pressure is lower at higher elevations and as a result, the compression of air by the pump requires more work for vacuum conveying. In these higher altitude applications the vacuum relief valve of VRB pumps must be adjusted to prevent the pump from damaging itself or the motor by attempting to compress air of reduced density to an unsafe level. Failure to adjust the pump will void the pump warranty.

When the end-use site is known, Novatec endeavors to pre-adjust the vacuum pump's performance at the factory to compensate for elevations above 2500 feet. Novatec then labels the vacuum relief valve accordingly. If your pump-use site is 2500 feet or more above sea level, with no indication of pre-adjustment on the pump assembly, please contact Novatec Engineering or the Novatec Service Department at the number on the front cover of this manual to obtain instructions on adjusting your VRB pump BEFORE operating.

11 OPERATION

VRB Series Vacuum Pumps operate in response to control signals from the central vacuum conveying system control. They start automatically in response to system demands to convey plastic pellets or powders to vacuum receivers.

The VRB is equipped with a pump protection filter to protect the blower from carryover dust and fines that can create blockages, adhere to the warm surfaces of the blower, increase operating heat, and create an imbalance of the blower's turbine; all of which can result in premature blower failure. The filter must be kept clean and defect free to allow full vacuum air flow and protect against entrained dust.

In addition, operating the VRB at excess vacuum levels, in high elevations, or with heated inlet air can create elevated blower temperatures.

To guard against damage or failure from overheating, the VRB is equipped with an over-temperature snap switch that will sense elevated temperatures in the blower and open the VRB's vacuum breaker valve, allowing the VRB to run in a no load state. In this free-wheeling state, vacuum loading of material is halted, and a red light on top of the VRB's starter box is illuminated, indicating an overheated condition and the VRB's automatic response to protect itself from heat damage.



The VRB will continue in this mode until the elevated heat of the blower is reduced and the snap switch returns to its normal position, closing the vacuum breaker valve and allowing the vacuum system to operate normally. Note that during this temperature reduction mode, the conveying system connected to this pump is not operating, and material levels may run low, creating an alarm condition at the central control.

To prevent the VRB from becoming overheated, increase the seek time to allow the pump to free wheel longer as a part of its normal cycle (see Seek Time page 3 and the conveying control instructions for your system) and be sure that the VRB's pump protection filter is installed correctly in its housing, is in good condition (not bent, no holes or fractures) and is kept clean. A prematurely clogged VRB filter can be the result of poor central vacuum cyclone service. Be sure the collection canister at the bottom of the cyclone is emptied as needed, to prevent pass-through of dust and fines towards the vacuum pump.



12 VRB PARTS LIST

QTY	DESCRIPTION	PART NUMBER											
		VRB-3S		VRB-5S		VRB-11S		VRB-5D		VRB-8D		VRB-17D	
1	Blower												
	208/230/460/220/400V	vrb-3S-001	vrb-5S-001	vrb-11S-001	vrb-5D-001	vrb-8D-001	vrb-17D-001						
	575V	vrb-3S-002	vrb-5S-002	vrb-11S-002	vrb-5D-002	vrb-8D-003	vrb-17D-002						
1	Vacuum Relief Valve												
	50Hz	vrv20-6	vrv20-6	vrv20-8.5	vrv20-8.5	vrv20-10	vrv20-11						
	60Hz	vrv20-7.5	vrv20-7.5	vrv20-10	vrv20-11	vrv20-12	vrv20-12						
1	Vacuum Gage	50011	50011	50011	50011	50011	50011						
1	Silencer (Muffler)	01786	50007	50007	50134	50134	50135						
1	Vac Breaker Solenoid												
	115 VAC	08236	08236	08236	08236	08236	08236						
	24 VDC	08238	08238	08238	08238	08238	08238						
1	Vac Breaker Air Cylinder	08945	08945	08945	08945	08945	08945						
1	Motor Starter Box	No Disc	Disc	No Disc	Disc	No Disc	Disc	No Disc	Disc	No Disc	Disc	No Disc	Disc
	230V (3/60)	eAN	eBD	eBN	eDD	eCN	eDD	eBN	eCD	eCN	eDD	eDN	eHD
	460V (3/60)	eAn	eAD	eAN	eBD	eBN	eDD	eAN	eBD	eBN	eCD	eCN	eDD
	575V (3/60)	eAN	eAD	eBN	eBD	eAN	eCD	eAN	eAD	eAN	eBD	eCN	eFD
	220V (3/50)	eAN	eBD	eBN	eDD	eCN	eDD	eBN	eCD	eBN	eDD	eDN	eHD
	400V (3/50)	eAN	eAD	eAN	eBD	eBN	eDD	eAN	eBD	eBN	eCD	eCN	eDD
1	Filter Element	11966-2P		11966-2P		11966-2P		11966-2P		11966-2P		11966-2P	
1	Snap Switch	ehts-248		ehts-221		ehts-248		ehts-248		ehts-248		ehts-221	

