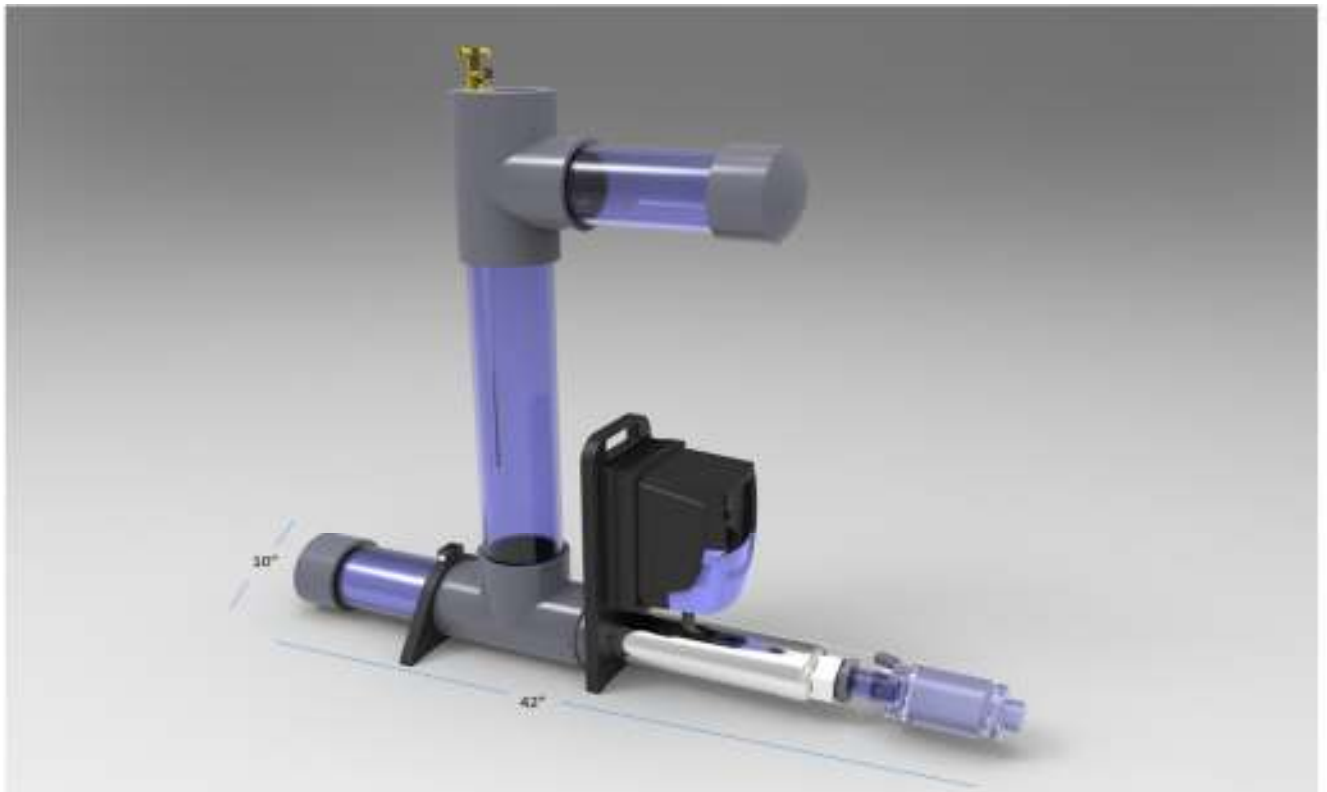


HYDRA CONTINUOUS FLOW RELEASER



PRODUCT MANUAL

Installation Instructions

1. Install per local codes
2. Refer to VFD manual for electrical requirements.
3. DO NOT put excessive strain on the sensor connectors.

Warnings:

This is automatic machinery, the pumps will start automatically without warning.

Disconnect from power before servicing.

