

FORM – I [i] /SA-3

***FOR CENTRAL SUGAR FACTORIES SCHEDULE**

OF MACHINERY *

● **NAME OF THE FACTORY**

SHRI VIGHNAHAR SAHAKARI SAKHAR
KARKHANA LTD. JUNNAR/AMBEGAON,
AT NIVRITTINAGAR (DHALEWADI), PO.
SHIROLI BK., TAL JUNNAR, DIST PUNE
(MAHARASHTRA)
PIN – 410 511
PHONE NO. 02132 – 280261,280264, 278282
FAX NO. 02132-245476

● **REG. NO**

PNA/PRG/A-3 DATED 17/10/1981

● **LICENCE NO**

CIL/478(84) DATED 13/12/1984

● **MAKE**

RICHARDSON & CRUDDAS (1972)
LTD., BOMBAY – 8

● **CAPACITY**

5000 TCD

● **TYPE OF PLANT**

SEMI-ELECTRIC DRIVEN

● **PROCESS**

DOUBLE - SULPHITATION PROCESS

● **WEIGH BRIDGE**

5 NOS, AVERY MAKE

2 NOS, 30 M.T. CAPACITY

2 NOS, 10 M.T. CAPACITY

1 NO, 50 M.T. CAPACITY

I MILLING

Ist TANDAM

● **CANE UNLOADER -**

Mechanical cane unloader of Standard Plates and Vessels Kolhapur make. Three motion all motorized span 22 x 30 x 10 mtrs. Capacity 5 M.T. - 3 Nos.

1) CANE CARRIER .

A) Cross Feeding cane Carrier & Feeder table.

1. Nos. 2 Nos
2. Size – 7 x 6 mtrs.
3. Angle of Inclination with carrier - 6°
4. Drive H.P. – 15
5. No. Of chains – 8 strand
6. Dist. pitch two arms - 600 mm.
7. Gear box ratio – 60:1

B) Main Cane Carrier

Chain slat apron type cane carrier Part (A)
And Part (B) rake type cane carrier

Size, width and length between center and length of horizontal parts and Feeding depth

Sr	Particulars	PART (A)	PART (B)
1.	Size	1525x46545mm	1525x24352mm
2.	Inclined Part length	14850 mm	24352 mm
3.	Horizontal part length	31695 mm	23100 --
4.	Length between two centres.	46545 mm	24352 mm
5.	Angle of inclination	15° & 12°	18 .5°
6.	Speed	10 Mtr/Min	25.5 Mtr/Min
7.	Feeding depth	870 mm	--
8.	Chain two strands pitch	152.4 mm	229 mm
9.	Breaking load of chain	40000 Kgs	60000 Kgs.

C) Push Roller

Swing dia 650 x 1850 mm LG
Drive Motor H.P. 20, RPM-1450
Reduction G.B. Ratio – 60:1

II) Preparation of cane -

A) Cane kicker

Knives type cane Kicker
No.of arms – 24
Size 1000 x 3190 mm. length
Direction of rotation = Reverse
Location – 4000 mm. before leveller centre
Speed reduction Gear Box ratio 20:1
Motor speed – 1400 RPM, 30 HP.

B) Cane Knives.

State No. Of sets of No. Of pitch of blades in each set and particulars of drive specifying speed

One set of leveller driven by electric motor coupled by flexible coupling. Leveller on part 'A' Carrier

H.P. for each set, clearance between tips and carrier bed location and knives (If two sets centre to distance)

Sr.	Particulars	Leveller
1.	No. Of Knives	36
2.	Pitch	60 mm
3.	Dia of tip location (Swing diameter)	1300 mm
4.	Setting	250 mm
5.	Speed	585 R.P.M.
6.	H. P.	250 H.P.

C) Particulars of the other cane preparatory equipment if any.

: Not Applicable

III) CRUSHERS -

State type and number of Crushers and for each crusher. Number of roller and the diameter and length of each roller in mm.

: Not Applicable

IV) FIBRIZER -

State type of fibrizer and give its details

Sr. No	Particulars	Details.
1.	Make and type	MERU make Swing type
2.	No. of Hammers	96
3.	Size	2130 mm. (Swing dia.)
4.	Speed.	750 RPM
5.	Drive.	800 HP
6.	Location.	After leveller on 1 st Cane carrier.
a) If electric motor used state no. Type of motor, particulars of current, No. Of crushers and mill driven by each motor and H.P. developed of full load by each motor.		No – Two Make – Kirloskar Type – Slipring Induction Volt – 415, RPM – 760 HP/KW – 600 KW

V) Rotary Juice Screen

Make	:	Suviron Equipment Pvt. Ltd.,
Screen Size	:	Ø 1800 x 3600 mm long
Overall size of screen drum assembly	:	Ø 1800 x 4850 mm long
Overall size of entire screen assembly	:	2150 mm wide x 5650 mm long x 2750 mm ht.
Drive	:	7.5 HP / 1440 RPM
Planetary gear box Make	:	Premier
Ratio	:	27.5
Type	:	2722
Sprocket Drive	:	18T / 92 T
Drum Final RPM	:	10.30

VI) MILLS:

State No. of mills & for each mill the diameter & length of roller in mm. also Mention if mills have force feed arrangement, their type & number.

4 Mills, 12 Rollers Tandem Size 840 x 1525 mm. WIL make

Particular	Mills			
	I	II	III	IV
Diameter	840mm	840 mm	840 mm	840 mm
Length	1525m	1525mm	1525mm	1525mm

There are TRPF system for 1st and 4th mill having roller of Tip to Tip dia 800mm and band dia 770mm x 1525 mm long and under feed rollers for 2nd & 3rd mill of size dia 600 mm. x 1525 mm.

1) Surface and Juice Grooves:

A) Circumferential 'V' Grooves

No. of Grooves on roller				
Roller	1 Mill	II Mill	III Mill	IV Mill
Top	24	30	30	50
Bottom	25	29	29	49
Pitch (mm.)	60	50	50	30

B) Circumferential Messchaert Grooves on Feed Roller

Particulars	MILLS			
	I	II	III	IV
Nos.	20	14	14	22
Pitch (mm.)	60	100	100	60

2) Mill Setting:
(PCD to PCD) mm.

Rollers	Mills			
	I	II	III	IV
Feed	33	25	22	13
Discharge	13	8	5.5	4

3) Type & Setting of Trash Plate (mm.)

Floating Type of trash plate

Mills	I	II	III	IV
Setting	74	50	45	34.5

4) Speed of Rollers in RPM and M/ Min.

Mills	I	II	III	IV
RPM	5	5	4.5	4.5
M/ Min.	13.2	13.2	11.9	11.9

5) Make and type of Hydraulic system

Make- BEMCO
Type – Hydraulic accumulation type.

6) Total hydraulic pressure on top roller (in kgs/cm²) hydraulic load in M.T./hrs. length of roller

Particulars	Mills			
	I	II	III	IV
Pressure (Kgs/cm ²)	160	160	170	180
Total Load (M.T.)	281.52	281.52	299.11	316.70
M.T./Length Mtr	184.60	184.60	196.10	207.70

7) Length and diameter of Journals in mm.

