

## ANNEXURE-A

### GOODS REQUIRED BY MINES & REFINERY COMPLEX

#### **MINES**

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
1	Polyrim for Cable Conveyor	20000 Nos.
2	575 mm dia steel pulley for Cable Belt Conveyor	40 Nos.
3	457 mm dia steel pulley for Cable Belt Conveyor	20 Nos.
4	305 mm dia steel pulley for Cable Belt Conveyor	20 Nos.
5	264 mm dia steel pulley for Cable Belt Conveyor	12 Nos.
6	2134 mm dia steel pulley for Cable Belt Conveyor	2 Nos.
7	950 mm dia steel pulley for Cable Belt Conveyor	6 Nos.
8	Polly pulley hub assembly for Cable Belt Conveyor	200 Nos.
9	Roller Assembly for Conveyor	16 Nos.

#### **STEAM & POWER PLANT**

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
1	Coal pipe coupling nuts bolt & washer	50 Nos.
2	Shear pin with circlip for raw coal feeder	2000 Nos.
3	PA/FD fan coupling bolt of boiler	50 Nos.
4	RC feeder link	600 Nos.
5	Bucket clamp	50 Nos.
6	Sprocket (big) for R C feeder	4 Nos.
7	Sprocket (small) for R C Feeder	4 Nos.
8	Brass sealing kit for R C feeder gate	48 Nos.
9	800 mm conveyor belt idlers	300-500 Nos.
10	1000 mm conveyor belt idlers	500-800 Nos.
11	Framer for idlers	20-30 Nos.
12	R C feeder circular door gasket (Rubber)	80 Nos.
13	R C feeder gate assembly seals	50 sets
14	Coal pipe vitaulic gaskets (rubber)	400 Nos.
15	Plugs for Bank tubes, Dump condenser, Gland steam condenser	100 Nos. each
16	Ash line-4 pieces	6 Nos.
17	Shelve coupling for Ash line & rubber gaskets	50 Nos.
18	Scrapper conveyor sprocket teeth	150 Nos.
19	Scrapper conveyor Sprocket hub	4 Nos.
20	Ash slurry flushing apparatus of ESP	12 Nos.
21	Raw coal chute of mills	6 Nos.
22	Shear pin arm for coal feeder	20 Nos.
23	Shear pin bush for coal feeder	24 Nos.
24	Tachogenerator coupling set	10 Nos.
25	Bush for oil gun assembly	200 Nos.
26	Screw conveyor ribbon full link	150 Nos.
27	Screw conveyor ribbon half link	300 Nos.

