

MATERIAL CODE
EL8119010060



1800-01
Rev. 00

PURCHASE SPECIFICATION FOR AUTOMATED VERTICAL STORAGE SYSTEM

ISSUE NO : 06

DOC.NO:

BHEL:SPV:PH2:002

REV : 01

JUN 2019

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PURPOSE: To Store and retrieve selective items required for SPV modules manufacturing facility.
SCOPE: Supply installation & commissioning of the vertical storage and retrieval system as per the following specifications. :

Slno	Parameters	Requirement of BHEL
1	Description of Operation	Automated Vertical Modular Storage System having static trays with mobile extractor system, on lean lift type of operation. The system shall have series of trays positioned at both front & rear columns. A retriever unit, controlled by an on-board controller, shall identify the required tray and position the same at the access window for loading and unloading of components. The operation and movement of trays shall be safe, jerk free by deploying precision guiding system for the movement of trays on linear mode.
2	Broad supply scope	Design, manufacture, supply and E&C of complete AVSRS units as per specification given.
3	Qty	8 nos
4	Component Storage & Retrieval	Shall also be accessible by location number with 6 digits numeric or alphanumeric coding. While loading and retrieving; only the desired tray shall move and be made available at the access window. Trays shall be placed on rubber or plastic loads to avoid vibrations. The driving system for the extractor movements has to be provided with suitable drive mechanism which ensures stability & balance. Indicative component dimension: 375 x 375 x 1050 mm, unit weight of component- 56 kg. The components as per details are given above and required to be loaded for a minimum of 216 nos per AVRS at full capacity
5	Model No	Bidders to specify
6	Load Capacity of the system	Min 25000 Kg / System
7	Suitability under operating conditions	System should work satisfactorily under following operating & environmental conditions: 1. Power supply: Voltage 415 V $\pm 10\%$ 2. Frequency: 50 Hz $\pm 2\%$ Ambient conditions: 1. Temperature: 20 to 45 degree Centigrade 2. Relative humidity : Max 80% Elevation of Bangalore: 920 m from mean sea level

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1 st Issue	SPV PROD GROUP				22.7.19

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8	I. UNIT DIMENSIONS	
a)	Unit depth	Bidders to Indicate
b)	Unit width	Bidders to Indicate
c)	Unit height	8750 Max
d)	Working height of operator	800- 900 mm
e)	Kind of installation	working floor
f)	No of access points	For material retrieval - 1 (one)
g)	Front manual door	Not required
h)	colour scheme powder coated	RAL 7035-Light grey
9	II.SHELF / TRAY DETAILS	
a)	No of shelves	Bidders to indicate
b)	Clear inner depth	Min 850 mm
c)	Clear inner width	Min 3200 mm(1050x3=3150+50 mm)
d)	Weight of empty shelf	Bidder to indicate
e)	Payload for shelf min.	450 kg
f)	Distance between shelf	Bidders to indicate
g)	Surface area per shelf for storage	Bidders to indicate
h)	Total surface area in AVSRS for storage	Bidders to indicate
i)	Total Storage Volume	Bidders to indicate
j)	Material of construction	Galvanized Steel
k)	Tray Pitch	25mm or Less

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By

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Checked By

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Date

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10	III. OPERATION	
a)	Max Access time	40 sec
b)	Maximum goods height	375 mm
c)	Total unit capacity	Bidders to indicate
d)	Power supply required	3/ PH/415VAC/ 50Hz
e)	Total connected electrical load	Bidders to specify
f)	Operator panel type	TFT color display with touch screen
g)	Operator panel fixing on arm	Swiveling, fixed on the right hand side
h)	Speed-Vertical,	Bidders to specify
i)	Speed-Horizontal,	Bidders to specify
j)	Vertical motor drive	Bidders to specify
k)	Retrieval motor	Bidders to specify
l)	Safety switches	Safety switch in front of the lift, at front and maintenance door
m)	Tray Retrieval	a) Automatic tray extraction b) Manual tray extraction Where the entire tray shall be delivered outside the unit for easy handling with external material handling system in both the above cases. c) a) & b) shall be quoted as optional but price will be considered for deciding the successful bidder