Mills	I	II	III	IV
Length	452	452	452	452
Diameter	380	380	380	380

8) Drive for crusher and mills –

a) If steam engine used state no. and type of engine & no.

for crusher & mill driven by each engine the dia. of cylinder :- Not Applicable
stroke speed and normal indicated H.P.

b) Mill drive

:- 2 Nos, 750 KW, 1000 RPM, AC Motor VFD Drive,
2 Mills are driven by one motor.

VII) INTER - CARRIER-

2 Nos. Apron type from 1 st mill to 2 nd mill & 2 nd mill to 3 rd mill	
1.	Size – 1525 x 2080 mm.
2.	Angle of Inclination 24 °
3.	Speed – 12.2 mtr. /min.
4.	Three strands chain pitch 3.17 “
5.	Breaking load of chain – 14000 kgs.

1 Nos. Short Space Rake type carrier from 3 rd mill to 4 th mill	
	Size – 1525 x 2915 mm.
2.	Angle of Inclination 69 °
3.	Speed – 25.4 Mtr/Min
4.	Two strands chain pitch ---150mm“
5.	Breaking load of chain – 40000 kgs.

IX) BAGASSE ELEVATOR-

a) Type, length and drive

Type	- Chain Rake type
Size (Centre to Centre)	- 1000 x 24500 mm.
Capacity	- 40000 kgs/Hr.
Speed	- 28.8 m/min.
Drive	- Electric Motor
H.P.	- 25 HP
Speed	- 1440 RPM
Speed reduction by.	- I) One gear box type U 1000 Ratio – 30:1

b) Return bagasse carrier

Type	- Chain Rake type
Size (Centre to Centre)	- 1000 x 58600 mm.
Capacity	- 40000 kgs/Hr.
Speed	- 32.4 m/min.
Drive	- Electric Motor
H.P.	- 40 HP
Speed	- 1440 RPM
Speed reduction by.	- I) One gear box type U 1200 Ratio – 40:1

a) Gearing arrangement type reduction ratio and type of teeth

Two spur wheel-gearing arrangement for driving four mills and two stage-enclosed precision R.G. Box WIL make.

Details: -

- a) First Gear Box (slow speed): Single pair reduction by helical teeth pinion and gear wheel. WIL make. Type – K 75/90, Ratio – 983: 30.69
- b) Final gear train pair of spur pinion and gears wheel ratio 122:29, Pinion teeth – 29 OD. 775 mm. Gear wheel teeth 122, OD 3100 mm.
- c) Overall reduction ratio (moter to Mill) – 1000: 7.43

X) IMBIBITION :-

State whether used in hot or cold & arrangement provided for measuring or weighing.

Imbibition by hot water before last mill only.
One weighing scale of 3.5 Tones capacity is used for measurement of water.

2nd TANDEM NEW MILL

CANE UNLOADER-

3 Nos. Mechanical cane Unloaders, three motion, all motorized

a) Nos, Make & Capacity

Cane unloading on feeding table

1) Make - Kay Iron works, Satara /

Capacity - 5 M.T. – 2 Nos

2) Make - Hallmark Technical

Services Pvt Ltd., Pune

Capacity - 10 M.T. – 1 No.

3) Span – 22 x 30 x 10 Mtrs.

ROTATING TYPE TILTING TABLE CANE UNLOADER.

Make	- SKS Global Technologies,
Type	- SKS – 50 (R),
Type of un-loader	- Rotating platform,
Cap.	- 50 MT
2Nos.	
1) Size	- 7 x 6
2) Angle of inclination with	- 6 °
3) Drive	- 15 HP 1450 RPM
4) No. of pitch	- 600 mm.
5) Gear box ratio	- 50:1

FEEDER TABLE -

I) CANE CARRIER -

Size, width & length between centre and length of horizontal part and feeding depth.

Size	- 1700 mm. Width
1) Inclined part length	- 4000 mm.
2) Horizontal part length	- 30000 mm
3) Length between two centre	- 53725 mm
3) Angle of inclination	- 17 °/ 6°
4) Speed	- 3 to 15.51 M/min
5) Feeding depth	- 967 mm
6) Chain three strands pitch	- 150 mm
7) Breaking Load	- 40000 kgs

II) PREPARATION OF CANE

A) CANE CHOPPER -

Size	- Ø 1600 mm
1) No. of Knives	- 30
2) Direction of rotation	- Forward
3) Location	- Before Leveler
4) Drive	- 125 HP. 1440 RPM
5) Gear Box Ratio	- 4.88:1
6) Setting.	- Tip of knife to top of

	slat 400 mm. 860 mm
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C) CANE LEVELLER

State No. Of sets, pitch of Blades in each set & Particulars of drive specifying RPM H.P. for each set clearance between tips and carrier bed location & knives (If two sets centre to centre distance

1) No.of knives	- 42
2) Pitch	- 40 mm
3) Size	- ϕ 1600 mm. (Swing dia)
4) Setting	- 25 mm. (Tip of knife to top of slat) 287 mm
5) Direction	- Forward
6) Drive	- 550 HP. 560 RPM

D) PUSHER ROLLER

1) Size	- ϕ 1500 mm
2) Direction	- Forward
3) Drive	- 20 HP. 1440 RPM
4) Gear Box Ratio	- 40:1

E) FIBRIZER -

State type of fibrizer & Give its details.

a) No. of hammers	- 108
b) Size	- ϕ 2130 mm (swing dia)
c) Speed.	- 745 RPM
d) Drive.	- 1500 KW
e) Location.	- After pusher roller

Electric Motor Drive

a) No	One
b) Make	Crompton Greaves
c) Type	Slipping H.T Motor .
d) KW & RPM	1500 & 745
e) Amp	103

Not Applicable

III) CRUSHERS -

State type & No. of crushers & for each crusher No. of rollers and dia and length of each roller in mm.

IV) Rotary Juice Screen

M/s Hi-Tech Engineers , (Meerut)
 Screen Size – ϕ 1800 x 3600 mm Long
 Drive – 10 HP, RPM -1440,
 Sprocket Drive 2" pitch – 19 T / 95 T

Planetary Gear Box make - Gear Torque Transmission,
 Satara, Ratio – Type –
 Drum Final RPM – 10

V) Mills

State No. of mills & for each mill the diameter & length of roller in mm. also Mention if mills have force feed arrangement, their type & number.

4 Mills, 12 Rollers Tandem Size 910 x 1700 mm. 3 Nos Meru make, 1 No. Vikram Project make

Particular	Mills			
	Meru make Mill			VPL Make
	I	II	III	IV
Diameter	910 mm	910 mm	910 mm	910 mm
Length	1700mm	1700mm	1700mm	1700mm

There are TRPF system for all mill having roller of Tip to Tip dia 915mm and band dia 785 mm x 1700mm long.

