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BHEL

संवाद Samvaad

Online Workshop

for **Development of Local Suppliers**

for sourcing of engineering items & raw materials

27th January 2021, 10.00 AM

#AatmaNirbharBharat

MAKE IN INDIA

#VocalforLocal

Tenth Workshop – System, Packages & BOPs

Hosted by Project Engineering Management (PEM), BHEL , Noida

BHEL's Equipment

Classification	Requirement per annum (Rs. Cr.)	BHEL Unit*	HSN Code	Required by any other Clients
Agitators	30	PEM, Noida*	8479	Doosan, GE Power India, ISGEC, L&T, MHPS,
Gypsum Dewatering System	80	PEM, Noida*	8421	Doosan, GE Power India, ISGEC, L&T, MHPS, TATA
Generator Circuit Breaker	30	PEM, Noida*	8537	Yes , required by clients like L&T , Toshiba , Doosan , R-Infra etc.
Lead Acid Plante Type battery	25	PEM, Noida*	8507	Yes , required by clients like L&T , Toshiba , Doosan, R-Infra etc. .
VIS FOR TG foundation	2.9 Cr per TG	PEM, Noida*	84798999& 84799090	Doosan, L&T, Bygging, Toshiba.
VIS FOR BFP MILL AND FAN	2.5 Cr per project	PEM, Noida*	84798999& 84799090	Doosan, L&T, Bygging, Toshiba.
SWAS	11	EDN , Bng	90278090	• State Electricity Boards,NTPC
UPS	25	EDN , Bng	85044010	• State Electricity Boards, NTPC
24V DC Power Charger System	10	EDN , Bng	85044030	• State Electricity Boards, NTPC
IP CCTV/PA /EPABX	27	EDN , Bng	--	State Electricity Boards, NTPC
DIAGNOSTIC EQUIPMENTS-TRANSFORMER/REACTOR HEALTH	24	HEP , Bhopal		Yes

PEM-MAX

Gypsum Dewatering system and Agitator for FGD tank.

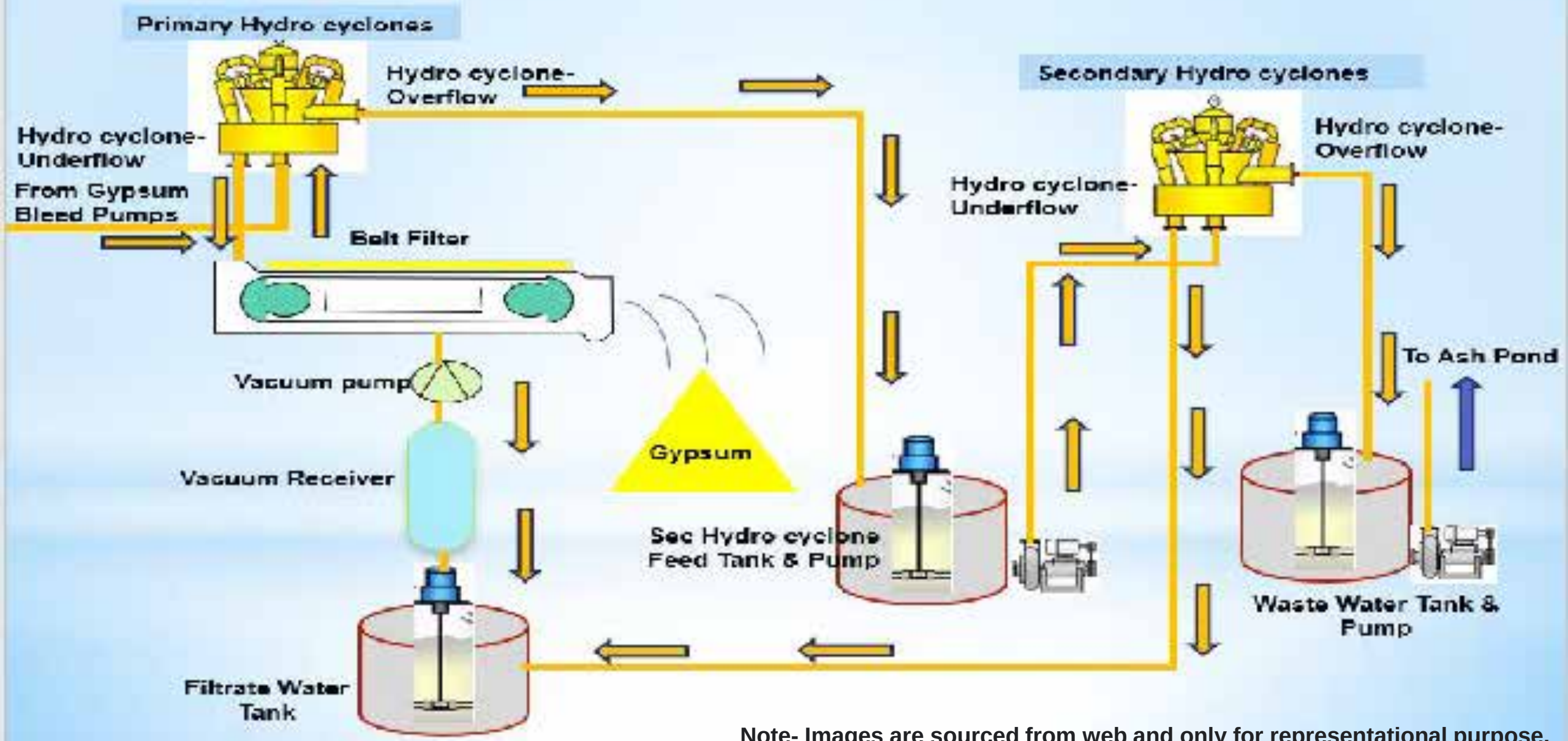
Flue Gas Desulfurization (FGD) Equipment

Classification	Application	BHEL Specification	Requirement per annum (Rs. Cr.)	BHEL Unit*	HSN Code	Required by any other Clients
Agitators	Flue Gas Desulfurization	GEM-FGD-AGI-00	30	PEM, Noida*	8479	Doosan, GE Power India, ISGEC, L&T, MHPS, TATA
Gypsum Dewatering System		GEM-FGD-AGI-00	80		8421	

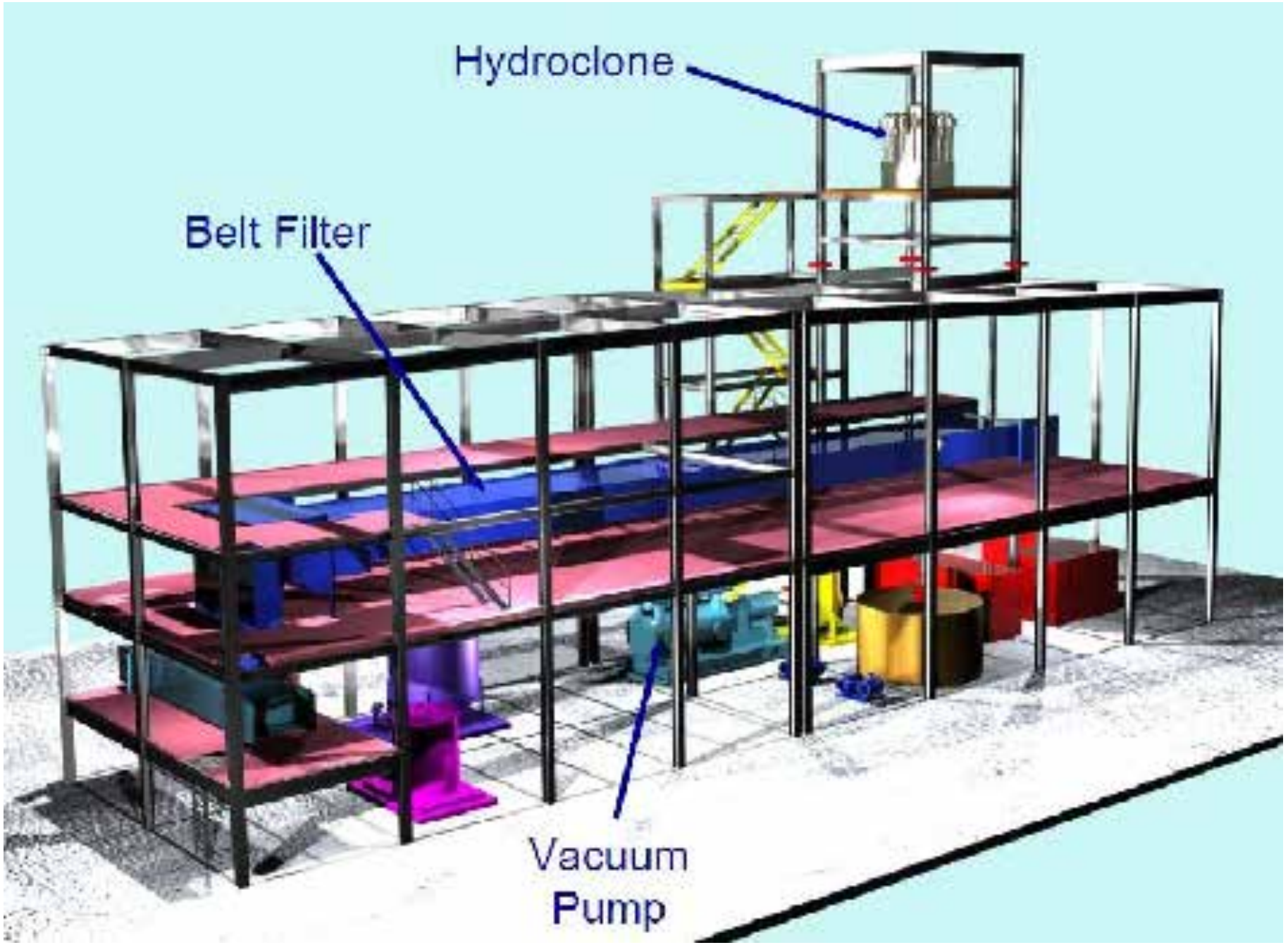
*Also required by PESD-Hyderabad and BAP-Ranipet for various other applications/projects.