**REFINERY****A. MECHANICAL ITEMS**

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
1	COVER PLATE FOR PUMP LC 125/405(SLURRY)	12 Nos.
2	PUMP CASING SLURRY FOR LC 65/310	5 Nos.
3	METALLIC THROWER FOR LC 65/310	5 Nos.
4	IMPELLER HUB CAP	20 Nos.
5	CUFF PT NO. YV-2, 2"	5 Nos.
6	BODY SEAT RING FOR YV 2 GLOBE VALVE 50MM	2 Nos.
7	DISC FOR 50MM YV-2 GLOBE VALVE	5 Nos.
8	STEM FOR 50MM YV-2 GLOBE VALVE	2 Nos.
9	INNER LINER FOR 16" BUTTERFLY VALVE	2 Nos.
10	VIBRATING BAR	40 Nos.
11	SHELL PLATE LINER RG-840004 AS PER DRG. NO. P&D/M-308	336 Nos.
12	LIFTER BAR DRG. NO. M-121	24 Nos.
13	LIFTER BAR MIDDLE ROW RG 840009	200 Nos.
14	LIFTER BAR DISCHARGE END DRG.NO. M-121.	5 Nos.
15	TIE ROD FOR DISC FILTER	90 Nos.
16	DRUM FILTER AGAITATOR ARM PIN ASSEMBLY WITH NUT, LOCKING WASHER	5 Nos.
17	DRUM FILTER ARM PIN BUSH	10 Nos.
18	HUB FOR DURAND REDUCER	5 Nos.
19	INPUT SHAFT DRUM FILTER AGITATOR DRG. NO. MISC/858	4 Nos.
20	BUBBLE CAP, MIXING POT CALCINATION A/B	5 Nos.
21	HALF SHAFT SLEEVE FOR DMR AGITATOR	4 Nos.
22	BOTTOM BEARING PPT GEAR BOX	6 Nos.
23	SHAFT SLEEVE PUMPSIDE I/T PUMP	5 Nos.
24	IMPELLER SHAFT FOR BHR 35-30 DEG. (I/T PUMP)	1 No.
25	INTERMEDIATE SHAFT SLEEVE PT. NO. 312	16 Nos.
26	HEAD SHAFT STEEL (I/T PUMP)	5 Nos.
27	PUMP SHAFT LC65/310 MODEL PUMP	4 Nos.
28	HUB CAP LC 65/310 FOR S PUMP	116 Nos.
29	PUMP SHAFT FOR LC 125/405 MODEL PUMP	11 Nos.
30	IMPELLER SCREW LC 125 / 405	70 Nos.
31	IMPELLER HUB CAP LC 125 / 405	60 Nos.
32	IMPELLER SCREW LC 200 / 410	5 Nos.
33	PUMP SHAFT LC 200/410 PUMP	9 Nos.
34	IMPELLER HUB CAP 200/410	20 Nos.
35	IMPELLER SCREW	5 Nos.
36	SHAFT FOR JS PUMP LC 300/635	10 Nos.
37	70 MM COUNTER SHAFT AS PER DRG. NO. MECH/MISC/608	5 Nos.
38	65 MM COUNTER SHAFT AS PER DRG. NO. NALCO/MECH/MISC/1196	4 Nos.
39	60 MM COUNTER SHAFT AS PER DRG. NO. NALCO/MECH/MISC/1195	5 Nos.
40	90 MM COUNTER SHAFT AS PER DRG. NO. NALCO/MECH/MISC 1194	9 Nos.

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
41	DISC FOR 6" YV2	2 Nos.
42	BODY SEAT RING FOR 6 INCH YV2	9 Nos.
43	STEM NUT FOR 6" YV2 VALVE	5 Nos.
44	STEM	10 Nos.
45	BODY SEAT RING	5 Nos.
46	STEM NUT FOR 8" YV2 VALVE	25 Nos.
47	DISK BODY PT NO. YV-2,8"	6 Nos.
48	STEM FOR 10 INCH YV2	4 Nos.
49	DISC FOR 10 INCH YV2	6 Nos.
50	BODY SEAT RING FOR 10 INCH YV2	2 Nos.
51	STEM NUT FOR 10" YV2 VALVE	5 Nos.
52	LINK AXIS FOR FCB CRUSHER MAD CHAIN	10 Nos.
53	APEX VALVE LINER 669RB 3 1/2X2	5 Nos.
54	UPPER APEX VALVE LINER SIZE: 65 MM	5 Nos.
55	UPPER APEX VALVE LINER - 72 NI HARD	5 Nos.
56	APEX VALVE HOUSING FOR HYD CYCLONE	12 Nos.
57	METALLIC SPLASH GUARD BALL MILL HYDROCYCLONE, DRG. NO. NAL/MECH/2413	12 Nos.
58	METTALLIC WASHER FOR SETTLERS & WASHERS	1500 Nos.
59	LINK FOR KELLEY FILTER UMBRELLA	39 Nos.
60	LAUNDER GATE SCREW WITH TWO BOX NUTS	5 Nos.

## **B. RAW MATERIALS**

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
1	Caustic soda (100% NaOH basis)	1,76,000 MT
2	Lime (70% CaO basis)	65,000 MT
3	Wheat bran	3,200 MT
4	Ammonium nitrate	500 MT
5	Alum	450 MT
6	Sulphuric acid	750 MT
7	Hydro chloric acid	1,300 MT
8	Nitric acid	30 MT
9	Passivating fuel	15 MT
10	Calcining fuel (Fuel oil)	68,000 MT
11	Boiler chemicals	Considerable qty
12	Grinding media	750 MT
13	HDPE bags	3,00,000 nos

