

SCOPE OF WORK

Tender No.: FOSCO-RFP-28-2024

Description: SUPPLY OF PUMP (MECHANICAL GLAND) PACKINGS

1. INVITATION TO TENDER

1.1 Scope Background

This scope is for the supply of Pump (Mechanical Gland) Packings. and candidate suppliers are requested to tender as set out below.

1.2 Company Background

Foskor is one of the world's largest producers of phosphate rock (concentrate) and phosphoric acid. It is one of the world's few vertically integrated producers of phosphoric acid and is the second largest supplier to India, the world's largest consumer of phosphoric acid.

The Company owns and mines phosphate resources and beneficiates the mined material to produce a phosphate concentrate at Phalaborwa, in the Limpopo Province of South Africa. The phosphate concentrate is sold locally and transported to the Richards Bay plant on the coast of Kwa-Zulu Natal to produce phosphoric acid, sulphuric acid and granular fertilisers MAP and DAP from phosphoric acid and is the leading supplier of fertilisers to South Africa. In all about 95% of the phosphoric acid is exported and the granular sales are divided between exports and local markets. Since 1951 Foskor has supplied more than 95% of South Africa's fertiliser requirements.

2. SCOPE OF WORK

2.1 Scope – Extent of Supply/Service Required

2.1.1 General Scope Considerations:

The pump (mechanical gland) packings will adhere to all Foskor's policies, procedure, specifications, and standards. The packings supplied shall conform to the following ISO-standards:

- ISO 3069:2000 (End-suction centrifugal pumps – Dimensions of cavities for mechanical seals and for soft packing).
- ISO 21049:2004 (Pumps – Shaft sealing systems for centrifugal and rotary pumps).
- ISO 2858:1975 (End-suction centrifugal pumps (rating 16 bar) – Designation, nominal duty point and dimensions).

2.1.2 Provisions by Supplier

The following shall be provided by the supplier at zero charge to the mine (where applicable to scope):

- Site office with suitable facilities for meetings and eating unless FOSKOR responsible supervisor has agreed to share FOSKOR's green area.
- Site security.
- Change rooms provision where necessary.
- Entry and exit medicals, first aid box at place of work.
- Training of own employees.
- Supply, issue, inspect and manage PPE.
- Ensure that safety files are completed and conform to FOSKOR standard for site access.
- All related documents to be supplied to FOSKOR for safe keeping.
- Disposal of all waste as per FOSKOR waste management to a designated point.
- Work quality management.
- Fuel supply, safe storage and refuelling for LDVs, generators, welders etc.
- Scaffolding care, safe use and management.
- All necessary portable electrical tools and must be inspected and tagged by FOSKOR electrical section.
- TMM requirement to do work.
- Consumables necessary to complete work.
- Generators, electrical extensions, COC site establishment, temporary lighting, electrical panel and distribution, power for tools on site from existing FOSKOR electrical supply point.
- Supply of all relevant certificate as required.
- FOSKOR ID cards.
- All Hot work equipment and inspected before use.
- Firefighting equipment as identified in risk assessment.
- All other equipment and PPE as identified in risk assessment to complete the work safely.
- Packaging of products to prevent harmful UV damage and other damage that can be caused before installation.

2.1.3 Provisions by FOSKOR

The following shall be provided by the company at zero charge to the supplier (where applicable to scope):

- Site establishment space.
- Water and ablution facilities.
- Connection to water supply.
- Rigger if required.
- Electrical connection point (if available, electricity interruption expected).
- Necessary authorizations.
- Supply and erection of scaffold if necessary (Although it should be organized by successful bidder).
- Elevated working platform machine.
- Mobile crane (Although it should be organized by successful bidder through the relevant FOSKOR person).