FGD-Gypsum Dewatering System

A typical schematic



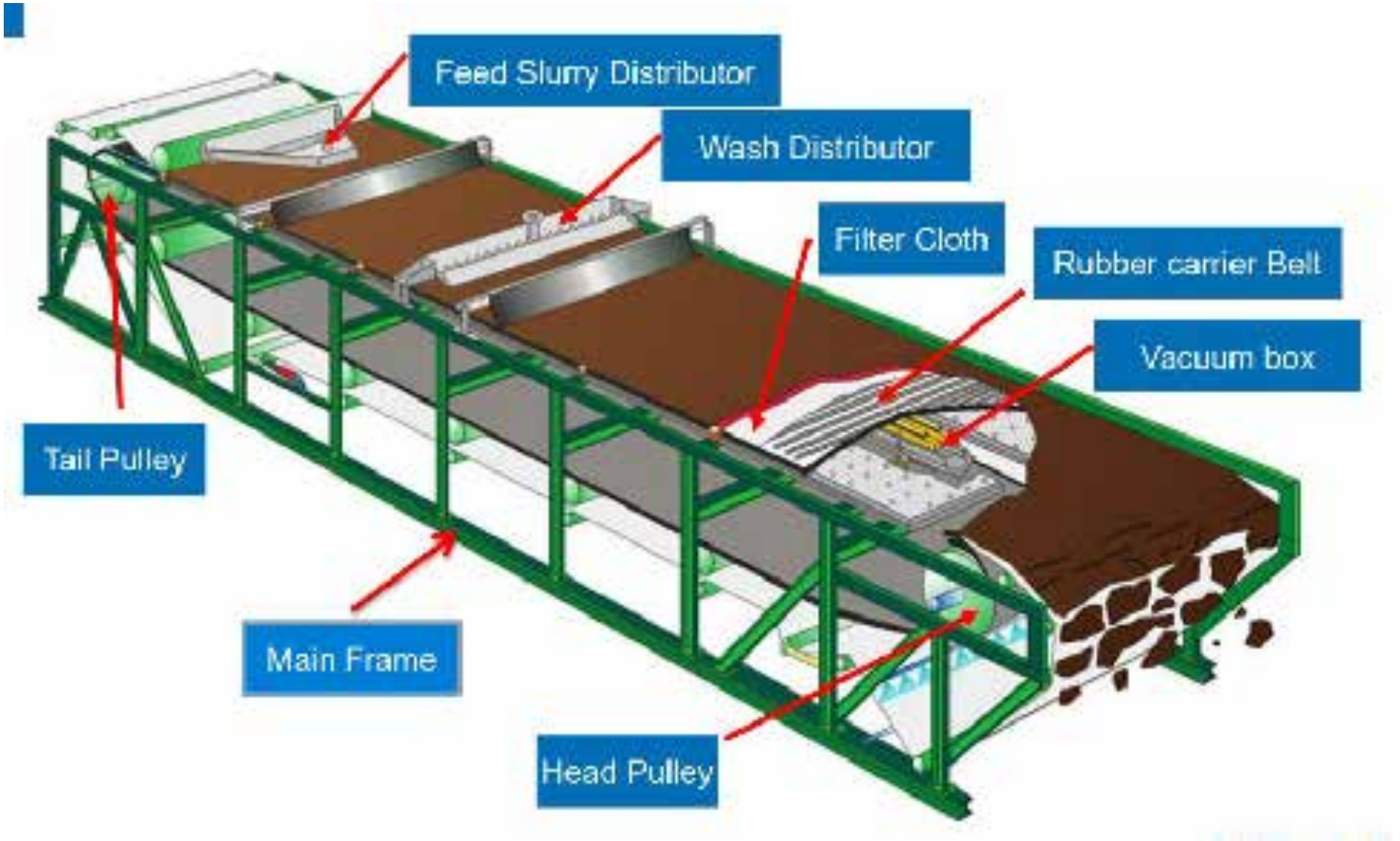
Note- Images are sourced from web and only for representational purpose.



Note- Images are sourced from web and only for representational purpose.

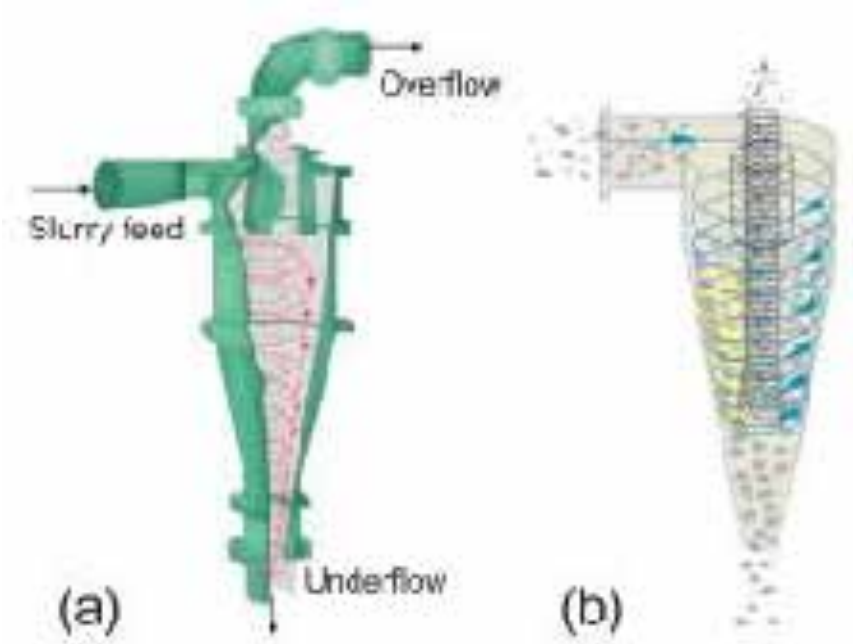
GDS Equipments Arrangement (Typical)

VACUUM BELT FILTER SYSTEM - DETAILS



Note- Images are sourced from web and only for representational purpose.

HYRO-CYCLONE CLUSTER



Note- Images are sourced from web and only for representational purpose.

Components - Mechanical

AGITATORS - Salient Points:

- Agitators are required for GYPSUM and LIMESTONE SLURRY applications in FGD projects, mounted on either Circular or Rectangular shaped tanks or sumps
- Type of Agitators required are both SIDE ENTRY and TOP ENTRY for either Continuous / Intermittent operations
- Power Generators like NTPC ask for provenness of the Agitators in FGD application.
- Indian manufacturers having experience in Non-FGD applications e.g. mineral, metal, fertilizer, chemical industries etc. would also be able to quote with proven credentials having technical tie-up with OEMs.
- The Agitator power requirement varies up to 150 KW.

Components - Mechanical

Side Entry (Horizontal) Agitator for Absorber/Aux. Absorbent Tank

Top Entry (Vertical) Agitator for Tanks

Note- Images are sourced from web and only for representational purpose.

Systems/ Packages

The Gypsum Dewatering System (GDS) - Salient Points:

- **The Gypsum Dewatering System (GDS)** is generally a common system for the Flue Gas Desulphurization (FGD) application in a thermal power plant, irrespective of number of units/absorbers. BHEL is executing various FGD orders – in India and abroad.

- The Gypsum Dewatering System (as a sub-package) consists of the following major assemblies:
  - Vacuum Belt Filter Assemblies
  - Hydrocylones (Primary & Secondary)
  - Vacuum Pumps
  - Associated Piping/Valves/Instrumentation etc.

- Power Generators like NTPC ask for provenness of the Vacuum Belt Filters in FGD or any other Process application.

- List of Vacuum Belt Filter Capacity of some projects is enclosed for reference.

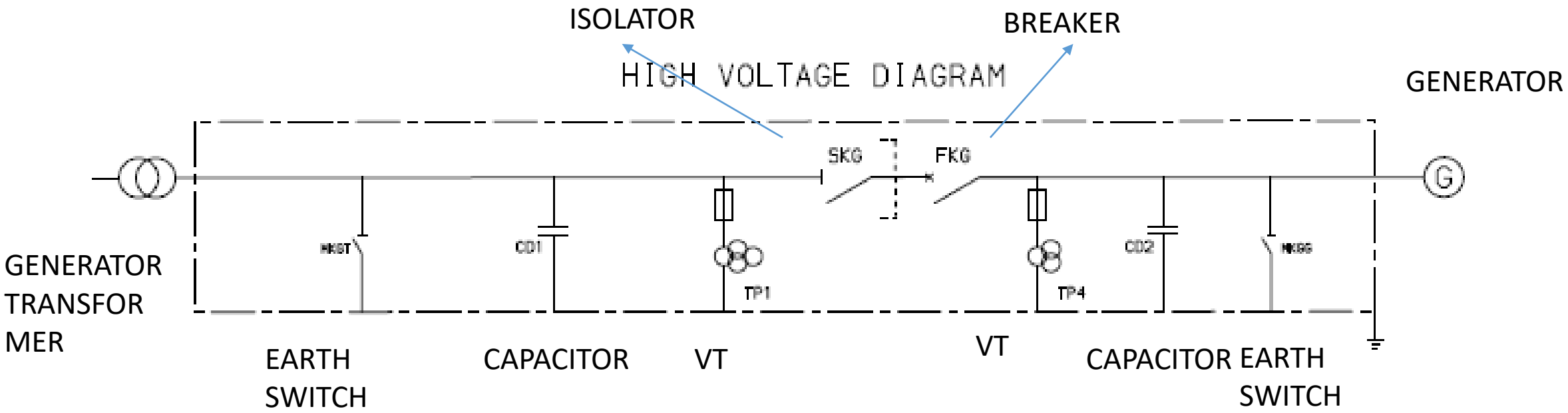
Sl No.	Project Name/Details	Vacuum Belt Filter Details*	
		Qty.	Capacity (Wet Cake)
		No.	TPH
1	UPRVUNL Panki 1x660 MW	2	15.30
2	MSPGCL Bhusawal 1x660 MW	2	20.10
3	Patratu 3x800 MW	2	136.00
4	NPGCPL Nabinagar-I 3x660 MW	2	65.30
5	BRBCL Nabinagar 4x250 MW	2	33.30
6	NSPCL Bhilai (2x250 MW)	2	16.60
7	NTPC Korba Stg- I, II & III (3x200 +3x500 +1x500) MW	2	91.37
8	NTPC Ramagundam Stg- I & II (3x200 MW & 3x500 MW)	2	73.90