## GOODS REQUIRED BY SMELTER & POWER COMPLEX

### SMELTER PLANT

#### A. MECHANICAL ITEMS

Sl. No.	Item Description	Annual Requirement
1	Tapping Ladle	20 Nos.
2	Metal Measurement Rod	4000 Nos.
3	U-Hook	2000 Nos.
4	Chisel Poker	1500 Nos.
5	C.I. Sample Ladle	1000 Nos.
6	Cintring Cylinder for Induction Furnace	40 Nos.
7	Pouring Trough	50 Nos.
8	SS Bucket	50 Sets
9	SS Bend plate	100 Sets
10	SS straight plate	10 Nos.
11	Two Bucket Shovel	10 Nos.
12	Adjustable Screw for Anode	1000 Nos.
13	LDPE Sheets	12000 Kg
14	Cast Bar Handling Tongue	200 Nos.
15	Ingot Skimming Tool	5000 Nos.
16	Scrapping Tool	1000 Nos.
17	Padding Tool	1000 Nos.
18	Chipper (Hexagonal)	200 Nos.
19	Chisel (Hexoagonal)	500 Nos.
20	C.I. Thermocouple Protection Tube	500 Nos.
21	C.I. Thermocouple Inner Sheath	750 Nos.
22	Large sample Ladle	200 Nos.
23	Bronze Guide for VCU Door	64 Nos.
24	Tongue Plate for Horizontal Jaw Crusher	10 Nos.
25	Spider Coupling (Different Sizes)	500 Nos.
26	Ring For Seal (Thimble Press)	50 Nos.
27	Chain Link for Westfalia Crusher	300 Mtrs.
28	Anode Clamp spring	25 Nos.
29	Anode Clad	3000 Nos.
30	End Tube & Intermdediate Tube for Tapping Ladle	30 Nos./ month for each item
31	Tapping Head for Tapping Ladle	200 Nos.
32	Pouring Head for Tapping Ladle	200 Nos.
33	Silencer Pipe for Tapping Ladle	200 Nos.
34	Push Pull Coupling	500 Nos.
35	Silencer Pipe Clamp	500 Nos.
36	Skimmer(M.S.)	1500 Nos.
37	Scraper (M.S.with C-45 Chisel)	1500 Nos.
38	Stud for Casting Wheel (WRM)	50 Nos. of each
39	Chain Link for Ingot Cooling Conveyor	50 Nos.
40	Studs for Properzi Rolling Mill	100 Nos.
41	Coupling Pad for Oil Cooler	200 Nos.

Sl. No.	Item Description	Annual Requirement
42	Shim for Rolling Mill Stand Seating	200 Nos. of each size
43	Chain Link for Ingot casting M/C	100 Nos.
44	Roller Guide	50 Nos.
45	Small Tundish	15 Nos.
46	Flow Control Plug	500 Nos.
47	Launder Down Spout	1800 Nos.
48	Ceramic Fiber Cone	1000 Nos.
49	White Gasket for roll stand ref L II/8	200 Nos.
50	Brake Shoe for OTT coiler	100 Nos.
51	Flow control cone	500 Nos.
52	Bevel Gear for WRM	30 Nos.
53	4 type of shafts for above Bevel Gear	10 Nos. each
54	Oil seal for above Bevel gear	235 Nos.
55	Casing Wheel of ICM	150 Nos.
56	Skimmer for Cast House	1000 Nos.
57	Tongue for Cast House	500 Nos.
58	Sampling spoon	1000 Nos.
59	Air Cylinder Piston for Crust Breaker	200 Nos.
60	Coupling spider for ECL Crane	200 Nos.
61	Insulator ring for crusher bath pipe, PTM	100 Nos.
62	Ladle Cleaning Tool	250 Nos.
63	Tie rod for crust breaker	500 Nos.
64	Seals for crust breaker cylinder	500 Nos.
65	Filters & Oil separators for compressors	1000 Nos.
66	Seal kit for ¾" Solenoid V/V of feeder cylinder	400 Nos.
67	Lynatax hoses	50 Mtr.
68	Sow mould	100 Nos.
69	Tapping ladle	20 Nos. per 5 years
70	Anode clamp	500 Nos.
71	Pot Hood (Single)	6000 Nos.
72	Pot Hood (Double)	10000 Nos.
73	Large axe	600 Nos.
74	Triangular Hood	600 Nos.
75	Crow bar	1500 Nos.
76	Filter bag for FTP	12000 Nos.
77	Light weight chisel	800 Nos.
78	Heavy weight chisel	1000 Nos.
79	PTM Crust breaker chisel	1500 Nos.
80	Twin Hopper crust breaker chisel (SS)	500 Nos.
81	Crust Breaker scraper	100 Nos.
82	Crust breaker extension rod	400 Nos.
83	Crust breaker extension rod guide	100 Nos.
84	Twin hopper	100 Nos.
85	Twin hopper lid	100 Nos.
86	Bracket & Locking pin of twin hopper	50 Nos.
87	Kick plate ( 9 toe plate), 4 items	500 Nos.

