



PRODUCT STANDARD

PULVERISERS

HYDERABAD

Product
STD NO.

BA89148

Rev No. 01

Page 1 of 2

TROMMEL SCREEN ASSEMBLY FOR WET BALL MILLING SYSTEM

PROJECT: TSGENCO BHADRADRI 24.5 TPH WET BALL MILL

MATERIAL CODE: BA9789148003 TROMMEL SCREEN ASSY FOR 24.5 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 18 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 (0-62215-00005)

Lime stone and water properties are as per Annexure IV.

Scope:

- a. Complete Trommel screen assembly including forward felix, 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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Prepared by	Checked by	Approved by
Manivas	Aman	KHRK



PRODUCT STANDARD

PULVERISERS

HYDERABAD

Product
STD NO.

BA89148

Rev No. 01

Page 2 of 2

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 24.5 TPH wet ball milling system

S No	Description	Value
1	Mass flow rate of slurry	158.53 TPH
2	Flow rate of slurry	88.66 m ³ /hr
3	Specific density	1.788 T/m ³
4	% of solids by mass	70%
5	Mass flow rate of solids / limestone	110.97 TPH

Inspection and Testing requirements:

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

Packing:

- The trommel shall be packed in closed wooden cases to prevent damages during transit and storage.
- The flange openings shall be protected properly to prevent entry of foreign matter.
- 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
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HYDERABAD**

**Product
STD NO.**

BA 11077

Rev No 00

Annexure -I of BA89148

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:
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Refer to record of revisions:

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**PRODUCT STANDARD
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Annexure - II of BA89148

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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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HYDERABAD

Product
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Annexure - IV of BA89148

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1.0 BALL MILL & FEEDER SELECTION DATA

S.NO	DESCRIPTION	DATA
1.0	WET BALL MILL (WBM)	
1.1	Number of wet ball mills	Two (1W + 1S)
1.2	Rated capacity of wet ball mill, kg/h	24,500
2.0	FEEDER	
2.1	Type of feeder	Gravimetric
2.2	Number of feeders	Two (1W + 1S)
2.3	Capacity of feeder, kg/h	27,000

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 CaCO ₃	wt%-d	83.88 to 89.00		
3.	MgO	wt%-d	0.9-3.8		
4.	Inert	Cl ₂	wt%-d	<0.015	
		Al ₂ O ₃	wt%-d	1.19-2.1	
		Si ₂ O ₃	wt%-d	2.1-4.5	
		Fe ₂ O ₃	wt%-d	0.45-1.0	
		TiO ₂	wt%-d	<0.02	
		Na ₂ O	wt%-d	<0.16	
		K ₂ O	wt%-d	<0.01	
		P ₂ O ₅	wt%-d	Traces	
		LOI	wt%-d	38.0-41.3	
	Total Sulphur	wt%-d	<0.1		
	Mn ₂ O ₃	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 BA89148

3.0 WATER ANALYSIS

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

S.no	Constituents as CaCO ₃	Unit	Value
1.	Calcium	ppm	136.5
2.	Magnesium	ppm	52.0
3.	Sodium + Potassium	ppm	76.6
4.	Iron	ppm	0.00
5.	Total hardness	mg/l	188.50
6.	Total Cations	mg/l	265.10
7.	P-Alkalinity	mg/l	0.00
8.	M-Alkalinity	mg/l	140.77
9.	Bicarbonates	mg/l	140.77
10.	Chlorides	ppm	76.23
11.	SO ₄	ppm	46.50
12.	NO ₃	ppm	1.60
13.	EMA	mg/l	124.33
14.	Total anions	mg/l	265.10
15.	Silica(reactive)	ppm	110
16.	pH @25 deg C	-	7.5-8.0
17.	Turbidity (maximum)	NTU	10
18.	Suspended Solids	mg/l	10
19.	TDS Calculated	mg/l	375.90
20.	Conductivity @ 25 deg C	uS/cm	400
21.	TDS (given)	mg/l	282.0
22.	Temperature	deg C	25

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