2.2. Specifications

2.2.1 Product Description

All proposed and supplied pump packings shall comply with all the ISO standard listed in Section 2.1.1 to ensure control of fluid loss to the successful operation of mechanical equipment used in fluid handling. Various methods are utilized to control leakage at shafts, rods, or valve stems, and other functional parts of equipment requiring containment of liquids or gases. The packings could be Polyimide fibres (PI) which should possess excellent thermostability up to 260°C (500° F) and good resistance to chemicals. The packings should be blended with PTFE fibres in compression packings to enhance performance.

All fibre-based carbon and graphite yarns used in compression packings are to be made by a series of heat-treatments (heat stabilizations) of some type of organic or synthetic precursor. Generally, after the base carbonaceous fibres have been subjected to additional heat treatments for increased carbon content, the purity level, and the degree of crystallinity, the carbon and graphite yarns used for compression packings manufacturing should have the carbon contents ranging from roughly 63% to 99% – depending on the precursor, the method of heat-treatment, and the time-at-temperature used in the manufacturing.

Typical applications and performance traits in different braided packing compositions are:

- PTFE – Very good resistance with bases and acids and improves the friction coefficient.
- Aramide – Good mechanical resistance, outstanding dimensional stability, and good resistance at high temperatures.
- Carbon Graphite – Braided packings for high pressure and high temperature applications.

2.2.2 Product Specification

- All Foskor engineering standards shall be adhered to.
- Specified product shall be in accordance with approved OEM specification.
- No deviations from this specification and only approved brand alternatives will be considered.
- Specs, composition, and relevant technical data of packings to be supplied must support the tender submissions.
- Tolerances on dimensions, size, form, and position shall be in accordance with the requirements given in the order by reference to the descriptions of relevant items.
- Refer to descriptions on different sizes as outlined in the document marked “**Pump Packings pricing schedule_2024**” attached.

2.2.3 Alternative Approved Brand Proposals

The “**Pump Packings pricing schedule_2024**” attached indicates the current brand and type packings in use at Foskor Phalaborwa. The supplier is required to provide an alternative competitor to the brand and type of packing specified. The alternative proposed competitor product must be equivalent in performance and supply quantity. It must be emphasized that only approved brand as alternative competitors will be considered. For each line item in the BOQ, only one proposed alternative equivalent product is allowed. With each proposed alternative product, it is compulsory to submit, with the tender submission, data packs comprising of:

- Technical Data Sheet.
- Material Safety Data Sheet.
- Material Composition.
- Operating Parameters (Temp, Pressure, Velocity, PH-range etc).
- Applications.

2.3. Supply Deliverables

- Packings to be supplied in the unit of measure as priced on.
- Transport of specified packings to Foskor Mining Division, Phalaborwa, Limpopo.
- The supply and delivery will be done in accordance to the following times:
 - 08h00am – 12h30am (Mondays to Thursdays).
 - 08h00am – 11h00am (Fridays).

3. INFORMATION REQUIRED

The following additional technical information is to be submitted together with the official quotation:

- Data sheets and information as mentioned in Section 2.2.3.
- Pricing of items as specified in the pricing schedule.
- Full description of guarantee and guarantee period, where applicable for each product, to be attached to the official tender.

4. QUALITY

- The supplier must provide the necessary quality management systems and plans to ensure that the quality of his proposed products complies with the requirements of this scope of work.
- Any deviations to the agreed standard and quality of products supplied to Foskor, will follow the process of customer complaints and investigating, testing and RCA of the causes of this deviation at the account of the supplier.
- Repetitive occurrences of complaints or non-performance of product can ultimately lead to contract cancelation and penalties imposed to the supplier for damages to Foskor.

5. AFTER SALES SERVICE

- Full description of guarantee and guarantee period to be attached to the official tender.
- Full description of planned support during and after the guarantee period to be attached to the official tender.
- Technical product support and knowledge sharing to enhance the performance of the supplied product in Foskor's operating equipment and visa-versa

6. DISPOSAL OF REFUSE

The supplier shall be responsible for disposal of refuse and waste generated by his staff. Foskor's site is to be kept clean, neat, and tidy, by complying with Foskor Waste Management COP.