SI. No.	Item Description	Annual Requirement
88	Ladder ring	600 Nos.
89	Metal measurement hook	400 Nos.
90	Lower V/V disc for feeder cylinder	150 Nos.
91	Upper V/V disc of feeder cylinder	150 Nos.
92	Alumina feeding funnel	150 Nos.
93	ALF3 feeding funnel (SS)	200 Nos.
94	U- channel	100 Nos.
95	Grating large	700 Nos.
96	Grating small	200 Nos.
97	Crust breaker insulating plate	800 Nos.
98	Crust breaker insulating washer	3200 Nos.
99	Crust breaker insulating bush	3200 Nos.
100	Pot hood slab support channel	900 Nos.
101	CAFD Assembly cover	100 Nos.
102	ATFD assembly cover	100 Nos.
103	Lid for modified twin hopper	100 Nos.
104	J- hooks ( LHS + RHS )	300 Nos.
105	Crust Breaker brass bush	200 Nos.
106	Brass liners	100 Nos.
107	Crust breaker modified hose ( 350 & 420 mm)	800 Nos.
108	Pot super structure slide plates (aluminium)	1600 Nos.
109	CAFD assembly breaker extension rod	200 Nos.
110	Push pull coupling ¾" male & female sets	200 Nos.
111	Serrated nipple ¾" male connector	600 Nos.
112	M.S. Elbow, Bend , Tee (diff. sizes)	400 Nos. each
113	G.I. Fittings (Diff. sizes)	400 Nos. each
114	Hose clamp ( Diff sizes)	400 Nos. each
115	Aluminium bucket (size 400&550 mm)	50 - 100 nos. each
116	PTFE membrane bag filter of diff.sizes	50 nos. each
117	Etalon wagon roller ( Plain & Guide)	50 - 100 nos. each
118	Electro forged gratings of various size	50 - 100 nos. each
119	Shovel	200 Nos.
120	Hammer	50 Nos.
121	Steel ball for Ball Mill	12 MT
122	Chain link for CTL line	10 Nos.
123	HT socket head cap screws	100 Nos.
124	Hydraulic Cylinders (diff. sizes)	100 Nos.
125	Pneumatic cylinders (diff.sizes)	100 Nos.
126	Circular cutter for CTL & CRM	8 Nos.
127	Brass shims of different thickness	5 Kg
128	Seal kit of Hydraulic cylinders	50 Sets
129	Seal kits for Pneumatic cylinders	50 Sets
130	½" (BS) duplex Roller chain	50 Mtrs.
131	Connecting link with locking circlip of duplex roller chain	200 Nos.
132	5/8"(BS) Simplex roller Chain	30 Mtrs.
133	Connecting Link with locking circlip of simplex roller chain	150 Nos.

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
134	HT Round Head square neck bolt	3000 Nos.
135	PU Tube (OD=6 mm, ID=10 mm)	50 Mtrs.
136	PU Tube fittings(Elbow Tee, connectors etc)	1000 Nos.
137	PU Tube (OD=14 mm, ID=10 mm)	100 Mtrs.
138	Planetary Gear Box of Reduction Ratio 1/125	4 Nos.
139	Key Bar of Diff. Size	100 Kg
140	Lathe Chuck Keys	30 Nos.
141	Milling arbor sleeves	30 Nos.

#### **B. ELECTRICAL ITEMS**

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
142	Current Collector Shoe-Big	600 Nos.
143	Current Collector Shoe-small	400 Nos.
144	Tuning Fork assembly	250 Nos.
145	End Cap (backelite)	120 Nos.
146	Holder for Power Collector assembly	200 Nos.
147	Anchor Clamp for Power Rail (Backelite)	150 Nos.
148	Coil for Pneumatic V/V-110 Volt	220 Nos.
149	Coil for Pneumatic V/V-200 Volt	100 Nos.
150	N'Thermocouple Wire(In Double running Meters)	3000 Mtrs.

