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Kurmdas SSK Limited

Visit and inspection report of your Sugar plant of 1250 TCD

Capacity – 1250 TCD

Capacity of the plant -	1250 TCD
Process followed -	Double Sulphitation
Make of plant -	Walchandnagar

Mill

Overall plant and machinery capacity supplied by the company is very very less and plant crushing capacity increasing in existing machinery, less capacity steam boilers and drives of preparatory device along with mill has very less power for increasing the crushing rate.

But with some rectification, modification and addition of the innovative devices in the cane carrier will help us to achieve constant and consistent crushing of 2500 mt per day and will solve the bottlenecks in the milling tandem.

Additions and modifications needed for 2500 MT cane crushing by B Heavy Molasses Division

Mill Section

- I) Your 2 nos cane unloaders are in the working condition, one cane unloader trolley is 7.5 metric ton lifting capacity while another trolley is only 5 metric ton capacity.

By changing motor and gearbox of loading drum and strengthening the trolley structure we can increase its capacity from 5 metric ton to 7.5 metric ton.

In case of breakdown & maintenance of any trolley crushing rate will be get disturbed & for this purpose we have to keep 1 loading drum gearbox, motor, wire ropes, brake pads & hydraulic thrusters in spares.

It will help us to increase the capacity of cane feeding for 2500 metric ton cane crushing.

- II) Existing feeder table needs some modifications for proper dropping of cane bundles in the cane carrier with change in plate degree.
- III) Existing cane carrier width and depth is very less 1425 mm of cane carrier width only. Also it's horizontal length of 24 mtr is very less.

To overcome these difficulties and bottlenecks of cane feeding to the preparatory devices whose capacity and power is also very less.

We should install our innovative, proven technology and new concept Brahmastra unit with modified concept hood design in the cane carrier to increase the bulk density of cane carrier, increase the cane preparation and reduce the load on the preparatory devices and mill station and smooth, constant crushing.

- IV) Cane chopper - Existing cane chopper power is less but considering our future crushing rate and expansion, we should replace this motor with 200 to 250 HP if possible.

The problem of chocking and jamming at the inlet new cane chopper should be studied and solved.

Its knives should be replaced with standard quality carbide tips for better preparation and reduce load on motor.

- V) Cane leveller - No change but for better cane preparation its knives should be used of carbide domite tips type of standard and good quality.

- VI) Fiberizer - Existing fiberizer swing dia and power is less.

Its hammer should be used of standard quality domite tips hammers.

Also to reduce the load on Fiberizer the installation of "Brahmastra" unit is very necessary.

- VII) Existing cane carrier preparatory device and mill size along with its power is very less which results in frequent fluctuations of cane carrier speed and controls crushing rate by 30 ton per hour in every shift & 100 ton per day.

To overcome this problem and for uniform, smooth, consistent and constant crushing rate we should install our proven, new concept and innovative unit "Overall plant stabilizer" in between leveller and fiberizer.

- VIII) Your existing rotary screen of 1800 mm X 3600 mm is sufficient up to 4500 metric ton crushing rate and no change.

- IX) Auto cane feed control unit - Its type, efficiency and accuracy along with parameters should be checked and corrected by minor changes and modifications.

- X) Rake type elevator and carrier - No change.

- XI) Existing mill station requires some rectifications and modifications and especially some changes in rollers while regrooving & grooving.

Some changes are required to increase juice drainage and reduce the load on mill.

Mill number 1 GRPF has very serious problem of frequent roller chocking and dropping of bagasse in the juice tray resulting in Gala jamming.

Also its pressure chute setting is not proper and required to be corrected. Its bearing housing machining is not proper resulting in vibrations and moments of bearing housing

and rollers. This problem should be rectified with very careful study of design and drawing. Also its toothed roller of GRPF has not provision of scraper.

It will be better if we can replace the mill no. 2 motor power by 400 HP instead of existing 300 HP.