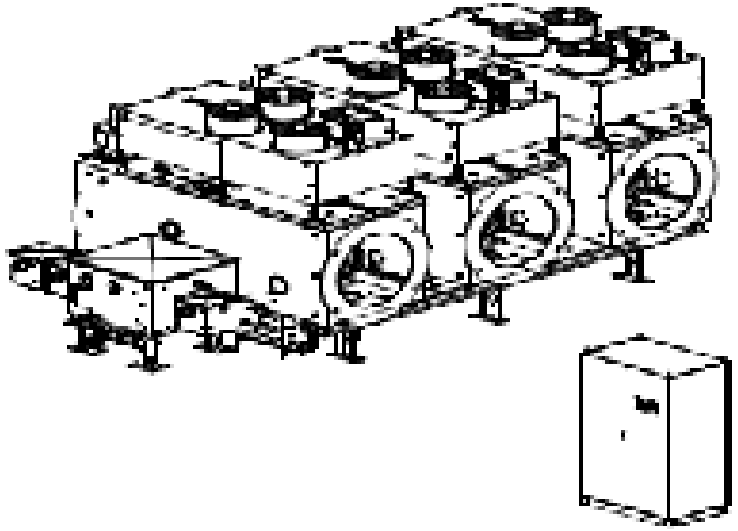
*for reference only

PEM-ELEC
GCB
and
Lead Acid Plante battery

Classification	Application	Requirement p.a. (Rs Cr)	HSN Code	Whether required by other clients
Generator Circuit Breaker (Systems and Packages)	Control & protection switching of the Main Generator circuit TECHNICAL DETAILS	Total number of GCBs likely to be ordered in the next one year : 7 Total order value : around 30 crores	8537	Yes , required by clients like L&T , Toshiba , Doosan , R-Infra etc.
Lead Acid Plante Type battery (Systems and Packages)	DC Lead Acid Battery is required for very critical operation like control & protection of switchgear and safe shutdown of power plant. Failure of DC supply may lead to severe damage to power plant equipment which will finally lead to total plant shutdown and loss of generating power. TECHNICAL DETAILS	Total sets of battery likely to be ordered in the next one year : 18 Total order value : around 25 crores	8507	Yes , required by clients like L&T , Toshiba , Doosan, R-Infra etc. .

GCB TECHNICAL DETAILS





GCB TECHNICAL DETAILS

Generator circuit breaker is used for connection between the generator and generator transformer. GCB is designed as per IEC/IEEE 62271-37-013. It is electrically located close to the generator and hence the fault current which it has to break has high DC component. This results in degree of asymmetry in the fault current of the range of 110% to 130%. The short circuit current has delayed current zero. GCB is also designed for closing on out of phase conditions (90 degrees out of phase)

Important Technical Parameters (Typical)

Rated Voltage : Should be same as Generator Terminal Voltage

Rated Current : Should be same as generator current under VWO condition at minimum voltage

Rated Symmetrical breaking current (System Source / Generator Source) : 160 KA

Rated Asymmetrical breaking Current (System source / Generator Source) : 216 KA (peak)

% DC component (System source / Generator Source) : 63% / 120%

Rated making current : 440 KA

Type of operating medium : Spring / Hydraulic

Rated short circuit duty cycle : CO-30 min - CO

Rated Impulse Voltage : 150 KV (peak)

Value of capacitance in generator side and transformer side : 100 nF/ 300 nF per phase

GCB TECHNICAL DETAILS

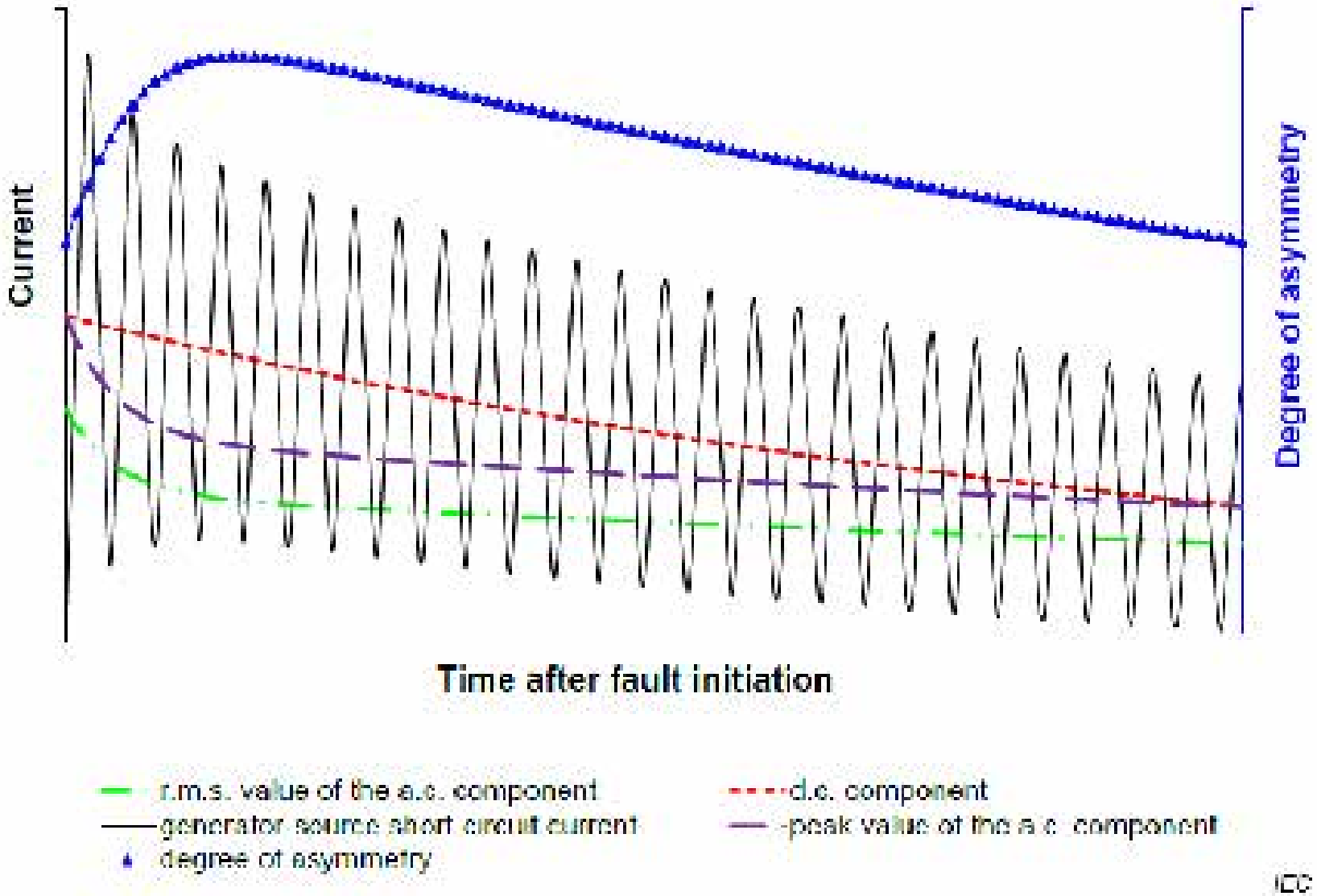
Type of interrupting medium : SF6 / Vacuum
Type of cooling : Natural / Forced
Rated interrupting time / closing Time : 75 msec/ 100 msec

Short circuit currents which are interrupted by GCB

System-source short-circuit breaking current : The short-circuit current to be interrupted by a generator circuit-breaker is determined at the instant of contact separation and shall be stated in terms of the following two values:
– the r.m.s. value of the a.c. component averaged over all phases;
– the degree of asymmetry in each phase.

Generator-source short-circuit breaking current : The generator-source short-circuit current to be interrupted by a generator circuit-breaker is determined at the instant of contact separation and shall be stated in terms of the following two values:
– the r.m.s. value of the a.c. component averaged over all phases;
– the percentage value of the maximum degree of asymmetry in any phase.

GCB TECHNICAL DETAILS (GENERATOR SOURCE SC CURRENT CHARACTERISTIC)



GCB TECHNICAL DETAILS

Transient Recovery Voltage : A transient recovery voltage (TRV) for generator circuit breaker is the voltage that appears across the terminals after current interruption. It is a critical parameter for fault interruption by a high-voltage circuit breaker, its characteristics (amplitude, rate of rise) can lead either to a successful current interruption or to a failure (called re-ignition or restrike).

Capacitor added to generator side and transformer side is used for reducing the rate of rise of recovery voltage (RRRV) or TRV Rate is reduced.
The interrupting capability of the generator circuit-breaker demonstrated by relevant type tests is valid only if capacitors of the same capacitance value as used during the tests are installed according to the tested configuration. An interrupting capability different than that tested cannot be confirmed for the generator circuit-breaker equipped with a different capacitance value of the capacitors used to mitigate the TRV.

