

ANNEX - A TO**BOF TENDER NO 23.27.0000.166/167.43(i).3256105.21.22****DATED 16 SEPTEMBER 2021****DETAILS SPECIFICATION**

Ser	Name of Item and Specification	Unit	Qty
1.	<p>High Quality Hot Rolled Round Steel Component Code: (01-2), Size: Dia 21x4000 mm Finished Condition: Hot Rolling Forged <u>Chemical Composition:</u> C = 0.47%~0.54%, Mn = 0.60%~0.90%, Si=0.17%~0.37%, Ti ≤ 0.06%, P = (Max) 0.035%, S = (Max) 0.030%, Cr = 0.05%~0.25%, Ni = 0.05%~0.25%. B = 0.0005%~0.0036%, After hardening accepted range : HB 448 above <u>Hardening Process:</u> Furnace Temperature : 840°C ~ 860°C, Time : 25 Minutes, Oil quenching Temp: 60°C, Time : 10~15 Minutes, After tempering accepted range : HB 241 ~ 285. Tempering Process : Furnace Temperature : 580°C ~ 600°C, Time : 30 Minutes, Natural air cooling. <u>Mechanical Properties:</u> Tensile Strength : 80~100 Kg/mm², Yield Point ≥ 55 Kg/mm², Shrinkage Ratio ≥40%, Extensibility ≥ 8 % (Coefficient σ10), Impact Value ≥ 5 Kg-m/cm² <u>Quenching Oil Specification:</u> bPEnergol EM-32, Density 15°C= 0.87, Kinematic Viscosity 40°C= 32, 100°C= 6.2 Flush Point, PMC = 200</p>	Kg	7000
2.	<p>Low Carbon Structural Steel Wire Component Code: (FJ01-5), Size: Dia 6x4000 mm Finished Condition: Soft <u>Chemical Composition:</u> C = 0.07~0.14%, Mn = 0.35~0.65%, Si = 0.17~0.37%, P = 0.035% (Max), S = 0.040% (Max), Cr = 0.05~0.25%, Ni = 0.05~0.25% <u>Mechanical Properties</u> Tensile Strength: 45~70 Kg/mm² Extensibility 8% Min, Shrinkage: 50% Min</p>	Kg	200
3.	<p>High Quality Cold Drawn Steel Wire Component Code: a. (00-27), b. (01-1), c. (05-4), d. (06Z-3A), Size: Dia 4.5 x4000 mm Finished Condition : Soft, <u>Chemical Composition</u> C = 0.47~0.55%, Mn = 0.5~0.80%, Si = 0.17~0.37%, P = 0.040% (Max), S = 0.040% (Max), Cr = 0.05~0.25%, Ni = 0.05~0.25% <u>Mechanical Properties</u> Tensile Strength: 65~90 Kg/mm², Extensibility: 6% Min, Shrinkage: 30% Min <u>Heat Treatment Process for Component For (00-27) & (01-1):</u> Hardening/Quenching Temp=830~860°C, Time: 18~22 Minute, Coolant: Oil, Tempering Temp=380~450°C, Time: 30 Minute, Coolant: Water, Hardness: HRC: 37~44 <u>For (05-4) & (06Z-3A):</u> Hardening/Quenching Temp=830~860°C, Time: 20~24 Minute, Coolant: Oil Tempering Temp=380~450°C, Time: 30 Minute, Coolant: Water, Hardness: HRC: 37~44</p>	Kg	500

