

CURRENCY NOTE PRESS : NASHIK ROAD

(A Unit of Security Printing and Minting Corporation of India Limited)

Wholly owned by Government of India

Nashik Road - 422 101 (Maharashtra)

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EOI NO:3/2022-23

Date:15.06.2022

1. Name of the organization: Currency Note Press (A Unit of Security Printing and Minting Corporation of India Limited)
2. Type of the organization: Wholly owned by Government of India
3. Reference No:EOI NO 3/2022-23
4. EOI Title:Supply, Installation, Testing and Commissioning of Automatic Assembly Line for Packing of Currency in Wooden Block Boards with Conveyer and Transportation of Packed Wooden Boxes through Automatic Guided Vehicles along with Vertical Storage/Retrieval System (ASRS) and Automatic Truck Loading System.
5. Category:Automation
6. Document Fee: Nil
7. Mode of Publication:National Competitive Bidding
8. Date of Announcement: 15.06.2022
9. Last Date of Submission: 15.07.2022

Brief Intent of Requirement:

Currency Note Press (CNP), Nashik Road, a unit of Security Printing & Minting Corporation of India Limited (SPMCIL) is engaged in printing of currency/bank notes as per requirement of Reserve Bank of India for Government of India.

CNP intends to develop a system for automatic packing of finished product and transportation of bundle tray and packed wooden boxes through automatic guided vehicles at dispatch area. The system should be capable for automatically loading the finished product into the wooden box sequentially and after completely arrangement of finished product in the box system should capture the details and mention the brief on the box i.e. Denomination, Prefix no., Date & Time etc. Further, the box has to be nailed and strapped. After completion of process, boxes shall be unloaded on a trolley or pallet for internal movement. After receipt of packed wooden boxes, the same shall be stored at vertical storage system with auto retrieval system. Further, stored boxes shall be taken out and load into the truck for dispatch through automatic loading system. This system shall save the manpower, increase efficiency, avoid human intervention, enhance security and capture the data to our SAP.

Description of the complete system:

Currency Note Press, Nashik Road is engaged in manufacturing of currency/bank notes. For this purpose, printed sheets are fed into the Bank Note Finishing Machine for processing and sheets are cut into the note size, collected, shrink wrapped and packed in the form of bundles. Further, they are loaded on trolley and sent for final packing section.

Now, CNP intends to make a complete automatic assembly line to pack these bundles directly into the boxes. Afterwards, details like denomination, prefix no., date & time etc. shall be printed on these boxes. The complete box shall be nailed and strapped. After completion of process, the box shall be unloaded on a trolley or pallet for internal movement.

The tentative process flow is described as follows:

1. 100 shrink wrap bundles will be serially arranged in one tray at the output of Banknote Finishing System (BFS), Single Note Inspection Machine (SNIM).
2. Each bundle's image shall be captured and pasted on the bundle having details like denomination, prefix, qty., production date & time etc.
3. After arranging 100 shrink wrap bundles in the tray and subsequently, similarly 10 trays, this material shall be moved to the packing area by AGV(s) or better process.
4. At final packing section, a system shall be made to carry empty boxes till packing area with a suitable packing bag inside the box. So that the same bag can be sealed before putting the lid of the boxes. The packing bag should be suitable to protect packed material from dust/water etc.

5. These bundles shall be sorted and packed into boxes in two layers through Robotic/Cobotic system. As these boxes are filled with bundles then information gathered through bundles needs to be printed on the boxes.
6. Further the box lids to be put on the box and through automatic nailing machines these boxes are to be packed.
7. Afterwards, these boxes are sent to automatic strapping system for both sides and final box will be unloaded on a trolley through Robotics/Cobotics.
8. The trolley will take 10 boxes or 5 boxes at a time and sent to dispatch section for auto storing through AGV. AGV shall be capable to view 360 Degree and have anti-collision system GPS based navigation.
9. Weight of each box is 120 to 125 Kilograms and size is 710 x 620 x 330 mm. The storage system shall be designed for storing of 1200 Pallets (each pallet consisting of 5 boxes) or 600 Pallets (each pallets consisting of 10 boxes).
10. At dispatch section, suitable laser/inkjet printing facility should be available for printing dispatch details on wooden boxes. Further, at dispatch section, these trolleys/pallets are stored and as per the requirement basis, they will be taken out for final dispatch.
11. Further, an automatic system shall load these boxes on the truck for dispatch.

