



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

MATERIALS MANAGEMENT / CAPITAL EQUIPMENT

ENQUIRY

Phone: +91 431 257 79 38
Fax : +91 431 252 07 19
Email : tvenkat@bheltry.co.in
Web : www.bhel.com

	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
	2620800089	03.09.2008	06.10.2008

You are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order

Item	Description	Quantity	Delivery (Item required at BHEL on)
10	Crane for Storage and Handling of Actuators – 2 Ton Capacity as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	01 No.	31.07.2009

BHEL commercial terms & conditions with Price Bid and Bank Guarantee formats can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference “2620800089”.

Tenders should reach us before 14:00 hours on the due date
Tenders will be opened at 14:30 hours on the due date
Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present

Yours faithfully,
For BHARAT HEAVY ELECTRICALS LIMITED

Manager / MM / Capital Equipment

PART A**STACKER CRANE FOR HANDLING ACTUATORS – 2 TON CAPACITY****SECTION – I : QUALIFYING CRITERIA**

The BIDDER has to compulsorily meet the following requirements to get qualified for considering the technical offer for the STACKER CRANE FOR HANDLING ACTUATORS

S. No.	REQUIREMENTS	Vendor's Response
1	<p>Only those vendors (OEMs), who have supplied and commissioned at least one stacker crane of 2 ton capacity or more, with integrated controls for an ASRS system in the past ten years and such crane should be working satisfactorily for a minimum period of one year after commissioning, as on the date of opening of this Tender are eligible to quote.</p> <p><i>(However, if such machine is already supplied to BHEL, then that machine should be working satisfactorily for a minimum period of six months after commissioning, as on the date of opening of this Tender.)</i></p>	
The vendor should submit the following information where similar stacker crane for ASRS has been supplied, for qualification of this offer.		
1.1	Name and postal address of the customer or company where similar stacker crane is installed.	
1.2	Name and designation of the contact person of the customer.	
1.3	Phone, FAX no and email address of the contact person of the customer.	
1.4	Month and Year of commissioning of the stacker crane.	
1.5	Pay-load capacity of stacker crane supplied.	
1.6	Along with the Technical offer, the Vendor should submit one Performance certificate from the customer for the satisfactory performance of the stacker crane supplied to them. For obtaining the Performance certificate, a suggestive format is provided in SECTION – IV .	
2.0	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.	

SECTION – II

The BIDDER / VENDOR is requested to provide the following information:

S. No.	REQUIREMENTS	Vendor's Response
3.0	The BIDDER/VENDOR to furnish Reference List of Customers, with full address, details of contact person, where STACKER CRANES for ASRS have been supplied in the past.	
4.0	Details of STACKER CRANES for ASRS supplied to other BHEL units, if any. (Year of commissioning, payload).	
5.0	Details on SERVICE-AFTER-SALES Set-Up in India including the Address of Agents / Service Centers in South India.	
6.0	Any Additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

SECTION – III

The BIDDER to note:

S. No.	PARTICULARS	Vendor's Response
7.0	The BIDDER / VENDOR shall submit the offer in TWO PARTS. 1. Technical Offer [with PART A & PART B] and Commercial offer. 2. Price Bid.	
8.0	The Technical Offer shall contain a comparative statement of Technical Specifications demanded by BHEL and Offer Details submitted by the Bidder , against each clause. A just 'CONFIRMED' or 'COMPLIED' or 'YES' or 'NO-DEVIATION' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer.	
9.0	The Technical Offer shall be supported by product Catalogues & Data Sheets and also technical details of Bought-Out-Items with copies of Product Catalogue to the extent possible.	
10.0	The Commercial Offer (given with the Technical Offer) shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation.	