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.

13 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.

SEE REGENERATIVE BLOWER MAINTENANCE FOR BEARING INSPECTION

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 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.

EVERY 6 MONTHS

Check for loose electrical connections. Tighten all bolts and nuts.



14 REGENERATIVE BLOWER MAINTENANCE

14.1 Bearings

The frequency of lubricating the bearings depends on the operating temperature, the daily hours of operation and environmental conditions such as dust and moisture. Based on a normal installation with a 67F intake air temperature, 37% humidity and a clean environment, the bearings should be lubricated at approximately 5000 hours or at least annually. For more severe installations, the bearings require more frequent lubrication.

To determine when the bearings should be lubricated for your specific installation, we recommend checking the bearing lubricant at the end of 500 hours. At that time, re-fill or repack the bearing lubricant and note the amount of lubricant added. It is recommend to check the bearing lubricant at the end of 1000 hours. At that time, re-fill or repack the bearing lubricant and note the amount of lubricant added. These two measurements will provide a guide as to how often the bearings require lubrication in the future.

We also recommend that a new blower bearing lubrication be inspected prior to the initial installation. This step is recommended to insure the bearings have been properly lubricated during assembly at the factory. This step also provides a base line to determine how frequently the bearings should be lubricated in the future.

14.2 Bearing Grease

HIGH TEMPERATURE RATED BLOWER. Blowers with a Model Number with an “H”, utilize Exxon Polyrex Ep2 with a minimum melt point of 350 Deg F. Check with your lubricant supplier for a grease that is compatible and with a melt point equal to or greater than the above lubricant.

Blower Model	Impeller Side Bearing	Type	Max Temp F	Motor Fan End Bearing	Type	MaxTemp F
RB6 Series	6206z	Shield Open	284	6304z	Shield	284
RB8 Series	6207z	Shield Open	284	6207z	Shield	284
RB43 Series	6205z	Shield	284	6205z	Shield	284
RB63 Series	6206z	Shield	284	6207z	Shield	284
RB83 Series	6207z	Shield	284	6207z	Shield	284

14.3 BEARING MAINTENANCE

When Adding Lubricant:

Blower Model RB6:

1. Turn off the Blower
2. Remove the motor end bell
3. Remove blower housing compressor cover

Blower Model RB8 and all 2-stage Blowers:

1. Turn off the blower.
2. Remove the grease relief plug located at the 6 O'clock position on the bearing housing.
3. Refill while the blower is hot.
4. Add ball bearing grease until all of the old grease is expelled through the drain hole.
5. Wait 10 minutes before replacing the plug.

Cleaning:

When required by the operating conditions, dismantle the cover from the blower by removing the screws or nuts on the cover. Do not lose the screws or nuts because they are required for re-assembly. Remove and clean the cover. Clean the impeller and the internal portion of the blower with low pressure air after covering the rolling contact bearing and the bearing grease housing. Be careful not to blow dirt or contaminants into the bearing grease. If dirt does enter the lubricant, wash out the contaminated bearing grease, clean the bearing and replenish the bearing with fresh grease.

