



VACUUM PACKAGING

User's Manual "Nel" Series 216/219/220/226 416/419/420/426

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TABLE OF CONTENTS

1	General Information	p.1
2	Warranty	p.2
3	Installation	p.2
4	Operations	p.5
5	Sauces and other liquid products	p.7
6	Maintenance	p.7
7	Replaceable parts	p.9
8	Troubleshooting	p.10

GENERAL INFORMATION

INTRODUCTION

This owner's manual explains how to get the best of your Vacuum Packaging unit for the models 216M/219M/220M/226M.

Hi-Tech Vacuum Packaging units are utilized for vacuum packaging food and non-food products. Hi-Tech guarantees that these units meet the highest standards in quality, durability, operational safety and ease of service.

Vacuum packaging provides the best solution for protection against humidity, mildew, moisture, bacteria, corrosion, dust, water, air, light, odors, etc.

As the new owner of a Vacuum Packaging unit, you should take time to read this manual to maximize your purchase.

SAFETY CONSIDERATIONS

GENERAL WARNINGS AND CAUTIONS

Models 216M/219M

Before switching on the unit, the plug of the power cord must only be inserted in a socket outlet provides with a protective earth contact. The protective earth must not be bypassed by the use of an extension cord (power cable) without a protective conductor (grounding). Grounding one conductor of a two-conductor outlet is not sufficient protection.

Models 220M/226M

Before switching on the unit, the cable of the unit must be firmly secured in proper enclosed safety switch, according to your local electrical rules, with an earth contact. The protective earth contact must never be bypassed.

Servicing instructions are for use by service-trained personnel. To avoid dangerous electric shock, do not perform any servicing unless qualified to do so.

Any interruption of the protective (grounding) conductor (inside or outside the unit) or disconnecting the protective earth terminal will cause a potential shock hazard that could result in personal injury.

Whenever it is likely that the protection has been impaired, the unit must be made inoperative and be secured against any unintended operation.

Do not install unauthorized parts or perform any unauthorized operation modification to the unit.

Avoid any adjustment, maintenance and repair of the opened equipment under voltage. When unavoidable, only a skilled person who is aware of the hazard involved should carry out any adjustment, maintenance, or repair.

Capacitors inside the unit may still be charges even if the unit has been disconnected from its source of supply.

WARRANTY

This Hi-Tech Vacuum Inc. product is warranted against defects in material and workmanship for a period of one year from the date of shipment to the customer. During this warranty period, Hi-Tech Vacuum's responsibility is limited to the replacement of defective parts, **excluding** labor and any freight charge. It does not cover the Sealing bars and the Sealing cushions.

Hi-Tech Vacuum Inc. reserves the right and sole discretion to modify or change the composition, design and appearance of its products at anytime.

LIMITATION OF WARRANTY

The foregoing warranty shall not apply in the following cases:

- When a failure or defect requiring repair occurs due to improper or abusive use, negligence, accident, or carelessness.
- If any unit has been handled or repaired by an unauthorized person.
- If any unit has been damaged by fire, vandalism, lightning, or act of god.
- Any maintenance, carried out during the warranty period, by anyone other than an authorized person or service center will nullify this warranty.
- Any breakage or damage to the material caused by accident, poor usage or incorrect installation will nullify this warranty.

NO RESPONSIBILITY FOR INDIRECT DAMAGES

Within the limits prescribed by law, Hi-Tech Vacuum Inc. renounces any liability for losses of time or use of its product or for any transportation costs or any damages or inconvenience whether direct or indirect.

EXCLUSION OF ANY OTHER EXPRESSED WARRANTY

This warranty is the sole warranty offered by Hi-Tech Vacuum Inc. for its products. As such, no authorized Hi-Tech Vacuum Inc. dealer nor any dealer nor any of its agents or employees is authorized to prolong, widen, or change this warranty in anyway on behalf of Hi-Tech Vacuum Inc.

INSTALLATION

Introduction

This section of the Owner's Manual contains information and instructions for setting up your Vacuum Packaging Unit.

This includes inspection procedures, packaging information and power requirements.

Initial Inspection

Inspect the shipping container for damage. If the shipping container or cushioning material is damaged or show sign of stress, notify immediately your carrier and your dealer. Keep it until the content of the shipment has been checked for completeness and the unit has been checked mechanically and electrically. The content of the shipment is listed in the next subsection "Unpacking Check Lists". If the

content is incomplete, notify immediately your dealer.