Ser	Name of Item and Specification	Unit	Qty
4.	<p>Medium Carbon Structural Steel Wire Component Code: (06-10), Size: Dia 3.5 mm Weight of Coil/Roll \leq 50 Kg, Finished Condition: Soft <u>Chemical Composition</u> C = 0.32~0.40%, Mn = 0.5~0.8%, Si = 0.17~0.37%, P = 0.040% (Max) , S = 0.040% (Max), Cr = 0.05~0.25%, Ni = 0.05~0.25% <u>Mechanical Properties</u> Tensile Strength:60~85 Kgf/ mm², Extensibility:6.5% (Min), Shrinkage: 35% Min <u>Heat Treatment Process for Component</u> Hardening/Quenching Temp=860~890°C,Time: 18~22 Minute, Coolant: Oil, Tempering Temp=380~440°C, Time: 30 Minute, Coolant: Water, Hardness: HRC: 30~40</p>	Kg	500
5.	<p>High Quality Cold Drawn Steel Wire Component Code: (04-6A), Size: Dia 5x4000 mm Finished Condition: Cold Drawing <u>Chemical Composition</u> C = 0.24~0.34%, Mn = 0.80%~1.10%, Si = 0.17~0.37%, Cr = 1.0~1.20%, Ti = 0.04~0.10%, Mo = 0.20~0.30% <u>Mechanical Properties</u> Quenching Temperature: 870°C, Coolant: Oil, Tempering Temperature: 200°C, Coolant: -Tensile Strength \geq 155 Kgf/ mm², Yield Point \geq135 Kgf/ mm² (Coefficient σ10) Extensibility \geq 9%, Shrinkage Ratio \geq 45, Impact Value \geq6 Kg-m/cm2 <u>Heat Treatment Process for Component</u> Hardening/Quenching Temp=870~900°C, Time: 18~22 Minute, Coolant: Oil Tempering Temp=180~240°C, Time: 120 Minute, Coolant: Water, Hardness: HRC: 45~52</p>	Kg	300
6.	<p>Carbon Steel Spring Wire Component Code: a. (00-14) , b. (05-5) , Size: Dia 1.1 mm Weight of Coil/Roll \leq60 Kg, Finished Condition: Cold Drawing <u>Chemical Composition</u> C = 0.85~0.94%, Mn = 0.15~0.30%, Si = 0.15~0.30% P = 0.030% (Max), S = 0.020% (Max) <u>Mechanical Properties</u> Tensile Strength: 240-275 Kg/ mm², Torsion Time : 16 (Min), Repeated Bending Time: 9 (Min)</p>	Kg	1000
7.	<p>Carbon Steel Spring Wire Component Code: a. (06Z-2), b. (09-5) c. (10-7), Size: Dia 1.0 mm Weight of Coil/Roll \leq50 Kg, Finished Condition: Cold Drawing <u>Chemical Composition</u> C = 0.85~0.94%, Mn = 0.15~0.30%, Si = 0.15~0.30% P = 0.030% (Max), S = 0.020% (Max) <u>Mechanical Properties</u> Tensile Strength: 250-285 Kg/mm², Torsion Time : 16 (Min), Repeated Bending Time : 9 (Min)</p>	Kg	300
8.	<p>Carbon Steel Spring Wire Component Code: a. (04-4), b. (FJ01Z-12), Size: Dia 0.5 mm Finished Condition: Cold Drawing. <u>Chemical Composition</u> C = 0.85~0.94%, Mn = 0.15~0.30%, Si = 0.15~0.30%, P = 0.030% (Max), S = 0.020% (Max) <u>Mechanical Properties</u> Tensile Strength: 265-305 Kg/ mm², Torsion Time : 16 (Min),</p>	Kg	50

Ser	Name of Item and Specification	Unit	Qty
9.	<p>High Quality Hot Rolled Round Steel Component Code: (00-3), Size: Dia 24x4000 mm Finished Condition : Hot Rolling <u>Chemical Composition</u> C = 0.47~0.55%, Mn = 0.60~0.90%, Si = 0.17~0.37%, Ti ≤ 0.05%, P = 0.04% (Max), S = 0.045% (Max), Cr = 0.05~0.25%, Ni = 0.05~0.25% , B = 0.0005~0.0035%, <u>Mechanical Properties</u> Quenching Temperature: 840°C, Coolant: Oil, Tempering Temperature: 600°C, Coolant: Air, Tensile Strength 80~100 Kg/ mm², Yeild Point ≥55 Kg/ mm², Extensibility ≥ 8% (Coefficient σ10), Shrinkage Ratio ≥40, Impact Value ≥4 Kg-m/cm2 <u>Heat Treatment Process for Component :</u> Hardening/Quenching Temp=830~860°C, Time: 18~22 Minute, Coolant: Oil Tempering Temp=380~450°C, Time: 30 Minute, Coolant: Water, Hardness: HRC: 37~44</p>	Kg	2000
10.	<p>High Quality Cold Drawn Steel Wire Component Code: (00-16), Size: Dia 5.3x 4000 mm Finished Condition: Annealing <u>Chemical Composition</u> C = 0.24~0.34%, Mn = 0.80~1.10%, Si = 0.17~0.37% Cr = 1.0~1.20%, Ti = 0.04~0.10%, Mo = 0.20~0.30% <u>Mechanical Properties</u> Quenching Temperature: 870°C, Coolant: Oil, Tempering Temperature: 200°C, Coolant: - Tensile Strength ≥ 155 Kg/ mm², Yeild Point ≥135 Kg/ mm² (Coefficient σ10) Extensibility ≥9%, Shrinkage Ratio ≥ 45, Impact Value ≥ 6 Kg-m/cm2 <u>Heat Treatment Process for Component</u> Hardening/Quenching Temp=870~900°C, Time: 20~24 Minute, Coolant: Oil , Tempering Temp=180~240°C,Time: 60 Minute, Coolant: Water, Hardness: HRC: 45~50</p>	Kg	1000
11.	<p>High Quality Hot Rolled Round Steel Component Code: (04-1), Size: Dia 38x4000 mm Finished Condition : Hot Rolling <u>Chemical Composition</u> C = 0.24~0.34%, Mn =0.80%~1.10%, Si = 0.17~0.37%, Cr = 1.0~1.20%,Ti = 0.04~0.10%, Mo = 0.20~0.30% <u>Mechanical Properties</u> Quenching Temperature: 870°C, Coolant: Oil Tempering Temperature: 200°C, Coolant: -Tensile Strength ≥ 155 Kg/ mm², Yield Point ≥135 Kg/ mm² (Coefficient σ10), Extensibility ≥9%, Shrinkage Ratio ≥ 45, Impact Value ≥ 6 Kg-m/cm2 <u>Heat Treatment Process for Component</u> Hardening/Quenching Temp=870~900°C, Time: 08~10 Minute, Coolant: KNO₃ NaNO₂ Tempering Temp=180~240°C,Time: 60 Minute, Coolant: Water, Hardness: HRC: 46~52</p>	Kg	15000