#### **C. REFRACTORY ITEMS**

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement (Value in Rs.)</b>
151	Wedge Bricks	10 Lakhs
152	LCC Flir wall top	1000 Mtr.
153	BIL-insulation Brick	200 Lakhs
154	Flue wall bricks A 229	129 Lakhs
155	Flue wall bricks A 277	36 Lakhs
156	Flue wall bricks A 182	24 Lakhs
157	Flue wall bricks B 1460	11.22 Lakhs
158	Flue wall bricks B2460	32 Lakhs
159	Flue wall bricks 1-260.5	7.5 Lakhs
160	BRO Bricks	100 Lakhs

#### **D. INSTRUMENT ITEMS**

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
161	Photo cell, Telemecanique, France	15 Nos.
162	Tuning Fork E & H , Denmark	5 Nos.
163	CJD Control card nivo controls, India	10 Nos.
164	Vibro Feeder control card electronage, India	5 Nos.
165	Pressure Switch, Telemecanique, France	4 Nos.
166	RTD Elements (PT100)	20 Nos.
167	Transmitter Card, Philips, Holland	2 Nos.

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
168	Proximity Switch, Telemecanique, France	10 Nos.
169	Coupler card Sg 2 CPU 6020	1 No.
170	CPU card Sg 2 CPU 6020	2 Nos.
171	CPU card Sg 2 6020	1 No.
172	N-type Thermocoupler	2000 Nos.
173	Thermowell for bath temp measurement in FCE	400 Nos.
174	MI T/C Element ( K type)	400 Nos.
175	Ceramic Float for metal level measurement	20 Nos.
176	Asbestos free ceramic cloth for wrapping	200 Mtrs.
177	Casting wheel/turn dish, thermo couple (Ktype)	400 Nos.
178	Ticket Printing M/C stationary (Paper roll)	500 Nos.
179	Inkjet printer cartridges	50 Nos.
180	Laser printer cartridges	50 Nos.

#### **E. MISCELLANEOUS ITEMS**

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
181	Large Tundish Down spout (ceramic insural)	500 Nos.
182	Shaft sleeve ( Gun Metal)	50 Nos.
183	Brass guide	24 Nos.
184	Viton ring	200 Nos.
185	Dust guard bellow	200 Nos.
186	Cotton hand gloves	50000 Prs
187	Cotton dust mask	3000 Nos.
188	Non asbestos 40 mm rope	3000 Kg
189	Asbestos gasket (Mill board) 10 mm	1500 Kg
190	Asbestos/nonasbestos rope, 20 mm	500 Kg
191	Asbestos/nonasbestos Balnket for pot start- up	1000 Kg

#### **F. RAW MATERIALS**

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
1	Aluminium Flouride	11,000 MT
2	Calcined Petroleum Coke	1,85,000 MT
3	Cast Iron ( for Anode roding and cathode sealing Shops)	500 MT
4	Coal Tar Pitch	42,000 MT
5	Alum (for water treatment-Non ferric)	1,200 MT
6	Fuel Oil	1,91,000 KL
7	Grinding Media ( 12% MN Steel)	2,000 MT
8	Polythene lined Hessian bags	Considerable Quantity
9	Special Refractory Bricks	4,000 MT