Unpacking Check Lists for models 216M/219M

- ☐ One (1) Vacuum Packaging Unit
- ☐ One (1) Filler Board and set-up supports
- ☐ One (1) liter of Busch Pump Oil, type R-580
- ☐ One (1) Filling Bottle for Oil
- ☐ One (1) Owner's Manual
- ☐ One (1) Busch pump "Installation and Operating Manual"

Unpacking Check Lists for models 220M/226M

- ☐ One (1) Vacuum Packaging Unit
- ☐ One (1) Filler Board and set-up supports
- ☐ One (1) liter of Busch Pump Oil, type R-530 (model 220M/226M with a 40 m³/h or 28 CFM pump)

Or

- ☐ Two (2) liter of Busch Pump Oil, type R-530 (model 220M/226M with a 63 m³/h or 41 CFM pump)
- ☐ One (1) Owner's Manual
- ☐ One (1) Busch pump "Installation and Operating Manual"

Installation Check List for Models 216M/219M

- ☐ The unit must be installed in a horizontal position on a level surface so that the unit is evenly supported on its rubber pads or on the cart (optional).

- The unit should not be built in: this provides easy access for maintenance and ensures sufficient ventilation. All sides of the unit should be easily accessible.
- The unit must be connected to a power supply with its own breaker, according to your local electrical rules. Make sure that the power supply voltage matches the one of the unit (check the Hi-Tech sticker on the back of the unit for the electrical ratings).
- The unit is equipped with a three-wire power cable (power cord). When connected to an appropriate AC power outlet, this cable grounds the unit cabinet. The protective earth must not be bypassed by the use of an extension cord (power cable) without a protective conductor (grounding). Grounding one conductor of a two-conductor outlet is not sufficient protection.
- THE PUMP IS SHIPPED WITHOUT OIL. Fill the pump with the recommended non-detergent motor oil that you received with your unit (Busch R-580 synthetic oil) through the oil filling port on the side of the unit. Use a 3/8" Allen Key to unscrew the oil plug. A 3/4 to a full Filling Bottle should be enough to fill the pump. Check the oil sight glass of the pump through the hole on the back panel of the unit. THE OIL LEVEL SHOULD BE AT 3/4 OF THE OIL SIGHT GLASS.
- Switch the unit to "ON" and adjust the Vacuum knob at around 9 and the Seal knob at minimum (0). Close the lid to run a complete cycle. After the unit has completed her cycle, wait a few minutes to allow sufficient time to the circulating oil to return to the oil sump. Check the oil level in the oil sight glass and add oil, if necessary.

Installation Check List for Models 220M/226M

- The unit must be installed in a horizontal position on a level surface so that the unit is evenly supported on its casters.
- The unit should not be built in: this provides easy access for maintenance and ensures sufficient ventilation. All sides of the unit should be easily accessible.
- The unit must be connected according to the electrical codes governing the installation. The power supply must be routed through a fused switch (enclosed safety switch) to protect the unit against electrical or mechanical overloads. Make sure that the power supply voltage matches the one of the unit (check the Hi-Tech sticker on the back of the unit for the electrical ratings).
- After the electrical connection has been made, but before the pump is filled with oil, the rotation of the motor must be checked. Jog the motor briefly to make sure rotation is correct (if should suck air from the vacuum chamber). If it runs backwards and if it is wired three phase power, reverse any two leads of the three at the power connection.
- THE PUMP IS SHIPPED WITHOUT OIL. Fill the pump with the recommended non-detergent motor oil that you received with your unit (Busch R-530S semi synthetic oil) through the oil filling port of the pump (back of the unit). Check the oil sight glass of the pump. THE OIL LEVEL SHOULD BE AT 3/4 OF THE OIL SIGHT GLASS.

- Switch the unit to “ON” and adjust the Vacuum knob at around 9 and the Seal knob at minimum (0). Close the lid to run a complete cycle. After the unit has completed her cycle, wait a few minutes to allow sufficient time to the circulating oil to return to the oil sump. Check the oil level in the oil sight glass and add oil, if necessary.

CAUTION

The oil level should always be checked on a weekly basis, if not daily, before operating the unit.

Use only **NON-DETERGENT** motor oil.

Never clean the unit with a high-pressure cleaner; the unit, and specifically the electronics can be damaged.

Before cleaning or carrying out maintenance, always disconnect the unit from power supply.

Maintenance and repairs must be carried out by authorized Hi-Tech dealers only.

Do not vacuum package sauces or other liquid products before being familiar with operating procedures. See Section “Sauces and other Liquid products”.

Do not tip the unit over if the pump is filled with oil.

Whenever the unit is transported, be sure to drain the oil of the pump prior to shipping.

