

TD-106-1 Rev No. 5 Form No.		PRODUCT STANDARD PULVERISERS HYDERABAD	Product STD NO. BA89149
			Rev No. 01
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TROMMEL SCREEN ASSEMBLY FOR WET BALL MILLING SYSTEM

PROJECT: TSGENCO YADADRI 52 TPH WET BALL MILL

MATERIAL CODE: BA9789149000 TROMMEL SCREEN ASSY FOR 52 TPH WBM

Application:

Trommel screen is fitted to mill outlet trunion for Wet Ball Mill. It screens the particles from mill outlet and discharges to slurry tank. It prevents the balls inside the mill from coming out. Mill speed is 16 rpm

Particle size distribution of slurry at mill outlet is as per Annexure I (BA11077)

Particle size distribution of slurry at slurry tank / inlet to hydrocyclone is as per Annexure II

Mating flange of trommel screen with mill outlet is given in Annexure III (0-62-215-00002)

Lime stone and water properties are as per Annexure IV.

Scope:

- a. Complete Trommel screen assembly including forward helix, flanges, mesh etc
- b. Trommel screen assembly should have life > 8000 hours. Liners (if any) should be replaceable.
- c. All fasteners (anchor bolts, nuts washers etc) will be in vendor scope. Mounting details shall be shared along with offer.
- d. Supply shall include all Start-up and commissioning spares along with Mains.
- e. GA drawings along with offer
- f. Supervision for commissioning, shall be of 7 mandays / SET. This amount will be paid on receipt of site certification for completion of activity.

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Inputs:

Trommel screen should handle wet limestone slurry with density upto 1.83 T/m³.

Recirculation ratio of wet ball milling circuit is 353%.

Below are the trommel screen input (feed) parameters for 52 TPH wet ball milling system

S No	Description	Value
1	Mass flow rate of slurry	336.47 TPH
2	Flow rate of slurry	188.17 m ³ /hr
3	Specific density	1.788 T/m ³
4	% of solids by mass	70%
5	Mass flow rate of solids / limestone	235.53 TPH

Inspection and Testing requirements:

Inspection and quality shall be done as per BHEL / customer approved quality plan.

Packing:

- a. The trommel shall be packed in closed wooden cases to prevent damages during transit and storage.
- b. The flange openings shall be protected properly to prevent entry of foreign matter.
- c. Rain water should not enter into the materials during storage in the outer yard of the installation site.

Painting:

Painting shall be done as per BHEL / customer approved painting schedule.

RECORD OF REVISIONS

REV. NO	DATE	REVISION DETAILS	REVISED	APPROVED
01	30.08.2022	Annexure V removed. Mill speed added		

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**PRODUCT STANDARD
PULVERISERS
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BA 11077

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Annexure -I of BA89149

PARTICLE SIZE DISTRIBUTION OF WET BALL MILL DISCHARGE SLURRY

Top size (microns)	% Passing
3000	D 100
2000	D 99.5
1000	D 99
500	D 97
300	D 89
200	D 79
128	D 71
96	D 61
74	D 52
64	D 44.5
44	D 38
32	D 30
16	D 23
8	D 15
3	D 11
1	D 5

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RECORD OF REVISIONS

REV. NO	DATE	REVISION DETAILS	REVISED	APPROVED

Revisions:

Prepared:
K PAVAN

Approved:
AMAN

Date:
21.08.2021

Refer to record of revisions:

RESTRICTED USE





PRODUCT STANDARD
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Annexure - II of BA89149	

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Sizing and selection of limestone classifying cyclone :

Classifying Cyclone

Cyclone : 4 way cluster fitted with 4 off 150CVX06(3 op +1 standby)
 Fittings: 41 mm FCL,50 mm VF, 30 mm Spigot
 Feed Pressure: 120 kPa /17 psi
 Item: Classifying cyclone

Rf	d50(c)		Max Tem[Viscosi	Liners			
0.39	53		35C	1.00	Rubber			
TOP	BOT	FEED	SIEVE	OVER	UNDER	FEED	RECOVERY	
micron	micron	SIZE	SIZE	CUM %	CUM %	CUM %	EFFICIENCY	
		IND. %	micron	PASS	PASS	PASS	TO U/F	
1096	180	18.40	1096	100.0	100.0	100.0	100.00	
180	127	12.00	180	100.0	75.5	81.6	100.00	
127	90	14.56	127	100.0	59.5	69.6	99.77	
90	64	10.60	90	99.9	40.1	55.0	94.81	
64	44	6.20	64	97.7	26.7	44.4	69.51	
44	32	5.80	44	90.1	20.9	38.2	48.89	
32	23	4.50	32	78.3	17.1	32.4	42.50	
23	16	2.64	23	67.9	14.6	27.9	40.35	
16	11	0.10	16	61.6	13.2	25.3	39.53	
11	8	12.60	11	61.4	13.1	25.2	39.21	
8	0	12.60	8	30.8	6.5	12.6	38.80	
0	0	0.00	0	0.0	0.0	0.0	#DIV/O!	
0	0	0.00	0	0.0	0.0	0.0	#DIV/O!	

