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Material Requisition for SABC Circuit
(SABC)

00	2026-02-18	Issued for Information				
Rev.	Date	Description	Prepared	Checked	Approved	Authorized

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1. Introduction

1.1 General

Supplier (hereinafter referred to as “supplier”) is responsible for engineering, procurement and construction and on-site supervision activities also Process guarantee of this package.

The purpose of this document is to lay down conditions applicable to:

- **Non-Conformity:** No deviations or exceptions from this document shall be permitted, without explicit approval of Client. Intended deviations shall be separately listed by the seller, supported by reason thereof and submitted for company's consideration. If not, the requirements and conditions in this requisition shall be deemed accepted by Seller. in case of conflict between electrical items in mechanical data sheet and Data Sheet for LV and MV motor, priority is Data Sheet for LV and MV motor.
- **Precedence of Documents:** In case of conflict between documents listed in section 8 of the “LIST OF DOCUMENTS SUPPLIED & PRESENTED BY PURCHASER” and Codes and Standards listed in the relevant engineering Specifications, the order of priority are:
 - a) Project kick-off meeting (KOM)
 - b) Agreed Deviation / Alternative List
 - c) MOM
 - d) Clarification Sheets
 - e) This Material Requisition and respectively
 - f) Engineering Drawings and Specific Datasheets or technical Specifications
 - g) Project Specification
 - h) Code & Standards Referred to in the Specification

Any conflict between the above documents must be brought to PURCHASER’s attention and written PURCHASER’s approval shall be obtained before proceeding with designing, purchasing and manufacturing any parts of the whole package.

1.2 Definitions

Throughout the contract the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:

- “VENDOR” Responsible for Design, Fabrication, and Supply of Grinding
- “SUPPLIER &/OR CONTRACTOR” means the firm or company which this contract has been made with.

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- “WORKS” means all obligations of the contractor described in the "scope of works" of the contractor.
- “APPROVE” means approve in writing letter confirmed by buyer.
- “SHALL” The word shall indicate a requirement.
- “SHOULD” The word should indicate a suggestion or recommendation.
- “MAY” The word may indicates alternatives are equally acceptable.

1.3 Project information

The Equipment of this Requisition is part of a completely SABC circuit for Copper-Moly Concentrator Plant.

1.4 Contractual Languages

The contractual language shall be English. Vendor or Supplier documentation and technical data in engineering drawings etc. shall be in English. The language for electronic devices/protection relays/labels is English.

1.5 Nameplate & Labels

The nameplates must meet the following requirements:

1. They must be well positioned, clearly visible, and easy to identify.
2. Nameplates shall not be easily removable.
3. Nameplates for important components such as motors, gearboxes and others are to be positioned on the components.
4. They must indicate the type, serial number, year and place of manufacturing with TAG number.

1.6 Units

International standardization organization metric system of measurement shall be employed except for pressure, temperature, and pipe fittings which shall be in kg/cm² and °C and inches/NPT respectively.

2. Site condition

For detail description refer to site condition with Client number 28C3-D-4IN-DOC-090-0000-00-PR-0001 .

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3. Purpose

The purpose of this Requisition is to define the Supplier's scope of work and supply for the items listed in Requisition Summary

4. Applicable codes & standards

The equipment must conformance to the latest state of the art and knowledge of engineering and rules of techniques. Maximum availability of equipment and maximum replaceability and ease/rapidity of maintenance of all parts subject to wear are particularly important.

The Supplier is the sole responsible party for the correct application of the contractual documents and is to adhere to all specifications and codes, and standards set at 28C3-D-4IN-LST-090-0000-00-ME-0002 attached to this MR.

The Supplier is the sole responsible party for the correct application of the contractual documents and is to adhere to all specifications and codes as mentioned above. The following explanations are necessary for a better understanding:

1. All codes and standards referred to shall be the latest edition of such documents unless otherwise specified by the employer's representative. Where special piping and equipment, not covered by these standards, is required, the contractor shall submit to the employer's representative, for approval, a description of the selected material and design criteria adopted.
2. All equipment and assemblies shall comply with the European Machinery Directive 2006/42/EC 2nd Edition, June 2010.
3. The Purchaser or his representative shall approve any other standard that Supplier proposes to use before applying it.

5. Requisition summary of project

In this project supplier will be responsible for all engineering, procurement and supervisory on installation to deliver with the approved division list of SABC circuit with reference to PFD, P&ID and General Arrangement Drawing for grinding area. The summary of main equipment listed as a follow:

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ITEM	TAG/ PART NO.	QTY	DESCRIPTION	Remark
1	3-32-2110-01 4-32-2110-01	2	SAG Mill	- One bolt hammer for each machine supplied totally two Hammers for two SAG Mills) as accessories - Trunnion Feed Chute feed chute - Trommel Screens
2	3-32-2120-01,02 4-32-2120-01,02	4	Ball Mill	- One bolt hammer for each machine pair (Totally two Hammers for four Ball Mills), supplied as accessories - Trunnion Feed Chute feed chute - Trommel Screens
3	3-32-1501-01~04 4-32-1501-01~04	8	Cyclone Feed Pump	
4	3-32-2710-01~04 4-32-2710-01~04	8	Cyclone Cluster	
5	3-32-2701-01,02 4-32-2701-01,02	4	SAG Mill Discharge Screen	
6	3-32-2160-01,02 4-32-2160-01,02	4	Pebble Crusher	
7	3-32-0920-01 4-32-0920-01	2	Particle Size Analyzer	
8	-	As required	Instrumentation and Control Units, I/O Cards Original Control System Software Including License for Whole Package	
9	-	As required	Supervisory Services for Erection & Commissioning of whole package	

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10	-	As requi red	Operation Training for whole Package	
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6. Scope of work

The scope of work is engineering, procurement, manufacturing, packaging, supervision on installation, commissioning, training, and supplying the spare parts for aspects of the SABC circuit package and also engineering endorsement. The system proposed shall be completed in a manner to perform all required points. The Supplier shall study all attached documents and furnish a complete working system in all respects. The supplier shall follow all project criteria and specifications as mentioned in Section 9. The Supplier is required to provide the following:

1. Test report preparation and Basic endorsement
2. Equipment detailed-design.
3. Detail design review and/or engineering supply of all equipment/materials as listed in clause 6. Engineering supply refers to the equipment only plus basic engineering for its integration within the Project; review with comments for layout assistance is included unless specified otherwise in this specification and in the tender documents.
4. Equipment supply based on approved division list.
5. Painting in accordance with Painting Specification
6. Works inspections and tests (where applicable).
7. Packaging and protection of equipment for transit and 6 months storage purposes, in accordance with the Specification for Packaging and Shipping contained in the Enquiry/Purchase Order documents and according to the mode of transport defined in the Enquiry/Purchase
8. Delivery and insurance to the point as indicated on the Enquiry/Purchase Order documents, in accordance with purchaser delivery requirements.
9. Technical supervision of the installation, commissioning, PGT and training services shall be carried out by the Supplier in conjunction with Purchaser. The commissioning procedure shall be jointly agreed to provide finite limitations and expectations to the commissioning document. No equipment shall be deemed commissioned or accepted without joint completion of the agreed commissioning document. The commissioning documentation will be retained in a file by the Purchaser.
10. Complete engineering required for the equipment design, manufacturing, testing (where applicable) and supply of the equipment including all components. The engineering part shall

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also cover the inter-discipline engineering and the clarification of the interface items in coordination with the mechanical, electrical and instrument departments.

11. The supply of documents as per the Documentation Schedule.
12. Special tools, such as bolt hammers for Sag/Ball mills, shall be included in the scope of supply.
13. A priced list of recommended spares, separated into the following:
 - Commissioning spares
 - Two years' operating spares
 - Recommended long term' spares (or capital spares), i.e., spares whose normal shelf life as a standby spare is expected to exceed two years.
 - The list will be subject to scrutiny and alteration by the purchaser to ensure the relevant provisions at optimum costs. Stock and re-order levels will be designated according to priority and shipping schedules. The Supplier shall demonstrate that the recommended list is appropriate based upon similar conditions experienced elsewhere.
14. A list of consumables and the expected consumption (if required). Should the purchaser fail to comment, or only partially comment, upon the Supplier document, this shall not be construed as an acceptance of the content of such document unless expressly provided otherwise.
15. All loading diagram for foundation and structural design.
16. General arrangement and 3D model of each equipment and whole grinding circuit.
17. Application of surface preparation and protection according to the painting specification
18. Packing and Delivery according to Section 11
19. Guarantee as per Section 12
20. The vendor shall follow the "Instrument design criteria (28C3-D-4IN-DCR-090-0000-00-IN-0001)" and "Specification for Package Control System (28C3-D-4IN-SPC-090-0000-00-IN-0251)" for its package control and instrumentation job. If there are any deviation to these documents like an instrument which is not mentioned in "Instrument design criteria (28C3-D-4IN-DCR-090-0000-00-IN-0001)" Vendor shall send the relative specification for Client's written approval.

7. Scope of supply

The scope of supply includes any item and auxiliary, which is required to provide a correct and safe operation of the grinding package (SABC) and all relevant mechanical/instrumentation accessories as attached to the procurement/ engineering and construction division list (if any) with the main titles. Supply of all main parts as mentioned above complete with all relevant accessories, including but not limited to the following:

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1. Detailed-design and engineering
2. Supply of the fully fabricated
3. Material Supply regarding the following requirements:
 - All the materials used shall be new and conform to the respective specifications given on drawings and / or Section 4.
 - Major materials shall have prior approval of the client or its representative. Any deviation is subject to the purchaser's approval.
4. Subcontracting of any part of the order shall be subject to the written approval of the Client or its Representative.
5. Construction and Manufacturing.
6. Electric motors/pumps
7. Interconnecting piping and wiring between equipment and accessories.
8. Bonding and Earthling (to be connected to the central system if required).
9. Onboard piping and cabling.
10. Guards for all rotating parts.
11. Top cover and dedusting hoods (if required).
12. Furnishing spare parts for commissioning with complete specifications and drawings:
13. Coordinating and resolving all engineering information related to the equipment
14. Flexible connections (Tarpaulin cover).
15. Drive unit/ pumps with first filling and all accessories.
16. All supporting elements saddles.
17. Wear resistant material and liners (any part of equipment which is in contact with material shall be Covered with wear resistant material; for example, cover of walls and side of material inlet.)
18. Supply of special tools for special parts such as bolt hammer and etc.
19. Supply of recommended spare parts for erection and commissioning.
20. Coordinating and resolving all engineering information related to the equipment.
21. Supervision on Erection and commissioning.
22. All mating flanges (if required)
23. Supply of Local Operation Box (L.O.B.) as specified below:
 - Start/Stop push buttons on L.O.B.
 - Field Permission Indication lamp on L.O.P.
 - Running indication lamp on L.O.B.
 - Local Operating Panel Equipment Power On
 - Termination for Local/Remote mode selection from control room

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24. Only the power supply cable (3PH+N+E or 1PH+N+E, based on the package unit's necessities) will be delivered to the nearby package unit's power cabinet. All interconnection cabling, wiring, and JB grounding within the skid shall be considered in the scope of the Vendor/Bidder.
25. Manufacturer/supplier must insert PURCHASER logo on equipment obviously. This logo should not be removable / clearable. This mandatory requirement is other than a nameplate.
26. Documentation according to Section 9
27. All lifting lugs/devices and earth lugs
28. Acoustic treatment to meet the specified noise levels (if applicable)
29. All Instruments and analyzers inside Vendor package (As per vendor-approved P&ID) and other required instruments for safe operation.
30. Isolation & drain valve for each equipment within B.L (Where applicable)
31. Cables, cable routes, and other works inside the package shall follow the specification and requirements of the project.
32. The PLC of the package (If any) shall follow the requirements of the "Specification for Package Control System" document as attached
33. Earthing & lightning protection system & all accessories (inside the package).

Note: All the sub-component (Mechanical, Electrical, Instrumentation and control, ...) of mentioned main equipment for proper and convenient work of system should be proposed by supplier

7.1. Electrical Important Notes (Rules and Laws):

1. In order to define the supplier's scope of work for the MV electrical equipment in the grinding area, please refer to the attached overall electrical single-line diagram. The supplier is requested to review and endorse the client's overall S.L.D at this stage.

With reference to the attached overall electrical single-line diagram, you are kindly requested to propose and provide comments on the maximum rated power of the transformers required to supply the MV equipment within the supplier's scope of work.

2. For LV/MV motors, following voltage & frequency variations is acceptable:

-LV motors ($\leq 250\text{kW}$): 400V/230V AC $\pm 10\%$, 50HZ $\pm 5\%$

-MV motors ($> 250\text{kW}$): 6.6KV AC $\pm 10\%$, 50HZ $\pm 5\%$

3. Please note that the MV VFDs for the mill motors are 36-pulse configuration. Moreover, the MV VFDs for cyclone feed pumps are minimum 12-pulse configuration.

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The supplier shall provide the technical specifications and datasheets of the mill and cyclone feed pump VFDs for the client's review and consideration.

The technology provider is responsible for performing harmonic studies on the 6.6 kV switchgear in the grinding area to ensure THD remains $\leq 5\%$ as per IEEE 519.

4. All VFD transformers (Multi-Pulse Phase Shift Transformers) are dry-type and integrated within the VFD panels. The cooling system for the VFD panels shall be of the water-cooled type.

In this regard, we require information such as the approximate dimensions and weight of the VFD panels and the associated switchgears.

Additionally, the technical specifications for the cooling water requirements for the VFD mills shall be provided in the technical proposal.

5. The complete electrical protection of the mill's/cyclone feed pump's motors falls within the scope of the technology provider. Therefore, the supplier must provide a comprehensive protective scheme for the mill's electromotors, clearly and transparently displayed on the single-line diagram and datasheets provided in the technical proposal for the buyer's review and feedback.

6. According to basic electrical requirements, all transformers $> 3500\text{kVA}$ as well as motors above 1000kW shall be protected by differential protection. Also, the current transformers used for this protection should be considered class X or 5P20.

7. Regarding the package unit power panels installed in the field, please note that the purchaser will only provide a power supply cable (3PH+N+E or 1PH+N+E, depending on the package unit's requirements) up to the vicinity of the package unit's power panel. Therefore, all interconnection cabling, wiring, and junction boxes (JB) within the skid shall be considered within the scope of the Vendor/Contractor.

8. According to the project requirements, it is necessary that both the inverter (VFD) and the soft starter utilize the PROFINET communication protocol. Additionally, please be informed that the communication protocol for all protection relays within the supplier's scope of work shall be IEC 61850.

9. According to the site condition, the installation altitude is 2,550 masl. Please consider the effect of altitude when sizing the Variable Frequency Drives (VFDs) in terms of current, power, and the insulation voltage of the VFD panels.