1) Surface and Juice Grooves:

A) Circumferential 'V' Grooves

No. of Grooves on roller				
Roller	1 Mill	II Mill	III Mill	IV Mill
Top	34	34	56	56
Bottom	33	33	55	55
Pitch (mm.)	50	50	30	30

B) Circumferential Messchaert Grooves on Feed Roller				
Particulars	MILLS			
	I	II	III	IV
Nos.	30	30	24	24
Pitch (mm.)	50	50	60	60

2) Mill Setting:
 (PCD to PCD) mm.

Rollers	Mills			
	I	II	III	IV
Feed	54.5	34.5	30	27.5
Discharge	20.5	13.5	13	15.5

3) Type & Setting of Trash Plate (mm.)

Floating Type of trash plate

Mills	I	II	III	IV
Setting	98	63	55	57

4) Speed of Rollers in RPM and M/ Min.

Mills	I	II	III	IV
RPM	4.5	4.5	4.5	3.8
M/ Min.	12.86	12.86	12.86	10.86

5) Make and type of Hydraulic system

Make- Kamakshi Engineering, Belgaum
Type – Hydraulic accumulator type.

6) Total hydraulic pressure on top roller (in kgs/cm²) hydraulic load in M.T./hrs. length of roller

Particulars	Mills			
	I	II	III	IV
Pressure (Kgs/cm ²)	160	160	170	180
Total Load (M.T.)	341.84	341.84	363.21	361.95
M.T./Length Mtr	201.10	201.10	213.65	212.91

7) Length and diameter of Journals in mm.

Mills	I	II	III	IV
Length	430	430	430	430
Diameter	540	540	540	540

V) INTER RAKE CARRIER

State No, size, angle of Inclination

Nos	- 4 Nos
a) Size	- 1700 mm Wide
b) C to C Dist.	- I. 6817 III. 7630 - II. 13955 IV. 5895
c) Chain Pitch	- 229 mm.
d) Angle of Inclination	- I. 51° III. 44° - II. 37° IV. 62°
e) Breaking Load	- 50000 Kgs.
f) Distance bet ⁿ 2 rakes	- 600 mm.
g) Drive	- 25 H.P. 1475 RPM
h) Planetary G.B. Ratio	- 177:1
i) Speed.	- 26.7 mtr/min.

VI) Drive for crushers and Mills-

Three Nos (1st, 2nd & 3rd) are driven by electric motors of 500 KW, 1000 RPM with planetary gear box of out put RPM – 5.6

And 4th Mill driven by 500 KW, 1000 RPM D.C. Drive motor with reduction gear box and open gearing having combined reduction ratio 1000:4.5

VII) BAGASSE ELEVATOR-

a) Type	- Chain Rake Type
b) Size (mm)	- 1500 mm. x 26000 mm
c) Capacity	- 40000 Kgs/hr.
d) Speed	- 28.7 m/min.

e) Drive	- 40 H.P. 1440 RPM
f) Reduction Ratio	- 22:4:1, (13T/61T respectively)
g) Chain pitch (mm)	- 150 mm.

VIII) RETURN BAGASSE CARRIER-

a) Type	- Chain Rake Type
b) Size (mm)	- 1500 mm. x 65485 mm
c) Capacity	- 40000 Kgs/hr.
d) Speed	- 25 m/min.
e) Drive	- 50 H.P. 1440 RPM
f) Reduction Ratio	- 25:1, 13T/61T respectively
g) Chain pitch (mm)	- 150 mm.
h) Driven sprocket	- 14T x 150 Pitch

i) Drive (Standby)	- Make – Top Gear Transmission, Satara - Planetary – 4 B - HP – 75, RPM – 1440 - 127.15: 1 - Model – 3670
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IX) RETURN BAGASSE ELEVATOR -

a) Type	- Chain Rake Type
b) Size	- 1000 mm. x 22200 mm
c) Drive	- 40 HP. 1440 RPM
d) Reduction Ratio	- 30:1, 61:13 respectively
e) Chain pitch	- 150 mm.
f) Driven sprocket	- 14T x 150 Pitch

X) CROSS BAGASSE

CARRIER-

a) Type	- Chain Rake Type
b) Size (mm)	- 1200 mm. x 50000 mm
c) Capacity	- 40000 Kgs/hr.
d) Speed	- 25 m/min.
e) Drive	- 25 H.P. 1440 RPM
f) Reduction Ratio	- 40:1, 12T / 36T respectively
g) Chain pitch (mm)	- 152.4 mm.

XI) IMBIBITION -

By hot water before 4th Mill. Water flow meter used for water measuring.

CLARIFICATION PLANT

I) MEASUREMENT & WEIGHMENT OF RAW JUICE-

- a) Measuring equipment for water State no. type & weighing capacity per charge of each tank and arrangement provided for recording quantity

1 Nos.

Platform type water weighing scale of **capacity 3.5 M.T. / tip** for Imbibition water.

1 No online water flow meter to measure flow in m³/hr. for LPE mill.

of water.

- b) Weighing Equipment: **1 No.**
 State nos. type & weighing Capacity per charge of each tank and arrangement
 Automatic Juice weighing scale having **5.00 M.T.** Capacity / tip. Automatic counter is provided for recording number of discharge.
 Provided for recording quantity of juice. **1 No. on line juice flow meter to measure flow in m³/hr. for NEW mill.**

II) Juice Heaters

10 - Nos.
High Velocity vertical multiple circulation type juice heater.

State no; type and heating surface (m ²) of each, and purpose for which it is used.	Particulars	High Velocity vertical multiple circulation type juice heater.				
		V.L.J.H	CLJH	RJH	SJH	
		1 No	2 Nos	2 Nos	3 Nos	1 No.
	Heating Surface (m ²)	400	300	460	350	500
	No.of Tubes	660	552	864	620	924
	Size of Tube					
	Inner Dia.mm	42	42	42	42	42.6
	Outer Dia. mm	45	45	45	45	45
	Length (mm)	4500	4150	4050	4150	4050
	No. of passes	20	24	24	20	22
	No.of tubes per pass	33	23	36	31	42

JUICE HEATING -

A) Raw Juice Heating

- I) First heating by vapour line juice heater (400 m²) on IVth Body (440 m³) vapour.
- II) Second heating by one vertical Juice Heater (460 m²) on 2nd Body (440 m³) vapour.

B) Sulphur Juice Heating

- I) First heating by one vertical juice heater (350 m²) on IInd effect of DEVC (1300 m³)
- II) Second heating by one vertical Juice heater (350 m²) on exhaust OR Ist effect of DEVC (3600 m³).

C) Clear Juice Heating

- I) Heating by one vertical juice heater (300 m²) on Exhaust or Ist effect of DEVC vapour (3600 m³).

III)JUICE SULPHURING

TANK

State no; type and capacity in cubic meter and its dimensions.

2 Nos.

Continuous Juice sulphuring units.