SECTION – IV

The performance certificate should be produced **on Customer's Letter Head.**

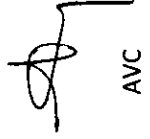
PERFORMANCE CERTIFICATE

1. Supplier of the Stacker Crane for ASRS		
2. Make & Model of the stacker crane		
3. Month & Year of Commissioning		
4. Application for which crane is used		
5	a) Payload capacity b) Type of controller used	
6. Performance of the Equipment (Tick whichever is applicable)		Best in the market
		Satisfactory
		Good
		Average
		Not Satisfactory
7. Any Other remarks		
<div style="text-align: right;"> Signature & Seal of the Authority Issuing the Performance Certificate </div> <div>Date:</div>		

PART B : TECHNICAL SPECIFICATION FOR CRANE FOR STORAGE AND HANDLING OF ACTUATORS - 2 TON CAPACITY

The actuator stores at BHEL, Tiruchy is equipped with an aisle having storage racks with bins on either side of the aisle. The rack dimensions are about 19 M (L) X 12 M (H) X 1.05 M (W). There are 176 storage locations (88 locations per storage rack X 2 storage racks).

An automated stacker crane of 2 Ton capacity, complete with software and hardware, is required to service the existing storage locations.


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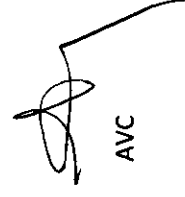
Clause No.	PARTICULARS & BHEL SPECIFICATION	BIDDER'S OFFER With Technical Details
1.0	<p>One No. 2 Ton automated stacker crane with complete software and hardware is required to service the existing storage racks which are on either side of an aisle of about 1.6 M wide.</p> <p>Rack arrangement : The arrangement of the racks is indicated in annexures 1 & 2.</p> <p>Existing storage bins : Two sizes of storage bins shall be used Dimensions of the existing storage bins for use on the racks is indicated in annexure 3.</p> <p>Pick-up & delivery Trolley: The pick-up and delivery shall be from a trolley (to be supplied by BHEL) which will be positioned in the front side of the storage racks within a distance of 3 Meters from the front end of the storage racks. The trolley dimensions are included in Annexure - 4</p> <p>The system should include PC based software to program the crane for storage and retrieval of the bins and inventory control.</p>	
2.0	Construction of stacker crane - Double column	Vendor to confirm
2.1	Lifting Capacity - 2 Tons	Vendor to confirm
2.2	Move on bottom guide of square bar (square bar - vendor's scope)	Vendor to confirm
2.3	Guided on top by I section channel (Vendor's scope)	Vendor to confirm
2.4	Between the two columns a car containing a single platform fork with its drive arrangement and an operator's cabin shall be provided	Vendor to confirm
2.5	The fork shall be telescopic twin fork arrangement extendable on either side of the platform to stack and retrieve the bins on either side of the aisle. The fork travel speed shall be around 7 M/min.	Vendor to specify



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Clause No.	PARTICULARS & BHEL SPECIFICATION	BIDDER'S OFFER With Technical Details
2.6	The hoist shall be rope drum type with geared drive and fail safe braking system with rotary limit switch. Details of the hoist offered shall be furnished with the offer.	Vendor to confirm & furnish details
2.7	Wire rope hoist with 2 wire ropes	Vendor to confirm
2.8	The hoist shall have provision to lift & lower in fast and slow speed modes. The fast speed mode to be used to move to locations and the slow speed mode to be used for positioning. The fast speed shall be around 6 M / Min. The slow travel speed shall be around 1.5 M / Min.	Vendor to confirm & specify
2.9	The long travel shall have the provision to move in fast and slow speeds to move and position respectively. The fast speed shall be around 72 M / Min. The slow travel speed shall be around 3 M / Min.	Vendor to confirm & specify
2.10	Simultaneous long and hoisting motion should be possible.	Vendor to confirm
2.11	Operator's cabin to be provided to manually control the crane operations	Vendor to confirm
2.12	The stacker crane must be controlled from a PC and through PLC for automatic operations.	Vendor to confirm
2.13	A warehouse management software, for inventory control, with compatibility to SAP. The stored pieces (actuators) will be identified by an alpha-numeric material code. Vendor to furnish details of the software and the features.	Vendor to specify

