

INSTRUCTION MANUAL

UVP UltraVac Vacuum Conveying Pump Models: UVP-6 and UVP-9



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NOVATECTM
Part of the **MAGUIRE** Family

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INTRODUCTION

Novatec's UVP 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 UVP 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 UVP. 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.

To prevent damaging and potentially dangerous operation and performance limitations related to the Elevation (altitude) of the pump-use site, see "Operating at Higher Altitudes" below, and page 5 for instructions for user-required adjustments.

OPERATING LIMITATIONS

Operating At Higher Altitudes...3000 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 pressure relief valve of the UVP pump must be adjusted on site to prevent the pump from damaging itself or the motor by attempting to compress air of reduced density to an unsafe level. See page 5 for relief valve adjustment procedure instructions.

Exhaust Temperature

Blower exhaust temperature and motor cooling are a function of both vacuum level and elevation. If operating the vacuum pump at elevations higher than 2500 feet above sea level, increased exhaust and motor temperatures are likely and additional cooling provisions may be required to guard against unsafe and damaging elevated temperatures.

Seek Time

Seek Time is a control parameter that allows your pump to operate for short period of time in vacuum break 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 information on Seek Time)

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. Oil should be checked using the gauge located on the side of the UVP.

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.

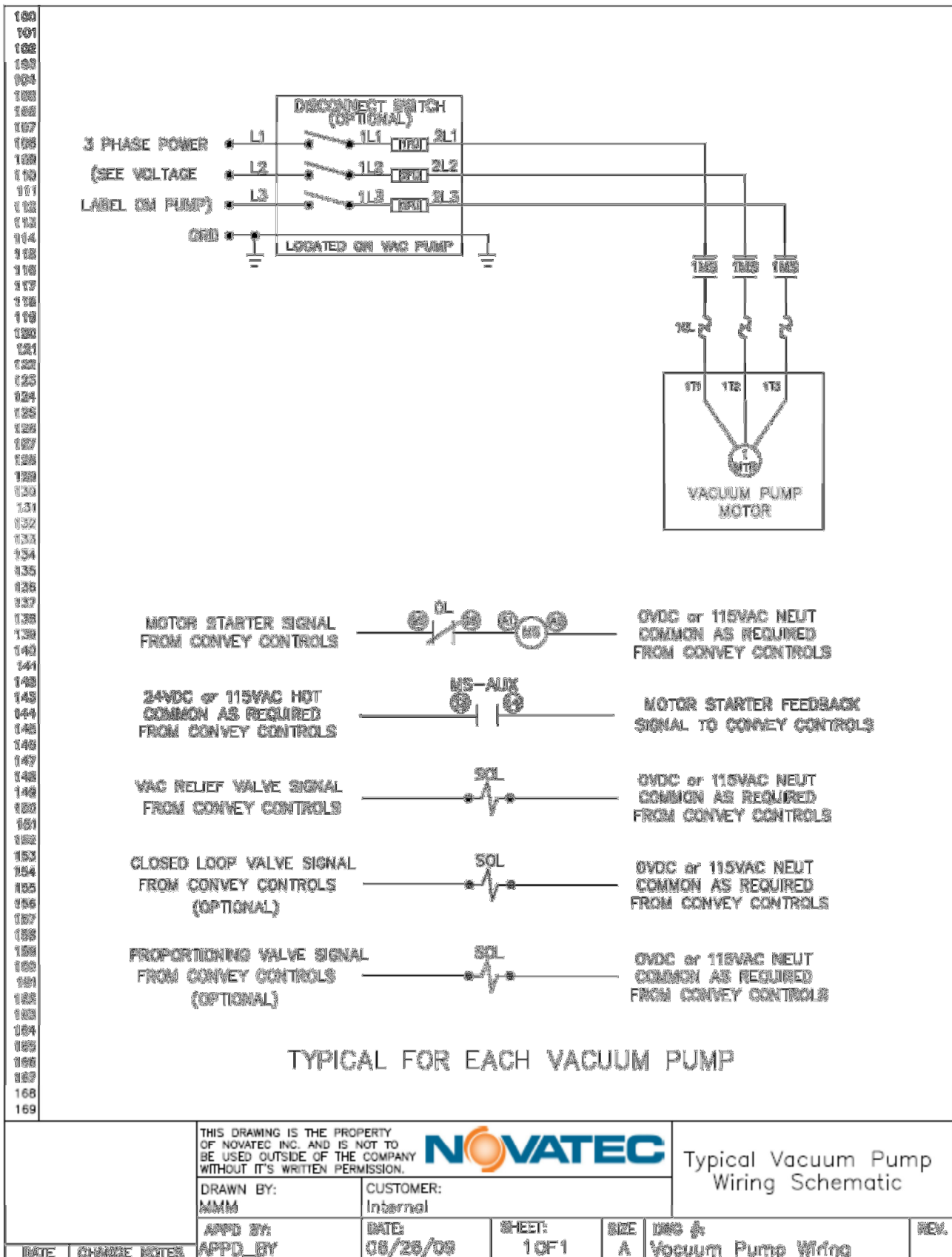
ELECTRICAL INSTALLATION

Connect the proper power supply (check nameplate) through a main line disconnect (field supplied) to terminal connections L1, L2, L3 and ground into the UVP 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.