Sr.	Particulars	One No. for Juice	One No. for filtrate
1.	Working cap. (m ³)	42	6
2.	Height (mm)	4080	1000

3.	Diameter (mm)	4900	2650
4.	Retention Time	9.00 Min.	8.00 Min
5.	Stirrer speed	16 RPM	Natural circulation

IV) SUBSIDERS

a) Settling tanks

Nos. and working cap. (m³)

Nil.

b) Continuous settler

2 Nos Continuous Settlers.

No. and working capacity in (m³) of each

Sr.	Particulars	TRAYLESS CLARIFIER SUVIRON	444 Comp. Clarifier Universal Engg.
1.	Make		
2.	No.of compt.	--	4
3.	Capacity (m ³)	310	526
4.	Height (mm.)	3000	6100
5.	Diameter (mm)	10000	10363

V) SULPHUR GAS PLANT

a) Sulphur furnace

4 Nos.

State Nos. type of furnace, tray area in m² for each furnace & Capacity in Kg/hr. each.

Automatic digitally controlled operated automatic continuous sulphur burner.

- I) 1 No. having cap. 70 kg/hr. of sulphur
- II) 2 Nos. having cap. 100 kg/hr. of sulphur
- III) 1 No. having cap. -200 Kg/hr. of sulphur.

VI) Air Blowers

- 1) Juice Sulphitor, Model – SR 113
Cap. – 800 m³,
- 2) Syrup sulphitor – Model – SR 069
Cap. – 600 m³

b) Vapcon System	-- 1 No For syrup sulphur burner
Make :	Address Engg. & sugear Eqpt. P. Ltd.,
Size :	ID – 700 x 2200 Ht. x 10 thk.
No of heater:	

~~**-- 1 No** For Juice sulphur burner
 Make : Address Engg. & sugear Eqpt. P. Ltd.,
 Size : ID – 800 x 2800 Ht. x 10 thk.
 No of heater:~~

C) Air Compressor:

State Nos. type cap. in m³/ hr displacement per unit and discharge pressure in Kg/cm²

-- 4 Nos. .

Sr.	Particulars	Compressor No.1	Comp. No.2	Comp. No.1
1.	Make	Kay International	INGERSOLL RAND	
2.	Type	WC	ESV-1-LUBESV-1-LUB	
3.	Size (Inch)	8 x 7	7 x 5	9.5 x 5
4.	Cap. (m ³ /hr)	900 CFM	225.00	404.17
5.	Speed(RPM)	1336	675	675
6.	Discharge pressure (Kg/hr)	1	1.36	1.36

VI) FILTER PRESSES

a) State Nos. Type & filtering area (m²) of each and tightening device Juice & scum pressure to be given separately I & II to be given separately

Nil

b) **Rotary vacuum filter :**

State No; type, make, diameter, length and filtering area together with the details of screen.

3 Nos

Sr. No	Particulars	Vacuum filter	Vacuum filter
1.	Make	UNIVERSAL HEAVY ENG. CO. LTD.	UNIVERSAL HEAVY ENG. CO. LTD.
2.	Drum size (mm) No.	8FT x 16 FT-1	10FT x 20FT 2
	i) Diameter(mm)	2440	3050
	ii) Length (mm)	4880	6100
3.	Filtering Area m ²	38	55
4.	Screen Details	Stainless steel	Stainless steel
5.	Screen size	2.44x0.3x20 Swg.	3.05x0.3x30 Swg
6.	No.of holes/ sq.inch	625	625
7.	Hole Dia. (mm)	0.5	0.5

VII) MILK OF LIME PLANT

State No; type and size of lime slacker and also mention size of storage tank, capacity and speed.

- A) Rotary type Lime Slacker – 1 No
 - a) Size
 - I) Length - 4500 mm.
 - II) Diameter - 1500 mm.
 - b) Capacity - 1200 kgs/hr.
 - c) Speed - 6-8 RPM
- B) Storage tank - 3 Nos
 - Size of Tank
 - i) Diameter - 2250 mm.
 - ii) Height - 2450 mm.
 - Stirrer speed 37 RPM
- A) Lime Classifier - 1 No
 - Dorr make, Rake type, Lime classifier,
 - Size L 15' x Q 2' x Ht. 2' –10" RPM 10

VIII) CARBONATION PLANT

To be filled up with only for the factories following carbonation process for clarification of juice.

Not Applicable.

IX) ALTERNATIVE EQUIPMENT

Give here particulars of equipment if any used of processing item

Not Applicable.

EVAPORATION AND BOILING PLANT

I) EVAPORATORS

The Vessels from which vapours are bled should be specified stating the use to which the bled vapours are put to

Double Effect Vapour Cell + Quadruple set.

- a) State No.& for each evaporator the number of vessels & total heating surface (m²) of each vessel together with diameter of tube & height & diameter of the body and size of vapour pipes of each body.

Sr No	Particulars	New Rising film evaporator	Old Rising film evaporator	Robert body	Falling film evaporator	Quadruple Set			
						I	II	III	IV
1.	Heating surface (m ²)	3600	1300	2600	1040	560	440	440	440
2.	Body Dia. mm.	5302	2800	5300	2450/ 3000	3094	2789	2789	2789
3.	Body Height mm.	7891	8475	5500	11000	6505	6505	6505	6505
4.	No.of Tubes	5314	2160	7044	1442	2125	1669	1669	1669
5.	Tube size	--	--		--	--	--	--	--
	i) Inner Dia. mm.	42	38	42	38	42	42	42	42
	ii) Outer Dia. mm	45	40	45	40	45	45	45	45
	iii. Length mm.	5000	5000	2750	6000	2000	2000	2000	2000
6.	Vapour Pipe Dia mm.	1400	900	1200	500	600	600	700	1050

- | | |
|--|--|
| a) Vapour bled from 1 st (new) rising film Evaporator to- | I) II nd (Old) Rising film evaporator.
II) Falling Film evaporator /2600 m ² Body.
III) Juice Heater. (S.J.) |
| b) Vapour bled from II nd (Old) Rising film evaporator to- | I) 'A' Cont. Pan |
| c) Vapour bled from falling film evaporator to - | I) 'B' & 'C' Cont. Pan |
| d) Vapour bled from 1 st Body of Quadruple set to | I) Juice Heaters (R.J.) |
| B) Give particulars of apparatus if any Provided for recording and controlling | ---- |
| C) State heating surface of pre Evaporator if any provided | --- |
| D) Details of save all and juice catcher | Inside baffle type entrainment catcher |
| E) Arrangement for drawing of condensate From vessels. | Condensate extracting pumps are provided for each vessel. |
| F) Flash Heat recovery system | -- 1 No. |
| | Size : Ø 2300 x 2000 Mtr Ht. |
| | Overflow height : 1850 mm |
| | Condensate vapour of 3600 m ² H.S. body to 2 nd body inlet vapour Line |

II) SYRUP TREATMENT PLANT -

- | | |
|--|--|
| a) Sulphuring Tank: | 1 NO |
| State No; type size and working capacity of tank in m ³ | Continuous type syrup sulphitation tower |
| | a) Working cap. 12.05m ³ |
| | b) Retention Time 10.55 Minutes |
| | c) Size I) Height 1635 mm. |
| | II) Diameter 3300 mm. |
| c) Filters: | Not Applicable |
| State No. and filtering area in m ² . | |

III) SYRUP STORAGE:

12 Nos

State No. and capacity in m³ of each tank.