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11	IV. OTHER FEATURES	
a)	Photo curtain at access point	LED safety light curtain in the access
b)	Illumination at access point Tube	Dazzle free light in the access
c)	Motor protection	Motor protection relays
d)	Limit switch at door	Limit switch at door
e)	Single phase preventer	Single phase preventer
f)	Power supply	Through Switch mode power supply (SMPS)
g)	Battery back-up for PLC	Battery back-up for PLC
h)	Access service door	Manual access service door with safety switch.
i)	Inner Door	Automatic
j)	Access door	with 2 sets
k)	Display Language	Display in English
l)	Function keys	Alphanumerical function keys
m)	Communication Port	Port for PC, Printer, barcode
n)	ERP enabled	Connectivity with SAP Module - SAP MM - Software and Compatibility should be provided along with reputed make PC for each unit
o)	Improvised picking method	Compartment identification system for better picking using Laser pointer
p)	Customization	Customization of trays / partition

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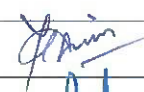
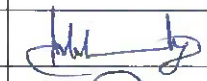
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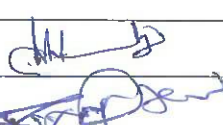
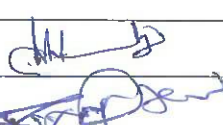
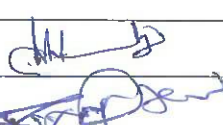
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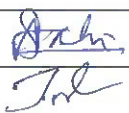
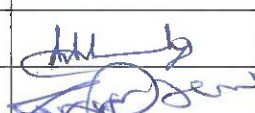
13	VI. MAKE OF COMPONENTS	
a)	Control	Microprocessor control / PLC
b)	PLC Make	Mitsubishi / Siemens / Allen Bradley / Schneider/Omron/ Honeywell / Any Reputed Make
c)	Drive	Nord / SEW / Any Reputed Make
d)	Gear box unit	SEW / Leroy somer or Equivalent
e)	Bearings	FAG / TNT /SKF /TIMKEN or Equivalent
f)	Chain / Belt	Rollax / Reputed make
g)	Roller material	Nylon and or PU
h)	Electrical & Electronic components	Schneider / Siemens / Any branded make.
i)	Sensors	Cognex, Keyence, Omron or Any reputed make
j)	Relay	Schneider/Siemens or Any reputed make
k)	Safety Light curtain	CEDES Safe, Sick, Omron, P & F or Any reputed make
l)	VFD	Nord, ABB, Danfoss, Siemens, Yaskawa or Equivalent

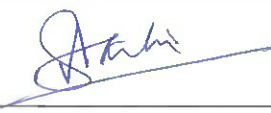
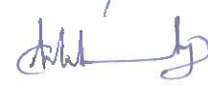
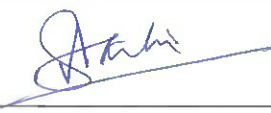
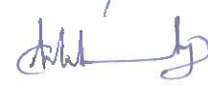
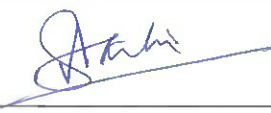
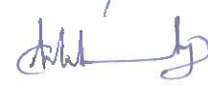
Note : Any other make suggested by prospective vendors shall need approval of BHEL

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		04	Offer shall be for new equipment and not For any refurbished or used equipment	YES / NO (Declaration to this effect to be given)																			
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COPY RIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in anyway detrimental to the interest of the company.	SI no	BHEL Standard Terms & Conditions (Pre-Qualification Criteria)				Documents to be submitted by vendor / Remarks		
	05	The vendor shall be in a position to provide service and spare support for the installation in India .The vendor/India representative should stock critical spares required for the system in their warehouse in India and should be able to attend to service calls in one day time						
	06	The vendor or their authorized service representatives should have trained Engineers in India for commissioning and service for the offered equipment. A declaration to the above effect to be furnished.				YES / NO		
	07	The vendor shall be in a position to undertake AMC for the equipment with BHEL after the expiry of the warranty /guarantee period either directly or through a service representative. The vendor should have minimum 5 running AMC contracts during the last two years in India. Necessary documentary proof to be furnished.				Accepted / Not accepted		
	08	The vendor shall arrange for a demonstration of their machine or a similar system operating in India, if required by BHEL.				Accepted / Not accepted		
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