GCB TECHNICAL DETAILS (TRV CHARACTERISTIC)

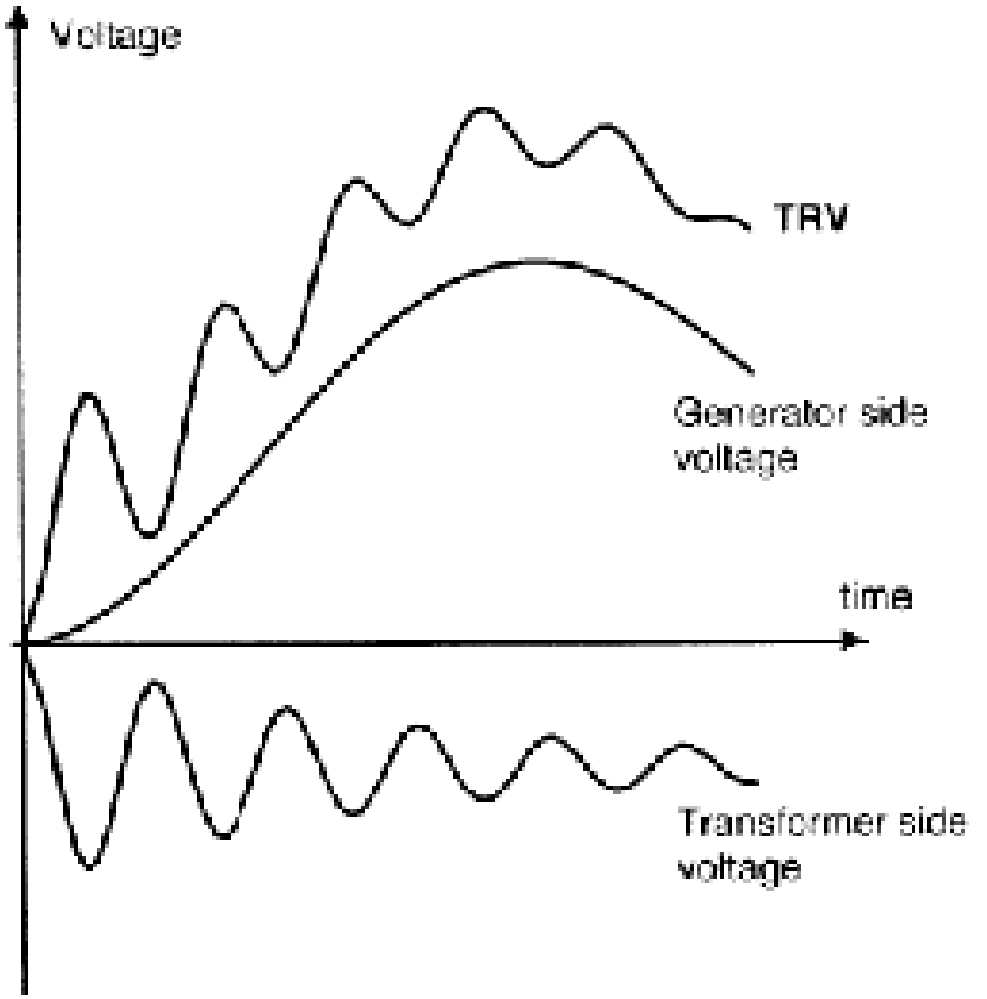


Figure 56 – TRV curve for the first-pole-to-clear

BACK

GCB PRODUCT DEVELOPMENT STEPS

Prototype Design of GCB considering the following :

(a) Arcing chamber design

(b) Material selection of main contacts and interrupting contacts

(c) Arc quenching medium

(d) Arc quenching mechanism to finalize interrupting current as per standards

(e) Breaker closing and opening mechanism, type of cooling (active / passive)

(f) Deciding interrupting time as per standards

(g) Finalization of capacitor for TRV and maintaining peak values of interrupting current within limits

(h) Design of lighting arrestor

(i) Insulation design

(j) Isolator and earthing switch design

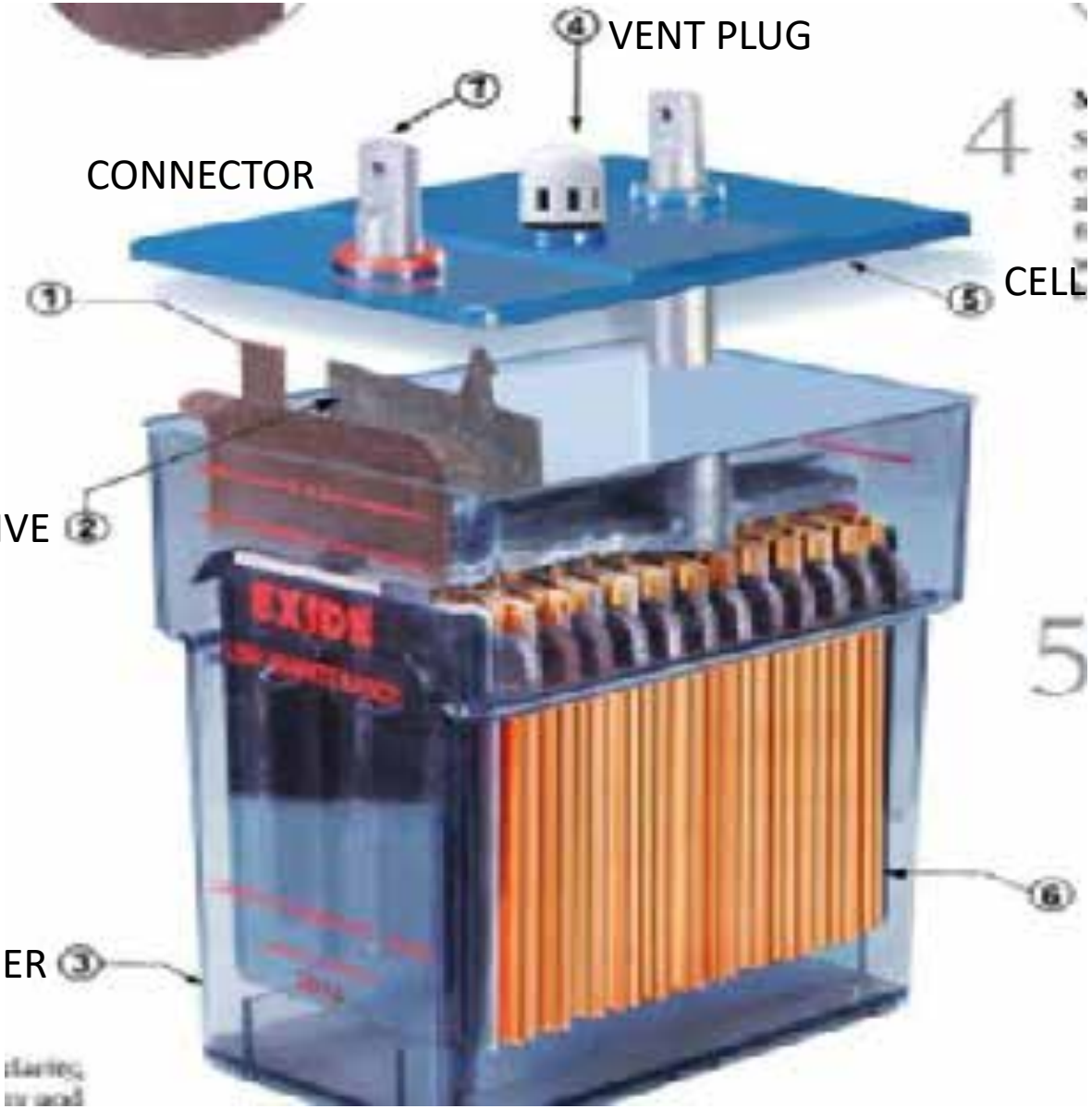
(k) Gang operation mechanism

(l) Design of control panel

(m) Accommodating current transformer / VT inside the GCB ,

(n) dimension finalization etc

LEAD ACID PLANTE TYPE BATTERY (TYPICAL VIEW)



LEAD ACID PLANTE TYPE BATTERY TECHNICAL DETAILS

DESIGNED AS PER IS1652

HIGH DISCHARGE PERFORMANCE REQUIRED IN THERMAL POWER PLANT APPLICATION TO CATER TO STARTING CURRENT OF DC DRIVES AT 0-1 MINUTE INTERVAL AFTER COMPLETE POWER FAILURE

SERVICE LIFE OF AROUND 20 YEARS

100% CAPACITY RETAINED THROUGH OUT THE LIFE SPAN OF THE BATTERY

HIGHER ENERGY OUTPUT IN COMPARISON TO TUBULAR CELL BATTERY AND HENCE FOR A GIVEN APPLICATION AH RATING OF PLATE BATTERY WILL BE LOWER THAN TUBULAR CELL BATTERY

Positive Plate : The plante positive plate shall be of the pure lead lamelle type with plante formation.
Negative Plate: The plates shall be pasted construction and of good workmanship.
Separators : The separators shall conform to IS 6071.
Electrolyte : The sulphuric acid and water used for preparing electrolyte for the cells shall conform to IS 266 and IS 1069.
Specific Gravity : The specific gravity of electrolyte of fully charged cell shall be 1.215 ± 0.005 corrected to 27°C.
TECHNICAL PARAMETERS : RATED VOLTAGE : 220 V DC (FOR MAIN DC SYSTEM)
NUMBER OF CELLS : 108
NOMINAL VOLTAGE PER CELL : 2V FLOAT CHARGING VOLTAGE : 2.25 V / CELL BOOST CHARGING VOLTAGE : 2.75 V /CELL
END CELL VOLTAGE : 1.85 V/ CELL

LEAD ACID PLANTE TYPE BATTERY TECHNICAL DETAILS (MAIN COMPONENTS)

Planté Positive Plates

Unique lamellar construction from Ultra-pure lead (99.99%) to ensure least open circuit loss and no reduction in capacity throughout their long life.

Negative Plates

Pasted grid construction. Designed for balanced performance and life.

LEAD ACID PLANTE TYPE BATTERY TECHNICAL DETAILS (MAIN COMPONENTS)

Containers

Moulded from transparent Styrene Acrylonitrile (SAN) giving excellent clarity, outstanding chemical resistance, rigidity and toughness with very high insulating qualities which eliminate the need for separate cell insulators. Transparency enables the electrolyte level and the cell condition to be monitored at a glance.

Separators

Microporous resin based separator providing a complete diaphragm between the plates. Separators are inert chemically, have excellent oxidation resistance and their high degree of porosity ensures minimum internal resistance.