DO NOT DEADHEAD THE PUMP, the pump outlet must be free to flow at all times, Deadheading will result in equipment damage. If your pump line leaves a heated space, it must be heat traced, or free draining.

Maintain adequate vacuum during sap flow to prevent short cycling of the releaser, which may shorten the motor life, for most models this is a minimum of 20"

Equipment must remain in heated space do not allow to freeze, even in the off season

DO NOT REMOVE THE FINGER GUARD FROM THE VACUUM MODULATOR VALVE, IT CAN DAMAGE A FINGER WHEN CLOSING

4. Horizontal pump tube must be installed level. If it is installed tipped forward, the pump upthrust bearings will wear prematurely.
5. Vacuum connection is a 2.375" port that accepts a **user supplied** 2" sch40 pvc pipe that must be chamfered on the end to protect the o-ring. Do not glue this fitting.
6. For pump lines shorter than 50' 1" pipe is sufficient up to 8k taps.
7. If manifolding sap outlets together use 2" pipe
8. If the install has static head (lift) greater than 20 ft contact NSW for recommendations
9. In order to maintain wash down rating sealed cable glands must be used for electrical connections to the VFD.
10. Household hose pressure is fine for cleaning, Do not pressure wash unit.

Electrical

1. Refer to the VFD manual for electrical power and wiring requirements
2. Flow rate:

For high vacuum conditions the releaser will turn on once after receiving sufficient sap to reach the start threshold sap at the thaw, and turn off at approximately 15 GPH at the freeze.

Under lower vacuum conditions it may cycle a few times at low flow rates, this is ok.

The Hydra is rated for 25 gpm,

Filter Basket

The filter basket inside the top TEE should be removed and emptied daily in the early part of the season, and as needed after the plastic and viscous bio material is finished coming in.

Vacuum control

For models with vacuum control option:

1. The relay contacts in the VFD are closed when the run starts and open 30 minutes after the run stops. They can be used as a control contact for the vacuum pump.
2. Positions 10 and 11 of the terminal strip inside the VFD are the vacuum control contacts. These are suitable for control contacts only, for actual ratings see the VFD manual.
3. Turning off the inverter will open the contacts.
4. Stopping the inverter will open the contacts.
5. If multiple posts are used in one install, the first post connected to the manifold should connect to the vacuum pump. Another option is to connect the contacts in parallel for each post in the install, this option will restart the vacuum pump if the first post fails.

Vacuum modulation Valve

For models equipped with a vacuum modulation valve:

1. The vacuum modulation valve should be connected to the Sensor connector.
2. Do not connect wires from one sensor to another This will result in damaged electronics.
3. **Do not remove the guard from the modulator valve, it can damage a finger when closing.**
4. If the extractor is in danger of flooding, the vacuum modulator valve will partially open, modulating the vacuum down until the pump catches up. Once caught up the valve will close and vacuum will return to max levels. Typically only a few inches of vacuum modulation are required for the pump to catch up.
5. The auto vent self tests at power up, it opens and closes again.

Manual purge

1. The post can be purged of sap manually by turning the speed knob to the 1 o'clock position.
2. Then turn the selector to “reverse” the unit will pump down until it loses prime. Do not leave the pump running after prime is lost. Turn the selector back to “forward” so you can catch the next run.

Speed Monitor

1. The Hydra has an analog speed monitor output on each unit, it indicates what speed the post is running at.

0v = off

10v = max speed

2. The signal is available on the internal vfd terminal strip. Position 9 is the common and 8 is the signal.

Fail-over testing

For multiple post installs:

1. It is a good idea to test the fail over on a regular basis, this way you can be assured it will work when you need it. If done daily you can keep the sap fresh in the second post.
2. Be aware this will stop and start the vacuum pump if equipped with the vacuum controller, if this is a problem wire in a “VACUUM ON” switch across the vacuum control contacts, or install the ON/OFF/AUTO vacuum accessory switch.
3. When sap is running and the first post is running at 45hz or less, turn the 1st post selector switch to “OFF”.
4. The sap will then flow to the next post which should start running in a few seconds. It may run fast at first and vent momentarily but should slow to approximately the same speed as the first post after a few seconds.
5. Turn the first post back to “FWD” it should run fast initially and then resume normal operation. If desired the sap may be manually purged from the second post.

