



## TECHNICAL SERVICE BULLETIN

**Product:** Cornelius Viper

**Subject:** Periodic Validation of CO<sub>2</sub> Pressures and Flow Control Settings for Brix Accuracy

**Date:** 06/22/2021

**Objective:**

To maintain consistent brix and ensure optimal product performance, it is recommended to validate CO<sub>2</sub> pressures, water flow rates, and brix settings at installation and during periodic maintenance.

Steps should be performed prior to filling the barrel, at installation, during product-related service calls, and during preventative maintenance.

**Steps:**

**1. Verify CO<sub>2</sub> pressures**

- a. Verify the unit is on a dedicated CO<sub>2</sub> regulator, and CO<sub>2</sub> pressure to the unit 75±1 psig, adjusting if necessary.
- b. If the unit is on a plumbed cart, verify CO<sub>2</sub> pressure to the BIB pumps is 75±1 psig, adjusting if necessary.
- c. If the unit is plumbed to a back room, verify CO<sub>2</sub> pressure to the syrup BIB pumps are ±1 psig to the table below, adjusting if necessary.

		BIB Pump Set Pressure (psig)											
		15'	10'	5'	0'	10'	20'	30'	40'	50'	60'	70'	80'
Vertical Rise (ft.)	15'	80	80	80	80	85	85	85	85				
	10'	75	80	80	80	80	80	85	85				
	5'	75	75	75	75	80	80	80	80				
	0'	75	75	75	75	75	75	75	75	80			
		10'	20'	30'	40'	50'	60'	70'	80'				
		Length of Run (ft.)											

**2. Remove the splash panel** (panel below dispense nozzles)

- a. Turn off the barrel being worked on.
- b. Place the sample tube for the barrel being worked on into a large cup or clean container.
- c. Turn the 3-way valve for the barrel being worked on to the brix position.



- 3. Verify the water flow rate** – requires a brix cup and a timer
  - a. Prime the sample tube – Actuate the water solenoid valve manually until water flows clear into the large cup or container. The water valve can be actuated using a finger or by inserting a flat head pocket screwdriver into the slot in front of the flow control at a 45° angle and pushing the screwdriver down towards the ground. This will lift up on the solenoid plunger and allow the water to flow.
  - b. Starting with an empty brix cup, actuate the water solenoid for 10 seconds, dispensing into the brix cup. Use a timer to ensure the pour duration is accurate.
  - c. The unit should dispense 16-17 oz. of water over a 10-second pour. Validate this over three pours.
  - d. If the flow rate is outside of this range:
    - i. Remove the metal cover over the flow controls.
    - ii. Adjust the water flow rate to dispense 16-17 oz. of water over a 10-second pour. Turn CW to increase flow and CCW to decrease flow.
    - iii. Test flow rate after each adjustment.
    - iv. Replace the metal cover over the flow controls.
  
- 4. Check the Brix** – requires a Refractometer
  - a. Calibrate the refractometer before each unit to ensure it is zeroed out. Run it under cold plain water and verify it reads 0, adjust if needed.
  - b. Enter the MENU, enter the MAINT option and enter BRIX SETUP.
  - c. Highlight the barrel being worked on and select BRIX, after pressing BRIX, the unit will dispense product out of the sample tube for 3-4 seconds (it stops dispensing on its own).
  - d. Discard three samples and collect a fourth to take a reading. A standard brix setting is 13 +/- 1 but may change based on the syrup manufacturer. Cornelius recommends a BRIX of 13.5 – 14.0. If the product being dispensed has a different recommended brix, set the Viper for the high end of that range.
  
- 5. Adjust the brix** – requires a Refractometer.
  - a. If adjustments to brix are required, adjust the syrup flow control. Turn CW to increase flow and CCW to decrease flow.
  - b. Discard 3 samples after each adjustment to let the adjustment take effect. Check the brix reading on the fourth sample looking for 13.5 - 14.0, or the high end of the syrup manufacturer recommended brix.
  - c. Once the proper brix is achieved, flush the sample tube with water by manually activating the water solenoid. The water valve can be activated using a finger or by inserting a flat head pocket screwdriver into the slot in front of the flow control at a 45° angle and pushing the screwdriver down towards the ground. This will lift up on the solenoid plunger and allow the water to flow. Flush the sample tube thoroughly with water to ensure the brixed product does not harden over time or attract any unwanted pests.



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6. If changes were made, empty existing product from the barrel and replace with fresh product.