LEAD ACID PLANTE TYPE BATTERY TECHNICAL DETAILS (MAIN COMPONENTS)

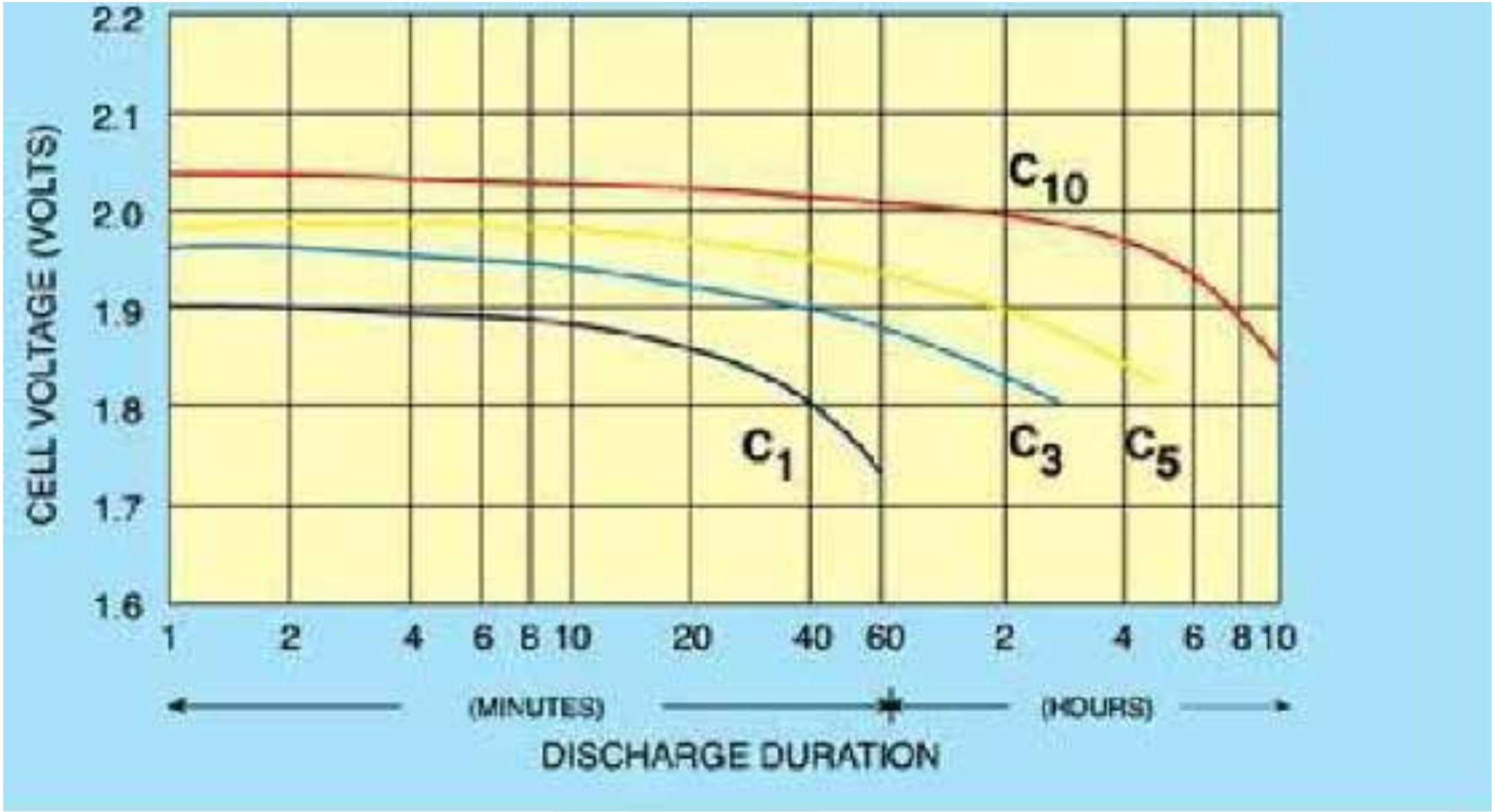
Microporous Ceramic Vent Plugs

Specially designed microporous ceramic filter which effectively returns all acid spray to the cell, but allows free exit of oxygen and hydrogen which is generated towards the end of boost charging.

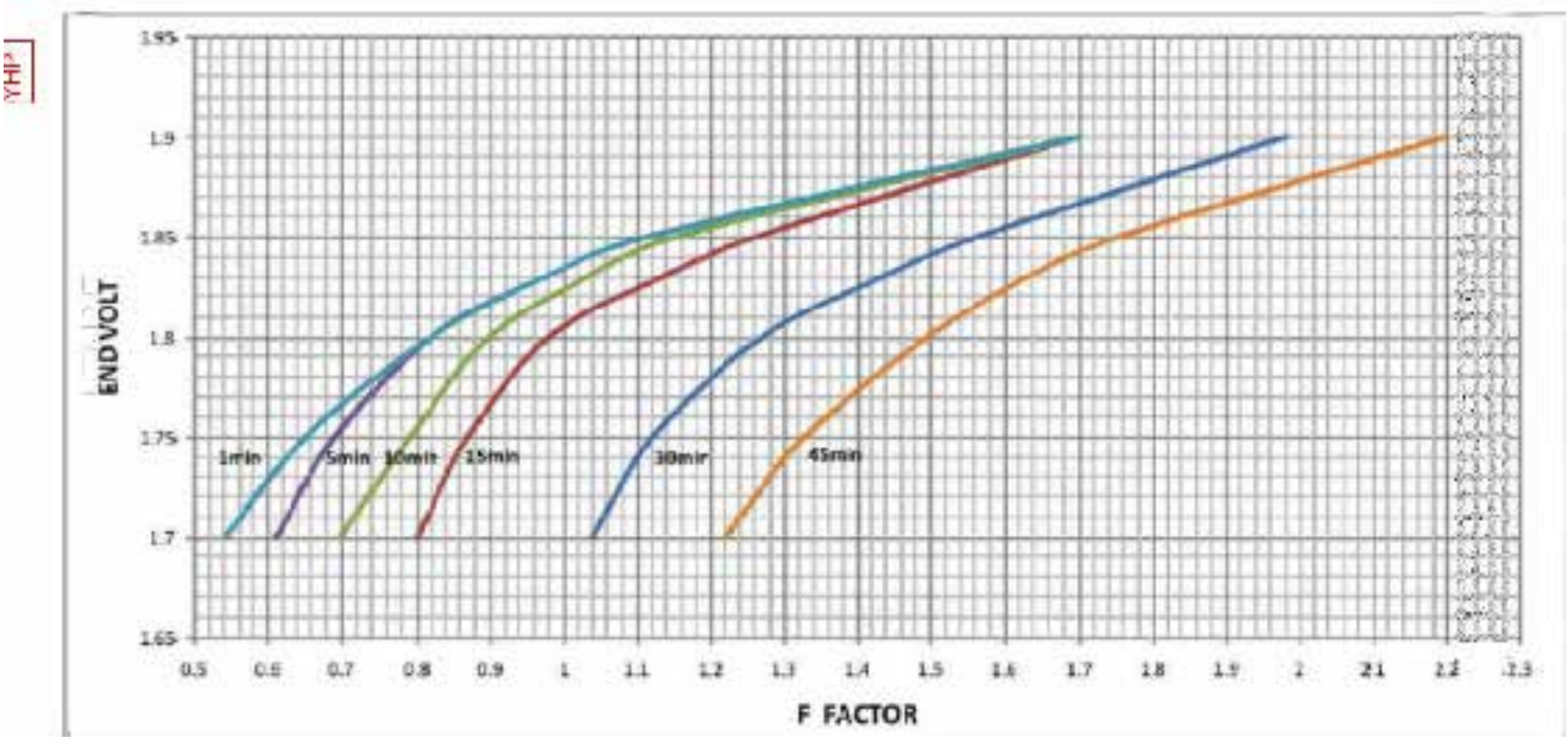
Cell Lids

Moulded from opaque SAN and sealed to the Container. Can be easily removed if the need for repair occurs.

LEAD ACID PLANTE TYPE BATTERY (DISCHARGE CHARACTERISTIC)



LEAD ACID PLANTE TYPE BATTERY (K FACTOR CURVES TYPICAL)



PEM-CIVIL

VIS FOR
TG,
BFP (TD / MD),
MILLS
AND
FAN (ID/PA/FD)

VIS FOR TG, BFP (TD / MD), MILL AND FAN (ID/PA/FD)

Classification	Application	BHEL Specification	Requirement per annum (Rs. Cr.)	BHEL Unit*	HSN Code	Required by any other Clients
VIS OF TG FOUNDATION	TG	PE-TS-999-600-C026	Varies, Approx. 2.9 Cr per TG	PEM, Noida*	84798999& 84799090	Doosan, L&T, Bygging, Toshiba.
VIS OF BFP, FAN & MILL FOUNDATION	BFP, FAN & MILL	PE-TS-999-600-C026	Varies, Approx. 2.5 Cr per project		84798999& 84799090	

BRIEF TECHNICAL SPECIFICATION FOR VIBRATION ISOLATION SYSTEM (VIS) FOR TG, BFP (TD / MD), MILL AND FAN (ID/PA/FD) FOUNDATION

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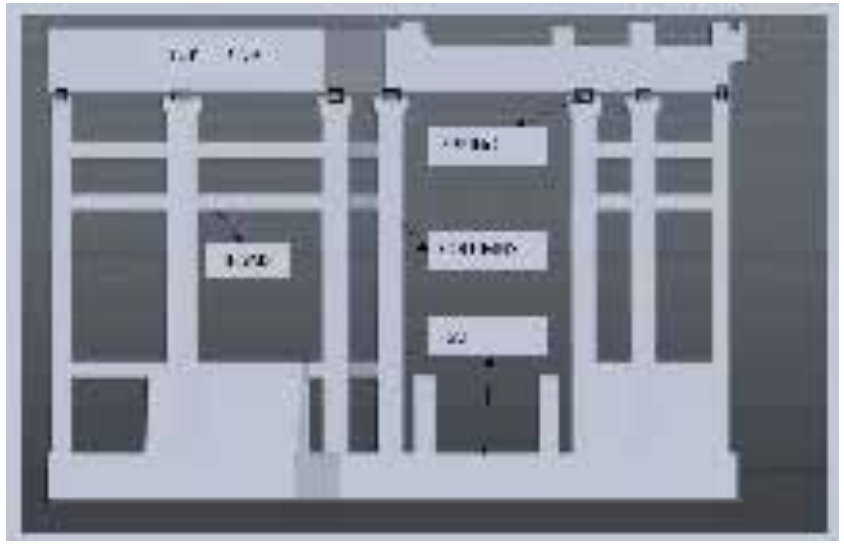
- Vibration isolation system (VIS) having requisite load carrying capacity , stiffness and damping is required for isolation of dynamic forces generated during operation of TG, BFP, MILL and Fan.
- VIS consists of steel helical springs and viscous damper.
- Springs shall conform to DIN EN13906-1 and DIN 2096 or equivalent.
- Material of spring shall be of grade 51CrV4 as per DIN EN 10089 or equivalent.
- The system shall be capable of withstanding Seismic/Wind Forces.