Technical Brief about the Project

The major systems present in this Automatic Assembly Line for Packing of Currency Bundles in Wooden Box, Transporting of Currency Packed Tray & Wooden Boxes through AGV and Automatic Truck Loading System are as follows:

a. Robotic/ Cobotic System:

The operator will load the product on the machines for final packing. The bundles coming out of the machine will be picked up by the robotic arm and place inside the trays. These trays are then loaded on a pallet using another palletization robot.

The machine throughputs may be considered as follows:

BFS Machine: Approx. Speed 450 Bundles/Hour per machine

BPS Machine: Approx. Speed 150 Bundles/Hour per machine

The trays are fed manually using the conveyor.

b. Automatic Guided Vehicle (AGV)/ Autonomous Mobile Robot (AMR)

The filled trays will be either kept on standby for inspection area or it will be delivered directly to the final packing in the wooden boxes. The inspection area is required to rectify the lot whenever there is wrong cut or some other machine related issues persist. Further the AGV/AMRs will pick up the pallets from the pickup point and deliver it to the delivery station of the final packing line.

c. Horizontal Roller Conveyor

The AGV/AMRs will deliver the tray in the tray delivery area. The Robotic arms will pick up the trays and load it on the conveyors.

d. BOX ARRANGING & PACKING SYSTEM

The Robotic/Cobotic arms will pick up the trays and then another Robotic/Cobotic arms will pick the bundle from tray and place it in the box. The plastic liner in the filled box will then be sealed using robot and the lid will be placed on the box.

e. Automatic Nailing Machine

After placing lid on the box, automatic nailing of the box will be done from top & it's all four sides.

f. Strapping Machine

Strapping machine is one of the packaging equipment which can strap goods with strapping. Auto strap positioning and retry feeding functions, to ensure it straps on the proper position in every cycle. Boxes coming from the nailing machine shall be strapped from both the side through strapping machine.

g. Auto-palletizing station

At auto-palletizing station there will be palletizing platforms, where empty pallets will be placed by the AGVs. The gantry robots will segregate & place the boxes on the individual pallets until 10 boxes are placed in correct format. On completion of one pallet loading, it will send a signal to the AGV to carry the loaded pallets to the storage system.

h. Automated Storage and Retrieval System

The basic aim is to design an Automatic Storage and Retrieval System (ASRS) so that large amount of inventory of Currency packed in wooden Boxes can be stored, thus resulting in optimum utilization of space and other resources.

Basic function of ASRS system includes:

- I. After receiving a pallet from a processing station, it is automatically stored at a predetermined location in the ASRS.
- II. Retrieval of required pallet from a storage location automatically.
- III. Transferring the above item to a specific processing or station.

The capacity of the ASRS System:

- I. Storage Capacity: 600 No of pallets (consisting of 10 boxes on each pallet)
- II. No. of pallet per carrier: Min 4 No.

Note: Maximum Clearance Height available for ASRS in this section is 4.5mts

i. TRUCK LOADING SYSTEM

The material will be delivered from the Block-IV ASRS after printing of dispatch details on the wooden boxes. These pallets will then be called out of the system during the dispatch. The pallets will be delivered to the truck loading station.

The EOI submitted by the firm should cover the following:

- a. Detailed technical specifications in details of the proposed facility/system.
- b. Layout and dimensions of the proposed equipment's /system.
- c. Process flow chart.
- d. Detailed project report.
- e. Customers list and Purchase Order copies of the customers to whom similar kind of equipment/ system have been supplied in the past with details of the equipment/ system and their addresses along with phone, fax and email addresses and performance report from them.
- f. Time required for successful installation and commissioning of the equipment.
- g. The participating firm must also note requirement of warranty for 3 years and after completion of warranty, CAMC for seven year.
- h. The participating firm must also note requirement of after sales service for 7 years after successful completion of warranty period.
- i. Budgetary offer for the proposed system must broadly include taxes/duties FOR Currency Note Press, Nashik basis.