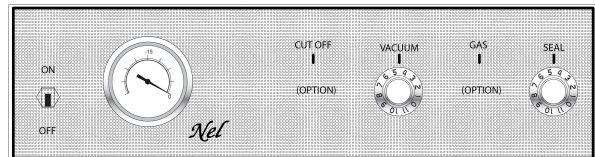
Cette section du manuel contient les renseignements ainsi que les instructions pour l'installation de votre unit à emballer sous vide. Cela inclut l'inspection initiale, l'emballage de la unit et les exigences électriques.

OPERATIONS

Introduction

This section of the Owner's Manual contains information and instructions for operating your Vacuum Packaging Unit.

Control Panel



Manometer

The manometer of vacuum gage gives the vacuum level that is reached inside the vacuum chamber (in the pouches also) by the pump.

Vacuum Knob

Use the Vacuum knob to set the vacuum time. The time can be adjusted between 0 to approximately 2 minutes. By setting a value with the Vacuum knob, you control the amount of time the vacuum pump will be working. The vacuum time is determined by the product and by the level of vacuum that you want to reach. As a guide, start with a value of 7 on the Vacuum knob and adjust it according to your need.

Removal of the insert plates (shims) increases the capacity of the vacuum chamber, requiring a longer vacuum time to ensure proper results.

During a cycle, you can stop the vacuum process by turning the vacuum knob to 0. This action stops the vacuum and force the unit to go to the sealing process.

Sealing knob

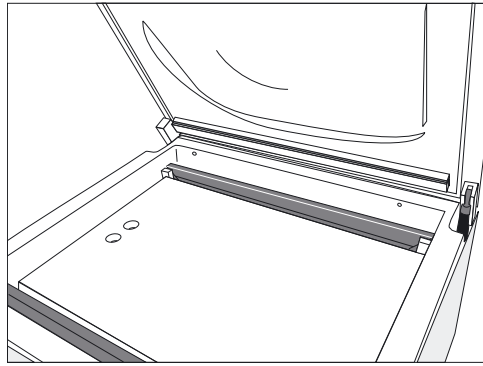
Use the Sealing knob to set the sealing time. The time can be adjusted between 0 to approximately 9 seconds. By setting a value with the Sealing knob, you control the amount of time the sealing bar will transfer heat to the pouches and seal them under pressure. The sealing time is determined by the thickness and quality of the vacuum pouch. As a guide start with a value of 4 on the Sealing knob and adjust it according to the type of vacuum bags you use.

During a cycle, you can stop the sealing process by turning the Sealing knob to 0. This action stops the sealing and forces the unit to go to the decompression process.

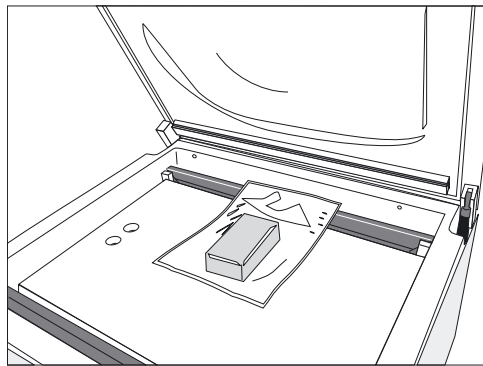
Quick Start

- Turn the unit with the “ON/OFF” switch.
- Adjust the height of the insert plates (shims) for the product that you want to package.
- Place your pouches inside the vacuum chamber, making sure that:
 - Your pouches are not too full
 - The pouches are wrinkle-free when they are placed over the seal bar.
- Check your Vacuum and Sealing knobs for the proper settings.
- Close the lid and the unit will begin the cycle.
- After decompression, the lid will open automatically.

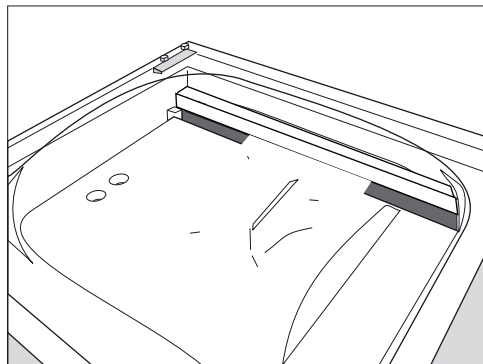
Before going into full production with your new vacuum packaging unit, you should package a few samples of each product that you want to use and check the end result (e.g. after a few days, at your client's place, etc.)



