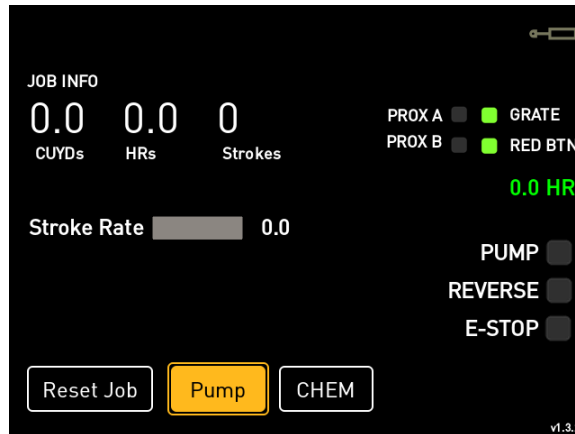
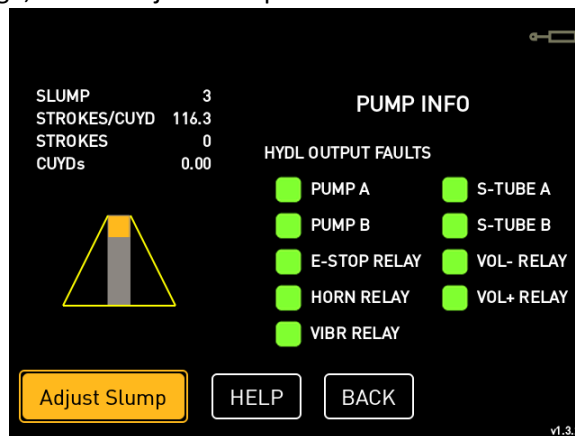


# INPUTING CHEMICAL PUMP PARAMETERS

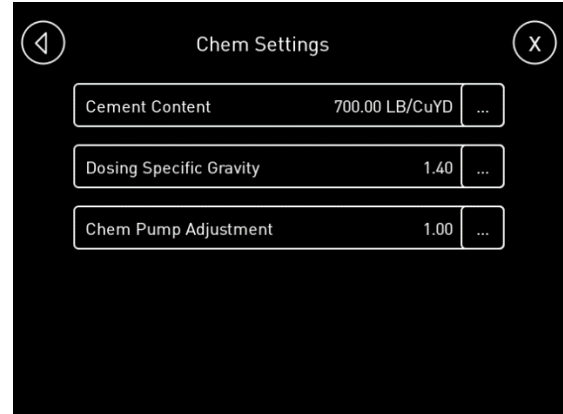
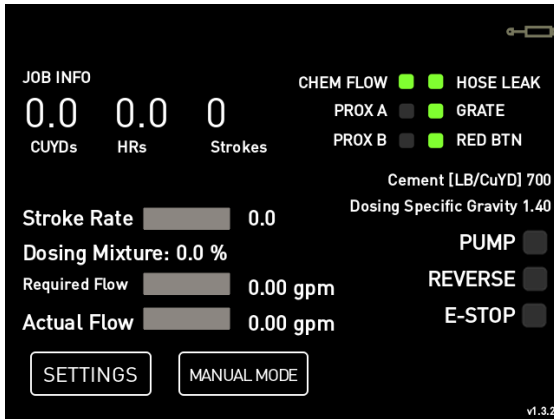
1. Obtain the following information from the Engineer responsible for the Concrete Mix design:
  - a. Concrete Slump
  - b. Cement weight per Cubic Yard
  - c. Cement Dosing Mixture
2. From the main page, select 'Pump' to open the pump info page.



3. From the pump info page, select 'Adjust Slump' to enter the amount of slump in the concrete.



4. Use the MENU ESC toggle switch to exit the page.
5. From the main page, select 'CHEM' to open the main chemical dosing page. This will be the normal screen to see information about the chemical dosing pump during pumping.



6. Select settings to adjust dosing pump settings.
7. Adjust “Cement Content” according to the concrete mix design.
8. Adjust the Dosing Specific Gravity according to the additive chemical being used.
9. Use the MENU ESC toggle switch to exit the settings page.