Number of Tanks	2 Nos	2 Nos	8 Nos
Capacity in m ³ each	12	12	20

IV) MOLASSES STORAGE:

17 Nos Molasses storage (Pan supply) tanks.

State No. of tanks & capacity in m³ of each tank.

Molasses				
Particulars	A-Light	A-Heavy	B-Heavy	C-Light
No. of Tanks	5	2 + 3	4	3
Cap. in m ³ each	10	10 15	10	10

V) VACUUM PANS:

8 Nos

a) State type No. of pans of each type & for each pan state the normal strike cap. (in H.L.) & total heating surface (in sq.mtrs) each, circulators, if any size of tube or coil in mm.

- 1) Five Nos. are center flow calendria batch pan for 'seed' and 'Grain', 1 80 MT batch pan for seed & A mas.
- 2) Four Nos. are continuous Pan used as follows.
Two Nos. for 'A' boiling cap. 35 M.T./hr. each
One No. for 'B' – boiling capacity – 30 MT/hr.
One No. for 'C' boiling capacity – 17.5 MT/hr.

Sr No	Particulars	Batch type Pan				Continuous Pans		
		1 & 2	3	4	5 & 6	1	2	3
1.	Cap. in MT	60	40	50	80	35	30	17.5
2.	Heating surface m ²	268	165	222	370	710	572	410
3.	No. of tubes	1148	602	988	1768	2288	2068	1490
4.	Tube size mm							
	i) Inner Dia. mm	98	98	96	98	98	98	98
	ii) Out Dia. mm	102	102	100	102	102	102	102
	iii) Length mm.	800	900	750	750	1000/ B.Z. 1200/ T.Z.	900	900
5.	Strike cap. (HL)	--	--	--	--	--	--	--
6.	Body Dia. mm	5070	4000	4730	6280	--	--	--
7.	Body Height mm	2800	3160	2610	3500	--	--	--
8.	Vapour pipe Dia. mm.	900	900	900	1220	1220	1130	1100

Note- B.Z.- Boiling Zone
& T.Z- Tightening Zone

- B) Hydraulic discharge valve** -- 2 Nos for 60 MT Vaccum pan
 -- 1 No for 80 MT Batch pan
 Make : Kamashi International, Pune

C) Give particulars of apparatus if any provided

- 1) For Recording vacuum Vacuum Gauges.
- 2) For Controlling Pan boiling Syrup seed control system is provided for 35 MT/hr. capacity A1 continuous pan.

D) Mechanical Circulator

3 Nos

- 1) Pan No. 1 Impeller Ø 1780
 Drive Gear Box planetary
 Megtorque make, Model – D 2360,
 Ratio – 27.5:1, Motor – 75 HP / RPM - 1440
- 2) Pan No. 2 Impeller Ø 1775
 Drive – Gear Box Planetary
 Megtorque ,make, Model – 2400 X -10,
 Ratio – 28:1, Motor – 60 HP / RPM -1475
- 3) Pan No. 3 Impeller Ø 1400
 Drive – Gear Box Planetary
 Megtorque ,make, Model – D2290
 Ratio – 20:1, Motor – 50, RPM – 1440
- 4)Pan No.5 Impeller Ø 2550
 Drive G.B. Planetary Premium Transmission Ltd.,
 Model – VB3SA – 280
 Ratio – 38.4:1P1, Motor – 75 KW / RPM – 1480
- 5) Pan No. 6 Impeller Ø 2562
 Drive G.B. Planetary Elecon Engg. Co.,
 Model – 03-21-VN-1- A-03-08011LR-Rev.
 Ratio-27.22:1, Motor – 55/75, RPM – 1475

VII) CONDENSATION PLANT

Condensers :

- a) State type, Dia and height.
 Also
 give particulars of pans and

Sr. No	Condenser	Type of Cond.	Height mm.	Dia mm	No.of spray	Nozzle Jet
1.	Evaporator	Single entry	2250	1050	30	14

Evaporators connected to each Condenser.

2.	Batch Pan No.1 & 2	Single entry	2020	900	28	16
3.	Batch Pan No.3 & 4	Single entry	2250	900	24	10
4.	Cont. Pan No.6	Single entry	2100	1576	36	23
5.	Cont. Pan No.3	Single entry	2250	1066	30	10
6.	Cont. Pan No.4	Single entry	2100	1400	28	14
7.	Booster condenser for pans	Single entry	2250	900	24	10
8.	Batch pan no 5	Single entry		1180	24	24

b) Condenser water pump:

State No. Type & capacity (Lit/sec.) for each

6 Nos.

Cold Water for both Jet nozzles and spray nozzles have provided.

Injection water Pumps are as follows.

Sr. No	Pump make Type	No.	Pump size mm	Head M	Cap. (Lit/sec.)	Sped (RPM)	Motor H.P.
1.	10 UPI Kirloskar	3	250x300	24	194.5	1480	80
2.	12 UPH1	1	300x350	20	417	1450	150
3.	14 UPH1	1	350x400	22	555	980	215
4.	16 UPH1	1	400x450	22	700	960	270

C) Water Cooling System:

3 Nos Spray Pumps are as follows

i) Spray Pump :

State No. Type and Cap. in lit./sec. each

Sr. No	Pump type	Make	No	Pump size mm	Head M	Cap Lit/Sec.	Speed RPM	Motor HP
1.	MF-35x35	Kirloskar	2	350 x 350	10	445	980	90
2.	16 Uph1	-"	1	400 x 450	22	700	960	270

ii) Spray Pond-

State No and type of Nozzles size of spray pond.

Mist cooling system at spray pond.

Size 76 x 61 x 2.50(meters)

Total No. of nozzles - 500 Nos.

