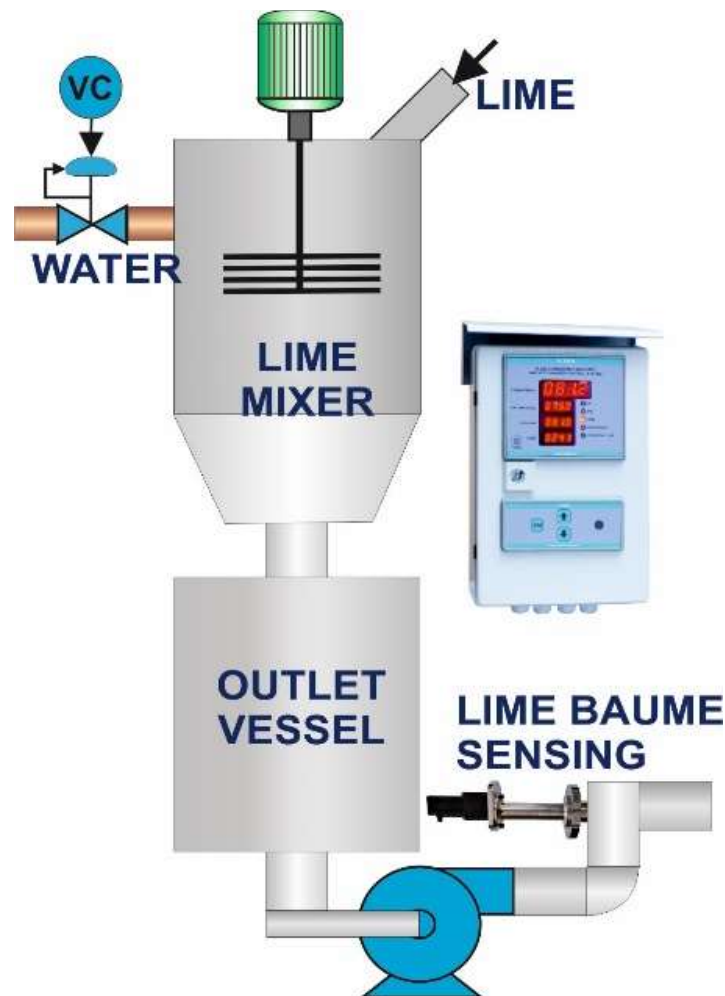


LIME BAUME MIXER AUTOMATION
CONSTANT AND CONTROLLED LIME BAUME BETTER pH BETTER SUGAR QUALITY



LIME BAUME MIXER AUTOMATION:

BRIX ANALYZER AND DENSITY BRIX SENSOR A24FDSRS3 FOR LIME BAUME MIXER AUTOMATION



- ACCURATE MEASUREMENT OF BAUME OF THE LIME AND WATER MIXTURE
- FLUID DENSITY BRIX SENSOR A24FDSRS3
- BAUME CONTROLLED BY CONTROLLING THE FLOW OF WATER TO CONTROL MIXTURE DILUTION
- CONSTANT LIME BAUME TO LIMING VESSELS ENSURE BETTER PH CONTROL
- IMPROVE SUGAR COLOUR AND QUALITY

BRIX ANALYZER AND FLUID DENSITY BRIX SENSOR

SUGAR PROCESS, REFINERY, AND DISTILLERY APPLICATIONS: SENSES BRIX AND DENSITY IN KG/M^3
ACCURATELY SENSES BRIX AND DENSITY IN KG/M^3 WITH VACUUM, LEVEL AND TEMPERATURE COMPENSATION



DENSITY BRIX SENSOR FOR MEASURING BRIX OF MOLASSES, MASSECUTE, SYRUP

BRIX ANALYZER CUM CONTROL SYSTEM

DISPLAYS BRIX
DISPLAYS FLUID DENSITY IN KG/M^3 WITH
WITH LEVEL, TEMPERATURE, AND VACUUM
COMPENSATION



FLUID DENSITY SENSORS:

A24FDSRS1
A24FDSRS2
A24FDSRS3
A24FDSL



APPLICATION IN SUGAR INDUSTRIES FOR BRIX MEASUREMENT AND AUTOMATION OF:

- BATCH TYPE VACUUM PAN (A, B, C, AND GRAINING PANS)
- CONTINUOUS VACUUM PAN
- VERTICAL CONTINUOUS PAN
- ROBERTS / SEMI-KESTNER EVAPORATOR
- FALLING FILM EVAPORATORS
- SUGAR MELTER AUTOMATION
- MOLASSES CONDITIONER JUICE AND SYRUP MIXER
- BAUME OF MILK OF LIME

APPLICATIONS IN DISTILLERIES:

- BRIX OF SLOPE OR SPENT WASH
- BRIX OF MOLASSES
- BRIX OR WORT OF FERMENTATION TANKS

GUARANTEED
✓ INCREASED PROFITS
✓ INCREASED PAN STRIKES
✓ INCREASED SUGAR PRODUCTION
✓ NO FALSE GRAINS

PLEASE SEE BROCHURES FOR BRIX ANALYZER FOR SUGAR PROCESS AND REFINERY
APPLICATIONS AND, DENSITY BRIX SENSOR BASED AUTOMATION SYSTEMS

BRIX ANALYZER AND FLUID DENSITY BRIX SENSOR

ACCURATELY SENSES BRIX AND DENSITY IN KG/M³ WITH VACUUM, LEVEL AND TEMPERATURE COMPENSATION



SALIENT FEATURES OF FLUID-DENSITY-BRIX ANALYZER SYSTEM:

- FLUID-DENSITY TYPE BRIX ANALYZER SYSTEM TARGETS SENSING THE FLUID-DENSITY OF LIQUIDS, SLURRIES, OR SYRUPS LIKE SUGAR MASSECUTE, SUGAR SYRUP, SUGAR MELT, LIQUORS, AND MOLASSES.
- THE MOTORIZED FLUID-DENSITY SENSOR IS SPECIALLY DESIGNED TO BE INSERTED IN A VESSEL TO STIR THE FLUID MEDIA AND MEASURE ITS FLUID-DENSITY WHICH CAN BE EXPRESSED IN SIMPLE TERMS AS THE TIGHTNESS OR THINNESS OF A FLUID MEDIA. IT CAN ALSO BE INFORMALLY REFERRED TO AS THE CONSISTENCY OF THE FLUID AND IS A MECHANICAL PROPERTY OF A FLUID.
- MOTORIZED SENSOR'S TORQUE AND POWER WHICH IS REQUIRED TO STIR THE FLUID VARIES WITH VARYING FLUID-DENSITY. SO THE MOTORIZED FLUID-DENSITY SENSOR'S POWER CONSUMPTION IS DIRECTLY PROPORTIONAL TO THE FLUID'S DENSITY.
- THE VARIATION IN SENSOR'S POWER CONSUMPTION IS SENSED BY THE FLUID-DENSITY TYPE BRIX ANALYZER'S HIGHLY ACCURATE SENSING CIRCUITRY, THIS VALUE IS MEASURED AND PROCESSED IN THE **FLUID-DENSITY-BRIX EQUATION**, TO DERIVE THE ACTUAL VALUE OF **DENSITY IN KG/M³ AND TEMPERATURE, LEVEL AND VACUUM COMPENSATED BRIX VALUE**.
- **COMPENSATED BRIX VALUE IS DISPLAYED OR TRANSMITTED AS 4-20mA CURRENT OUTPUT.**
- EASY AND USER-FRIENDLY CALIBRATION AND ONLINE COMPENSATION.