Ser	Name of Item and Specification	Unit	Qty
12.	<p>High Quality Hot Rolled Round Steel Component Code: (01Z-20), Size: Dia 55x3000 mm Finished Condition: Hot Rolling <u>Chemical Composition</u> C = 0.47~0.54%, Mn = 0.60~0.90%, Si = 0.17~0.37%, Ti ≤ 0.06%, Cr = 0.05~0.25%, Ni = 0.05~0.25%, B = 0.0005~0.0036%, P = 0.035% (Max), S = 0.030% (Max), <u>Mechanical Properties</u> Quenching Temperature: 840°C, Coolant: Oil Tempering Temperature: 600°C, Coolant: Air Tensile Strength 80~100 Kg/ mm², Yield Point ≥55 Kg/ mm², Extensibility ≥8 % (Coefficient σ10), Shrinkage Ratio ≥40, Impact Value ≥5 Kg-m/cm² <u>Heat Treatment Process for Component</u> Hardening/Quenching Temp=830~860°C, Time: 05~07 Minute, Coolant: KNO₃ NaNO₂ Tempering Temp=380~450°C,Time:25~35Minute, Coolant: Water, Hardness: HRC: 37~44</p>	Kg	6000
13.	<p>Cold Rolled Steel Strip Component Code: (06Z-5), Size: 1.5x50 mm, Weight of Coil/Roll ≤ 80 Kg Finished Condition: Annealing. <u>Chemical Composition</u> C = 0.37~0.45%, Mn = 0.50~0.80%, Si = 0.17~0.37%, P = 0.040% (Max), S = 0.040% (Max), Cr = 0.05~0.25%, Ni = 0.05~0.25% <u>Mechanical Properties</u> Annealed Steel Strips Tensile Strength 45~70 Kg/ mm², Extensibility (Not less than): 15% Chilled Steel Strips: Tensile Strength:: 65~100 Kg/ mm² <u>Heat Treatment Process for Component</u> Hardening/Quenching Temp=830~860°C, Time: 05~07 Minute, Coolant: KNO₃ NaNO₂, Tempering Temp=360~420°C,Time:25~30 Minute, Coolant: Water, Hardness: HRC: 37~44</p>	Kg	3000
14.	<p>Cold Rolled Steel Strip Component Code: (02-4), Size: 1x50 mm, Weight of Coil/Roll ≤ 80 Kg Finished Condition: Annealing <u>Chemical Composition</u> C = 0.47~0.55%, Mn = 0.50~0.80%, Si = 0.17~0.37% P = 0.040% (Max), S = 0.040% (Max) Cr = 0.05~0.25%, Ni = 0.05~0.25% <u>Mechanical Properties</u> Annealed Steel Strips Tensile Strength 45~75 Kg/ mm² (Max) Extensibility (Not less than): 13% Chilled Steel Strips: Tensile Strength: 75~110 Kg/ mm² <u>Heat Treatment Process For Component</u> Hardening/Quenching Temp=830~860°C, Time: 04~06 Minute, Coolant: KNO₃ NaNO₂, Tempering Temp=380~450°C,Time: 30 Minute, Coolant: Water, Hardness: HRC: 37~44</p>	Kg	3000
15.	<p>Cold Rolled Steel Strip Component Code : (01-18), Size: 1.5x55 mm Weight of Coil/Roll ≤ 50 Kg Finished Condition: Annealed <u>Chemical Composition</u> C = 0.47~0.55%, Mn = 0.50~0.80%, Si = 0.17~0.37%, P = 0.040% (Max), S = 0.040% (Max), Cr = 0.05~0.25%, Ni = 0.05~0.25% <u>Mechanical Properties</u> Annealed Steel Strips Tensile Strength : 45~75 Kg/ mm² (Max), Extensibility (Not less than): 13% Chilled Steel Strips: Tensile Strength: 75~110 Kg/ mm² <u>Heat Treatment Process for Component</u> Hardening/Quenching Temp=830~860°C, Time: 20~24 Minute, Coolant: Oil Tempering Temp=380~450°C,Time: 30 Minute, Coolant: Water, Hardness: HRC: 37~44</p>	Kg	300

