DR. STELZER CONSULTING HAS DEVELOPED AGITATORS FOR BOILING PANS SINCE SEVERAL YEARS. THE ESSENTIAL FEATURE OF AGITATORS TYPE TDA...HBFp su ARE:

* HELICAL PROPELLER OF LARGE DIAMETER
* AGITATOR SPEED FOLLOWS THE VISCOSITY INCREASEMENT
* TOP OR BOTTOM ENTRY
* ATTACHABLE TO ANY EXISTING BOILING PAN
OBJECTIVES

AGITATORS FOR BOILING PANS AIM AT:

* HOMOGENIZING OF TEMPERATURE
* IMPROVED CRYSTAL STRUCTURE
* REDUCED BOILING TIME
* A MINIMUM OF MOTOR POWER REQUIREMENT

Bottom entry agitator with water quenched single acting mechanical seal
'DURING THE STRIKE THE JUICE IS CONCENTRATED MORE AND MORE IT IS NOW CALLED MASSECUITE'

FLOW PATTERN

WITHIN THE BOILING PAN, THE CONTENTS FLOW FROM THE BOTTOM THROUGH THE HEATING TUBES INTO THE VAPOUR CHAMBER, RETURNING THROUGH THE CENTRAL DOWNTAKE. THE THERMALLY CREATED FLOW WILL SUFFICE UP TO A VISCOSITY ABOUT 10000 mPa s WITH A PSEUDOPLASTIC PATTERN. FROM 30000 mPa s ON AND WITH SUSPENSION HAVING BEEN ATTAINED, THE SPEED OF FLOW WILL DECREASE.

THE CONCENTRATING PROCESS WILL SLOW DOWN AND CRYSTALLIZATION WILL BECOME IRREGULAR. THESE DRAWBACKS CAN BE BALANCED BY THE INSTALLATION OF A SUITABLE AGITATOR TO SUPPORT THE NATURAL CIRCULATION.

AGITATOR TYPE TDA...HBFp su


UNDER ALL CONDITIONS DURING THE STRIKE THE AGITATOR WILL SUPPORT THE NATURAL CIRCULATION. THE IMPORTANT BETTER HOMOGENITY OF TEMPERATURE PREVENT OVERHEATING AND REMELTING OF CRYSTALS. THIS HOMOGEN TEMPERATUR ALL OVER THE MASSECUITE IS IMPORTANT FOR THE CRYSTAL QUALITY AND CAN INCREASE THE CRYSTAL CONTENT BY PREVENTING REMELTING AND SUDDENLY CRYSTALLISATION.

FOR PANS AUTOMATICALLY OPERATED IT IS ABSOLUTE IMPORTANT TO GET THE RIGHT TEMPERATURE INFORMATION, OTHERWISE THE RISK FOR WRONG BRIX MEASUREMENT IS GIVEN AND ALL COMPUTER OPERATION GIVES NO SENSE DUE TO THE NOT REPRESENTATIVE PRODUCT DATA.
MORE THAN 200 AGITATORS, DESIGNED BY DR. STELZER CONSULTING, OPERATE IN CANE SUGAR MILLS, IN ASIA AND IN AFRICA. ALL CAREFULLY CALCULATED ACCORDING TO THE DEMAND OF CANESUGAR AND SUGARMILL-TAYLORMADE AS A RELIABLE PRODUCT.
AGITATING ELEMENT

A HELICAL PROPELLER IS EMPLOYED AS THE AGITATING ELEMENT. THERE IS WIDE VARIABILITY OF SYRUP PROPERTIES IN THE BOILING PAN. FOR SUCH WIDE VARIATIONS, HELICAL PROPELLERS ARE SUITED BEST. THEIR BLADES ARE HELICAL CASTED. A 'CLASSICAL MARINE TYPE' HELICAL PROPELLER IS THE AGITATING ELEMENT WITH THE BEST AND MOST HOMOGEN AXIAL FLOW DIRECTION—JUST THE DIRECTION OF THE NATURAL CIRCULATION. THE LOW SHEARSTRESS OF THIS KIND OF AGITATING ELEMENT PAMPERS THE CRYSTAL AND PREVENT FALSE GRAIN. CAREFULLY COMPUTED BAFFLES ABOVE THE PROPELLER STOP THE TENDENCY OF ROTATING TO INCREASE THE EFFICIENCY.

The projection area of the propeller blades is small enough compared with the propeller circle area, that the boiling process will continue if the agitator stops.
RETROFITTING

AGITATORS OF OUR TDA...HBFp s SERIE ARE USED FOR RETROFITTING OF EXISTING BOILING PANS. CONSEQUENTLY, IT IS POSSIBLE TO EQUIP WHATEVER BOILING PAN WITH AN AGITATOR MERELY BY ATTACHING A MOUNTING FLANGE. THUS IMPLEMENTED, THE BOILING PAN WILL YIELD A BETTER CRYSTAL STRUCTURE IN LESS OF BOILING TIME.
Description of the Agitator Type TDA...HBF su

The agitators of this series are special designed for the use in vacuum pans. The driving unit consists of:

♦ Gear with free running
♦ Input shaft
♦ Pulley Transmission Gear-
♦ Motor
♦ Electric motor
♦ Bearing box
♦ Gasket house
♦ Stuffing box
**Gear:** As Standard Gears of the German Company 'Getriebebau Nord' will be used with a service factor better than 1.3 related to the rated power. As this rated power will only be used at the highest viscosity on the end of a strike so this is a very high service factor, Other gears on request,

**Pulley Transmission Gear-Motor:** There are three advantages for using this additional pulley transmission:

1) The output speed can be exact adjusted to the propeller optimum, independent of the steps in transmission ratio of the gear.

2) The output speed are easy to change later e.g. for use of other products.

3) To start the agitator via a pulley drive is more soft then at fixed connecting - No need of elastic coupling.

**Electricmotor:** As standard TFC Squirrelcage motors will be used. For B- and C-Product we recommend two speed motors with the speed relation 2:3. This makes it possible to follow with the speed the natural circulation viscosity and saves power, because the high speed is only necessary till appr. the half of the cooking time when the viscosity is much lower.

**Bearingbox:** The very strong designed bearing box makes a bearing-distance from more than 800 mm possible, important for the smooth run of the agitator.

**Stuffingbox:** The stuffingbox has 5 packings with Teflon incorporated material for very good sealing. This material will not wear out the shaft and makes a waterlubrication unnecessary.
Deflection delimiter: Due to the high bearing distance and the carefully calculated critical speed together with the well balanced propeller all agitators of this series operate without bottom bearing or any other support inside the pan. A deflection delimiter with about 80 mm clearance to the shaft is mounted on the top of the calandria.

Baffles: On the deflection delimiter are 3 baffles attached to reduce the product circulation in the downtake. Baffle size depends on product and downtake dimension.

Shaft couplings: The agitator shaft has one or two rigid couplings acc. DIN for easy mounting.

Agitating element: As agitating element an classical Propeller 'Marine Typ' is employed. Description and function is explained at page 05