% of
FEED
25.0

% of
FEED
75.0

MASS BALANCE

	Feed	Over	Under	S.G.
Solids - t.p.h.	68.000	17.021	50.98	2.70
Water - t.p.h.	55.64	34.05	21.59	1.0000
% solids - Cw	55.00	33.329	70.25	

Notes: TOP & BOT: top & bottom size of feed solids fraction
 IND %: Indicates % of that fraction in microns
 OVER & UNDER CUM %: Cumulative % passing the
 SIEVE SIZE in the previous column

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Manivas	Aman	KHRK





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Annexure - IV of BA89149

1.0 BALL MILL & FEEDER SELECTION DATA

S.NO	DESCRIPTION	DATA
1.0	WET BALL MILL (WBM)	
1.1	Number of wet ball mills	03 Nos (2W + 1S)
1.2	Rated capacity of wet ball mill, kg/h	52,000.
2.0	FEEDER	
2.1	Type of feeder	Gravimetric
2.2	Number of feeders	3 Nos (2W + 1S)
2.3	Capacity of feeder, kg/h	57,200

2.0 LIMESTONE ANALYSIS/CHARACTERISTICS

The following limestone property to be used designing Limestone grinding system

Sl.No	Absorbent Composition	Unit	Limestone	Note
1.	Dolomite	wt%-d	Not Detectable	
2.	CaO	wt%-d	47-50	
	In CaCO3	wt%-d	83.88 to 89.00	
3.	MgO	wt%-d	0.9-3.8	
4.	Inert	wt%-d	<0.015	
		wt%-d	1.19-2.1	
		wt%-d	2.1-4.5	
		wt%-d	0.45-1.0	
		wt%-d	<0.02	
		wt%-d	<0.16	
		wt%-d	<0.01	
		wt%-d	Traces	
		wt%-d	38.0-41.3	
		wt%-d	<0.1	
		wt%-d	<0.12	
5.	Density	kg/m ³	1400	For Volumetric Calculation
		kg/m ³	1700	For Torque & Drive Calculation
		kg/m ³	2200	For structural load calculation
6.	Granule Size	mm	≤ 25 (100 %)	At limestone silo near to wet ball mill
7.	Bond Index	Kwh/Mt	14.33	

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Annexure -IV of BA89149

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3.0 WATER ANALYSIS

The following water to be used during the grinding process of limestone in Lime stone grinding system (LGS)

Sr. No.	Parameter	Unit	Clarified Water Analysis
1.	Calcium as CaCO3	ppm	121.9
2.	Magnesium as CaCO3	Ppm	74.1
3.	Sodium as CaCO3	Ppm	184.4
4.	Potassium as CaCO3	Ppm	1.1
5.	Iron in Soln	ppm	Nil
6.	Total Cations as CaCO3	ppm	381.5
7.	Bicarbonate as CaCO3	Ppm	134.8
8.	Sulphate as CaCO3	Ppm	80.9
9.	Chloride as CaCO3	Ppm	161.0
10.	Nitrate as CaCO3	Ppm	3.5
11.	Total Anions as CaCO3	Ppm	381.5
12.	Reactive Silica as SiO2	Ppm	14.1
13.	Colloidal Silica as SiO2	Ppm	Nil
14.	Total Silica as SiO2	Ppm	14.1
15.	Nitrites	Ppm	Nil
16.	Total Hardness as CaCO3	Ppm	196
17.	Total Suspended Solids		15
18.	pH Value at 25 °C	-	7.0-8.2
19.	Turbidity	NTU	15
20.	Fluoride	ppm	1.3

The following chemical dosage have been considered on the Raw water analysis for Pretreatment Plant
& above clarified water analysis has been arrived.

Chlorine dosing : 5 ppm
Lime dosing : 20 ppm

Alum dosing : 50 ppm
Poly electrolyte (PE) : 1ppm

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