UTILITIES

Compressed Air: 80-120 PSIG
Electric: Verify nameplate information

Horse Power	Voltage	Full Load Amps
6.4HP (UVP-6)	460/60/3	8.8
	400/50/3	8.3
8.7HP (UVP-9)	460/60/3	13.7
	400/50/3	13.4



SPECIFICATIONS

Horse Power	Operating CFM (60Hz)	Operating Vacuum (60Hz, "Hg)	Operating CFM (50Hz)	Operating Vacuum (50Hz, "Hg)	Line Size
6.4HP (UVP-6)	135	15-16	110	12-13	2.0"
8.7HP (UVP-9)	200	15-16	165	12-13	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:

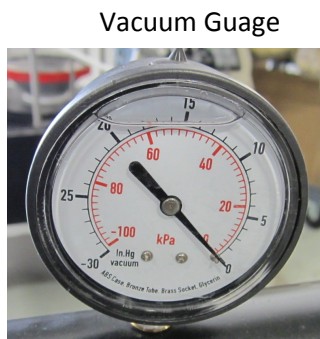
Always disconnect power before servicing. Only qualified technicians should service the equipment.

OPERATING AT HIGHER ALTITUDES (3000 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 pressure relief valve of the UVP pump 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.

The following chart shows the relief valve setting at different elevations for safe and effective pump operation. If your pump-use location is more than 3000 ft. above sea level, the vacuum relief valve must be carefully adjusted to the "Relief Setting" listed below using the procedure detailed on the next page in "Adjusting The Vacuum Relief Valve Of The UVP Vacuum Pump".

Site Elevation	Relief Setting
Sea Level	17.0" hg
1000 ft. ASL	17.0" hg
2000 ft. ASL	17.0" hg
3000 ft. ASL	16.0" hg
4000 ft. ASL	15.5" hg
5000 ft. ASL	15.0" hg
6000 ft. ASL	14.5" hg
7000 ft. ASL	14.0" hg
8000 ft. ASL	13.5" hg



ASL = Above Sea Level. "Hg = Inches of Mercury (as shown on the vacuum gauge).

ADJUSTING THE VACUUM RELIEF VALVE OF THE UVP VACUUM PUMP

Preparation

Prepare the following items and precautions for this adjustment:

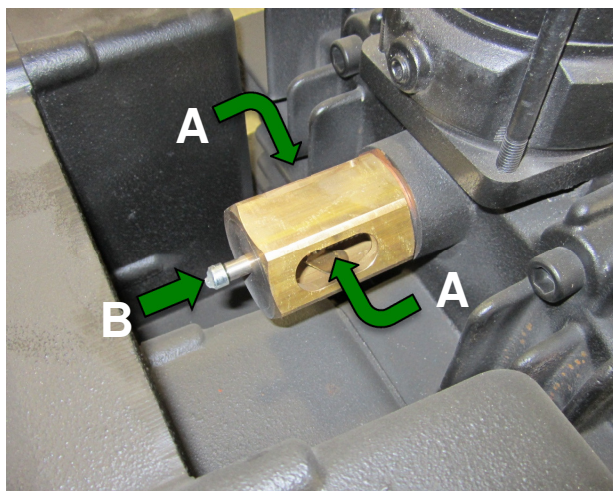
Disconnect power to the vacuum pump and with the assistance of a qualified electrician, prepare a method of operating the pump separate from the conveying system control. Operation must be triggered on and off from the pump itself for your safety.

The pump must be operated separate from the vacuum system and with access to the vacuum inlet, so disconnect vacuum hoses, manifold or tubing from the pump inlet port. The outlet of the pump (exhaust) must be unrestricted.

Use extreme caution when working with the pump: In addition to heat, vacuum pumps create strong vacuum suction during operation and the inlet to the pump must be kept completely clear of extraneous materials including tools, documents, rags, shirts sleeves, etc.

Tools will be required for removal of the pump cover and for the screws on the vacuum relief valve, including: 2 mm, 4 mm and 5 mm right-angle Allen wrenches plus a removable thread lock solution*.

