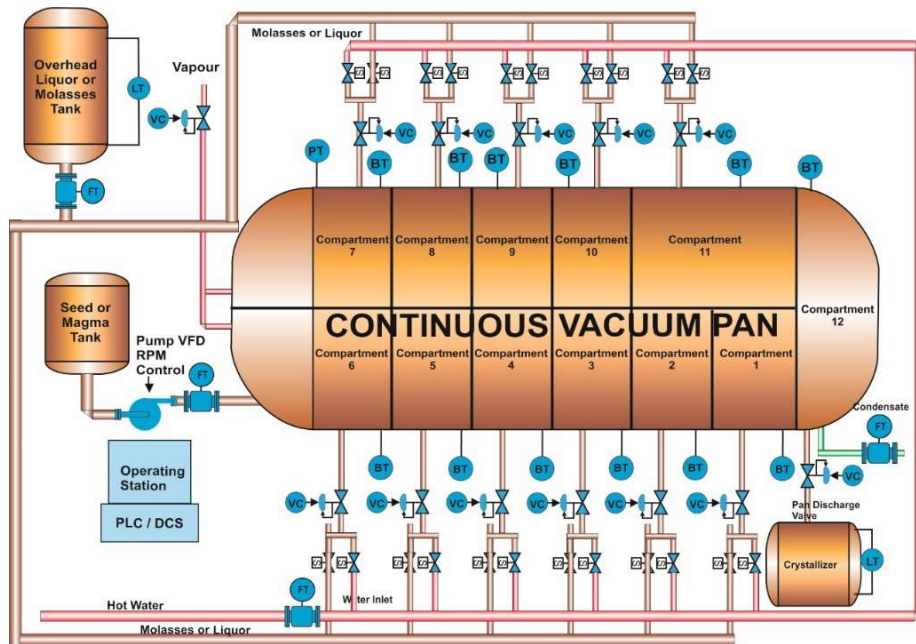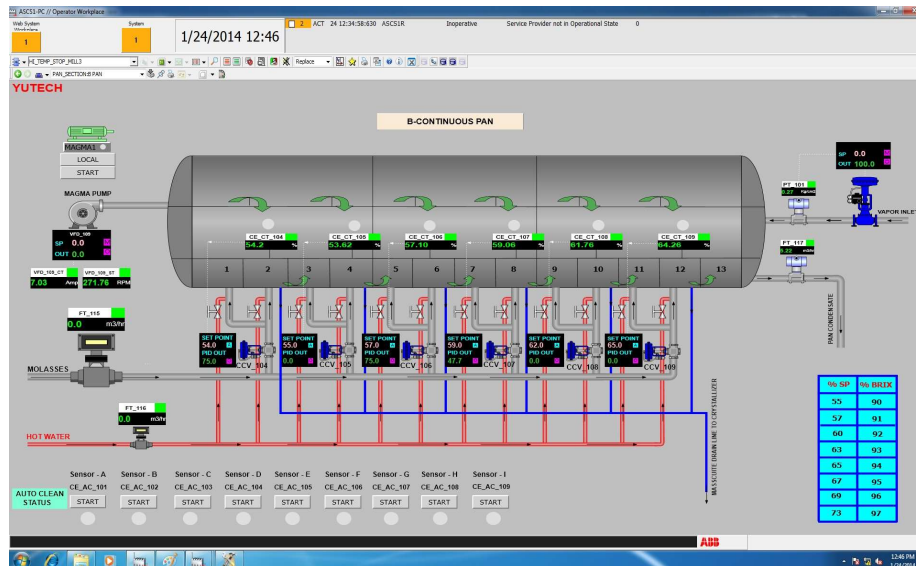# CVP, MOLASSES CONDITIONER, AND SUGAR METER AUTOMATION BASED ON BRIX ANALYZER

CONTINUOUS PAN AUTOMATION FEATURES:

- **SEED OR MAGMA FLOW CONTROL WITH RESPECT TO MOLASSES OR LIQUOR FLOW ENSURES MAINTAINED MOLASSES-TO-SEED RATIO**

- **YUTECH FLUID-DENSITY-BRIX OR YUTECH BRIX SENSING AND MOLASSES / WATER INTAKE CONTROL FOR EACH COMPARTMENT**

- **TEMPERATURE SENSING THROUGHOUT THE CV PAN ENSURES UNIFORM TEMPERATURE INSIDE THE CV PAN BODY**

- **CALENDRIA VAPOUR PRESSURE CONTROL**

- **STANDALONE SYSTEM FOR CV PAN HAVING COMMUNICATION WITH MAIN PLC / DCS SYSTEM**

CONTINUOUS VACUUM PAN AUTOMATION:

SEED OR MAGMA FLOW CONTROL WITH RESPECT TO MOLASSES OR LIQUOR FLOW:
- ➤ MOLASSES AND SEED FLOWMETERS SENSE FLOW.
- ➤ THE RATIO OF SEED TO MOLASSES FLOW IS CONTROLLED IN THE REQUIRED PROPORTION BY CONTROLLING SEED / MAGMA PUMP VFD.
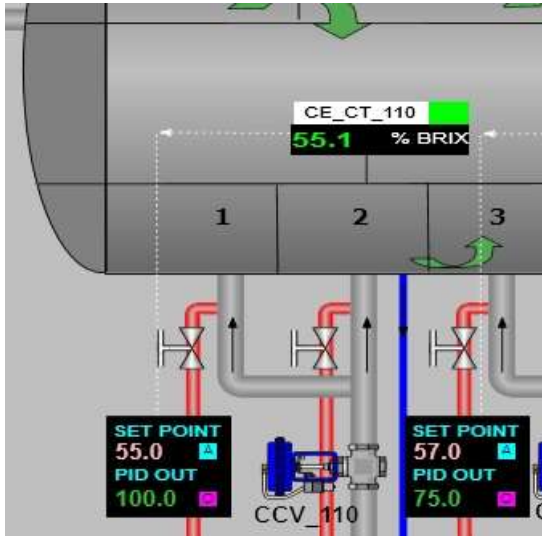
INDIVIDUAL COMPARTMENT BRIX CONTROL BY AUTO-FEEDING MOLASSES OR WATER INTO EACH COMPARTMENT:
- ➤ FLUID-DENSITY-BRIX OR BRIX SENSING OF EACH COMPARTMENT BY YUTECH FLUID-DENSITY-BRIX ANALYZER OR YUTECH BRIX ANALYZER
- ➤ CONTROL OF MOLASSES INTAKE VALVE WITH BRIX SET POINT, AND FLUID-DENSITY-BRIX AS PROCESS VALUE IN A PID MODE
- ➤ ADDITION OF WATER ONLY IF EXTREMELY NECESSARY.