7. SAFETY

The appointed supplier(s) should refer to the full and updated Foskor COPs available:

- The successful supplier needs to always comply with the Mine Health and Safety act. All Foskor COP's Policies and procedures needs to be adhered to.
- All vehicles and cranes and other TMM's to be inspected before entering Foskor Premises.
- All contractors not in possession of a valid Foskor ID card have to complete the Foskor induction course and have to undergo a medical examination at the Foskor clinic for the contractor's account.
- All personnel operating mobile equipment including LDV's must have a Foskor driver's permit.
- All LDV's entering the mining red flag area and tailings dam area must have ROPS and FOPS and be authorised by the 2.13.1 to enter the respective area. Foskor approved and Specified PDS system must also be installed.
- All the required PPE and Safety Equipment are for the contractor's account.
- All contractors must ensure that:
 - His workers are issued with the correct personal protective equipment free of charge.
 - That the workers wear the PPE in accordance with the project area's requirements or as given by the contractor Supervisor.
 - Training is provided in the correct use of PPE to workers.
 - Daily inspections are done on PPE.
 - The registers will be complete at least monthly on findings on PPE. (All PPE must be kept in good condition)

8. PARAMETERS

8.1 Design Parameters

All plant and equipment will be designed to:

- Operate satisfactorily under atmospheric, ambient, and other conditions present at the site location.
- Ensure interchangeability of units and/or sub parts throughout the plant to reduce spares holding requirements – take old plant equipment into account.
- Ensure reliability and maintainability. A minimum availability of 98% is required.
- Operate without undue vibration, stresses (temperature and built in) and excessive noise.
- Comply with legal requirements in terms of the water license and DWA.

8.2 Specifications, Codes, Standards and Regulators

Latest addition of the South African National Standards in effects at the date of projects design shall establish the minimum requirements for design, materials, and construction. This should be referenced with Foskor's General Engineering specifications and requirements (Foskor SHEQ system & COPs).

No work shall be contemplated which is in breach of any Legislation in South Africa – Typically:

- Water license (04/B72K/ACGIJ/962).
- Occupational Health and Safety Act.
- South African Mine Health and Safety Acts and regulations (Act 29 of 1996).
- Explosive Acts and Regulations - South Africa.
- DWA and the National Water Act.
- Foskor COPs.
- Foskor Engineering Specifications.
- The latest revisions of the SANS standardized specifications and Foskor Specifications as applicable at the time of quotation shall apply to this contract.

The successful or appointed service provider shall comply with the following Environmental Specifications, Policies and Procedures:

- COP 41 Housekeeping and workplace organisation
- COP 49 Waste Management
- COP 51 Resource conservation, energy, and materials
- COP 70 Storage of petroleum products and other hazardous material
- National Environmental Management Act 107 of 1998 (NEMA)
- National Environmental Management Waste Act 59 of 2008 (NEMWA) as amended.
- The successful service provider shall include in his/her SAFETY FILE, and comply with, the following documents:
 - Environmental Aspect and Impact Register (Applicable to this contract).
 - Environmental Objectives and Targets (Applicable to this contract).
 - Waste Management Plan (Applicable to this contract).
 - FOSKOR Atmospheric Emissions License (Copy available on request)
 - FOSKOR Waste Management Licence (Copy available on request)
 - FOSKOR Water Use Licence (Copy available on request)

Please note – The equipment must be capable of continuous operation 24 hrs/day, 365 days/year with an operating availability of 100%.

8.3 Site Geography

The plant is located at Phalaborwa, Limpopo, South Africa.

8.4 Ambient Conditions

- Ambient temperature:
 - Summer – 35 °C average, 50 °C maximum
 - Winter – 17 °C average, 2 °C minimum
- Site Altitude – 380m.
- Prevailing wind direction – Generally South Easterly, Maximum design velocity of 40m/s (144km/h).
- Very dusty conditions.
- Average annual rainfall – 540 mm.