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10. As per IEC standard the insulation voltage for Sag & Ball Mill VFD panels and also Cyclone feed pump VFD panels will be derated to 12kV. (Power frequency withstand voltage 28kV and rated lightning voltage 75kV)

11. The following Attached documents Shall be completed and filled as much as possible:

- Typical LV/MV motor Data Sheets (filled only for MV motors separately)
- Electrical load / Motor List (Main & Auxiliaries loads)

12. All Motors, VFDs and other electrical equipment shall be sized at site condition (Temperature & Altitude).

13. Motor junction boxes shall be suitable for the size of cable which will be specified by Client in detail design stage. If the size of the announcement cables is larger than the routine size of the cable entry to the main motor's J.B, then middle JB shall be considered by supplier.

14. If AC UPS power supply is required, the Supplier shall provide a separate list of all equipment requiring a 230 V AC UPS supply, including the loads associated with the local electrical and control panels, as part of the technical proposal. One dedicated AC UPS outgoing feeder from the Client's UPS system located in the electrical substation will be provided by the Client for supplying the package. (Note: The AC UPS system is within the Client's scope of work.)

Furthermore, if any voltage level other than 230/400 V AC be required, the Supplier shall be responsible for the design, supply, and integration of the necessary voltage converter.

15. Attached is the preliminary layout of the hall allocated on one of the floors of the electrical substation in the crushing area (Hall=MV Inverter room), designated for the installation of MV electrical panels within the supplier's work scope. Accordingly, the submitted technical proposal must include the placement of all VFD panels and panels related to the power supply of the mill motors, cyclone feed pumps, and secondary crusher, based on the approximate dimensions provided by the technology provider. This layout should be positioned in the designated space and submitted for the buyer's review.

Note that, regardless of the proposed arrangement of the requested MV panels in the relevant MV inverter room by supplier, the exact location and arrangement of the panels will be finalized by the client after the contract.

16. All required electrical equipment in MV panel including C.T, P.T, C.B, Earthing Switch, Protective Relays, PLC, Measuring Center, Surge Arrester, Reactor, Capacitor, Filter, etc., these

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panels are within the scope of work of the technology provider (Refer to Overall Single Line Diagram).

17. Supply of the fully fabricated electrical equipment of Grinding Package and System:

- Electrical Motors
- VFD Panels
- LV local Panels and Cabinet (inside the package) and Local Control Boxes (LCBs) in the field side
- MCC Panel for Auxiliary Loads Related to Ball Mill and SAG Mill

Notes:

Any other items that not listed above but are necessary for the satisfactory design and successful operation of the Grinding package and system shall be furnished by the Supplier.

18. For the technical requirements of the LCB and Package Unit, please refer to the following documents:

- Data Sheet for Local Control Box (LCB): Doc. No.: 28C3-D-4IN-DSH-090-0400-00-EL-0048, Rev.03
- Technical Specification for Package Unit: Doc. No.: 28C3-D-4IN-SPC-090-0000-00-EL-0014, Rev.03

8. Bid requirements

This inquiry covers complete grinding package for copper-moly concentration plant with all accessories. It shall be considered that Basic engineering endorsement shall be done by Supplier and would be the basis of Process guarantees.

9. Documentation

9.1 documents submitted by purchaser

Preliminary documents submitted by the purchaser shall be checked by the vendor/ Supplier the following documents submitted by the purchaser.

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A	General Documents			
1	Vendor list	-	-	
2	Inspection and Tests	Appendix 26		
3	Erection, Pre-Commissioning and Commissioning, Performance Tests	Appendix 15		
4	Project Final Dossier-compressed	Appendix 22		
5	Packing and marking	Appendix 20		
B	Technical Documents			
B-1	Mechanic			
6	Mechanical Design Criteria	28C3-D-4IN-DCR-090-0000-00-ME-0001	02	
7	List of Codes and Standards	28C3-D-4IN-LST-090-0000-00-ME-0002	02	
8	Technical Specification for Sag Mill	28C3-D-4IN-SPC-090-2110-00-ME-0008	03	
9	Technical Specification for Pebble Crushers	28C3-D-4IN-SPC-090-2160-00-ME-0009	02	
10	Technical Specification for Vibrating Feeder & Screen	28C3-D-4IN-SPC-090-2000-00-ME-0010	02	
11	Technical Specification for Ball Mill	28C3-D-4IN-SPC-090-2120-00-ME-0011	02	
12	Technical Specification for Hydro cyclone	28C3-D-4IN-SPC-090-2710-00-ME-0012	02	
13	Technical Specification for Slurry Pumps	28C3-D-4IN-SPC-090-1501-00-ME-0013	01	
14	Data sheet for SAG mil	28C3-D-4IN-DSH-032-2120-01-ME-0102	03	
15	Data sheet for Ball mill	28C3-D-4IN-DSH-032-2120-02-ME-0103	03	