BRIEF TECHNICAL SPECIFICATION FOR VIBRATION ISOLATION SYSTEM (VIS) FOR TG, BFP (TD / MD), MILL AND FAN (ID/PA/FD) FOUNDATION

.

- VIS Supplier shall provide VIS along with tools & facilities required for installation & maintenance, Supervision of erection & commissioning of VIS by deploying their manpower at site, Design engineering of RCC deck supported on VIS as per machine manufacturer's' criteria and detailed specification.

- Vendor shall furnish datasheet, quality plan and test certificate (for hardware), civil design document & drawings, installation and maintenance manuals, methodology of providing shuttering and its removal as well as concreting of RCC deck supported on VIS.

- VIS shall be designed for ensuring "fit & forget" guarantee and shall have operating life of minimum 30 years.

MAJOR CUSTOMERS

- TAMILNADU GENERATION DISTRIBUTION CORPORATION LIMITED(TANGEDCO).
- TELENGANA STATE POWER GENERATION CORPORATION LIMITED (TSGENCO).
- MAHARASHTRA STATE POWER GENERATION CORPORATION LIMITED (MAHAGENCO).
- NATIONAL THERMAL POWER CORPORATION LIMITED (NTPC).
- GUJRAT STATE ELECTRICITY CORPORATION LIMITED (GSECL).
- ANDHRA PRADESH POWER DEVELOPMENT COMPANY LIMITED(APPDCL).
- UTTAR PRADESHP RAJAYA VIDYUT UTPADAN NIGAM LIMITED (UPRVUNL).
- WEST BENGAL POWER DISTRIBUTION CORPORATION LIMITED (WBPDCL).
- NEYVELI LIGNITE CORPORATION (NLC).

QUALITY PLAN - COMPONENT & OPERATIONS

Sl. No.	COMPONENT & OPERATIONS	CHARACTERISTICS	REFERENCE DOCUMENT
1.0	**Materials**		
1.1	For boxes	Chemical / Mechanical	IS 2062/ DIN EN 10025/JVHT02//JVHHT01B00//SAILMA350HI/SAILMA 350 or equivalent
1.2	For Springs	a) Chemical	51CrV4 as per EN10089(old 50 CrV4 as per DIN 17221 or equivalent
		b) Grain Size	ASTME 112
		c) NMI	IS 4163

QUALITY PLAN - COMPONENT & OPERATIONS

Sl. No.	COMPONENT & OPERATIONS	CHARACTERISTICS	REFERENCE DOCUMENT
2.0	**Component**		
2.1	Springs (at Manufacturers end)	a) Hardness	IS 1500
		b) Decarburization	IS6396
		c) NDE after compression	IS3703
2.1.1	Springs (at Supplier end)	Spring Rate	DIN 2096
2.2	Viscoliquid (For visco damper)	Penetration speed (mm/sec)	DIN 53019 or equivalent

QUALITY PLAN - COMPONENT & OPERATIONS

Sl. No.	COMPONENT & OPERATIONS	CHARACTERISTICS	REFERENCE DOCUMENT
2.3	Studs & Nuts	Chemical/Mechanical	IS1367
		Dimensions(mm)	IS 4218
3.0	**In Process Inspection**		
3.1	Welding	Visual/Surface exam (mm)	As per specification
		NDE	ASTM/ E 165
3.2	Adhesive pads (jute) 4 mm thick, Steel shims	Dimensions(mm)	Datasheet (data & dimensions)

QUALITY PLAN - COMPONENT & OPERATIONS

Sl. No.	COMPONENT & OPERATIONS	CHARACTERISTICS	REFERENCE DOCUMENT
4.0	**Final Inspection**		
4.1	Shot Blasting	Surface preparation	EN ISO 12944-4
4.2	Painting(for plates)	Thickness (180 microns)	
4.3	Painting(for Spring)	Thickness (min. 70 microns)	
4.5	Constant of Spring Units (Vertical; Kv)	Load Vs Displacement (kN/mm)	DIN 2096 Datasheet (data & dimensions)

EDN, BANGALORE

SWAS
UPS
24V CHARGER SYSTEM
IP CCTV/PA SYSTEM / EPBAX SYSTEM

System, Packages & BOPs

Classification	Application	Annual Qty (Rs. Cr.)	HSN CODE	Whether required by other clients	Photographs
Steam & Water Analysis System Maintaining the quality of Steam and Water to avoid corrosion • pH • Conductivity • Dissolved Oxygen • Silica • Sodium • Hydrazine • Chloride • Iron • Turbidity/Salinity • Ammonia • Chlorine	For Power Plants	11.0 Cr	90278090	• State Electricity Boards • NTPC	  

System, Packages & BOPs

Classification	Application	Annual Qty (Rs. Cr.)	HSN CODE	Whether required by other clients	Photographs
UPS – 230V AC UPS required for powering of various Power Plant equipment's	For Power Plants	25.0Cr	85044010	• State Electricity Boards • NTPC	

System, Packages & BOPs

Classification	Application	Annual Qty (Rs. Cr.)	HSN CODE	Whether required by other clients	Photographs
Charger System – 24V DC Power supply system consisting of Float cum Boost charger (SMPS/ Thyristor), DCDB, BHMS & 24V Batteries (Ni-Cd/Lead Acid)	For Power Plants	10.0 Cr	85044030	• State Electricity Boards • NTPC	  SMPS Based Charger

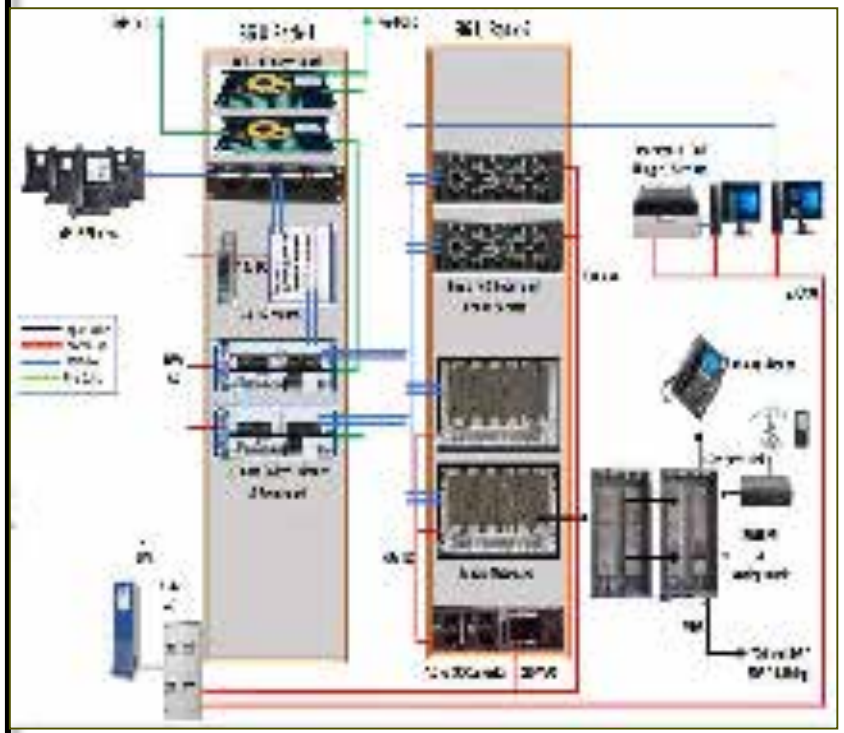
System, Packages & BOPs

Classification	Application	Annual Qty (Rs. Cr.)	HSN CODE	Whether required by other clients	PhotographsIP
IP CCTV- Server based System having different types of cameras like ETZ, Fixed, Thermal, Explosion Proof required for monitoring & recording video of plant area & perimeter	For Power Plants	12.0Cr	85258090	• State Electricity Boards • NTPC	 

System, Packages & BOPs

Classification	Application	Annual Qty (Rs. Cr.)	HSN CODE	Whether required by other clients	PhotographsIP
IP PA SYSTEM - Server based System having different types of call stations like desktop mount, indoor Wall mount, Outdoor wall mount, explosion proof required for plant wide communication & emergency announcements	For Power Plants	5.0Cr	85176290	• State Electricity Boards • NTPC	 

System, Packages & BOPs

Classification	Application	Annual Qty (Rs. Cr.)	HSN CODE	Whether required by other clients	Photographs
IP EPABX SYSTEM - Server based System based on distributed architecture with survivable media gateways in different locations of power plant having different types of telephones like IP telephone, desktop/wall mounted TDM phone, weather proof, explosion proof telephone required for plant wide communication	For Power Plants	10.0 Cr	85177090	• State Electricity Boards	

HEP, BHOPAL

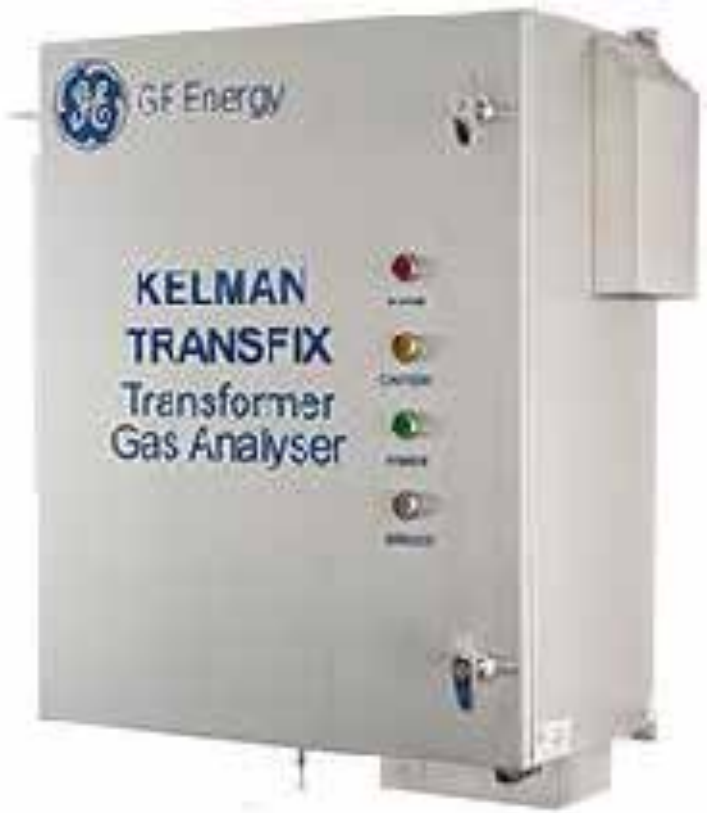
DIAGNOSTIC EQUIPMENTS FOR TRANSFORMER/REACTOR HEALTH

HEP, Bhopal

DIAGNOSTIC EQUIPMENTS FOR TRANSFORMER/REACTOR HEALTH

ON LINE DISSOLVED GAS MONITORING DEVICE

Purpose : The equipment is suitable for online dissolved gas monitoring, required for detection of incipient fault in oil filled equipment i.e. transformers and reactors. The equipment continuously monitors PPM value of dissolved gases such as H2, CO, CO2, CH4, C2H2, C2H4, C2H6, O2, N2 and water content (moisture) of transformer oil.