For 16 UPH 1 Pump – 265 Nos

Mf 35 x 35 Pump - 235 Nos

iii) Cooling tower Details -

Cap. 50 MT/hr. condensate water of 70°C to 26°C
Type – Fan less, Fillies induced draught ERP- Jet

Size of tower cooling water tank- 52' x 8' is made.
 Spray system – A balanced spray system is made out of class 'C' G.I. pipes & Nylon Nozzles.
 No. of nozzles: 48, No. Of Louvers – 320

COOLING CURING AND DRYING PLANT

A) (I) CRYSTALLISERS:

State No. Type of each crystalliser (open or closed and Jacketed etc) and for each crystalliser give the normal Massecuite cap. type of Massecuite cooled and cooling surface and type of cooling Coils.

a) Thirteen Nos. Open crystallisers

Sr no	Particulars	No	Type	Capacity each (m³)
1.	C-m/c receiver Crystalliser	1	Air cooled	30
2.	C-m/c Crystalliser	6	Water cooled with stationary coils	30
3.	B-m/c crystalliser	2	Water cooled with stationary coils	30
4.	A-m/c crystalliser	5	Air cooled i) For batch pan- 2 Nos 1 No ii) For Cont.pan 2 Nos.	30 90 45

b) Five Nos Vacuum crystallisers with stationery coils

Sr. No.	Particulars	Nos	Capacity each (m3)
1.	C- Grain Material	2	30
2.	B-Grain material	1	60
3.	A-seed	2	45
		1	20

B) CONTINUOUS CRYSTALLISERS:

One No. Vertical Crystallisers (Cap. 300 T)
 With Heating Coils & Stirrer
 Size 5000 x 12700
 Drive Motor - 30 HP
 RPM – 1440
 Speed reduction G.B. Ratio 60:1

II) SEED CRYSTALLISERS :

- a) Mention No. & capacity in m³ Two Nos. 1 No 'U' shaped open crystallisers of cap. 20 M.T. for B-seed and 1 No of capacity 30 M.T. for Dry Seed.
- b) Give details of reheating arrangement at Pug mill. : 3 Nos
Reheating of 'C'- masecuite is done by separate in one No. transient heater for each machine having heating surface 20 m² Cap.8 to10 M.T./Hr. masecuite.

III) CENTRIFUGAL MACHINES :

- a) State No. of machines used as
a fore workers and after
workers separately for each
type of masecuite height &
diameter in (mm) RPM & type
of drive (e.g. belt or electrical)
& whether manually operated
semi auto or fully automatic.
- I) Batch type Machines – 7 Nos
II) Continuous type Machines - 10 Nos.

Sr. No	Machines used as	Make	Nos	Type	Basket size	Speed (RPM)	Capacity	Type of Drive	Motor H.P.
1.	A) A-m/c single curing	WIL	2	Batch type self discharge	49"x32"	Three Speed	500 kgs per charge	Electric or A.C.	125
	B) A-m/c single curing (Fully automatic)	WIL	3	Batch type flat bottom	54"x40"	Four Speed	1250 Kgs per charge	Electric D.C.	200
		modern engineering	2	Batch type flat bottom	54"x40"	Four Speed	1250 Kgs per charge	Electric D.C.	200
2.	C) A-m/c single curing (Fully automatic)	WIL	1	Batch type flat bottom	?	Four Speed	1750 Kgs per charge	Electric D.C.	200
3	A) B-m/c fore worker	WIL	2	WK 1350 cont.					200
	B) B-m/c After worker	WIL	1	DC-10/34 ⁰	1040 mm	1500	10 T/hr.	--"	60
4.	A) C-Fore worker	AB Engg.	1	AB - 1100	1100 mm	2000T/Hr.	Elect. A.C.	75
	B) C-m/c fore worker	NHEC	2	NK-1100/30 ⁰ Continuous	1100 mm	2000	10 T/hr.	--"	75

C) --"----	WIL	2	DC-10/34° Continuous	1040 mm	1500 2100	8 T/hr.	--"--	60
D) C-m/c After	WIL	2	DC-10/34° Continuous	1040 mm	1500 2100	8 T/hr.	--"--	60

~~B) Vapcon system -- 1 No for 'A' c/f machine (V – 1250)
 Make : Addarsh Engg. & Sugar Eqpt. Pvt. Ltd., Nashik
 Size : Ø 1300 x 3900 mm long x 10 thk.
 Vapcon system heater : 144 Nos, 440 V, 4 W, 2 Phase~~

C) Air Compressors:

State Nos. Type & cap.of each and discharge pressure

Sr. No	Particulars	Compressor 2 Nos.
1.	Type	ESV-1LUB
2.	Size (Inch)	8" x 7"
3.	Capacity (M ³ /hr)	442
4.	Speed (RPM)	650
5.	Discharge Pressure (kg/cm ²)	9.45

D) Melting Tank

- I) 1 No Sugar Melter, Size – Ø 3750 x 3700 ht.
 Cap. – 35m³, Drive – 10 HP, 960 RPM
 planetary G.B. Make – Top Gear Transmission
 Ratio – 45.1, Final RPM – 21.33
- II) 1 No Receiver Size – Ø 2500 x 2750 Ht.
- III) Vertical melting tank No.2 with heating coil and stirrer
 Old Size I) Height - 2225 mm
 II) Diameter - 2016 mm
 Receiver provided for the melting tank
 Size - I) Height - 1472 mm.
 II) Diameter – 1396 mm.

IV) SUGAR DRYER :

a) Hopper:
 State No. and Size.

Old set					New Set
Sr. No	Size (mm)	Hopper No. 1	Hopper No. 2	Hopper No.3	Hopper NO.1 2 & 3
1.	Length (m)	14.260	10.450	10.750	12.000

2.	Width(m)	1.500	1.500	1.500	2.000
3.	Height (m)	0.300	0.300	0.300	0.300

Hot & Cold air blowing arrangement is provided at both sets.

b) Elevator

: Three Nos.

- i) 1 No. c/f belt type bucket Elevator having
Make – Chintamani Enggs., Cap. - 25 MT
C/C – 14 Mtrs, Speed – 65 Mtr/Min
- ii) 1 No. c/f belt type bucket elevator having make
Chintamani Engg. Cap.- 30 Ton/hr
C/C – 11 Mtr, Speed - ?
- iii) 1 No. C/f belt type bucket elevator having
make chintamani Engg. Cap – 35 Ton/hr,
C/C – 12 Mtr, Speed – 65 Mtr

Three Nos.

c) Sugar Grader:

State Nos. Size and capacity

Sr. No	Particulars	Grader No.1	Grader No.2	Grader No.3
1.	Length(m)	5.000	2.065	6.000
2.	Width (m)	1.500	2.000	2.000
3.	Capacity MT/Hr	15.00	25.00	30.000

d) Sugar Dust Catcher :

State No, Type and Drive.

One No

Cyclone type driven.

by 15 H.P. Electric Motor.

V) SUGAR SILO SYSTEM:

A) Sugar Silo (Bins)

2 Nos. For M & S Grade sugar One No. each
Capacity - 185 MT. each

1 No. for L Grade sugar Capacity – 10 Ton

B) Auto Weighing Machine

3 Nos

Make – Chronos Richardson

Type – Model E –55, Speedac Controller No.8

Microprocessor based with printer, Software and PC.

Capacity – 900 bags/hr. and max. 1440 bags/hr. each

Accuracy: ± 20 gms.

a) 1 No

C) Bag stitching machine

Mass make Duplex type
Speed – 500 – 600 bag/ hr., Accuracy - ±5 grms
2 Nos

- a) Make – Reed Medway packing company
- b) Type - Model UHH
- c) Capacity – 1200 bags/hr. each
- b) 1 No

Bag stitching machine with 4 M long slat conveyor
Motor – HP 0.5, RPM – 1440, HP – 1

D) Bucket elevator

2 No
Type- Vertical
Capacity – 20 MT/hr. each
c) 1 No

Type – Vertical, Cap. – 10 T/hr

E) Belt conveyor

2 Nos
One belt each to convey sugar from elevator to sugar silo
2 Nos. (In Series)

To convey sugar from old sugar elevator to I.C.Grader

d) 1 No.