A "test plate" consisting of a smooth metal plate or firm wooden board at least 4" wide and 12" long is required for partially blocking off the vacuum inlet to create resistance in the flow of vacuum air into the pump. Assure that the selected item is clean and free of paint or other coatings that may be sucked into the pump during this high vacuum adjustment procedure.



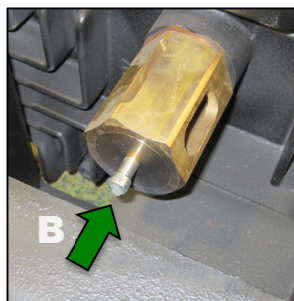
Procedure:

1. Remove the main cover by first removing the lifting eye bolt, the four bolts surrounding the eye bolt and the 6 bolts from the sides of the cover with a 4 mm Allen head wrench. The small top cover can then be removed and the larger body may be carefully slid off the pump.
2. Locate the vacuum relief valve near the base of the inlet line (see picture).
3. Loosen the two set screws (A) within the larger slots on either side of the valve body with a 2 mm Allen wrench, to allow adjustment of the relief valve.
4. Turn on the vacuum pump and allow it to operate with no obstructions on its inlet. Assure that the vacuum pump can be easily shut off at any time during the procedure.
5. While observing the vacuum gauge, carefully place the test plate over approximately 50% of the inlet tube, creating resistance on the flow of air into the pump. This is typically done by starting at the edge and slowly moving/rocking the plate over the opening until the inlet approximately 50% covered.
6. Observe the pump's vacuum gauge and listen for the slip of the vacuum relief valve at the 50% setting. If the relief valve is slipping open (allowing air to be sucked into the pump, to relieve its pressure) yet the desired setting for your altitude has not been reached, move the plate to a less-covered position over the inlet tube and repeat step 5. If the vacuum level has not yet been achieved and the vacuum relief valve is not opening, proceed to the next step.
7. While slowly covering more of the vacuum inlet tube, observe the vacuum gauge and listen for the opening of the vacuum relief valve. The goal is to establish the exact point at which the valve opens and assure, by adjusting the valve, that it fully opens at the exact pressure required for your altitude from the chart above.

The vacuum relief valve is adjusted by turning adjustment screw B with a 5 mm Allen wrench* (as viewed from the screw side):



Clockwise to reduce vacuum level.
Counter Clockwise to increase the vacuum level.



8. Perform several tests using this method; covering and uncovering the vacuum inlet and assuring that the vacuum relief valve opens at the precise vacuum level listed above.
9. Once the desired set point is reached through adjustment of the vacuum relief valve, turn off the pump, disconnect power and lock the setting by applying removable thread lock solution and retightening the locking set screws (A).
10. Be sure to test the setting before placing the pump into service, using steps 5 through 8. Readjust as needed.
11. Replace the covers and reconnect all tubing, fittings etc. to place the pump in service.

*In the rare event the adjustment screw (B) unscrews and begins to turn independent of the adjustment shaft, making CCW valve adjustment impossible, perform the following steps:

1. Stop the adjustment procedure, turn off the pump and completely unscrew and remove the adjustment screw from the adjustment shaft.
2. Carefully apply **permanent** thread lock to the adjustment screw threads.
3. Thread the screw back into the shaft and tighten snugly to assure it is bottomed down onto the adjustment shaft. Retightening of the lock screws (A) may be required to assure a tight installation of the adjustment screw into the adjustment shaft. Be sure to keep the thread lock solution off of the adjustment shaft.
4. Allow the sealant to fully dry and/or cure according to its instructions before returning to your vacuum relief adjustment process.

UVP PARTS LIST

QTY	DESCRIPTION	Part Number							
		4HP		6.4HP		8.7HP		15HP	
1	UVP Pump								
	208V/230V/460V/ 220V/400V/575V	UVP-4-001		UVP-6-001		UVP-9-001		UVP-15-001	
1	Vacuum Relief Valve	vrv20-18		Included with UVP (PN for maintenance)				UVP-15-002	
				UVP-SP-002					
1	Vacuum Gage	50011		50011		50011		50011	
1	Silencer (Muffler)	UVP-4-002		UVP-6-002		UVP-9-004		UVP-15-002	
INC	Synchronizing Gear Oil	Included with UVP (PN for maintenance: UVP-SP-001)							
1	Solenoid VBV								
	115 VAC	08236		08236		08236		08236	
	24 VDC	08238		08238		08238		08238	
1	Air Cylinder VBV	08945		08945		08945		10972	
1	Motor Starter Box	No Disc	Disc	No Disc	Disc	No Disc	Disc	No Disc	Disc
	230V (3/60)	eAN	eBD	eBN	eDD	eCN	eDD	eBN	eCD
	460V (3/60)	eAn	eAD	eAN	eBD	eBN	eDD	eAN	eBD
	575V (3/60)	eAN	eAD	eBN	eBD	eAN	eCD	eAN	eAD
	220V (3/50)	eAN	eBD	eBN	eDD	eCN	eDD	eBN	eCD
	400V (3/50)	eAN	eAD	eAN	eBD	eBN	eDD	eAN	eBD
1	Filter Element	11966		11966		11966		11966	
INC	Inlet Screen			Included with UVP (PN: UVP-SP-003)					