1. Open the lid and turn the unit ON. Set the vacuum and seal levels as described previously.



2. Lay the pouches on the shims and align their opening along the sealing cushion.



3. Start the packaging cycle by closing the lid (hold the closed until you feel a suction).

SAUCES AND OTHER LIQUID PRODUCTS

When vacuum packaging sauces and other liquid products, careful attention must be paid to the vacuum level on your vacuum gage (manometer). This is because the boiling point of liquids decreases as the vacuum level increases. Boiling point is reached when gas bubbles can be seen in the pouch. At that point the vacuum must be stopped by turning the Vacuum knob to 0. Going over that point could result on a spill inside the vacuum chamber, and worst, the liquid could go into the pump and damage it.

With a dry and cold product, the unit can reach the maximum vacuum possible of the pump (around 99.9%). This maximum vacuum level decreases as temperature and humidity of the product increase, because under vacuum water turns instantly into vapor, which will replace the air inside the pouch.

MAINTENANCE

Maintenance table

DAILY	• Check the oil level. • Clean the unit.
WEEKLY	• Check the oil level and quality.
MONTHLY	• Check the oil quality and change the oil and filter if necessary.
YEARLY	• Change the exhaust filter.

Cleaning requirements

Use mild soap and water to clean:

- The air tightness gasket of the lid.
- The sealing cushions on the lid.
- The lid.
- The keyboard.

- The vacuum chamber.
- The insert plates (shims).

Caution

Always disconnect the unit from the power supply during cleaning.

Care must be taken to not use a harsh soap or petroleum-based solvent on silicone and plastics.

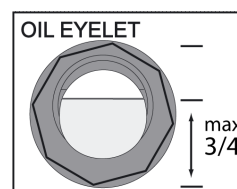
Never clean the unit with a high-pressure cleaner; the unit, and specifically the electronics can be damaged.

Oil level check

The oil level should be observed on a daily basis and be replenished if it drops below the 1/4 or MIN mark of the oil sight glass (see Detail I).

For the models 216M/219M there is a hole in the back panel (3) of the unit where you can see the oil sight glass of the pump.

For the models 220M/226M the oil sight glass of the pump (3) can be seen directly at the back of the unit.



Detail I

All oil level readings should be done only when the pump is turned off. Oil can be added to the oil fill port if the pump is shut off and the circulating oil has sufficient time to return to the oil sump.

Under normal circumstances, it should not be necessary to add or drain oil from the pump between recommended oil changes. A

significant drop in oil level means there is an oil leak or that an exhaust filter is broken; in which case the pump should be smoking excessively.

It is normal for the oil to be foamy and light colored in an operating pump. However, if the oil is milky or dark colored, it is contaminated or burned and must be changed.

Oil type

The pump manufacturer, Busch, recommends that their R-500 series oils be used to receive the best performance for your vacuum packaging unit. R-500 series oil is a high quality vacuum oil which will give a longer running time between oil changes, provide better lubrication at high operating temperatures and prolong the life of exhaust filter elements.

For models 216M/219M, use the Busch R-580 or SAE20wt **non-detergent** motor oil.

For models 220M/226M, use the Busch R-530 or SAE-30wt **non-detergent** motor oil.

For ambient operating temperatures lower than 5 degrees C (41 degrees F), use Busch R-580 synthetic oil or multi purpose motor oil with lower viscosity. Do not use detergent motor oil.

Oil detergent additives can cause the exhaust filters to become plugged and shorten their service life.

The following table gives the approximate quantities of oil required for each pump:

Oil pump capacity

Pump model	Oil pump capacity (Qt.)
RB0021	0.5
RA0043	1
RA0063/RA0100	2

Oil change

When using Busch R-500 series vacuum oil, it is recommended that oil changes are made every four (4) months or 750 hours of operation, whichever comes first.

When using SAE non-detergent motor oil, change every three (3) months or 500 hours of operation, which comes first.

Unusual operating conditions such as duty environment, high humidity, above 100 degrees F ambient temperature, or high inlet pressures may require more frequent changes.

Prior to any oil change, make sure that the unit (pump) has been running for at least 15 minutes, so that the oil is warm, remove oil drain, and drain the hot oil.

When pump has been flushed sufficiently, install a new automotive type oil filter (for unit models 220M/226M only), tighten the oil drain plug, and fill the pump with fresh oil through the oil filling port.

Used oil is to be disposed of according to environmental laws.

Contaminated oil

If the oil is contaminated (if the oil is very dark in color or if oil is very milky from moisture contamination), flush the pump with some fresh oil or with flushing oil. To do this, drain the contaminated oil through drain port and fill the pump through the oil filling port with flushing oil or regular pump oil. Run the unit (pump) for a period of approximately 30 minutes and shut it off. Drain the oil at once and, if necessary, repeat the operation as often as required to obtain correct color, viscosity and lubricity (finger test).