To Convey Sugar from grade to New sugar silo

e) 1 No

To conveyor sugar from 35 Ton belt type bucket elevator to 30 Ton sugar grader.

VI) VIBRO SCREENS:

Pannwalt sharpless vibro screen

Units - 2 Nos

Vibro Screen for			
Particulars	Oliver filtrate 2 Nos	M.O.lime 1 No	Sugar seed 2 Nos
Diameter	60"	60"	60"
Capacity	50 MT/hr.		
Screen size	80 mesh	40 mesh	24 mesh
Motor Details	400/440 Volts, 3 Phase, 50H, A.C. supply.		

BOILERS

A) State No. type and make of boilers its working pressure in

	Sr. No	Particulars	1 & 2	3
	1	Make	WIL	IJT
	1.	Capacity (MT/hr)	35.00	70.00
	2.	Working pressure Kg/cm ²	45.00	86.00
	3.	Heating surface (m ²)	1140.00	3315.00
	4.	Grate Area (m ² .)	20.46	23.80
	5.	H.S. of super heater (m ² .)	150.00	707.67
	6.	Degree of superheat(°C)	440+/-5	515+/-5
	7.	Soot blowers (Nos)	2	8

kg/cm² Heating Surface in m². Grate area for bagasse and coal in m². Super Heater surface and degree of super Head and details of soot blower.

B) **Feed Water Treatment :**

Give particulars of arrangement if any for softening or otherwise treating the feed water entering Boilers

Fec1 3 Dosing –
Chlorination –
Filtration –
Activated carbon filter –
Activated Carbon filter –

D) Turbo Feed Pump

1 No. (for boiler 1 & 2)
Belliss India Ltd., make Single Stage
Turbine
Type SS-4A
B.H.P. 550
Inlet Steam Press – 45 kg/cm²
Exhaust Steam press. 15 kg/cm²
Speed - 7000 RPM
Feed Pump – Sulzer make turbo feed
pump
Model – MC, 100/6, Head – 650 m,
RPM- 3250, Disch. 135 m³/hr.
Gear Box WIL make
Type CN 16, Ratio- 7000/3045

Feed Pump

3 Nos. (for Boiler 1 & 2)
Khimline pumps Ltd. make
Type – mc- 50/12
Head – 650 mtr.
KW 126.3 KW , RPM - 2980
Discharge - 50 m³/hr,
2 Nos. KSB Make
Type - HDA 50/12, Head - 620 Mtr.
KW – 49 , RPM – 2970
Discharge - 15 m³/hr,

E) Feed Pump for 70 TPH Boiler

3 Nos.
Make – KSB Pumps ltd.
Model – HGB 2/16
Head – 1200mmWC ,Dish – 45 m³/hr,
RPM -2980, KW – 250 (VFD)

F) 1) Feed Water Tank-

3 Nos. (for boiler 1 & 2)
1 } Size - ϕ 3400 x 7000 mm. LG Cap-
60 m³
2} Size - ϕ 2500 x 6500 mm. LG Cap –
30 m³
3}Size - ϕ 3000 x 8500 mm. LG Cap –
60 m³

G) Deaerated Water Tank-

Size - ϕ 3000 x 7000 mm. LG Cap- 40 m³
(normal water level)

H) For 70 TPH Boiler

1) feed water storage tank

capacity- 60 m³

2) Deaerator

Tank size ID 3000 x 7800 x 10mm tk.
Type-spray cum Tray
capacity - 86.5 TPH,
heating steam quantity- 7.5 MT/hr
Tank size-ID 2000 x 2200 x 10mm tk

3) Deaerator storage Tank

capacity - 55.12 m³
Tank size- ID 3200 x 9500 x 10mm tk.

I) ECONOMISERS- Give particulars stating type and heating surface	Sr No	Particulars	35 TPH Economizer No. 1 & 2	70TPH boiler Eco.
	1.	Design pressure (Kg/cm ²)	55.5	104
	2.	Hydraulic pressure (Kg/cm ²)	83.25	
	3.	Design Temp. (°C)	220	309
	4.	Heating surface (sq.mtr.)	382	1780
	5.	Tube size (O.D.)	50.8 x 8 SWG	38 x 4mm tk
	6.	No.of tubes.	21 each	

J) CHIMNEY : Give dia. and height. Also type of draughts (i.e. forced induced or natural draught) and give particulars of forced and induced draught fans.	Three Nos			
	Sr.No	Particulars	Chimney No.1	Chimney No.2
	1.	Construction	RCC constructed	RCC constructed
	2.	Top Diameter (m)	3.000	2.330
	3.	Bottom Dia (m)	3.000	2.100
4.	Height (m)	60.000	76.000	
Balanced draught system is followed by using forced Draught fan and induced draught fan separately for each boiler associated with chimney.				

Sr No	Particulars	35 TPH Boiler No.1 & 2			70TPH Boiler			
		F.D. Fan	I.D. fan.	SA Fan	C R Fan	SA Fan	FD Fan	ID Fan
1.	Diameter (m)	1.082	2.244	1.27	0.614	1.343	1.307	2.157
2.	Capacity (m ³ /Sec)	17.5	45.0	6.25	1.5	8.3	13	42
3.	Speed (RPM)	1440	750	1500	2980	1440	960	750
4.	Qty.	1	1	2	2	2	2	2
5	Motor HP	100	300	75				

K)WET

Two Nos.

SCRUBBER:

Size - i) Diameter - 4.500 m

State No. & size.

ii) Height - 9.100 m

L) CLARIFIER :

One No

State No. and size and capacity.

Size - i) Diameter - 8.600 m

ii) Height - 2.560 m

Working Capacity - 148.630 m³

M)ELECTROTIC precipitator

Make – HIMENVIRO

At 110% mcr – gas flow rate at ESP exit – 67.54 m³/hr
gas temp. rate at ESP exit – 150 °C

Inlet flue gas suction pressure -160mmW
gas velocity at electrode zone on total area-1.0 m/sec
dust concentration at ESP -69 mg/nm³
Inlet dust concentration at ESP exit – 115 mg/nm³
ESP collecting area - 3150 m²
No of working field - 2
Length &Height of field – 5000 x 10500 mm
collecting electrode - CRCA sheet as per IS:513 Gr D
emitting electrode - Rigid multi spike type

N) B. Bailing Press M/C –

3 Nos

A) Kay Iron Make -3 nos ,Horizontal type fabricated boiling m.c
,. C.I. 'V' Belt Pulleys ;Fly wheel and conn. Rods which is made Bagasse bails; Size – 300 mm x 300 mm.x 600 mm.

Cap – 80-100 bails /hr.