VFD programming

VFD is pre programmed and will not accept user changes.

Thermal Switch

The motor tube has a thermal switch. If the temperature goes above 100F the contacts will open and the VFD will stop. The VFD will flash “E-trip”. Make sure the connector is assembled properly if getting E-trip errors.

Pulling Taps

Sometimes sap is too nasty to pump well when pulling taps, if the extractor is having difficulty pumping this, place a spout or 2 in a clear stream to maintain good liquid flow in the extractor, if a stream is not nearby use any clean water source to put a couple GPM into the extractor to keep the nasty sap moving.

NORTHWOOD SUGARWORKS, LLC

LIMITED WARRANTY

The warranty obligations of Northwood SugarWorks, LLC (“Northwood Sugar”) for this product are limited to the terms set forth below:

This limited warranty covers defects in materials and workmanship in this product at the date of purchase.

The product manual contains instructions for safely, operation and maintenance. Prior to assembly, setup or use, it is essential to read and follow all instructions and warnings in the manual in order to operate correctly and avoid damage or injury. This product is not intended for use by children.

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, negligence, modification of or to any part of the product, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), improper installation, operation, lightning, power surges, or other acts of God or nature. This limited warranty does not cover freeze damage unless Northwood Sugar determines, in its sole discretion, that the freeze damage is a direct result of defects in materials or workmanship. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Northwood Sugar to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

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This limited warranty lasts for two (2) years from the date of original purchase of this product.

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to any subsequent purchasers or owners of this product.

Northwood Sugar will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Northwood Sugar will also pay the shipping costs necessary to return this product once the repair is complete

2. Replace this product with a direct replacement or with a similar product deemed by Northwood Sugar to perform substantially the same function as the original product. Returns for replacement must be authorized in writing in advance of shipment by Northwood Sugar.

3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

Northwood Sugar reserves the right to inspect any and all equipment involved in a warranty claim.

If this product is returned to Northwood Sugar or the authorized Northwood Sugar dealer from which it was purchased or any other party authorized in writing to repair Northwood Sugar products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Northwood Sugar will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Northwood Sugar will not be responsible for any costs related to any setting up or breaking down of this product, any adjustment of user controls or any programming required for a specific installation of this product.

To obtain a remedy under this limited warranty, you must contact either the authorized Northwood Sugar reseller from whom you purchased this product or the Northwood Sugar office nearest you. For a list of authorized Northwood Sugar resellers and/or Northwood Sugar authorized service providers, please visit our web site at www.NorthwoodSugarWorks.com or contact the Northwood Sugar office nearest you.

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Other Conditions The Terms of this limited warranty are governed by New Hampshire law.

In the event that a dispute arises between Northwood Sugar and you, except for injunctive type of relief, the sole method for settling the dispute will be binding arbitration in the state of New Hampshire or another location mutually agreeable to the parties. The arbitration shall be conducted on a confidential basis pursuant to the Commercial Arbitration Rules of the American Arbitration Association. Any decision or award as a result of any such arbitration proceeding shall be in writing and shall provide an explanation for all conclusions.

This limited warranty is void if (i) the label bearing the serial number of this product has been removed or defaced, (ii) the product is not distributed by Northwood Sugar or (iii) this product is not purchased from an authorized Northwood Sugar reseller. If you are unsure whether a reseller is an authorized Northwood Sugar reseller, please visit our web site at www.NorthwoodSugarWorks.com or contact Northwood Sugar at (978) 500 – 0082.