## CAPTIVE POWER PLANT

### A. MECHANICAL ITEMS

SI. No.	Item Description	Annual Requirement
1	Pump shaft for Lag-1527(S.S. 304)	2 Nos.
2	Head shaft(S.S. 304)	2 Nos.
3	Head Shaft (bottom) (S.S. 304)	2 Nos.
4	Head Shaft of Lag-1522-26 (S.S. 304)	2 Nos.
5	Worm Shaft & Worm Wheel(Alloy Steel)	4 Nos.
6	Comp Spring, P. No. T-8171 (Spring Steel)	4 Nos.
7	Comp Spring, P. No. T-8172( Spring Steel)	6 Nos.
8	Worm Wheel	2 Nos.
9	1 <sup>st</sup> Reduction Worm Shaft Hwda (dn 6/140 75.1 Gear Box)	2 Nos.
10	Output Shaft for 75.1 Gear Box	2 Nos.
11	Worm Wheel clearing Device (S.S. 304)	4 Nos.
12	Cap Nut M90 x 6	10 Nos.
13	1 <sup>st</sup> Reduction Worm shaft Hwda (dn) 6/140 Worm Gear Box	4 Nos.
14	Variator Chain, P. No. 027	5 Nos.
15	Extn, Thread Tsaper Pin. P. No 1-8024 (m.s)	10 Nos.
16	Bleeve Baring (g,m (cep)	6 Nos.
17	Disc for Vibrator, P. No. 202-054 (e-n-19)	10 Nos.
18	Wearing Ring for Impeller (g.m.)	4 Nos.
19	Impellor (S.S. 304)	2 Nos.
20	Journal Bearing Keeper(e-n-8)	10 Nos.
21	Wearing Ring Cashing (g,m.)	4 Nos.
22	Zero Speed Pulley for chain pocket (e.n-19)	20 Nos.
23	Seal Tube Assembly (S.S.)	20 Nos.
24	Wearing Ring (bronze)	4 Nos.
25	Stuffing Box Bush	4 Nos.
26	1 <sup>st</sup> Reduction Bush(g,m)	4 Nos.
27	Impeller (ph. Bronze)	7 Nos.
28	Tubing Adopter screw Bearing(c.i)	2 Nos.
29	Thrust ring	2 Nos.
30	T.T. nut sleeve (S.S.304)	5 Nos.
31	Thrust Hub(e.n.-8)	2 Nos.
32	Stuffing Box (c.i)	2 Nos.
33	Impeller (ph Bronze)	2 Nos.
34	Lantern Ring (ph Bronze)	4 Nos.
35	Thrust pad (ball bearing) sleeve gm (IS-318)	4 Nos.
36	Bearing Housing (c.i)	2 Nos.
37	Thrust Hub (e-n-8)	2 Nos.
38	L.S. Bearing (Neoprene Rubber)	4 Nos.
39	Pump Shaft Coupling (S.S. 410)	6 Nos.
40	Worm Wheel	4 Nos.
41	Worm Shaft	4 Nos.
42	L.S. Screw Bearing (c.i with G.m.bush)	4 Nos.
43	Bowl Wearing Ring(Aluminium)	6 Nos.

Sl. No.	Item Description	Annual Requirement
44	L.S. Bearing (rubber)	6 Nos.
45	Coupling Sleeve (S.S. 304)	10 Nos.
46	Flex coupling upper half (c.i)	2 Nos.
47	Flex Coupling lower (c.i)	2 Nos.
48	Impeller Thrust Ring retainer (g.m)	4 Nos.
49	Discharge Bowl Bearing (Upper) (g.m.)	4 Nos.
50	Bearing Cap (c.i)	2 Nos.
51	Mounting Cover) (c.i)	2 Nos.
52	Impeller (Ph. Bronze)	4 Nos.
53	Coupling (S.S)	2 Nos.
54	Impeller (S.S)	2 Nos.
55	Shaft (S.S)	4 Nos.
56	Valve Spindle	5 Nos.
57	Tail Guide wheel Axis (e-n-8)	6 Nos.
58	Pinion Shaft	6 Nos.
59	Valve Lever (C.S)	10 Nos.
60	Yoke	32 Nos.
61	Bearing Carrier	4 Nos.
62	Valve Seat	50 Nos.
63	Runner Wheel	2 Nos.
64	Motor Pulley	2 Nos.
65	Piston Ring	2 Nos.
66	Grinding roll - 37 inch	81 Nos.
67	Inserted grinding rolls special alloy	15 Nos.
68	Collecting electrode plates	751 Nos.
69	Emitting electrodes	8600 Nos.
70	Vertical shaft (main)-bowl mill.xrp -763	5 Nos.
71	Mill outlet elbow ( ceramic lined )	96 Nos.
72	Impeller with nut for ash slurry pump	40 Nos.
73	Air port ring assembly	15 Nos.
74	Hot intermediate row basket	96 Nos.
75	Emitting electrodes for # 6 esp 2	3000 Nos.
76	Coal nozzle tip	8 Nos.
77	Complete spring loaded mechanical face	5 Nos.
78	Coal nozzle tips for unit #1 to #5	16 Nos.
79	Link chain (49)	96 Nos.
80	Mpo assy	40 Nos.
81	Journal shaft	15 Nos.
82	Bull ring segment (hi-chrome)	9 Nos.
83	Hydro ejector (jet pump) of 6" size	20 Nos.
84	Hot end bottom heating element, ht-450 mm	48 Nos.
85	Teeth	188 Nos.
86	Ceram lined bend, 430idx1700 radiusx 45 deg	35 Nos.
87	Wear plate-suctn.side.o &m/a2/m/ah/03/018	10 Nos.
88	Coal nozzle casting for boilers #1 to 6	15 Nos.
89	Water wakk tube, 63.5x5.2, sa210 gr-a1	1200 Nos.