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16	Data sheet for Cyclone Cluster mill	28C3-D-4IN-DSH-032-2710-04-ME-0104	03	
17	Data Sheet for Sag Mill Discharge Vibrating Screen	28C3-D-4IN-DSH-032-2701-02-ME-0130	01	
18	Data Sheet for Pebble Crusher	28C3-D-4IN-DSH-032-2160-02-ME-0136	01	
19	Data Sheet for Hydro cyclone centrifugal feed pumps	28C3-D-4IN-DSH-032-1501-04-ME-0148	00	
20	Data Sheet for Particle size analyzer (Grinding Area)	28C3-D-4IN-DSH-032-0920-01-ME-0157	00	
21	General Arrangement for Grinding Area (32)	28C3-D-4IN-GEA-032-0000-00-ME-0066	03	
B-2	Process			
22	Site Condition	28C3-D-4IN-DOC-090-0000-00-PR-0001	02	
23	Process Design Criteria	28C3-D-4IN-DCR-090-0000-00-PR-0003	02	
24	PFD For Grinding Area-32	28C3-D-4IN-PFD-032-0000-00-PR-0022	02	
25	P&ID For Grinding Area-32	28C3-D-4IN-PID-032-0000-00-PR-0023	04	
26	Laboratory test report	12001-B-PR-REP-303-GNL-002	01	
B-3	Instrument			
27	Instrument design criteria	28C3-D-4IN-DCR-090-0000-00-IN-0001	02	
28	Specification for Instrument Junction Boxes	28C3-D-4IN-SPC-090-0000-00-IN-0004	02	

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29	VPIS for field instruments	28C3-D-4IN-LST-090-0000-00-IN-0043	01	This is the list of minimum I&C required documents which shall be completed and included in the package total VPIS.
30	Specification For package Control System	28C3-D-4IN-SPC-090-0000-00-IN-0251	01	
31	Specification for I&C Cables	28C3-D-4IN-SPC-090-0000-00-IN-0003	02	
32	VPIS for Control System	28C3-D-4IN-LST-090-0000-00-IN-0044	01	This is the list of minimum I&C required documents which shall be completed and included in the package total VPIS.
33	Control System Fat Procedure	28C3-D-4IN-PRC-090-0000-00-IN-0046	03	
34	Control System Fat Procedure	28C3-D-4IN-PRC-090-0000-00-IN-0047	04	
35	VPIS for Grinding packages I&C for Grinding Area	28C3-D-4IN-LST-032-0000-00-IN-0103	01	
B-4	Electrical			
36	Data Sheet for LV and MV Motors	28C3-D-4IN-DSH-090-0220-00-EL-0038	04	
37	Data Sheet for LV VFDs	28C3-D-4IN-DSH-090-0350-00-EL-0040	03	

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38	Technical Specification for LV and MV VFDs	28C3-D-4IN-SPC-090-0000-00-EL-0026	04	
39	Technical Specification for Package Unit	28C3-D-4IN-SPC-090-0000-00-EL-0014	03	
40	Data Sheet for Local Control Box (LCB)	28C3-D-4IN-DSH-090-0400-00-EL-0048	03	
41	Overall Single Line Diagram	28C3-D-4IN-SLD-090-0000-00-EL-0049	04	
42	Architectural Drawing for Substation Buildings In Grinding Area Phase1	28C3-D-4IN-DWG-032-0000-00-AR-0016	06	
43	Technical Specification for MV & LV Motors	12002-D-EL-SPC-303-GNL-016	02	
44	Datasheet for MV & LV Motors	12002-D-EL-DSH-303-GNL-038	04	
45	Technical Specification for Power and Control Cable	12002-D-EL-SPC-303-GNL-017	03	
46	Data Sheet for MV Cable	28C3-D-4IN-DSH-090-0000-00-EL-205	01	
47	Data sheet for LV cable	28C3-D-4IN-DSH-090-0000-00-EL-0206	01	
48	Technical Specification for Lighting & Power Sockets	12002-D-EL-SPC-303-GNL-019	03	
49	Technical Specification for Electrical Heat Tracing	12002-D-EL-SPC-303-GNL-020	04	
B-5	Piping			
50	Piping design criteria	28C3-D-4IN-DCR-090-0000-00-PI-0001	02	
51	Piping Material Specification	28C3-D-4IN-SPC-090-0000-00-PI-0018	02	
52	Specification For Paint	28C3-D-4IN-SPC-090-0000-00-PI-0004	03	
B-6	Quality control			

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NO.	DESCRIPTION	DOCUMENT NO.	REV.	REMARKS
53	Inspection Test Plan	28C3-D-4IN-ITP-090-0000-00-QC-0002	03	ITP will be finalized during PIM.
54				

* The Bidders must submit the list of spare parts, wear parts and consumables, which shall meet all requirements for commissioning and 2 years operation, attached to their proposal. No extra charge will be paid to the supplier due to any shortage in the proposed list.