B) Adity auto test make two stationed hydraulic

Bagasse bailing m /c; Size – **300** mm x 300 mm.x 600 mm.

Cap – 10 MT /hr.; Drive motor Kirloskar make HP -40, RPM-1440

Opening Gearing Arrangement:

Drive HP – 2.5 RPM - 960 Output – RPM - 34

POWER PLANT

State No. of Prime movers slating for each

: Four Nos.

A) The purpose for which used its

Make. Cylinder diameter, stroke RPM and normal IHP or BHP

- 1) One No. D.G. set Kirloskar Cummins make 160 KVA, 1500 RPM each. Cylinder diameter – 152 mm. each. Used for power and lightening during off-season. And cleaning days.
- 2) One No. D.G. set Kirloskar Cummins make 380 KVA, 1500 RPM, cylinder diameter. Used for power & lightening during off-season, cleaning days & for emergency period
- 3) Two nos DG set for Cogeneration & used for power while starting of Cogeneration plant during off season & cleaning days
Make – Cummins India ltd ; 750 KVA, 1500 rpm , 415 volt.

B) If any turbine is also used state its type No. of stages system conditions of outlet.

Three Nos. Multi Stage Impulse Turbine.

Sr No	Particulars	Turbine No.1	Turbine No.2	Turbine no. 3
1.	Make	Kessels	Kessels	KEPL
2.	No.of stages	7	7	22
3.	Capacity (KW)	3000	6000	12000
4.	Speed (RPM)	6400	6400	7500
5.	Steam pressure Kg/cm ²			
	i) Inlet pressure	45.0	45.0	85.0
	ii) Outlet pressure	1.5	1.5	DEC-

D) State No. of Electric generators stating for each A.C. or D.C.

Sr No	Set	I	II	III	IV	V	VI
1.	Working on	Diesel	Diesel	Diesel	Turbine	Turbine	Turbine
2.	A.C/D.C	A.C.	A.C.	A.C	A.C.	A.C.	A.C
3.	Make	KEC	KEC	Stamford	BHEL	BHEL	T.D.Power
4.	Voltage	415	415	415	415	11000	11000
5.	Output (KW)	128	380 KVA	750 x2 KVA	3000	6000	12000
6.	Purpose	Used for light & development of power in factory & Co-gen.					
7.	IFAC P.F. & Freq.	0.9	0.9	0.9	0.9	0.9	0.9
8.	Maxi. Demand in season		380 KVA	750 KVA	3000 KW	2300 KW 3700 KW Co-Gen.	1500 KW 10500 KW co-Gen
9.	Max.Demand in off-season		380 KVA				

GENERAL :

M/S. RICHARDSON & CRUDDAS LTD.
Mumbai.

1) Name of the Plant State Name of Maker or Principal maker of the Machinery

b) a) Final molasses weighing arrangement

One No. Automatic Weighing Scale of cap. 1.00 MT

b) **Final molasses storage tank.**

Four Nos. M.S. constructed tanks.

State No. Capacity and type

Particulars	No.1	2	3	4
Capacity	3000	3000	3000	4500
Diameter	20.0 M	20.0	20.0	24.0
Height	9.75 M	9.75	9.75	9.75

Sugar Godown State No and Capacity

Total – 7 Nos
1 No to 5 No. – 1,00,000 Quintal Capacity (Each)
6 Nos – 85,000 Quintal Capacity
7 Nos – 1,30,000 Quintal Capacity

III) a) Service Water Tank.

2 Nos
1) For Karkhana 6 m. x 6 m. x 4.3 m. Ht.
Cap - 150 m³
2) For Colony 6 m x 6 m x 2.3 m. Ht.
Cap - 80 m³

b) Reservoir Tank

2 Nos
Size – 23 m x 23 m x 3 m
Cap - 1500 m³ (each)
1 No.
Size- 46 M x 25 M x 3.7 M
Cap. 4200 m³

EFFLUENT DISPOSAL :

Give particulars of equipment provided for disposal of factory effluent

Effluent Treatment Plant consist of Oil and grease separator. Three clarifiers and three aeration Unit. All the provisions as per M.P.C.B. regulations are made.
Plant Capacity - 500 m³/day
Final discharge from E.T.P. is used for own agriculture purpose.

Air Pollution Control –

Give particulars of equipment provided for disposal of fly ash from Boiler.

1. Wet Type Scrubber to remove ash
Particulate : 2 Nos.

SAMPLING EQUIPMENT:

Give particulars of equipment provided for sampling various Juice, bagasse and other material for analysis.

Manual Sampling.

CONTROL INSTRUMENT:

Specification.

1) Vacuum Gauge
2) Pressure Gauge
3) Temperature, regulator cum recorder for reducing station on exhaust line.

DETAILS OF MACHINERY OF WORK SHOP: -

a) State No. of Lathes and their Size Four Nos.

Sr. No	Make	Nos	Bed Length Size
1.	BIMPEX	1	18" x 12 Ft.
2.	MYSORE KIRLOSKAR	1	9.25" X 10 FT.
3.	SHIMOGA Type No.3	1	9.25" X 10 FT.
4.	I.M.T. Kamala	1	24" x 22 Ft.

b) No. of Shaping machine

Two Nos

One No :

Make – BIMPEX

Stroke - mini./maxi. 1" /24"

One No:

Make – BIMPEX

Stroke - mini./maxi. 2" /42"

c) Drilling Machine

Two Nos –

A) Make – BIMPEX

Type - Piller drilling machine Size - 2" Cap.

B) Make –Multitech

Type -Radial Size - 2" Cap.

d) Planning and their sizes

Nil

e) Other smaller Item in workshop:

Hacksaw machine – One No

Make - BIMPEX

Size - 10"

I/We hereby declare that all details given in this return are true to the best of my knowledge and belief.

Boiler Technical specification and Design Data

Technical Specification – Design Data

Sr.No	Particular	Boiler No MR.12942 & MR 13071	Boiler No MR 15448
1	Pressure (kg/cm ²)	45	86
2	Evaporation M.C.R.(T/hr)	35	70
3	Peak load for half an hour (T/hr)	38.50	77
4	S.H.Outlet Pressure(kg/cm ²)	45	86
5	S.H.Outlet Temp. 0c	440 +/- 5	515 +/- 5
6	Design Pressure (kg/cm ²)	53.5	100.4
7	Hydraulic test pressure at side (kg/cm ²)	80.25	
8	Total heating surface of boiler excluding S. H. coil (m ²)	1144	1535
9	H.S.of boiler bank (m ²)	857	593
10	H.S.of Furnace (m ²)	287	942
11	H.S.of economizer (m ²)	382	1780
12	H.S.of Super Heater (m ²)	150	707.67
13	H.S.of air heater (m ²)	1000	3171.13
14	Furnace grate area (m ²)	20.46	23.80

CHIEF ENGINEER

CHIEF CHEMIST

MANAGING DIRECTOR

Shri Vighnagar Sahakari Sakhar Karkhana Ltd.

Junnar / Ambegaon