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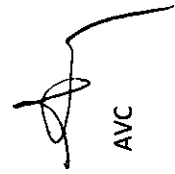
Clause No.	PARTICULARS & BHEL SPECIFICATION		BIDDER'S OFFER With Technical Details
2.14	All sensors, required for automatic / manual operations shall be included in the offer. Type and make of sensors to be specified.	Vendor to confirm & specify	
2.15	The hoist shall have a double grooved drum with two wire-ropes. One wire rope to be connected to the front of the car and the other to the rear of the car. Each wire rope should be capable of holding the cabin and pay-load individually. Wire rope diameter to be specified. Factor of safety considered to be specified.	Vendor to confirm & specify	
2.16	The Hoist motor power shall be min. 7.5 KW, 40% duty cycle. Vendor to furnish the make. Model no. and motor rating.	Vendor to specify	
2.17	The Long travel motor power shall be min. 5 KW, 40% duty cycle. Vendor to furnish the make. Model no. and motor rating.	Vendor to specify	
2.18	Vendor to furnish the make, model and rating of the motor used for fork movement.	Vendor to specify	
2.19	All gears of gear boxes shall be ground gears	Vendor to confirm	
2.20	Spring loaded buffers at the end of long travel and under operator's cabin shall be provided	Vendor to confirm	
3.0	Operation		
3.1	The pick-up and delivery shall be from a rail-trolley. The rail-trolley will be in BHEL scope. The rail-trolley shall be parked in the front end of the storage racks within a distance of 3 meters.	Vendor to confirm	
3.2	Storage and retrieval shall be possible by location ID of the bin on the storage racks as also by means of the alpha numeric material code.	Vendor to confirm	



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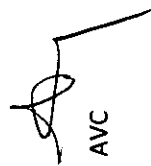
Clause No.	PARTICULARS & BHEL SPECIFICATION		BIDDER'S OFFER With Technical Details
3.3	The software shall enable storage of data like bin location, material code, weight, quantity. It should be possible to interface with the SAP software in BHEL to account for issues / receipts and update stock.	Vendor to confirm	
3.4	Manual control from the operator's cabin on the crane should be possible.	Vendor to confirm	
3.5	The operator should have a provision to choose to operate on an automatic mode or manual mode	Vendor to confirm	
4.0	Speed controls : VVVF drives for all motors	Vendor to confirm	
5.0	CONTROLLER		
5.1	PLC based stacker crane controller and PC based System controller	Vendor to confirm	
5.2	GUI based screens to be used for controller interface with operators.	Vendor to confirm	
5.3	Vendor to furnish details of the make and model of controller explaining the features offered	Vendor to furnish	
6.0	SERVO VOLTAGE STABILISER		
6.1	A Servo voltage stabiliser, suitable for the total load of the system shall be supplied. The make of the stabiliser shall be NEEL / DELTA / AEI / POWER AID	Vendor to confirm & specify	
7.0	AMBIENT CONDITIONS & THERMAL STABILITY:		
7.1	Power Supply : AC 415 V $\pm 10\%$ Frequency : 50 Hz $\pm 3\text{HZ}$ Phases : 3 phase 4 wire system Compressed air supply: 60-70 psi Ambient Temperature: max 45 °C Relative Humidity = 85% (Vendor to confirm that crane and it's accessories are suitable for above conditions)	Vendor to confirm	