## OPERATING INSTRUCTIONS

### MANUAL OPERATION OF THE CHEMICAL PUMP FOR PRIMING & CLEAN UP

1. With the motor running, clear the E-Stop by pressing the horn.
2. From the main Pump page, open the Chemical Dosing page by selecting the CHEM button.
3. Toggle the ‘MANUAL MODE’ button to the ON position.
4. Adjusting the CHEM SPEED to the desired amount.
5. Turn on the dosing pump switch to the ON position to run the pump.

### AUTOMATIC OPERATION OF THE CHEMICAL PUMP

1. From the main Pump page, open the Chemical Dosing page by selecting the CHEM button.
2. Verify ‘MANUAL MODE’ is turned OFF.
3. Adjust the Dosing Mixture by adjust the CHEM SPEED Knob.
4. Set the Chem Pump switch to the ON position.
5. Turn the concrete pump on by using the PUMP ON toggle switch.
6. Once the concrete pump completes its first FULL stroke, the strokes/min (SPM) should update. At the same time the ‘Required Flow’ indicator will update with a value. The chemical dosing pump will start turning automatically and will adjust its speed automatically in order to meet the require flow value.

# CALIBRATING CHEM PUMP FOR HIGHER ACCURACY

Proper chemical dosing requires the machine to be properly calibrated such that it produces the right amount of flow. Two factors that can change and severely change the accuracy are the concrete cylinder fill rate and the amount of dosing chemical produced per turn of the chemical pump.

## **Concrete Fill Rate:**

Concrete fill rate refers to the amount of concrete that enters into the cylinders. A concrete mix of a low amount of slump will be harder to pump and thus requires more strokes of the concrete pump. While a mix with a high amount of slump will flow much better. Other factors also effect the fill rate including but not limited to: Concrete pressure, pumping speed (SPM), amount of concrete in the hopper, etc.

To set the fill rate:

1. Reset the trip totals on the Main pumping screen by selecting 'RESET JOB'.
2. Set up the concrete pump as close as possible to when you will be using the dosing pump. Amount of delivery hose, pumping speed (SPM) etc.
3. Pump a **KNOWN** amount of concrete.
4. Once the concrete has been pump, open the Pump Info page by selecting the PUMP button.
5. Adjust the slump such that the number of CUYDs of concrete matches that from step 3.

## **Adjusting the amount of chemical**

Depending on the fluid characteristics of the dosing chemical being used, the amount of chemical being pumped can change.

To dial in the accuracy do the following:

1. From the Chemical Dosing page turn the chemical pump to manual mode.
2. Set the speed to around 50 to 75%
3. The flow rate should be stable at a particular flow rate.
4. Take a bucket of a known volume (say 1 gallon) and fill it with the dosing chemical.
5. Time how long it takes to fill the bucket. Repeat this several times to get a good average.
6. Compare the manually measure flow rate with that on the screen.
7. If the two measurements are not equal, then open the settings page.
8. Adjust the parameter "Chem Pump Adjustment"
9. Go back to the Chemical Dosing page and check the flow rate again. The number should be updated and read accurately. Repeat as needed.

# TROUBLESHOOTING

The chemical pump has various sensors in order to operate. If a fault with a sensor occurs with the chemical pump, the following actions will take place: The horn will sound, the concrete pump will be turned off, and the chemical pump will be turned off.

**TO CLEAR A FAULT, PRESS AND HOLD THE CHEM OFF BUTTON.**

## **TYPES OF FAULTS:**

### **Hose Leak**

There is a hose leak detector in the peristaltic pump. The indicator for it is on the Chemical Dosing page. If a leak is found, then the indicator will be RED.

### **High Flow**

This fault will occur only in automatic mode. It will go off if the required amount of dosing is too high for the chemical pump. If this occurs, then pump at a slower pace such that the amount of dosing required is within the chemical pump's capabilities.

### **Hydraulic Motor not turning**

The chemical dosing system requires a sensor to know how fast the dosing pump shaft is turning. This is accomplished through a RPM sensor located on the HYD Motor of the chemical pump. Check the wire is intact and connected properly.

### **No flow detected**

This fault occurs if the KEYENCE Flow Meter does not see any flow on the outlet of the chemical pump. If the Flow Meter is seeing flow, then its main indicator light will turn green. This will also turn on the Flow indicator on the Chemical Dosing page on the screen. First thing to check would be if the pump has been primed and that there is adequate dosing chemical. Possible other issues include a high limit which keeps the sensor from seeing flow.