Note: After removing the blower cover screws or nuts, some parts held with centering fits can suddenly separate, fall and possibly cause injury and damage other parts. Care needs to be taken during re-assembly to insure no parts remain in the blower and are securely held in place.



15.0 WARRANTY - NOVATEC, INC. - Effective Date 7 FEBUARY 2018

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 are billed and shipped freight pre-paid. The purchaser must return the suspect defective part, freight prepaid and with identifying documentation to receive full credit for the part returned. 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.

Please note that we always strive to satisfy our customers in whatever manner is deemed most expedient to overcome any issues in connection with our equipment.

Warranty Periods:

Note: All warranty periods commence with the shipment of the equipment to the customer.

5-Year (Except 1-Year on Non-Novatec Buy-Out Items)

Resin Drying to Include

NovaWheel™ Dryers *
Dual Bed Dryers
NovaDrier *
NDM-5 Membrane Dryer
Gas-Fired Process Heaters
Gas-Fired Regeneration Heaters
Drying Hoppers
Central Drying Hopper Assemblies
Heater/Blower Units and Hot-Air Dryer
Silo Dehumidifiers
NovaVac Dryers *
Nitrogen NovaDriers (Nitro)
DryTemp Plus

Central System Controls to Include

FlexTouch™ Series Controls
FlexXpand™ Series Controls
OptiFlex™ Series Controls
PLC Communications Modules
Greenboard Communications Modules
LOGO! Mini PLC
MCS-600 Series Controls – (Distributed I/O)
MCS-400 Series Controls
CL Silo Manager

Moisture Measurement Equipment to Include

MoistureMaster®

PET Resin Crystallizers

Resin Blending and Feeding to Include

WSB Blenders, MaxiBatch & Feeders *
Gaylord Sweeper Systems

Downstream Extrusion Equipment to Include

C and NC Bessemer Series Cutters
NPS Bessemer Series Pullers
NPC Mini Puller/Cutter
All NS Series Servo Saws
All Cooling and Vacuum Tanks Manufactured by Novatec

Resin Conveying and Systems Components to Include

GSL Series Vacuum Loaders
GlassVu Loaders, Receivers and Hoppers
VL/VLP Series Loaders
VRH, VR, VR-FL & VRP Series Receivers
Compressed Air Loaders
AL-B Barrel Loader
Cyclone Dust Collectors
Conveying System Accessories
Surge Bins
Valves and Accessories
Electronic Metal Separators
Quick Select Manifolds
Tilt Tables
Filter Dust Collectors
Drawer Magnets
Velocity Control Valves

3-Year

Resin Conveying System Components to Include

** VPDB Vacuum Positive Displacement Pumps
** SVP Vacuum Pumps
** MVP Vacuum Pumps
** Railcar Unloading Systems

****5-Year Extended Warranty** - When a MachineSense® data plan is activated for products with **, Novatec automatically extends the warranty to 5 years. The data plan must be activated within 60 days after product shipment, and remain active through the warranty period to maintain extended warranty eligibility. The first 6-months of data plan usage is free from Novatec.

1-Year

Infrared Dryers
Custom Equipment of any kind unless otherwise specified

UltraVac Vacuum Pumps
Vacuum Regenerative Blower Pumps

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, internal solenoids, fuses and motor brushes. Use with abrasive materials will void the warranty of any standard product. Wear resistant options may be available to extend usable service life with abrasive materials. 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:**

1. NovaDrier and NovaDrier-Nitro warranty is void if coalescing filters are not replaced on a 6-month or yearly basis (per instruction manual) and/or membrane has been exposed to ozone.
2. NovaVac Dryer -The ability of the canisters to hold vacuum will be compromised if the vacuum seal edge is damaged from mishandling. We do not warranty canisters damaged from improper handling. We do, however, warranty the seals.
3. LOAD CELLS on our WSB's are covered by Novatec standard warranty as long as they have not been damaged from improper handling.
4. Desiccant Wheel Warranty will be void if the wheel has been exposed to plasticizer, dust or other contaminants as a Result of negligence on the part of the processor.

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.

NOTE: All conditions and content of this warranty are subject to changes without notice.