Pump Model No.	Filet	Busch Pièces No.
0025, 0040 0063, 0100	$\frac{3}{4}$ "-16	531.002.00

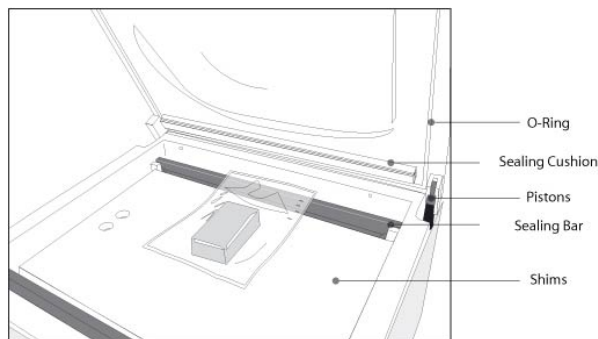
méthode décrite à la page précédente (“Changement d’huile”) et vérifiez la contamination de l’huile.

À l’aide d’une clé à filtre de type automobile, enlever le filtre à l’huile et remplacer par un nouveau filtre en prenant soin de mettre un peu d’huile sur le joint du filtre. Serrez à la main jusqu’à ce que le joint touche la base et après, serrez 2/3 de tour de plus. Ne pas trop serrer le filtre.

Exhaust Filter

Every nine (9) to eighteen (18) months or as necessary replace the exhaust filter element(s). To do so, contact your dealer or read the Busch “Installation and Operating Manual” section 3.3.

REPLACEABLE PARTS



Ordering information

To order a part in the material list of the next pages, quote the part number, indicate the quantity desired, and address the order to your dealer or to the Hi-Tech office.

To order a part not listed in the material list, include the unit model number, the unit serial number, a description of the part including its function, and the number of parts required. Address the order to your dealer or to the Hi-Tech office.

REPLACEABLE PARTS

Description	216	219	220	226
O-ring for lid	112	112	113	113
Sealing bar	405	406	407	408
Sealing wire	419	420	421	422
Teflon tape	423	424	425	426
Silicone cushion	409	510	411	412
Busch oil R-580	831.021 .00	831.021 .00		
Busch oil R-530			831.033 .01	831.033 .01
Exhaust filter	532.221 .02	532.221 .02	532.302 .00	532.302 .00

Note 1: The filter kit contains an oil drain plug, gaskets, an exhaust filter, and a synthetic baffle strainer.

Note 2: The filter kit contains an oil drain plug, gaskets, an automotive type oil filter, an exhaust filter and a synthetic baffle strainer.

For these parts, contact directly Busch Vacuum Technics Inc.
In Canada: 1-800-363-6360
In U.S.A.: 1-757-463-7800

TROUBLESHOOTING

The unit does not work. • Check to see if the power cord is plugged in. • Check the main breaker of the unit. • Check the alignment of the magnet on the gas cylinder of the lid (open the back panel) with the magnetic detector (small PCB).
The unit does nothing but makes a “click-click” sound. • Check the electrical power available. Does it meet the power requirement of the unit? • Check the extension power cord for proper gauge and length. • Check the oil level and type. • Check the alignment of the magnet on the gas cylinder of the lid (open the back panel) with the magnetic detector (small PCB).
The cover does not stay closed and the unit starts the cycle. • Check the air tightness gasket of the lid to see if it is out of the groove or damage. • Check the suction outlet in the vacuum chamber for blockage material.
The vacuum pump makes a strange noise. • Check the oil level and type. • Check the electrical power available. Does it meet the power requirements of the unit? • Check the breaker of the fuses at the enclosed safety switch.
Insufficient vacuum. • Increase the vacuum time. • Check the oil level and type. • Check for oil contamination (dark or milky). • Check for air leak. • Check the exhaust filter of the pump (see the maintenance section of this manual).l).
Insufficient vacuum in the package. • Check the sealing on the pouch. • Check for small holes on the pouch. • Check the sealing bar for restriction in movement. • Check the quality of the vacuum pouch.
The vacuum pouch is not sealed correctly • Check the sealing time adjustment. • Check the opening of the vacuum pouch for cleanness. • Check the sealing bar for restriction in movement. • Check the teflon tape of the sealing bar. Is it worn out? • Check for broken sealing wire on the sealing bar. • Check for the cleanness of the sealing bars and of the sealing cushions. • Check the integrity of the contacts and terminals for the sealing bar.



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