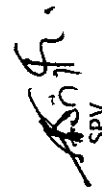
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Clause No.	PARTICULARS & BHEL SPECIFICATION		BIDDER'S OFFER With Technical Details
7.2	The Vendor should confirm that the stacker crane and its accessories are suitable for continuous operation at its full capacity for 24 hours a day and 7 days a week through out.	Vendor to confirm	
8.0	ELECTRICAL SYSTEM		
8.1	415V $\pm 10\%$, 50HZ ± 3 HZ, 3 Phase AC (4 wire system with neutral) Power Supply Source will be provided by BHEL at a single point near the equipment, as per layout recommended by Vendor. All types of cables, connections, circuit breakers etc. required for connecting BHEL's power supply point to different parts of the equipment/control cabinets, shall be the responsibility of vendor. Requirement of grounding/ earthing with required material details is to be informed by vendor well in advance so that it could be incorporated during construction of foundation.	Vendor to confirm	
8.2	Tropicalisation: All electrical / electronic equipment shall be tropicalized	Vendor to confirm	
8.3	All electrical & electronic control cabinets & panels should be dust and vermin proof and shall have IP 54 protection.	Vendor to confirm	
8.4	All electrical components in the cabinets should be mounted on DIN Rail	Vendor to confirm	
8.5	All electrical and electronic panels including operator's panel should be provided with fluorescent lamps for sufficient illumination and power receptacles of 220Volts, 5/15 Amp AC. All adapters/receptacles should have compatibility with Indian equivalents.	Vendor to confirm	
8.6	Motors shall conform to IEC or Indian Standards	Vendor to confirm	
8.7	The control power supply shall be 110 V AC. The necessary step down from the BHEL supply of 415 V will be in vendor's scope.	Vendor to confirm	
8.8	Vendor should ensure proper earthing for the equipment and its peripherals.	Vendor to confirm	



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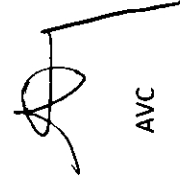
Clause No.	PARTICULARS & BHEL SPECIFICATION	BIDDER'S OFFER With Technical Details
9.0	SAFETY :	
9.1	<p>The safety features must include the following :</p> <p>Should not allow over travel in all axes.</p> <p>Should not allow over load</p> <p>Should limit high speed and low speed travel</p> <p>Should check for fork centring during pick-up and placement</p> <p>Should sense bin presence on fork</p> <p>Should sense bin presence in rack locations</p> <p>Should sense and trip in case of loose wire or in case of rope failure.</p> <p>All motors should be provided with MCBs and OLRs.</p> <p>Fail safe breaks for all motors</p> <p>Should not permit over-hoisting and over-lowering.</p> <p>Over speed governor to actuate emergency breaking system if hoisting rope fails.</p> <p>Should be provided with anti-fall system</p> <p>Warning beacon to be provided to indicate crane in operation.</p> <p>The vendor may recommend and specify additional safety features that may be required for the safe operation of the system. The vendor to elaborate the safety features provided.</p>	Vendor to confirm & specify
10.0	Environmental performance of the crane system : The noise level shall not exceed 85 dB at a distance of 1M from the crane.	Vendor to confirm
11.0	Inspection at supplier's works : The vendor shall offer the complete quantum of materials, bought-out items, spares, along with one set of O&M documentation for inspection by BHEL, prior to despatch.	Vendor to confirm



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Clause No.	PARTICULARS & BHEL SPECIFICATION		BIDDER'S OFFER With Technical Details
12.0	Training at BHEL		
12.1	After commissioning the vendor shall train BHEL personnel, at BHEL, in the operation and control of the crane, for a period of six days.	Vendor to confirm	
13.0	Foundation		
13.1	Vendor shall submit the preliminary layout drawing for getting BHEL's approval within one month from the date of Letter of Intent (LOI). Vendor shall submit complete foundation details within three months after getting BHEL's approval. The layout should consist of all requirements pertaining to complete equipment including space requirement for Voltage Stabilizer & any other accessories. BHEL shall construct complete foundation for the equipment.	Vendor to confirm	
13.2	Complete anchoring system including anchoring materials, fixators, levelling shoes etc shall be supplied for the equipment.	Vendor to confirm	
14.0	SPARES :		
14.1	The Vendor shall recommend and submit list of spares required for the machine for two years of trouble free operation on three shifts /day basis. Un-priced list of spares with quantities should be submitted with this technical offer.	Vendor to furnish	
	Unit Price of each item shall be submitted in a sealed cover with the price bid.		