9.2 documents to be submitted by supplier (before contract)

Supplier shall fulfill/complete the requested items in documents submitted by purchaser in Clause “9.1” such as data sheets and then bring the matter to purchaser approved. The following requirements and instructions shall be included by vendor/supplier in his proposal:

A) General

- Time Schedule for all activities including engineering, material procurement, shop fabrication, tests and inspections, painting, packing and delivery.
- Typical Document List for grinding Circuit (Will be Finalized during K.O.M)
- Prior approval of source of supply / manufacturer
- Statement of the supplier’s related experience
- List of specialized staff for erection and commissioning
- Training Schedule
- Preliminary QCTM (Quality control and testing manual) for each equipment – Quality control plan & due Preliminary ITP shall be submitted before contract for approval

B) Technical

- Supplier’s Questionnaire
- Deviation / Alternatives (If Any)
- Sub-Vendor/Sub-Supplier List
- Supplier 'S References List
- Division list
- Applicable codes and standards

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- General arrangement and sectional drawings for grinding area
- General assembly, Assembly, detail drawings and sectional drawings (Specially for package units)
- Overall Dimension/Outline Drawing
- Grinding package process flow diagram (PFD)
- Datasheet for all process/mechanical equipment
- Utility Consumption List
- Chemical consumption list
- Equipment List
- Process Description
- Commissioning Spare Parts list
- Two years Spare Parts List
- Recommended Capital Spare Part list
- Relevant catalogues
- Circuit diagram
- Preliminary P&ID
- Painting and packing specification
- Termination connection list (tie-in list)
- Electrical Motor and Consumer List
- Single line Diagram
- Data sheet for Motor (filled only for MV motors separately)
- Data sheet for VFD and dry transformer
- VFD Catalogue
- VFD and MV Panel Outline
- Operation and Interlocking Instruction

Notes:

1. Items requested only as "To Be Quoted Separately" are included in the scope of subject Requisition, but items requested also as "Option" may be ordered either under the same purchase order or another separate order.
2. The Bidders must submit the list of spare parts, wear parts, and consumables, which shall meet all requirements.

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9.3 Documents to be submitted by contractor (after contract)

contractor shall submit all of the required engineering documents according, but not limited to the following documents:

- Supplier Print Index and Schedule (VPIS)
- Process Description
- PFD & P&ID
- Control Philosophy
- Design Calculation book
- Data sheet for all equipment
- GA drawings and load data sheets
- Material certificate
- Supply list
- Suppliers Progress Report
- Welders' certificate
- W.P.S. (Welding Procedure Specifications)
- P.W.H.T. (Post Weld Heat Treatment)
- P.Q.R. (Welding Procedure Qualification Record)
- W.P.Q.T. (Welders Performance Qualification Testing)
- Q.C.T.M. (Quality Control and Testing Manual)
- Quality Assurance Plan (QAP) and Inspection Reports
- Test Certificates and Calibration Records
- Performance data sheet & capacity calculation
- Preparation and submitting of as built drawings
- Preparation and submitting of shop drawings
- Packing specification.
- Packing list.
- Utility requirement and consumption list (motor list, instrument list)
- General and sectional arrangement drawing
- Load drawing including of (static loads, dynamic loads, test loads, operation loads, Resonance frequency, etc.
- Assembly & Detail Drawing for Ball loading Sputnik (Sag/ball mill)
- Lubrication data sheet

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- Storage Procedure
- Specification sheet of motors
- Drawing/specification for spare parts
- Operation Manual
- Maintenance Manual
- Erection / Installation Manual
- Detailed Assembly Drawing of Equipment included in scope of work
- Pedestal Outline Drawing of Equipment included in scope of work
- 3D model of equipment included in scope of work in Inventor Software.
- Motor List
- Motor Datasheet
- Single Line Diagram
- Panel Outline Layout
- Motor Outline (GA)
- Motor Performance Curves
- Power & Control Cable List
- Electrical Part List
- Panel Electrical Wiring Diagram
- Instrument List
- Instrument Datasheet
- Instrument & Junction Box Location Layout
- Control Panel Layout
- Termination & Wiring Diagram
- Instrument Cable List
- BOM for Control System
- Control System Configuration (Network Architecture)
- I/O List & I/O Mapping
- Logic Diagram
- Cause & Effect
- Software Source (Archived Version)
- FAT Procedure
- SAT Procedure
- Certificate of Origin

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- Calibration Certificate for Instruments

Notes:

1. Supplier shall get Purchase's approval for the documents prepared by the suppliers before manufacturing process starts.
2. The documents shall be submitted in native and PDF formats.
3. The Supplier is responsible for correctness of shop drawings and purchasers will only review these drawings.

10-Inspection and test

SUPPLIER shall consider any other necessary tests and inspections for covering the Guarantee and Warranty and prepare a quality/inspection and test control plan (QCP) which will accompany the Tender Proposal. It shall include as a minimum, inspection and test activities, procedure references, acceptance criteria, documentation, and certification to be provided.

SUPPLIER shall provide a quality/ inspection and test control plan that sets out specific quality practices and activities relevant to his entire Scope of Supply and Works. It shall include as a minimum, inspection and test activities, procedure references, acceptance criteria, documentation, and certification to be provided.

SUPPLIER shall provide quality records appropriate to all inspection and test activities. The records and certificates shall be collected by the SUPPLIER and shall be stamped as approved by the Third-Party Inspector.