Present Sources:

-A. Eberle Gmbh & Co. Germany
-CIC Ltd, India
-Doble Engg. Co. USA
-MTE India Pvt Ltd, India
-Qualitrol, USA

Requirement Per Annum	
Number	Rs Crores
90	15.30
Other data	
Whether required by other manufacturers	HSN Code
YES	90273090

ON LINE INSULATING OIL DRYING SYSTEM

Purpose : The equipment is suitable for online moisture removal from transformer oil, required for oil filled transformers/reactors. The system is designed for very slow removal of moisture that may enter the oil system or generated during cellulose decomposition. Oil flow to the equipment is controlled through pump of suitable capacity.

Present Sources :

-Cee Dee Vacuum Equip. Pvt. Ltd. India
-PTSS Pvt. Ltd. India
-Transec (UK) Ltd. UK

Requirement Per Annum	
Number	Rs Crores
16	0.80
Other data	
Whether required by other manufacturers	HSN Code
YES	84212190

PORTABLE DISSOLVED GAS ANALYZER

Purpose : The equipment is suitable for dissolved gas analysis (DGA) of a small quantity of mineral insulating oil of oil filled equipment i.e. transformers and reactors. The equipment is robust in design and of portable type so that the same can be used at site conditions. The equipment consists of oil sampling device, oil collecting bottles, sensing and analysis unit, display unit, calibration kit and is complete in all respects to carry out on the spot DGA at site.

Present Sources :

-CIC Pvt. Ltd. India

-Morgan Schafer Inc. USA

Requirement Per Annum	
Number	Rs Crores
4	1.12
Other data	
Whether required by other manufacturers	HSN Code
YES	90273090

FREQUENCY RESPONSE ANALYZER

Purpose : The equipment is used for scanning geometrical and mechanical movements & distortion of transformer and reactor windings due to transportation damages, short circuit, lightning impulse or any other mechanical stresses. The equipment broadly consists of variable frequency voltage source, network analyser, necessary software, inbuilt display unit or separate laptop for display and cabling.

Present Sources :

-Doble Engg. Co. USA
-Haefely Test A.G. Switzerland
-Megger Ltd. UK
-Omicron Electronics USA

Requirement Per Annum	
Number	Rs Crores
4	0.44
Other data	
Whether required by other manufacturers	HSN Code
YES	8471

PARTIAL DISCHARGE DETECTOR

Purpose : The instrument is used for monitoring the oil filled Power transformers and reactors for partial discharges in the transformer dielectrics using Acoustic emission method or UHF method of partial discharge detection.

Present Sources :

-Qualitrol Company LLC USA

-Power PD USA

Requirement Per Annum	
Number	Rs Crores
4	1.72
Other data	
Whether required by other manufacturers	HSN Code
YES	85049010

CAPACITANCE & TAN DELTA MEASURING KIT

Purpose : The instrument is used for measurement of capacitance and tan delta of EHV class transformer winding, condenser bushings, shunt reactor winding, bus and line CVTs. The equipment is complete with measuring bridge, HV power supply unit of 10kV standard capacitor.

Present Sources :

-Doble Engg. Co. USA
-Haefely Test A.G. Switzerland
-Megger Ltd. UK
-Om Technical Solutions India
-Sivananda Electronics India

Requirement Per Annum	
Number	Rs Crores
4	0.704
Other data	
Whether required by other manufacturers	HSN Code
YES	8504

TRANSFORMER TURN RATIO METER

Purpose : The instrument is used for measurement of turns ratio of transformer windings without requiring any manual balance of decades and has facility for vector group detection and excitation current measurement.

Present Sources :

-Haefely Test A.G. Switzerland
-H.Tinsley & Co. UK
-Megger Ltd. UK
-Sivananda Electronics India

Requirement Per Annum	
Number	Rs Crores
8	0.48
Other data	
Whether required by other manufacturers	HSN Code
YES	9030

PORTABLE KARL FISCHER TEST SET

Purpose : The instrument is used for measurement of moisture content in transformer insulating oil. The test kit makes use of automatic Karl Fischer Titrator method capable of measuring water in oil to 200ppm.

Present Sources :

-Megger Ltd. UK

-SI Analytics Gmbh Germany

Requirement Per Annum	
Number	Rs Crores
5	0.255
Other data	
Whether required by other manufacturers	HSN Code
YES	90275090

OIL BREAKDOWN VOLTAGE TEST KIT

Purpose : The instrument is used for automatic determination of electric strength (Breakdown voltage) of insulating oil up to 100kV.

Present Sources :

-Megger Ltd. UK

-Sivananda Electronics India

Requirement Per Annum	
Number	Rs Crores
8	0.28
Other data	
Whether required by other manufacturers	HSN Code
YES	90303390

WINDING RESISTANCE MEASUREMENT TEST KIT

Purpose : The instrument is used for measuring DC winding resistance of Transformers/reactors, where large induction is present.

Present Sources :

-Elmon Systems Pvt. Ltd. India
-Megger Ltd. UK
-Scope T&M Pvt. Ltd. India
-Sivananda Electronics India

Requirement Per Annum	
Number	Rs Crores
4	0.20
Other data	
Whether required by other manufacturers	HSN Code
YES	9030

FIBER OPTIC TEMPERATURE SENSORS (FOTS)

Purpose : The instrument is used for measuring accurate, direct and real time hot spot temperature of core, winding, insulation, top oil, bottom oil etc of transformers and reactors. It comprises of fiber optic current sensors and temperature monitoring unit.

Present Sources :

-Lumasense Technologies Canada
-Machtech Engg. Soln. LLP India
-Precimeasure Controls Pvt. Ltd. India
-Qualitrol Company LLC USA
-Rugged Monitoring Quebec Inc. Canada

Requirement Per Annum	
Number	Rs Crores
50	3.00
Other data	
Whether required by other manufacturers	HSN Code
YES	9025

ISG, Bangalore

Equipments/ Packages in Coal Handling/Ash Handling Plant – BHEL ISG

Classification	Application	Requirement p.a. * (Rs Cr)	HSN Code	Whether required by other clients
BOI				
Plante Batteries	Battery Charger	2 Cr		Yes
3D Stockpile System	CHP	0.6 Cr (per machine)		Yes
Supply by Vendor as part of Package				
Split Bearing for Conveyor & Crusher	CHP	0.76 Cr (284 Nos)		Yes
Slew Bearing	CHP	0.5 Cr		Yes
Hydraulic Motor and Power pack for WT & Conveyor	CHP	0.64 Cr (1 No) 8.7 Cr (19 Nos.)		Yes
Coal Analyser	CHP	8.5 Cr (6 Nos)	90318000 (Analyser) 28444000 (Source)	Yes
Ash Analyser	AHP	1.24 Cr (1 No)		Yes

* The above requirement is project specific and the quantity and value indicated against each item is for a typical project

Equipments/ Packages in Coal Handling/Ash Handling Plant – BHEL ISG (Contd)

Classification	Application	Requirement p.a. * (Rs Cr)	HSN Code	Whether required by other clients
System may be bought by BHEL in future and for R & M Jobs				
Dry Bottom Ash Handling System	AHP	25-30 Cr Per Unit of Power Plant	84282080	Yes
Pipe Conveyor System of Coal Handling Plant	CHP	126 Cr	84282019	Yes
Ship Unloader Package	CHP	98 Cr (3 No.)	84314100	Yes
Portal Reclaimer	CHP	65 to 80 Cr per project (3 machines)	8431	Yes

* The above requirement is project specific and the quantity and value indicated against each item is for a typical project