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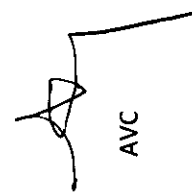
Clause No.	PARTICULARS & BHEL SPECIFICATION		BIDDER'S OFFER With Technical Details
15.0	ERECTION & COMMISSIONING		
15.1	<p>1. Supplier to take full responsibility for erection, start up, testing of equipment, it's control system & all types of other supplied equipment.</p> <p>2. Service requirement like power, air & water shall be provided by BHEL at only one point to be indicated by supplier in their foundation/layout drawings.</p> <p>3. Crane shall be provided by BHEL.</p>	Vendor to confirm	
15.2	Tools, Tackles, instruments and other necessary equipment required to carry out all above activities should be brought by the supplier.	Vendor to confirm	
15.3	The supplier shall arrange commissioning spares required for commissioning of the machine.	Vendor to confirm	
15.4	Schedule of Erection and Commissioning shall be submitted with the offer.	Vendor to furnish	
15.5	<p>Duration, terms & conditions for E&C should be furnished with the technical offer in detail.</p> <p>Charges for Erection & Commissioning shall be submitted with the price bid.</p>	Vendor to furnish	



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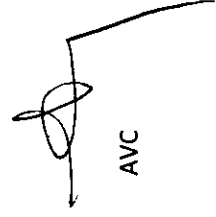


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Clause No.	PARTICULARS & BHEL SPECIFICATION		BIDDER'S OFFER With Technical Details
16.0	EQUIPMENT ACCEPTANCE at BHEL		
16.1	Full load test to demonstrate the maximum pay load handling capacity of the equipment.	Vendor to confirm	
16.2	Demonstration of all features of the equipment, software, control system to the satisfaction of BHEL for their efficient and effective use.	Vendor to confirm	
17.0	DOCUMENTATION : 3 sets of following documents (3 Hard copies) in English language should be supplied along with the machine		
17.1	Operating manuals of equipment	Vendor to confirm	
17.2	Programming Manuals of the equipment	Vendor to confirm	
17.3	Detailed Maintenance manual of equipment with all drawings of assemblies/sub-assemblies/parts including Electrical circuit diagrams.	Vendor to confirm	
17.4	Catalogues / O&M Manuals of all bought out items.	Vendor to confirm	
17.5	Operating Manuals, Maintenance Manuals & Catalogues for voltage stabilizer.	Vendor to confirm	
17.6	PLC program printouts (Ladder diagram & Statement list) with comments in English.	Vendor to confirm	
17.7	PLC program on CD & PLC data on CD.	Vendor to confirm	
18.0	PACKAGING		
18.1	Sea worthy & rigid packing for all items of complete equipment, all Accessories and other supplied items to avoid any damage/loss in transit. When equipment is dispatched in containers, all small loose items shall be suitably packed in boxes	Vendor to confirm	
19.0	GUARANTEE: The equipment with all its subsystems shall be guaranteed for a period of 24 months from the date of acceptance at BHEL.	Vendor to confirm	

