

## **Section E: Technical Specifications**

### **GENERAL**

1. These specifications describe the basic requirements for the Foam Concentrate Pumps. Tenderers are requested to submit with their offers the detailed specifications, drawings, catalogues, etc. for the products they intend to supply.
2. Tenderers must indicate on the specifications sheets whether the equipment offered comply with each specified requirement.
3. All the dimensions and capacities of the Foam Concentrate Pumps to be supplied shall not be less than those required in these specifications. Deviations from the basic requirements, if any, shall be explained in detail in writing with the offer, with supporting data such as calculation sheets, etc. KPC reserves the right to reject the products, if such deviations shall be found critical to the use and operation of the products.
4. The Tenderers are requested to present information along with their offers as follows:
  - i) Shortest possible delivery period of the Pump.
  - ii) Information on proper representative and/or workshop for back-up service/repair and maintenance including their names and addresses.

### **TECHNICAL SPECIFICATIONS**

#### **1.0 Specification for Foam Concentrate Pumps**

##### **1.1 General**

This specification covers the minimum technical requirements for design, manufacture, materials, testing, inspection and shipment of the Foam Concentrate Pumps.

The specifications shall be used in conjunction with data sheets herein. Any exceptions to the requirements of this specification shall be submitted in writing for resolution by Kenya Pipeline Co. Ltd.

The pump shall be delivered complete coupled to the motor

## **SPECIFICATIONS FOAM CONCENTRATE PUMPS**

### **PUMP**

<b>No</b>	<b>Description</b>	<b>Specification</b>
1	Type	Positive displacement
2	Applicable Standard	NFPA 20
3	Flow rate	160- 177 LPM
4	Differential Pressure	150PSI
5	Process Fluid	Foam Concentrate, Viscosity 20,000SSU
6	Construction	Vane or Gear type Relieve valve required Suction: 1½ inch NPT Threaded Port ANSI class 150 Discharge: 1½ inch NPT threaded Port ANSI Class 150
7	Material of Construction	Shaft: Case Hardened Stainless Steel (Bidders to Specify the grade) Rotors (Blades): Phosphor Bronze Casing: Cast Iron
8	Shaft Sealing	Specify
9	Motor	415V, 50Hz, 3 phase
10	Motor enclosure rating	Ex d Zone 2, IIB T4
11	Controls/Control Panel	Bidders to Specify

**NB: Each pump to be supplied with 1No. suction valve; 1No. discharge valve and 1No. Non-return valve all made of bronze material and with NPT threaded ends.**

#### **1.2 Codes, Standards and References**

1.2.1 The order of priority of documents shall be:

- Specification
- Data sheet
- Relevant codes and standards

#### **1.3 Environmental Conditions**

1.3.1 Ambient temperature: 0°C to +50°C

1.3.2 Humidity: 100% max

#### **1.4 Inspection and Testing**

1.4.1 Inspection and testing of Pump shall be performed in accordance with the approved Inspection and Testing Plan.

1.4.3 All steel casting seat surfaces shall be inspected by magnetic particle inspection or dye penetration inspection.

- 1.4.5 The pump shall be tested prior to shipment from the manufacturer's works. These tests shall be performed in accordance with the manufacturer's written procedures.
- 1.4.6 Kenya Pipeline Co. Ltd shall have unfettered access for inspection.

### **1.5 Equipment/Material Identification**

- 1.5.1 The Pump shall be fitted with a 316 Stainless Steel nameplate secured to the body or each item with 316 Stainless Steel fasteners, and located so that it is clearly visible after installation.
- 1.5.2 API monogram must be marked on nameplate.

### **1.6 Painting and preparation for shipment**

#### **1.6.1 Painting**

Prior to shipment, parts and equipment shall have exposed bare metallic surface protected with a rust preventative, which will not become fluid and run under site conditions.

- 1.6.1.2 Exposed sealing surface shall be protected from mechanical damage for shipping.

#### **1.6.2 Preparation for Shipment**

- 1.6.2.1 After all examination, testing, inspections and the final acceptance, the equipment shall be prepared for transportation.
- 1.6.2.2 Before shipment, the Pump shall be packed; all surfaces and threaded connections shall be protected by coating with rust preventative.
- 1.6.2.3 Flanged openings shall be protected with steel plate or wood covers attached by proper bolting or strapping and sealed with a plastic compound.
- 1.6.2.4 Screwed connections shall be protected with treaded forged steel plugs.
- 1.6.2.5 The vendor shall be responsible for loading and anchoring the Pump to prevent any damage during shipment.

### **1.7 Spare Parts and Special Tools**

- 1.7.1 Necessary spare parts for commissioning start up and operation according to vendor's recommendation shall be provided by vendor and listed in his tender.
- 1.7.2 Spare parts for two years operation, proposed by vendor and approved by Kenya Pipeline Co. Ltd, shall be separately listed, and be offered with separate price.
- 1.7.3 Necessary special tools for maintenance shall be provided by vendor and listed in his tender.

### **1.8 Submitted Documents**

The following drawings shall be provided to Kenya Pipeline Co. Ltd by vendor when the pump is supplied.

1. Instruction manual
2. Maintenance manual

3. Spares ordering list
4. Test Reports and Material Certificates
5. Others

### **1.9 Guarantee and Warranty**

- 1.9.1 The pump shall be warranted against defective materials, design, and workmanship during the service period.
- 1.9.2 If any above mal-performance or defect occur during the service period, vendor shall make all necessary alterations, repairs, and replacements without any charge and fee.

### **2.0 Control Panel**

- 2.1 The motor control panel shall be mounted locally on the motor/base frame.
- 2.2 The panel shall be provided with a local/remote selector and start/stop push buttons which shall operate under local selection. The Panel shall provide for a Run test pushbutton.

### **2.3 Performance test certificate**

Each pump must be performance tested and individual test certificates shall be supplied free of charge.