Ser	Name of Item and Specification	Unit	Qty
16.	Cold Rolled Steel Strip Component Code : (02-6), Size: 1.4x45 mm Weight of Coil/Roll ≤ 80 Kg Finished Condition: Annealing <u>Chemical Composition</u> C = 0.37~0.45%, Mn = 0.6~0.9%, Si = 0.17~0.37%, Ti ≤ 0.05%, B = 0.0005~0.0035% <u>Mechanical Properties</u> Annealed Steel Strips Tensile Strength: 45~70 Kgf/ mm ² (Max) Extensibility (Not less than) : 15% Chilled Steel Strips:Tensile Strength : 65~100 Kgf/ mm ² <u>Heat Treatment Process for Component</u> Hardening/Quenching Temp=830~860°C, Time: 16~20 Minute, Coolant: Oil Tempering Temp=360~420°C,Time: 30 Minute, Coolant: Water, Hardness: HRC: 37~44	Kg	500
Condition: a. Country of Origin : Group B. b. Country of Manufacturer : Group B. c. Name of Manufacturer : To be mentioned. d. Port of Shipment : Country of Manufacturer. e. Offer Validity : To be mentioned. f. Tender sample must be submitted 5.5 meter for round steel, 4.6 meter for steel strip and 02 kg for steel wire (Spring Wire) of each item to IA&E for necessary chemical, mechanical and functional test. The items should pass all the tests. g. All Items are treated as a package and offer to be submitted as package. h. 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. j. Pre-Shipment Inspection: i. 03 (Three) members {02 (Two) members from BOF & 01 (One) member from IA&E} for a period of 05 (Five) workings days (Excluding journey period). ii. Supplier must submit detail plan of PSI (Modus Operandi). iii. Supplier must also mention PSI cost to be borne by them at their end.			

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. 80% and 20% payment system.
 - 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, otherwise administrative action will be taken against the principal and local agent.

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 vale (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.**

ANNEX - B TO

BOF TENDER NO 23.27.0000.166/167.43(i).3256105.21.22

DATED 16 SEPTEMBER 2021

**TERMS, CONDITIONS AND SPECIAL REQUIREMENTS OF
RAW MAT FOR RIFLE BD - 08 (16 ITEMS)**

1. The stores should be as per specification, brand new, fresh, free from defects and suitable for use. Certificate should be provided to this effect by the manufacturer along with the stores.
2. Tender sample must be submitted 5.5 meter for round steel, 4.6 meter for steel strip and 02 kg for steel wire (Spring Wire) of each item to IA&E for necessary chemical, mechanical and functional test. The items should pass all the tests.
3. Before bulk supply advance sample must be submitted 5.5 meter for round steel, 4.6 meter for steel strip and 02 kg for steel wire (Spring Wire) of each item to IA&E for approval.
4. Year of manufacture of the items should be of contracted year i.e. current year. Certificate should be provided to this effect by the manufacturer.
5. Lab test (Chemical Composition, Mechanical Properties) results of the items must be attached with the supplied items by the supplier from manufacturer.
6. The stores should be supplied from maximum 02 (two) lots.
7. Shelf life of the stores should be minimum 10 years during storage condition.
8. All certificates and letter of authorization should be original and in English language.
9. The Inspectorate of Armament and Explosive (IA&E) will issue final inspection report within 01 (One) month after receipt of stores at consignee's end provided the visual inspection, chemical, mechanical and functional tests are satisfactory and the case of clarification/replacement of item (if any) is settled as per visual inspection report is completed within the time 01 (One) month. Part inspection note will not be issued.
10. **Warranty/Guarantee Certificate** : The supplied items should be brand new, complete of good materials and workmanship throughout. In the event of any shortage, defects/damages being found and if the items do not function properly, the items should be replaced by the supplier at their own cost within 06 (Six) months of the case arises. The warranty period of the stores will be 12 (Twelve) months from the date of issue of final acceptance.
11. **Packing & Marking** :
 - a. As per standard packing procedure of the manufacturer, considering that the package should have suitable means for holding by hands and should be easy to handle during storage and transportation.
 - b. Packing materials to be such that it will not be affected by damp, insect or any other harmful material during storage. The manufacturer should give a certificate to this effect while submitting the offer and stores.
 - c. The stores are to be securely packed with sea worthy packing and clearly marked for safe transit by air/sea/road/rail. The packing and marking will be done by the supplier in such a manner that the store will not be affected by sea water, rain water, damp weather during transportation.