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
90	Discharge gate drg no:-56/a/03/14	2 Nos.
91	Bull ring segments set(hi-chrome) for	6 Nos.
92	Dome for 200 nb dome v/v	20 Nos.
93	Scrapper bar	200 Nos.
94	Tooth ring hammer	280 Nos.

## **B. ELECTRONICS ITEMS**

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
95	Fisher electronic position Feedback Transmitter	5 Nos.
96	Memory Transfer Module	8 Nos.
97	Derivative & Summing Action Module	1 No.
98	Multiplier/Divider Module	1 No.
99	Three Input Summing Module	1 No.
100	Dual Alarm Module	1 No.
101	Two position Switching Module	8 Nos.
102	Out-put isolation module	21 Nos.
103	Low Auctioner Relay module	1 No.
104	Multiplier/Divider Module	10 Nos.
105	Keltron 2 Wire Position Feedback Transmitter	5 Nos.
106	Function Generator module	5 Nos.
107	Low level signal Convertor	1 No.
108	High Auctioner Relay Module	1 No.
109	Dual voltage monitor module	1 No.
110	Square root extractor module	1 No.
111	Monostable relay module	1 No.
112	Speed amplifier card	3 Nos.
113	Bias station	2 Nos.
114	Set point station	5 Nos.
115	Tristable Relay Module	1 No.
116	Complimentary	1 No.
117	Amplifier Board for Temperature Scanner Model -M-80	4 Nos.
118	O/p & Alarm Contact	5 Nos.
119	Power supply module	10 Nos.
120	Electromechanical Counter	5 Nos.
121	Ma Switch	5 Nos.
122	Integrator	5 Nos.
123	Main Pcb Nivometer for level	5 Nos.
124	Relay module	8 Nos.
125	14,2 Input and Gate	15 Nos.
126	Buffer Lamp Driver	3 Nos.
127	Four fault module	2 Nos.
128	Fault module	15 Nos.
129	Power supply module	2 Nos.
130	Heater Unit for Zirocomia Probe	10 Nos.
131	Housing unit for zirofomia probe	10 Nos.

<b>Sl. No.</b>	<b>Item Description</b>	<b>Annual Requirement</b>
132	Input module without supervision	5 Nos.
133	Mono flop module	2 Nos.
134	Demultiplexer	2 Nos.
135	Control module	6 Nos.
136	4-YRS Flip Flop	2 Nos.
137	Hooter Module	5 Nos.
138	Plus minus 10 regulator	2 Nos.
139	Power supply out-put stage	50 Nos.
140	Push button Ino, Inc	75 Nos.
141	Illumination Push Buttons	25 Nos.
142	Air filter regulator	5 Nos.
143	High pressure regulator	2 Nos.
144	Single phase power supper for lamps	3 Nos.
145	Motorised Desired value setter	4 Nos.
146	Voltage monitor module	1 No.
147	Oil supply monitor	4 Nos.
148	Integrated Amplifier	2 Nos.
149	Analog Power Amplifier	8 Nos.
150	Relay memory module	4 Nos.
151	Analog trackin memory	4 Nos.
152	1 out of 2 Belector module	2 Nos.
153	Voltage to current converter(RxW)	9 Nos.
154	Current to voltage converter(RxW)	12 Nos.
155	Electronic module Fa-11	7 Nos.
156	Electronic module Fa-12	11 Nos.
157	Protective switch module 6ev-500-0db	4 Nos.
158	Electronic module H74003-a320	13 Nos.
159	Electronic module Gb-11	8 Nos.
160	Main PCB	20 Nos.