PESD, Hyderabad

GAS ENGINES

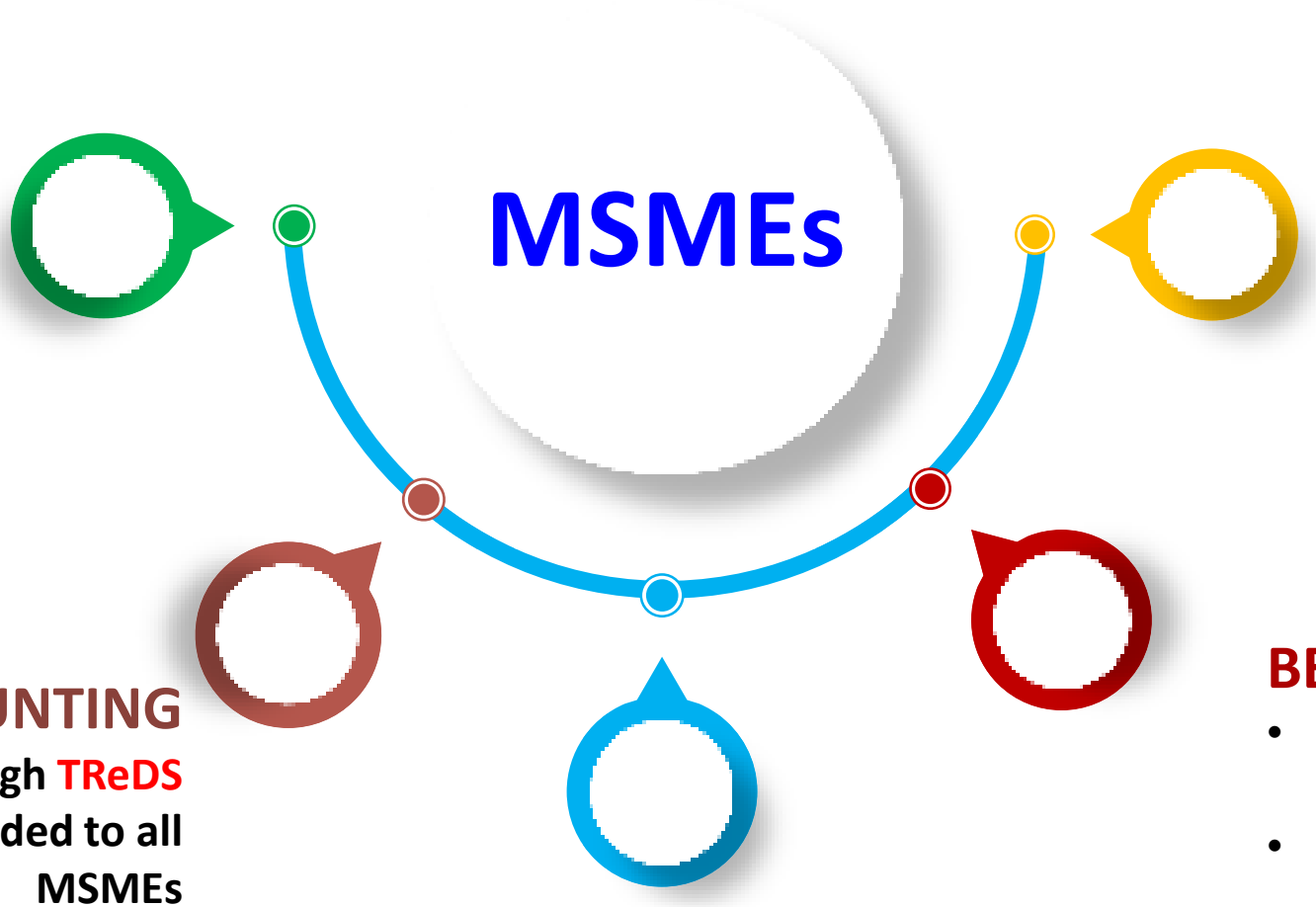
Classification	Application	Requirement p.a. (Rs Cr)	HSN Code	Whether required by other clients
Gas Engines (ICE)	Power Generation (8-10MW Gensets)	30	8409	NTPC, Power Grid, OIL

Specific requirements

- Modular design for easy installation & future needs
- Fast starts and stops
- Seamless control over load fluctuations
- Multi-fuel operation and wide spectrum of fuel choices
- Emission levels fulfilling environmental regulatory requirements
- Minimal Utility consumptions – water, startup air
- Flexible operation environment -hot deserts, high mountains, sweltering jungles

BHEL support for Development of Suppliers

BHEL support for MSMEs



PURCHASE PREFERENCE

As per Public Procurement Policy and MSMED ACT

ITEM PREFERENCE

358 items currently reserved for MSEs. When developed, items being imported can also be added to this list.

BILL DISCOUNTING

Payments through TReDS platform extended to all MSMEs

- RXIL Limited
- Invoice Mart
- M1Xchange

INTERACTIONS

Regular supplier meets.

BENEFITS

- EMD waived
- No elimination in RA
- Relaxation in prior experience and prior turnover to MSEs
- Time bound payments

BHEL support for Start-ups

BENEFITS

Relaxation in prior experience and turnover

STARTUP RUNWAY

BHEL is tendering its requirements on GeM wherein Startups can supply goods as per the Startup Runway on GeM

Calendar for BHEL SAMVAAD

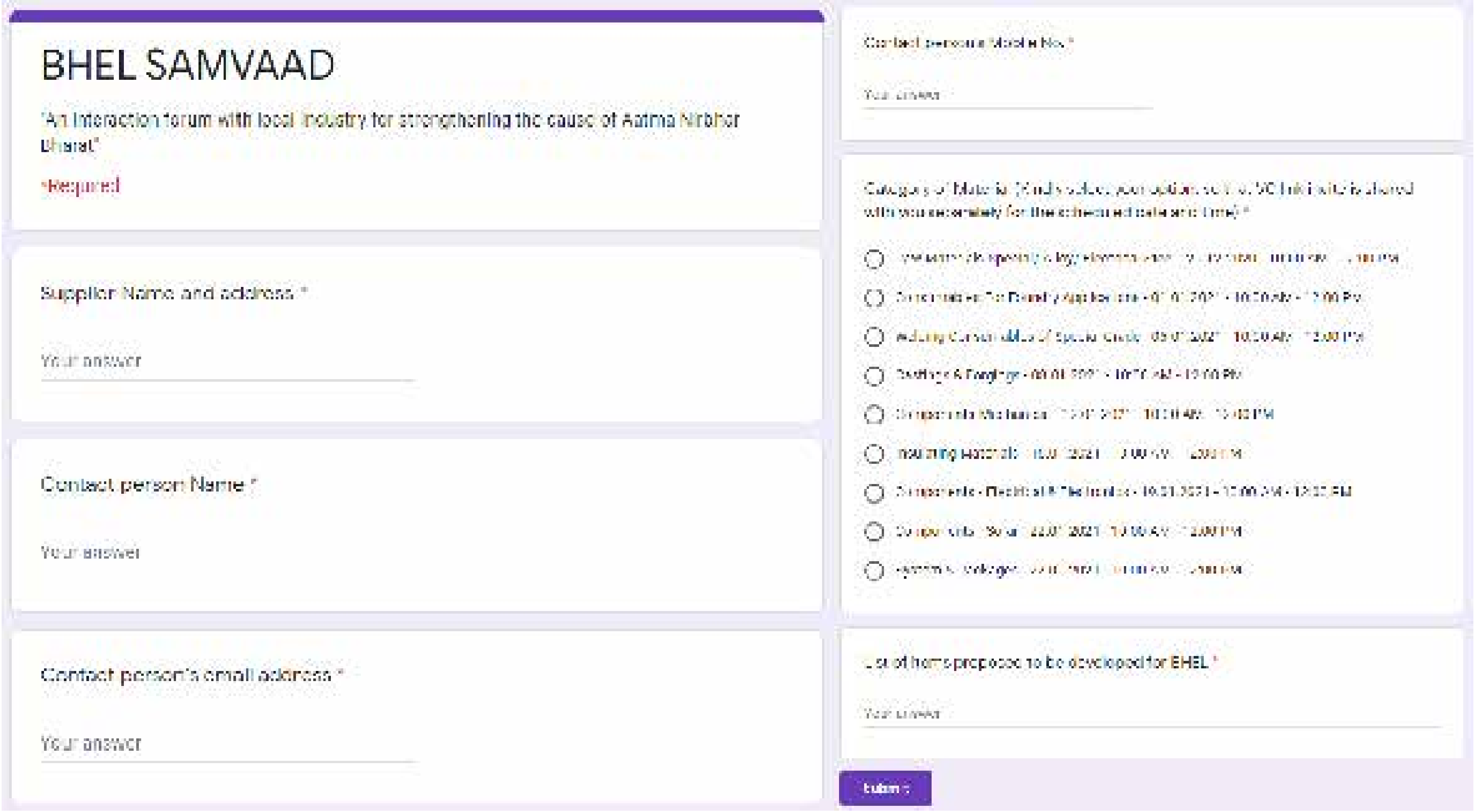
Detailed list

SNO	Category of Material	Date	Day	TIME
1	Raw Materials-Special/ Alloy/ Electrical Steel	29.12.2020	Tuesday	10:00 AM - 12:00 PM
2	Consumables for Foundry Applications	01.01.2021	Friday	10:00 AM - 12:00 PM
3	Welding Consumables of Special Grade	05.01.2021	Tuesday	10:00 AM - 12:00 PM
4	Castings & Forgings	08.01.2021	Friday	10:00 AM - 12:00 PM
5	Components-Mechanical	12.01.2021	Tuesday	10:00 AM - 12:00 PM
6	Insulating Materials	15.01.2021	Friday	10:00 AM - 12:00 PM
7	Components - Electrical & Electronics	19.01.2021	Tuesday	10:00 AM - 12:00 PM
8	Components – Solar	22.01.2021	Friday	10:00 AM - 12:00 PM
9	Systems, Packages & BOPs	27.01.2021	Wednesday	10:00 AM - 12:00 PM

Click here for filling up your details regarding your participation

For any queries, please contact us on samvaad@bhel.in

Enrollment for BHEL SAMVAAD – Online Form submission



BHEL SAMVAAD

"An Interaction forum with local industry for strengthening the cause of Aatma Nirbhar Bharat"

*Required

Supplier Name and address *

Your answer

Contact person Name *

Your answer

Contact person's email address *

Your answer

Contact person's Mobile No. *

Your answer

Category of Material (Kindly select your option so that VC link is shared with you separately for the scheduled date and time) *

- [illegible]
- [illegible] - 07.01.2021 - 10:00 AM - 12:00 PM
- [illegible] - 05.01.2021 - 10:00 AM - 12:00 PM
- Castings & Forgings - 08.01.2021 - 10:00 AM - 12:00 PM
- Components Mechanical - [illegible] - 10:00 AM - 12:00 PM
- Insulating Materials - [illegible]
- Components - Electrical & Electronics - 19.01.2021 - 10:00 AM - 12:00 PM
- Components - Solar - 22.01.2021 - 10:00 AM - 12:00 PM
- Systems & Packages - [illegible]

List of items proposed to be developed for BHEL *

Your answer

Submit

Write to samvaad@bhel.in, to convey your interest

For more details visit https://www.bhel.com/items-requiring-interest-local-suppliers