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. If environment is dusty clean as described under Every 6 Months

EVERY MONTH

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

EVERY 3 MONTHS

Check level of the synchronizing gear oil, it should read lightly above the middle of the sight glass. The level should stay consistent over the lifetime. If level falls the gear is leaking and the vacuum pump requires repair.

EVERY 6 MONTHS

Check for loose electrical connections. Remove acoustic enclosure, ensuring foam mats do not get soaked with water. Clean the fan cowlings, fan wheels, ventilation grilles and cooling fins. Re-mount the acoustic enclosure. Tighten all bolts and nuts on the pump.

UVP15 Models Only: Models having grease fittings must be lubricated twice a year with the high melting-point grease, Kluber Asonic HQ 72-102. For models without grease fittings, grease only at overhaul. Grease can be added to the bearings by charging the bearings with grease through the grease fitting until grease comes out of the opening.

EVERY 12 MONTHS

Clean (with compressed air) or replace the inlet filter. Check inlet screen below filter housing inlet, clean if necessary. Change synchronizing gear oil according to vendor instructions on the next page.

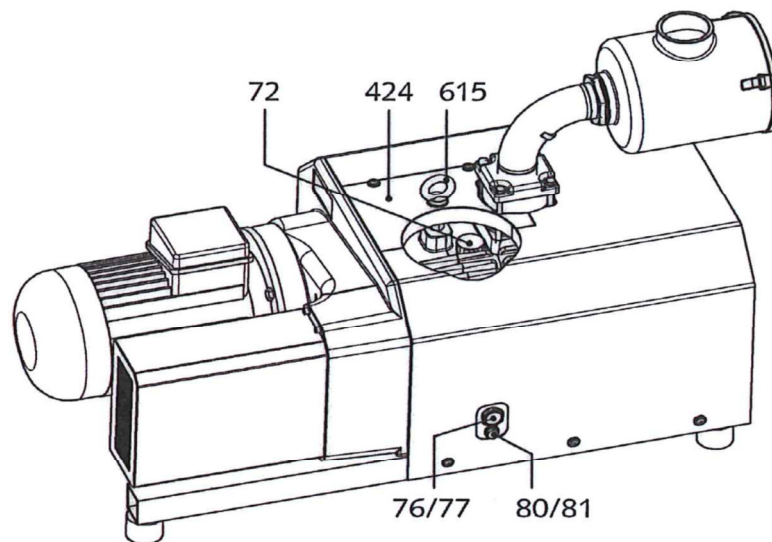
Synchronizing Gear Oil:

Change oil once a year.

USE ONLY SPECIFIED OIL FROM PARTS LIST.

Remove eyebolt and lid. Depressurize the gear box by undoing the venting valve (UVP15: remove oil fill plug on top of gear box). Drain oil and make sure seal ring on the drain plug is serviceable, replace if needed. Reinstall seal and drain plug, insuring they are tightened securely. Fully remove venting valve insuring the seal is undamaged. Fill new gear oil until the level is slightly above the middle of the sight glass. Reinsert venting valve and seal. Reassemble lid and eyebolt and dispose of used oil.

- Make sure that the vacuum pump is shut down and locked against inadvertent start up



- Remove the eyebolt (a)
- Remove the lid (424)
- Undo the venting valve (72) for venting
- Place a drain tray underneath the drain plug (f, 80)
- Open the drain plug (f, 80) and drain the oil
- Make sure that the seal ring on the drain plug (f, 80) is serviceable, replace if necessary
- Firmly reinsert the drain plug (f, 80) together with the seal ring
- Remove the venting valve (72) completely
- Fill in new gear oil until the level is slightly above the middle of the sight glass (e, 76)
- Make sure that the seal ring on the venting valve (72) is undamaged, if necessary replace the venting valve (72)
- Firmly reinsert the venting valve (72) together with the seal ring
- Mount the lid (424)
- Reinsert the eyebolt (a)
- Dispose of the used oil in compliance with applicable regulations

WARRANTY – NOVATEC, INC. - Effective Date 9-28-2011

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 Period:

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

UVP 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, 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 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. Velocity Control Valve warranty is voided if unit is placed in direct material flow.

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.