BASIC SCIENCE BEHIND FLUID-DENSITY-BRIX:

- **FLUID-DENSITY:** THE DENSITY OF A PARTICULAR FLUID.
- **DENSITY IS DEFINED AS "MASS PER UNIT VOLUME, " MEANING** THE MASS CONTAINED IN A FIXED VOLUME. IT IS DENOTED BY " **ρ** ", A GREEK LETTER CALLED "**RHO**".
- **DENSITY:** CAN BE DERIVED USING THE FORMULA " **$\rho = M/V$** " WHERE **ρ** IS THE FLUID-DENSITY, M IS THE MASS AND V IS VOLUME. THE UNIT TO MEASURE FLUID-DENSITY IS **KG/M³** (KILOGRAM PER CUBIC METER).
- **BRIX:** THIS IS THE PERCENTAGE MEASUREMENT BY SUCROSE WEIGHT IN PURE WATER SOLUTION.
- **THE MOST POPULAR WAYS OF MEASURING BRIX ARE:**
 - **HYGROMETRIC AND REFRACTOMETRIC (LAB METHODS)**
 - **HIGH-FREQUENCY OR RADIO-FREQUENCY CONDUCTIVITY TYPE BRIX SENSING. THIS ANALYZER SENSES THE CHANGE IN AMPLITUDE OF THE SIGNAL PROPAGATED IN THE MEDIA WHICH IS PROPORTIONAL TO THE MEDIA'S WATER CONTENT.**
 - **MICROWAVE TYPE BRIX SENSING. THIS ANALYZER SENSES THE PHASE SHIFT OF THE SIGNAL PROPAGATED IN THE MEDIA WHICH IS PROPORTIONAL TO THE MEDIA'S WATER CONTENT.**
 - **YUTECH'S INNOVATIVE FLUID-DENSITY BRIX SENSOR, SENSES THE MOTORIZED STIRRER'S POWER REQUIRED TO STIR THE MEDIA AND SENDS THIS SIGNAL TO BRIX ANALYZER, WHERE, A COMPLEX MATHEMATICAL EQUATION WITH LINEARIZATION AND COMPENSATION FORMULAE ACCURATELY DERIVES TEMPERATURE, LEVEL AND, VACUUM COMPENSATED BRIX AND DENSITY IN KG/M³.**
- WHILE CONDUCTIVITY OR MICROWAVE METHODS MEASURE THE FLUID'S ELECTRICAL CHARACTERISTIC, THEY ARE SUCCESSFUL IN MEASURING BRIX OF "B AND C" MASSECUTE IN CVP, BRIX OF SUGAR MELT, AND BRIX IN A MOLASSES CONDITIONER UNIT.
- "A" MASSECUTE HOWEVER, HAS A MIX OF MATERIALS LIKE SYRUP, MELT AND MOLASSES WHOSE PURITIES ARE DIFFERENT, THIS AFFECTS THE FLUID OR MEDIA'S ELECTRICAL CHARACTERISTIC WHICH IS VARIABLE FOR MASSECUTES OF DIFFERENT PURITY THUS ADVERSELY AFFECTING BRIX MEASUREMENT.
- FLUID-DENSITY MEASUREMENT USES A MOTORIZED STIRRING SENSOR AND PROVES VERY SUCCESSFUL, AS IT DIRECTLY MEASURES THE FLUID'S DENSITY (TIGHTNESS OR THINNESS) IRRESPECTIVE OF ITS ELECTRICAL CHARACTERISTICS.

BRIX ANALYZER AND FLUID DENSITY BRIX SENSOR

ACCURATELY SENSES BRIX AND DENSITY IN KG/M³ WITH VACUUM, LEVEL AND TEMPERATURE COMPENSATION



FLUID DENSITY BRIX ANALYZER TECHNICAL SPECIFICATIONS:

PRODUCT CODE: DENSITY BRIX ANALYZER: A15FDACFM1230A / A24FDACFMEM1230A

DENSITY BRIX ANALYZER AND CONTROLLER: A15FDACFM1230AC / A24FDACFMEM1230A

- POWER SUPPLY: 85 - 265 VAC, 50 – 60HZ
- INPUTS:
 - FLUID-DENSITY SENSOR
 - RTD PT100 TEMPERATURE SENSOR
 - 8-POINT LEVEL SENSORS (CONDUCTIVITY-BASED DIGITAL SWITCH TYPE)
 - 4-20MA: INPUT FROM VACUUM TRANSMITTER (OPTIONAL, NOT A PART OF STANDARD SUPPLY)
 - 4-20MA: INPUT FROM DIFFERENTIAL PRESSURE TRANSMITTER WITH EXTENDED DIAPHRAGM WITH CAPILLARY TUBES (OPTIONAL, NOT A PART OF STANDARD SUPPLY)
- OUTPUTS:
 - DENSITY BRIX ANALYZER AND CONTROLLER: A15FDACFM1230AC / A24FDACFMEM1230AC
 - 4-20MA: BRIX OUTPUT
 - 4-20MA: PID OUTPUT FOR BRIX CONTROL (BRIX AS PV FOR PID CONTROL - ANALYZER CONTROLLER MODEL)
 - 2 POTENTIAL-FREE RELAY OUTPUTS
 - DENSITY BRIX ANALYZER: A15FDACFM1230A / A24FDACFMEM1230A
 - 4-20MA: BRIX OUTPUT
 - 4-20MA: 8 STEP LEVEL OUTPUT
 - 2 POTENTIAL-FREE RELAY OUTPUTS
- DISPLAY:
 - FOR PRODUCT CODE - A15FDACFM1230: 7-SEGMENT LED DISPLAY
 - FOR PRODUCT CODE - A24FDACFMEM1230: 7-SEGMENT LED DISPLAY AND LCD DISPLAY
- ENCLOSURE: FIELD MOUNTED MS POWDER COATED, INGRESS PROTECTION CLASS IP67
- COMMUNICATION:
 - ETHERNET: MODBUS TCP/IP (PRODUCT CODE: A24FDACFMEM1230)

FLUID DENSITY SENSOR TECHNICAL SPECIFICATIONS:

PRODUCT CODE: A24FDSRS1, A24FDSRS2, A24FDSRS3

- TYPE: MOTORIZED FLUID DENSITY SENSOR
- POWER SUPPLY: 24VDC FROM THE ANALYZER (NOT TO BE CONNECTED TO ANY EXTERNAL SOURCE).
- BUILT-IN THERMOWELL WITH RTD PT100
 - MATERIAL OF CONSTRUCTION: SS304 / SS316L
- PTFE SHEATHED CONDUCTIVITY PROBE 8 NOS.: SS304 / SS316L WITH PTFE SHEATH
 - MATERIAL OF CONSTRUCTION:
- MATERIAL OF CONSTRUCTION:
 - WETTED ROTARY PARTS: SS304 / SS316L
 - WETTED STATIONARY PARTS: MS CHROME PLATED / SS304 / SS316L
- FOR FOOD-GRADE, SS-304 FULL SENSOR BODY: ADD FGSS TO THE PC. EX: A24FDSRS3FGSS
- FOR ACIDIC CHEMICALS, SS-316L FULL SENSOR BODY: ADD SSL TO THE PC. EX: A24FDSRS3SSL

FLUID DENSITY SENSOR MODEL GUIDANCE FOR VARIOUS APPLICATIONS:

A24FDSRS1: BATCH PAN, VERTICAL CONTINUOUS PAN

A24FDSRS2: HORIZONTAL CONTINUOUS PAN

A24FDSRS3: EVAPORATOR, FALLING FILM EVAPORATOR, JUICE AND SYRUP MIXING VESSEL, SUGAR MELT, MOLASSES CONDITIONER, LIME BAUME

A24FDSRS3FGSS: BREWERIES, FOOD & BEVERAGES, DAIRY

A24FDSRS3FGSSL: CHEMICALS, DISTILLERY SLOPE / SPENTWASH

A24FDSL: SWITCHING LEVEL SENSOR

PLEASE GIVE INFORMATION OF MEDIA BRIX RANGE, DENSITY RANGE, pH, TEMPERATURE

PLEASE VISIT OUR WEBSITE www.yutechautomation.com.

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