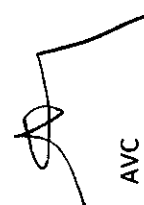

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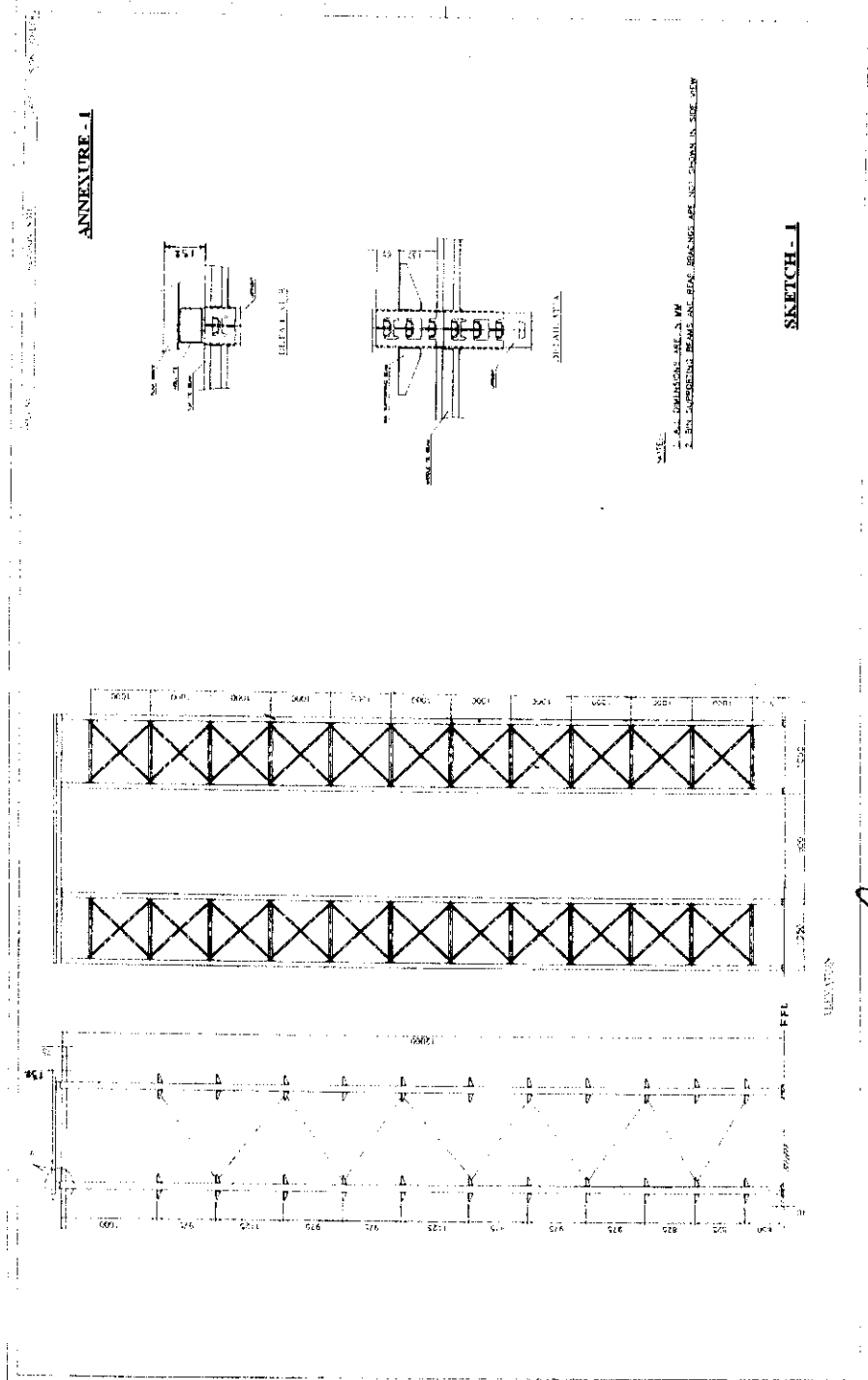

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Clause No.	PARTICULARS & BHEL SPECIFICATION		BIDDER'S OFFER With Technical Details
20.0	General		
20.1	Vendor to indicate Total connected load (KVA):	Vendor to specify	
20.2	Painting of Machine/ Electrical Panels: RAL 6011 Apple Green (Polyurethane Paint)	Vendor to Confirm	


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