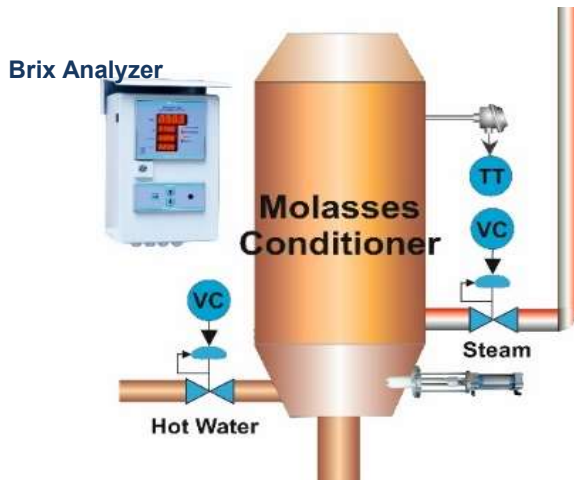# CVP, MOLASSES CONDITIONER, AND SUGAR METER AUTOMATION BASED ON BRIX ANALYZER

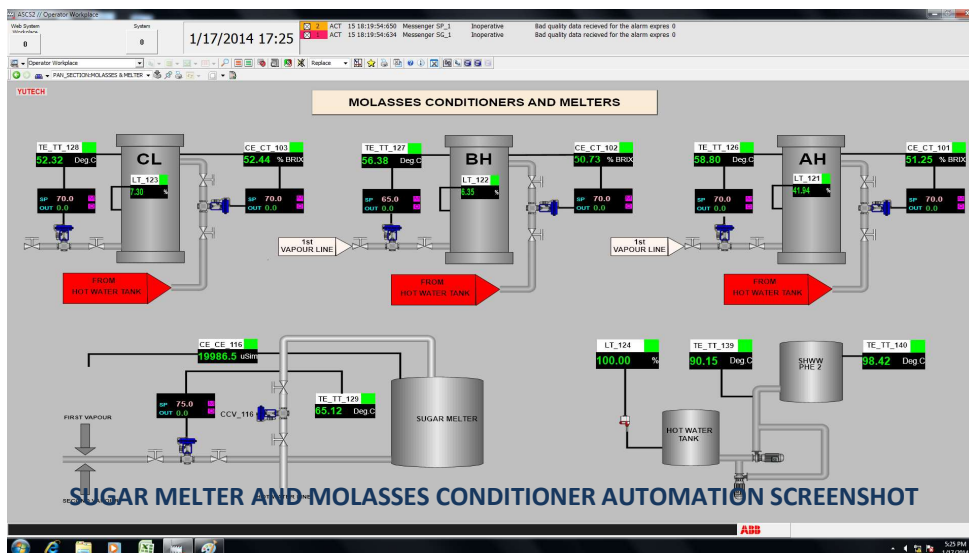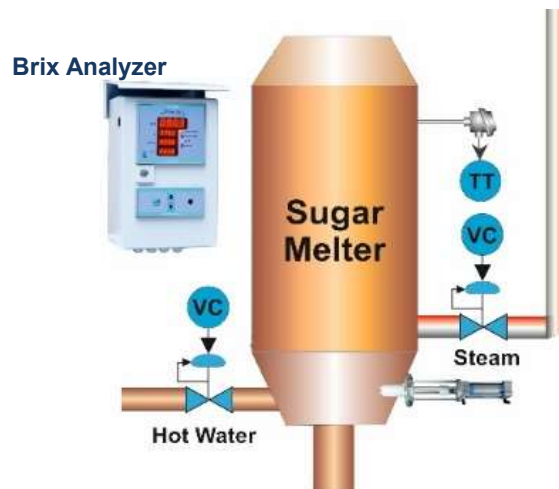## PARTIAL SCREEN SHOT OF BRIX READING ON CVP AUTOMATION SCADA

SUGAR MELTER AUTOMATION INSTALLATION PICTURE:

MOLASSES CONDITIONER AUTOMATION:

SUGAR MELTER AUTOMATION:

SUGAR MELTER AND MOLASSES CONDITIONER AUTOMATION SCREENSHOT

SUGAR MELTER AUTOMATION:

SUGAR MELTER AUTOMATION ADVANTAGES:

➢ STREAMLINED PROCESS DUE TO CONSTANT AND MAINTAINED MELTER BRIX AND TEMPERATURE.

➢ ENSURE CONSTANT QUALITY OF MELT FEED TO PANS.

➢ REDUCE HEAT WASTE, DUE TO OVERHEATING, UNDER DILUTION, OR OVER STEAMING.

➢ REDUCE PROCESS TIME BY AVOIDING EXTRA DILUTION.

➢ THUS SAVE TIME, STEAM, AND WATER AND ENSURE MORE THROUGHPUT IN LESS TIME.

➢ INCREASE PROFITABILITY.

CONTROL LOOPS:

CONTROLLED INTAKE OF HEATING MEDIA (STEAM), AND DILUTING MEDIA (WATER) AS PER PROCESS DYNAMICS LIKE BRIX AND TEMPERATURE OF THE RAW OR RECYCLED SUGAR INTAKE.

BRIX CONTROL USING BRIX OR FLUID-DENSITY-BRIX ANALYZER:

➢ BRIX OF SUGAR MELT ARE MAINTAINED BY THE CONTROLLED ADDITION OF HOT WATER TO MOLASSES USING A HOT WATER CONTROL VALVE IN A PID LOOP. VALUE OF SUGAR MELT'S FLUID-DENSITY-BRIX / BRIX SENSED BY A FLUID-DENSITY-BRIX ANALYZER OR HIGH-FREQUENCY BRIX ANALYZER IS USED AS THE PROCESS VARIABLE FOR THIS PID ACTION..

TEMPERATURE CONTROL:

➢ SUGAR MELT TEMPERATURE IS MAINTAINED CONSTANT BY CONTROLLED APPLICATION OF STEAM USING A CONTROL VALVE IN A PID LOOP USING MELT TEMPERATURE VALUE AS THE PROCESS VARIABLE FOR PID ACTION.