- d. Following marking to be stenciled on front side of the package:
 - i. Consignee: Commandant, BOF, Gazipur Cantonment, Bangladesh.
 - ii. Contract no and date.
- e. Store label should be attached with each item in a transparent polyethylene bag.
- f. Packing list should be in English language (If the items are procured from abroad).

12. **Pre-Shipment Inspection (PSI) (if applicable).**

- a. Pre-shipment Inspection (PSI) will be carried out jointly by BOF and Inspectorate of Armaments & Explosive (IA&E) at the discretion of BOF authority. The team may be comprised of 03 (Three) members {02 (Two) members from BOF & 01 (One) member from IA&E} for a period of 05 (Five) working days excluding journey period. The cost incurred by BOF PSI members will be borne by BOF and cost of IA&E PSI members will be borne by Bangladesh Army. Supplier's should inform about the date of Pre-shipment Inspection (PSI) at least 12 (Twelve) weeks to 15 (Fifteen) weeks (In respect of time required for obtaining visa of respective country) prior to the commencement of the said inspection. The Pre-shipment inspection criteria for the items concerned will be forwarded on receipt of inspection schedule from the supplier. After inspection a joint inspection report will be prepared and signed by both parties (Buyer's and seller's representatives). PSI report will be vetted by both the vetting committee of BOF and IA&E.
- b. The Pre-shipment Inspection (PSI) will be carried out at manufacturer's factory/plant. Pre-shipment Inspection (PSI) should include visual inspection/checking of physical, dimension, laboratory/chemical/mechanical/functional test (if applicable). The team will visit the production line of same type of materials. All the equipment required for PSI team will be provided by the supplier.
- c. All necessary facilities of consumable and non-consumable items, tools, gauges, instruments, man power etc. needed for inspection and any other item required for operational test/inspection during PSI are to be arranged by the supplier without any extra cost. Arrangement for disassembly, weighting, measuring and testing of components if required by the Pre-shipment Inspection team to be done by the supplier's without any extra cost. All types of movement/transportation (air/sea/road/rail) of the team within the manufacturer's/suppliers country reception and arrangement for entry in to the country/concerned area for the Pre-shipment Inspection also to be arranged by the supplier's without any extra cost.
- d. If any Pre-shipment inspection is not carried out by the purchaser then the report of "Quality Assurance Department" of manufacturer will be considered as Pre-shipment inspection report. This report should be provided along with the shipping documents.
- e. If any deficiency/discrepancy found during any stage of vetting or after vetting of PSI report, then deficiency/discrepancy items will be filled up or rectified by the supplier and will forward completion certificate to BOF. Then shipment clearance may be given by BOF. After necessary rectification Re-PSI may be held as per decision of purchaser. In that case supplier will bear all the cost of that Re-PSI including Daily Allowance (DA) of the PSI team members.
- f. Interpreter detailed by supplier for the Pre-shipment inspection team should be competent enough to interpret the technical term (as applicable).
- g. Provide necessary secretarial support (typing and printing facilities) to the pre-shipment inspection (PSI) team.

13. **Post-Shipment Inspection:** The stores on being received at the consignee's end will be inspected by Inspectorate of Armaments & Explosive (IA&E) or authorize representative. The inspection team will carry out visual inspection of 100% of the stores, chemical/laboratory test and functional test. During inspection any article found to be contrary and not in accordance with the contract will be proceed as per clause 10 above. At the time of inspection the supplier or his local representative and representative of consignee shall remain present. IA&E will issue final inspection report after received of stores at consignee's end provided the visual inspection, chemical/laboratory test and functional test are satisfactory and the case of clarification/replacement of stores (if any) is settled.
14. **Authority Holding Sealed Particulars:** Inspectorate of Armaments & Explosive, Gazipur Cantonment.
15. **Inspecting officer:** Chief Inspector, Inspectorate of Armaments & Explosive or his authorized representative.
16. **Part-shipment** : Part shipment is not allowed.
17. **Transshipment** : Transshipment is not allowed.
18. **Country of origin**: Group B.