In addition, the following tests shall be performed by the SUPPLIER, but not limited to the following Tests:

- Material inspection & certificates (PT, UT, RT...)
- Visual inspection
- Dimensional inspection
- Welding inspection (NDT) including:
 - Visual inspection (VT)
 - Magnetic particle test (MT)
 - Liquid penetrates test (PT)
 - Ultrasonic test (UT)
 - Radiographic test (RT)
- Factory Acceptance Test (FAT) Mechanical running test

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- No-load running test
- Vibration measurement test
- Temperature rise test
- Noise level test
- Hydrostatic test
- Internal inspection as per requirement
- Stress relief report and related test (if required)
- Pre-assemble inspection & test performed at the shop
- Rust prevention and painting inspection
- Marking inspection for packing
- Final inspection prior to packing
- Packing inspection
- Cleanliness inspections
- Clearance checks
- Preparation for shipment
- Site Acceptance Test (SAT)
- Performance test
- Control and instrumentation

Notes:

1. purchaser's representatives shall have an unrestricted access to the manufacturing shop of the supplier to witness all manufacturing procedures, tests, and inspections performed on the parts and assemblies.
2. The procedures and criteria of tests and inspections applied to any part shall be proposed in the Q.C.T.M, which manufacturer shall take purchaser's approval.
3. Supplier shall provide a valid inspection and safety certificate issued by an accredited inspection body as a Third-Party Inspection (TPI). the TPI shall be approved by client prior to acting.

Inspections and tests shall be described in detail in the SUPPLIER's internal inspection and test plan, which shall satisfy all codes and authority requirements. The ITP shall be submitted for approval and be discussed during the pre-inspection meeting. The ITP shall be subjected to PURCHASER's approval prior to fabrication.

The weights of major components to be lifted during maintenance on-site must be listed.

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11-Packing and Marking

Packing and marking shall be as per Appendix 20 of the CLIENT's contract "Specification for Parking, Marking and Forwarding".

12-Guarantee

All the activities considered and mentioned in the scope of supply of the EPS Contractor shall be guaranteed for the period of 18 months after PAC or 30 months after the Last major delivery, each one being earlier. This guarantee shall fulfill and cover all the process, mechanical, electrification, Instrumentation, control, and other aspects, related to the scope of work. They shall conform to the technical requirements mentioned in this document.

General condition following as:

1. The equipment shall be subject to PERFORMANCE GUARANTEE TEST as stipulated here below during which it shall demonstrate its capability for sustained steady and continued operation while meeting the specific PERFORMANCE GUARANTEE conditions for the capacity, quality, and consumption figures as specified hereafter.
2. Supplier is obligated to complete the PERFORMANCE GUARANTEES TEST of the plant over continues period of 14 days with 88% availability. In the case of 4 hours or more interruption in above mentioned period the performance guarantee test should be carried out from the beginning. This shall be no later than one MONTH after COMMISSIONING of the PLANT.
3. Supplier shall prepare the detail procedures for PERFORMANCE GUARANTEE TEST and shall submit them to Purchaser for review, comment and approval at least six (6) months prior to commencement of the PERFORMANCE GUARANTEE TEST.
4. Supplier shall envisage adequate provisions for measurements of various parameters required for such test during the development of engineering.
5. Supplier shall warrant the instrument tolerance while client shall agree on the type of instruments and shall jointly their calibration, as to be performed by Supplier, for measurement of the parameters such as unit, capacities, and consumption.
6. Purchaser's personnel under the direction and supervision of Supplier supervisory personnel shall carry out the PERFORMANCE GUARANTEE TEST.
7. Samples for analytical will be taken and divided, using methods which represent practice.

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8. Purchaser and Supplier shall each receive one part of the samples and the third part shall be retained by Purchaser to be used for umpire purposes by independent testing laboratory in case of disputes.
9. Analysis and quality test of the sample will be done promptly throughout the PERFORMANCE TEST according to general proven and established methods jointly agreed upon.
10. Test measurements will be taken jointly by both PARTIES and in the event of any dispute relating only to the correctness, sufficiency and/or adequacy of the test and/or in the manner in which the test is conducted.
11. Both PARTIES shall confirm and sign every day, up to the fulfillment of the PERFORMANCE TEST, the complete operating records, of the previous day including analysis sheets.
12. Supplier shall have the equipment operated in accordance with its requirement for the PERFORMANCE GUARANTEE TEST and Purchaser's personnel shall work under the direct technical instruction of Supplier.
13. If the period of PERFORMANCE GUARANTEE TEST as specified above, are interrupted due to the reasons for which Supplier is not responsible, the circuit will be started again as soon as possible and when reaching the normal operating conditions, the test shall continue immediately thereafter. In these circumstances the duration of the test will be extended by the duration of such interruption and the TEST will then be deemed to have been performed continuously.
14. If such interruptions are attributable to Supplier's own PERFORMANCE, the PERFORMANCE Test either will be repeated or the test shall continue immediately thereafter and the test period will be extended by duration of interruption. The interruption period in these circumstances is limited to 4 hours.
15. The Supplier is allowed to make adjustment in the during the period of PERFORMANCE GUARANTEE TEST in order to achieve the PERFORMANCE GUARANTEE figures, Supplier shall inform the owner before making any such adjustments.
16. If PERFORMANCE GUARANTEE figures cannot be achieved by a PERFORMANCE TEST as described above, within the period of 2 months after the commissioning, and such inability is due to Supplier, then Purchaser (or his agent) is entitled to claim from Supplier the liquidated damages.
17. Up on the successful completion of the PERFORMANCE GUARANTEE TEST in accordance with the requirement of the CONTRACT, Supplier shall prepare a