- XII) Your all 4 no's mill has very less power of 300 HP and due to FMG type old technology gearbox and master and pinion gear arrangement 60 to 70 HP power is lost due to frictional loss.
- XIII) Your last mill top lotus roller should be shifted to mill no. 3 & mill no. 3 conventional top roller to be shifted to mill no.4.
- XIV) Synchronization of GRPF and mill speed of 1 and 4 number mill should be very correct and accurate by the synchronizing panel.
- XV) We require mill data sheet table by filing running parameters in the season.

Boiler

- I) All type of cold air leakages in the side membrane panel should be arrested.
- II) All type of cold air leakages in the furnace should be arrested.
- III) Problem of incomplete combustion and removal of ash should be studied and rectified.
- IV) The fluctuations in the boiler load and pressure should be studied and rectified.
- V) We require boiler data sheet of running season to study boiler parameters.
- VI) Your existing all soot blowers are not working, resulting reducing the efficiency of boiler and load fluctuations.
- VII) Your superheated steam temperature rise and its effect should be studied with attemperator.

Power House Turbine

- I) Your existing 3 MW turbine has margin of 600 KW.
- II) The power factor of alternator should be above 0.98 to reduce power consumption.
- III) Considering our future expansion and crushing rate it is necessary to reduce power consumption in the factory by minimum 500 KW in 2 years by installing VFD drive, condenser automation and planetary gear boxes.
- IV) The turbine exhaust pressure and temperature should be studied for better evaporation in the boiling house.

Boiling house

- I) We will study your existing juice heater and quatripole heating surface arrangement and will come back to you for any changes at crushing rate 105 TCH (2500 mt) and 175 TCH (4200 mt).
- II) Your existing PRDS station dome and its automation should be studied and its accuracy of temperature controlling of 125 + - 5 degree Celsius should be checked & corrected by necessary modification and changes.
- III) Your existing 24' dorr with 5th compartment provision is sufficient.
- IV) Your vacuum filter 8' X 16' and 10' X 20' are sufficient and no change.
- V) You should add 1 no continuous sulphur burner of 140 kg per hour burning capacity.
- VI) Your existing juice sulphiter capacity is less and necessary to install new one of 4500 TCD capacity and run by reducing its overflow height this year for 2500 crushing.

Pan

- I) For improving pan boiling capacity of existing pan.
 - a) To add 2 no's mechanical circulators for A Pan 80 ton and 40 ton capacity.
 - b) If finance permits to do condenser automation, then all Pan Condenser automation is necessary to reduce power and improve Pan boiling performance.
- II) Delta T of your spray pond should be improved by minimum 2 degree Celsius.
- III) With B heavy diversion and sale out, the existing pan capacity is sufficient up to 3000 metric ton crushing.
- IV) The pan syrup supply tank height should be increased by 1 feet to accommodate higher crush rate syrup storage.
- V) Pan cut valve should be converted to hydraulic controlled one.

Centrifugal Section

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- I) Your existing continuous machine 5 nos are sufficient with B heavy diversion.
- II) Your 2 nos B continuous machine should be provided with automatic mascuite feed control system for better purging and capacity improvement in machine.
- III) Your existing 2 nos 1250 kg / charge automatic machine of A centrifugal station are sufficient for 2500 metric ton crushing rate.
- IV) Your existing hopper is sufficient for 2500 metric ton crushing and bagging.

- V) Hopper cold and hot air blower should be checked for capacity.
- VI) Your existing sugar elevator, grader, silo, bagging and stitching machine are sufficient for 3000 metric ton crushing capacity.

This is our firm technical visit and inspection report.

Also we are working on 4200 TCD crushing for next crushing season 2024 – 2025.

Thanking You,

Yours Faithfully

R B PATIL
TECHNICAL DIRECTOR
R B PATIL & ASSOCIATES
SUGAR & DISTILLERY CONSULTANT