

ANNEX - A TO**BOF TENDER NO. 23.27.0000.166/167.96(5).3256105.19.20****DATED 27 AUGUST 2020****DETAILS SPECIFICATION**

Ser	Name of Item and Specification	Unit	Qty	FOB	Freight	CFR
1.	<p>Polyamide-12</p> <p><u>Specification :</u></p> <ol style="list-style-type: none"> 1. Density at 23°C = 1.01 – 1.02 g/cm 2. Apparent bulk density.= 0.50 – 0.60 g/cm 3. Maximum water absorption. Water Immersion at 23°C = 1.50%, at 20°C 65% RH as per 50015 = 0.90% 4. Water absorption = 14 mg 5. Melting range. Method B : 172-180°C 6. Vic at softening Temperature. (VST/A/50) =170°C (VST/B/50) =140°C 7. Deflection of Temperature. Under Load = Method A: 55°C, Method B : 150°C 8. Mean coefficient of linear expansion (-40°C to room temperature) $11 \times 10^{-5} K^{-1}$ 9. Thermal conductivity = 0.3. W/mk 10. Long term thermal resistance (>10h). In air 70°C, In Water 80°C, In Oil 120°C. 11. Short term thermal Resistance= 150°C 12. Tensile stress at yield = 50 N/mm² 13. Percentage of elongation at yield = 8% 14. Tensile stress at break = 55 N/mm² 15. Percentage of elongation at break = 200% 16. Comprehensive stress at 0.1% strain = 50 N/mm² 17. Modulus of elasticity = 1400 N/mm² 18. Flexural stress at 35% strain = 42 N/mm² 19. Ball indentation = 94 N/mm² 20. Hardness = (DIN Test: H358/30) 21. Shore Hardness = 73D 22. Rockwell Hardness = 110R 23. Impact strength (Untouched) (Charpy -40°C) = No break mJ/mm² 24. Impact strength (Notched) (Charpy +20°C) = 20 mJ/mm² 25. Impact strength (Notched) (Izod) = 12 J/m, 150 of notch <p>Condition: The supplier/manufacturer will provide suitability certificate to the effect that offered Polyamide-12 must be brand new (Virgin). Its shelf life will be 15 years in temperature 35°C.</p>	Kg	35,000			

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2.	Polystyrene (Polystyrol- 143E) Specification: (Determined in a standard Laboratory atmosphere of 23°C and 50+2% relative humidity unless otherwise stated) Density : 1.05 g/cm ³ Flexural Strength : 75 N/mm ² Tensile Strength : 45 N/mm ² Ultimate Elongation : 2 % Modulus of Elasticity in tension : 3100 N/mm ² Shear modulus 1100 N/mm ² Impact resistance : 11 KJ/m ² Ball indentation Harden L358/30 : 150 N/mm ² Vic at Softening Temperature ISO 75 : 84°C, Method A : 74°C, Method B : 84°C Max Permissible Service Temperature : 70°C, Thermal Co-efficient of linear expansion : 8.1 ⁻⁵ 1/K Thermal Conductivity (two plant method) : 0.17 W/K-m Di-Electric Constant (10 Hz) : 2.5 Dissipation factor Tano (10Hz) : 0.0001 Volume resistivity R : > 10 ¹⁶ Ω-cm Resistance to Tracking > 10 ¹⁴ Ω, Method A : 1, Method B : 150 Di-Electric Strength : > 90 KV/mm Water absorption < 0.1 % Metal Index (MFI 2005/5) : 9.0 g/10 min Condition: The supplier/manufacturer will provide suitability certificate to the effect that offered Polystyrene must be brand new (Virgin).	Kg	40,000			

Conditions:

- a. **Country of Origin** : **Group-A.**
- b. **Country of Manufacture** : **Group-A.**
- c. **Port of Shipment** : **Country of Manufacturer.**
- d. **Part-shipment** : **Not allowed.**
- e. **Transshipment** : **Not allowed.**
- f. **100% payment will be paid after final acceptance of the stores by BOF inspection authority.**
- g. Warranty/Guarantee and Shelf Life certificate for supply of store as per offer to be provided by the manufacturer along with the offer and store.
- h. **Tender Sample:** Tender sample 15 Kg of the both stores (Polyamide-12 & Polystyrene) should be submitted with the offer for necessary visual inspection, Chemical/Laboratory and Mechanical/Functional test.

Terms & Conditions

Supplier must mention their compliance on the following mentioned points :

1. A principal/manufacturer can submit **only one offer through one local agent** for any individual item. Offers through multiple local agents by same principle/manufacturer will be **treated as rejected**.
2. To ensure unhindered LC handling the principal must provide a certificate to confirm that their LC operating bank has RMA (Relationship Management Agreement) with the local Banks of Bangladesh
3. Supplier must **clearly mention** (in the technical offer) that as principal/manufacturer they poses necessary **export permit** from the concern ministry or any other authority of their country. They must also submit a certificate in this regards as per the attached specimen format at Annex G.

4. **Payment and PG Submission**

For Foreign Currency

- i. 100% payment will be made upon final acceptance of the Stores.
- ii. Before signing the contract, Performance Guarantee @ 10% of total LC value is to be submitted by the Principal in favour of Commandant, Bangladesh Ordnance Factories, Gazipur Cantonment, Gazipur through any scheduled Bank located in Bangladesh (As per the format at Annex E).
- iii. A separate **certificate should be provided** by the principal **originally signed** (Computerized or digitally edited signature will not be accepted) stating that they are aware of the requirement of the PG and if the contract is awarded they will be bound to provide the PG as per the format at Annex F.

For Local Currency

- i. 100% payment will be made upon final acceptance of the Stores.
- ii. 05% PS (Performance Security) as pay-order has to deposit in local currency before signing the contract.

5. The stores should be supplied to BOF at **supplier's cost**.

6. On arrival of the stores at BOF, the supplier must complete installation, commissioning, trial run & trial production within 01(one) month (from the date of entry at BOF). Otherwise, penalty will be imposed at the rate of 2% but not less than 1% and will not exceed 10% of the total CFR/LC value (As applicable).

7. If the supplier fails to deliver the stores within the stipulated period, the followings will be applicable:

- a. Cancel the contract and/or,
- b. Decision at the discretion of BOF.

8. Inspectorate is the authority in all matters pertaining to Inspection. Any verdict by the inspectors regarding rejection, acceptance, and /or deviation of machine involving price reduction will be treated as final and will not be subject to arbitration.

9. The Supplier must submit the following **attested documents** with the schedule :

- a. **Trade License**
- b. **Tin Certificate**
- c. **Up to date VAT Registration certificate.**