10. Important Instructions to Bidders for submission of the documents:

- a. The interested & experienced bidder should also be required to submit along with Expression of Interest, a list of customers to whom they have supplied such equipment/ systems with details and performance report from their clients.
- b. The participating bidder shall have carried out the similar project in last 7 years ending March 2022. The firm shall provide Purchase Order copies of the customers to whom such equipment/ system have been supplied in the past 7 years with details of the equipment/ system and their addresses along with phone, fax and email addresses and performance report from them.
- c. The Participating bidder should give a declaration that they have not been blacklisted or debarred for dealing by Government of India or any Government in the past.
- d. The documents in support of Expression of Interest need to be submitted duly signed by the authorized representative of the applicant with name and designation of the signatory.
- e. The documents in support of Expression of Interest (viz. Supply order details/ Installation Certificates/ Addresses of customers and their contact numbers) need to be submitted duly signed by authorized representative of the applicant.
- f. The principal bidder will have to directly participate in this EOI. Participation of any authorized firm by any principal bidder will not be considered.

11. For the purpose of evaluation of EOI offers, each interested participant will have to submit the following details:
 - a. Project Experience of similar projects in last Seven Years ending 31.03.2022
 - 3 Nos of min Rs. 10 Cr. in value OR
 - 2 Nos of min Rs 12.5 Cr. in value OR
 - 1 No of min Rs 20 Cr. in value
 - b. Confirmation of adherence to the Description & Technical Brief given by CNP, Nashik in this EOI.

12. Procurement Process:

Following are the details of this procurement process:

- i. At first, the Expression of Interest is being floated for above mentioned instrument.
 - ii. The firms intending to participate in the EOI have to present a detailed presentation at CNP, Nashik regarding their offers of equipment/system and the cost for such visits shall be borne by firms only.
 - iii. After evaluation of the responses received, a Tender will be floated incorporating all the terms and conditions, specification as per buyer's requirement. An Open tender will be floated for active participation of bidders.
13. The Bid shall be submitted in English Language only. The Authenticated copies of the documents in support or applicant's claim may be submitted in English Language.
 14. The bidders will be required to give a presentation of the offered equipment/system by them on mutually agreed date after submission of the offer and factory visit may be arranged, if required.
 15. The bidder / applicant should submit the detailed brochures / leaflets / specification of the system offered.
 16. The audited balance sheet and Profit & Loss Account statement for last three financial years ending 31.03.2021 are to be submitted along with the proposal i.e. for 2018-19, 2019-20 & 2020-21. The bidder should not be in loss for more than one year and net worth should not be eroded by more than 30% in last three financial years ending 31.03.2021.
 17. Each interested participant will have to submit relevant Quality Accreditations and a Brief of how After Sales Support and Product Support will be provided.

18. The dully filled details along with supporting documents should be sent in a sealed envelope super scribing "Expression of Interest for Supply, Installation, Testing and Commissioning of Automatic Guided Vehicles used for Transportation of Material along with Automatic Vertical Storage/Retrieval System. The same may be submitted in person or through courier/ registered post/ speed post so as to reach the following address on or before the prescribed date and time.

The Chief General Manager,
Currency Note Press,
Jail Road,Nashik Road-422 101
Maharashtra, India
Phone No. +91 253 2454493, Fax No: +91 253 2464100
Email: purchase.cnpnashik@spmcil.com

Last date and time for receipt of Expression of Interest: 15.07.2022 - 14:30 Hours

Date and time of opening of Expression of Interest on: 15.07.2022 - 15:00 Hours

Place of opening of Expression of Interest: Currency Note Press, Jail Road, Nashik Road 422 101, Maharashtra, India

(V. KIRAN KUMAR)
JT. GENERAL MANAGER (MATERIAL)
FOR CHIEF GENERAL MANAGER

STORES

AUTOMATIC TRUCK LOADING SYSTEM

700 Mtrs

SEASONING SECTION

GANGWAY

FG STORAGE (BLOCK VI)

AUTOMATIC PACKING
BLOCK V

FINISHING 04 NOS. BFS & 03 NOS. SNIM
BLOCK IV

NUMBER SHEET

GANGWAY (LINK DOOR)

VIEWER GALLERY

SIMULTON M/C'S 04 NOS.
BLOCK I

INTAGLIO M/C'S 04 NOS.
BLOCK II

NUMBERING M/C'S 05 NOS. & 01
NO. SIMULTON M/C FOR LOWER
DENO.
BLOCK III

GANGWAY

GANGWAY

GANGWAY

49 mtrs.

67 mtrs.

32.90 mtrs.