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PERFORMANCE GUARANTEE TEST report, which will be signed by Supplier and submitted to Purchaser (or his agent) for APPROVAL.

18. All the activities which fall into the duty of the Supplier, mentioned in the Scope of Supply, shall be guaranteed for the period of 18 months after PAC, to conform to the technical requirements described in this document.
19. The laboratory test report is attached herein for the supplier's reference and utilization. Should the supplier deem it necessary to perform any additional or supplementary tests, such activities shall be permissible only upon prior written notification and coordination with the purchaser.

12.1 Performance guarantee figures for capacity

The vendor is required to deliver its grinding circuit to the purchaser based on the following values in terms of capacity:

- 2700 tons/hour dry basis of fresh feed (design) to SAG Mill (each phase)
- 2344 tons/hour dry basis of fresh feed (nominal) to SAG Mill (each phase)
- The overflow output of each working cyclone cluster should be 1354 tons/hour (design) on a solid basis (each phase)
- The overflow output of each working cyclone cluster should be 1174 tons/hour (nominal) on a solid basis (each phase)

Range	100-99%	99-98%	98-97%	97-96%
Liquidated damage (%)	0	3	5	7

Note: In the case of non-achievement of any of the above mentioned minimum guaranteed figures (i.e., 96%) for capacity, EPS contractor shall within the time frame determined by the client (or their agent) make good the faulty units.

12.2 Performance guarantee figures for quality

The vendor is required to deliver its grinding circuit to the purchaser based on the following values in terms of quality:

- Product (overflow of each cyclone) shall be in size of 80% passing 90 microns (P80=90 micron)

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- The solids percentage in the overflow of each cyclone should be 33%.

Range	100-99%	99-98%	98-97%	97-96%
Liquidated damage (%)	0	3	5	7

Note: In the case of non-achievement of any of the above mentioned minimum guaranteed figures (i.e., 96%) for quality, EPS contractor shall within the time frame determined by the client (or their agent) make good the faulty units.

12.3 Utility Consumption figures

The vendor is required to declare electricity consumption in MWh and water consumption in m3/h for whole package at its technical proposal.

More than over specified level at above (water & power)	0-5%	5-10%	10-20%	>20%
Liquidated damage (% of contract price)	1	2	3	Not accepted

If above mentioned figure will be more than 20%, PGT does not accept and EPS contractor shall within the time frame determined by the client (or their agent) make good the faulty units.

Note: Details of performance tests, performance guarantee figures, consumption and schedule of liquidated damage for process performance guarantee will be added to contract content.

13-Supervision

Supplier shall quote Supervisory services during Installation, Pre-Commissioning, Commissioning & Operation Procedures Supervisory services during commissioning to shall meet to performance guarantee test of the plant (Process, I&C and electrical) with the following consideration:

- Reference List with detailed scope of work
- key personnel resume
- The Time Schedule for should be submitted in the Technical Proposal.

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14-Training

Supplier shall quote training on-site for an adequate number of technicians of End-User maintenance and operation personnel (if required). Supplier shall quote the required manpower foreseen for each single-phase indicating rates and expected days required (on site plus travelling) (if required). The Supplier shall quote additional training if considered necessary explaining the reason.

15-Battery limits

For a clearer understanding of the battery limits of this inquiry refer to scope of supply.

16-Exclusions

The following are not included in the supply:

- Fire Proofing Protection (optionally to be quoted separately)
- All Electrical Power and control Cables between the Motor Control Centre (MCC) in Substation to the Main Electrical Equipment will be provided by the Purchaser.
- Civil work
- Installation

17-Installation/commissioning and maintenance manual

Relevant manuals shall be supplied for the complete packages, including main equipment, and auxiliaries. The content of manuals shall be as per applicable standards but shall include as a minimum the followings:

- Installation instructions including
- Manufacturers recommended operating and maintenance instructions for all equipment including electrical sequence of operation for all major electrical equipment, where applicable
- Disassembly and reassembly instructions
- Logic diagram and sequences for start-up, shut down, emergency shut down
- Mechanical, electrical & instrument data sheets
- As-built, outline, arrangement, and detail drawings
- List of recommended spare parts for two years operation
- Instructions for storage and preventive maintenance during storage

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- Running/ performance test at site & troubleshooting
- Shop & field training of operators
- All other related documents specified in section 9 of this requisition

18-Appendix and attachment

The files required for the technical proposal are placed in the attachments folder according to the table in Section 9-1.