MOLASSES CONDITIONER AUTOMATION:

MOLASSES CONDITIONER AUTOMATION ADVANTAGES:

➢ STREAMLINED PROCESS DUE TO CONSTANT AND MAINTAINED OUTLET BRIX AND TEMPERATURE.

➢ ENSURE CONSTANT QUALITY OF MOLASSES FEED TO PANS.

➢ REDUCE HEAT WASTE, DUE TO OVERHEATING OR UNDER DILUTION OR OVER STEAMING.

➢ REDUCE PROCESS TIME BY AVOIDING EXTRA DILUTION.

➢ THUS SAVE TIME, STEAM, AND WATER AND ENSURE MORE THROUGHPUT IN LESS TIME.

➢ INCREASE PROFITABILITY.

CONTROL LOOPS:

CONTROLLED INTAKE OF HEATING MEDIA (STEAM), AND DILUTING MEDIA (WATER) AS PER PROCESS DYNAMICS LIKE BRIX AND TEMPERATURE OF THE MOLASSES INTAKE.

BRIX CONTROL USING BRIX OR FLUID-DENSITY-BRIX ANALYZER:

➢ BRIX OF MOLASSES ARE MAINTAINED BY THE CONTROLLED ADDITION OF HOT WATER TO MOLASSES USING A HOT WATER CONTROL VALVE IN A PID LOOP. VALUE OF MOLASSES FLUID-DENSITY-BRIX / BRIX SENSED BY A FLUID-DENSITY-BRIX ANALYZER OR HIGH-FREQUENCY BRIX ANALYZER IS USED AS THE PROCESS VARIABLE FOR THIS PID ACTION..

TEMPERATURE CONTROL:

➢ MOLASSES TEMPERATURE IS MAINTAINED CONSTANT BY CONTROLLED APPLICATION OF STEAM USING A CONTROL VALVE IN A PID LOOP USING MOLASSES TEMPERATURE VALUE AS THE PROCESS VARIABLE FOR PID ACTION.

YUTECH BRIX ANALYZER (HIGH-FREQUENCY BRIX ANALYZER) AND AUTO-RETRACTABLE SELF-CLEANING BRIX SENSOR

BRIX ANALYZER

BRIX SENSOR

BRIX ANALYZER CONTROLLER

Brix Analyzer and Sensor combination targets sensing of Suspended Solid Content (Brix) in Slurries or Syrups like Sugar Massecuite, Sugar Syrup, Sugar Melt and Molasses. Brix Analyzer plays a crucial role in Sugar Process Automation and helps in Stabilizing the overall Sugar Process.

The YUTECH Intelligent Programmable Brix Analyzer is a State-of-the-Art System having Built-in Fuzzy Logic for Automatic Purity Compensation to Accurately Sense, Analyze, Calculate and Derive Massecuite Brix within a Band of varying Purity with Temperature Compensation. This Logic is called Brix Equation and it results in accurate Brix Sensing.

The YUTECH Brix Sensor is Auto-Retractable Self-Cleaning and Self-Washing Brix Sensor. This technique prevents Media Deposits on Sensor Electrode thus always results in Accurate Readings.

Accurate Brix reading ensures better Process Control and helps to maintain constant Massecuite / Melt / Molasses / Syrup Quality and Steam / Vapour Requirement thus results in Higher Sugar Production Efficiency and Minimum Process Losses.

SALIENT FEATURES:

- Brix Sensor Detects Signal Deviation with respect to Solution Brix
- This Signal Deviation is then Processed in Analyzer to obtain Brix Reading
- YUTECH Brix Analyzer is equipped with Intelligent Auto Purity Compensation Algorithm to derive the Brix accurately in Massecuites of varying Purity
- Very Easy Calibration and Online Brix Compensation Recalibration
- In-Built Automatic Temperature Compensation
- In-Built Self Cleaning and Washing of Sensor with pre-adjustable timing cycle
- 4-20 mA Output, Separate Modbus and Ethernet Communications
- On-line Calibration Software "YUTECH-AccessApp" provides Remote Access to Brix Analyzer for Calibration, Compensation and Trouble Shooting.

FOR MORE DETAILS ON THE BRIX ANALYZER DOWNLOAD BROCHURE FROM OUR WEBSITE.

PLEASE VISIT OUR WEBSITE www.yutechautomation.com.

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