



BHARAT HEAVY ELECTRICALS LIMITED
(A Govt. of India Undertaking)
Boiler Auxiliaries Plant
Ranipet - 632406, INDIA

TECHNICAL SPECIFICATION : STRETCH FORMING MACHINE ALONG WITH DIE & FIXTURES				Remarks
	Ref: BAP:CAPEX:4.2 Rev 02			
Sl. No.		Essential	Desirable	Vendor's confirmation / comments
A	Pre-Qualification Requirement			Vendor to confirm
1	The Bidder must be an OEM,manufacturing the above machines of quoted capacity or higher OR Bidder must be an Authorized representative of OEM in which case the OEM shall furnish the orginial authorization letter/deed containing the name, contact address, complete postal address, email id of the authorized representative and the validity period of the agreement	Y		
2	Only those bidders(OEMs) who have supplied &commissioned at least two similar machines in the past 10 years of same or higher sizes for Aerospace industries and capable of achieving desired forming accuracies as specified in Part B shall quote.The machine referred shall be installed in countries other than from where the machine tool was manufactured (<i>Except for Indian Manufacturers having manufacturing facilities available in India</i>).References cited from countries within the war zone shall not be considered.	Y		
3	If such machines has/had been supplied, then machine should be presently working satisfactorily for more than two years after commissioning and acceptance (on the date of tender opening) shall quote.	Y		
4	As required above, the following information is to be submitted by the Bidders. This is required from all the Bidders for Qualification of their offer, failing which offers are liable for rejection.	Y		
5	1 Name of the customer/ company where similar machine is installed.	Y		
	2. Complete postal address of the customer.	Y		
	3, Month & Year of commissioning.	Y		
	4 Parameters of machines supplied & application for which the machine is supplied	Y		
	5. Name and designation of the contact person of the customer.	Y		
	6. Phone, fax no. and email address of the contact person of the customer.	Y		
	7. Performance certificate from the customer/s regarding satisfactory performance of machine.	Y		
6	Bidder shall submit a copy of accuracy & geometrical test report/certificate of a machine having similar specifications supplied by them recently.	Y		

7	If the bidder is from a foreign country, bidder shall have dedicated service center/service partner in India. The service centre shall have been functioning during last 2 years and shall have proven track record of servicing. They shall have trained & experienced service personnel to provide service support. Please give complete details with documentary evidence	Y		
8	The offered machine shall be a standard or similar to a proven model available in the manufacturer's product range.	Y		
9	Bidder should submit filled in form as per Annexure F	Y		
10	BHEL reserves the right to verify the information provided by the bidder for all the clauses mentioned above. In case if there is any suppression of facts or the information provided by the bidder is found to be false/incorrect, the offers shall be summarily rejected.	Y		
11	All the information are to furnished in English only	Y		
12	BHEL reserves the right to accept/reject the bids if any of the above details are not submitted.	Y		
13	Bidder should have average annual financial turnover of minimum INR 15 crore or equivalent amount in the last three financial years ending 31.03.2019 and should submit their audited balance sheet and profit and loss account in support of the same			
B	Technical Specification			
1	Purpose			
	For performing stretch forming operation on sheets made of Aluminum Alloy.	Y		
2	Machine Description			
a	Machine structure should be inherently rigid, fully stress relieved and accurately machined to provide maximum stiffness and rigidity.	Y		
b	Machine should have either moving/fixed die.			Vendor to specify
c	Machine should consist of two straight jawlines, closed loop control axes, capable of performing horizontal as well as vertical stretching.	Y		
d	Vendor should offer curveable jawlines.	Y		
e	Each Gripper jaw Block should be connected to suitable number of horizontal cylinders (minimum 4nos) to meet the horizontal stretching force (minimum 7500KN per jawline) for stretching the sheet beyond its yield point. Vendor to specify the numbers and arrangement of horizontal Cylinders.	Y		

f	Machine should have vertical stroke to meet the vertical stretching Force requirement {minimum 15000 KN) The vertical Stroke should be provided either by Vertical cylinder (minimum 4 no's) connected to each jaw block or through hydraulically actuated movable die holder / spacers.	Y		
g	Vendor should specify the numbers and arrangement of vertical cylinders for vertical stroke			Vendor to specify
h	Machine should have closed loop management for individually controlling all horizontal & vertical cylinders.	Y		
i	Cylinders should be able to pre stretch the sheet, maintain it beyond yield point and wrap around the forming tool through their combined action.	Y		
j	Hard copy explaining the technical features/ literature with photographs, drawings explaining the technical features should be enclosed with the offer.	Y		
k	Additionally video and images on DVD or latest storage device would be preferred.		Y	
3	Stretch Forming Material Data			
a	Length of Sheet Max. 4000mm	Y		Vendor to specify
b	Width of Sheet Max. 2300 mm	Y		Vendor to specify
c	Thickness of sheet = 4 -10mm.	Y		Vendor to specify
d	Vendor to specify maximum and minimum capacity of facility for stretch forming i.e Max thickness, length, and width and Minimum length, width and thickness	Y		Vendor to specify
e	Vendor to specify the additional special items if required to grip the sheet of lower thickness. The same should be supplied along with the machine	Y		Vendor to specify
f	Vendor to provide simulation report of stretching sheet size as specified in Annexure 2 ensuring minimum 7% cold work through out. For 1550 mm radius profile simulation report with thickness 3.6mm and 5.1mm and given sheet size in Annexure 2. For 2500 mm radius profile simulation report with thickness 7.5 and 4.4 mm and given sheet size in Annexure 2.	Y		Vendor to provide
4	Capacity			
a	Horizontal Force per Jawline 7500KN or more	Y		Vendor to specify
b	Vertical Force: 15000KN or more	Y		Vendor to specify
c	Stroke for Horizontal Stretching per side >1000mm	Y		Vendor to specify
d	Stroke for Vertical Stretching >1200mm	Y		Vendor to specify
e	The offered stroke length should be sufficient for the stretching requirement of specified sheet dimensions, (as per Annexure-2)	Y		Vendor to specify
5	Accuracy			
a	Accuracy (measured on the Cylinders) <= +/-1.2 mm	Y		Vendor to specify
b	Repeatability (measured on cylinders) <= +/-0.3mm	Y		Vendor to specify

6	Jaw Dimensions			
a	Jaw line length each side 2300 mm or more	Y		Vendor to specify
b	Max distance between jaw lines (Sufficient for stretching of sheet of specified dimension in Annexure 2)	Y		Vendor to specify
c	Minimum spacing between jaw line 50 mm	Y		vendor to confirm
d	Jaw opening 50 mm or more	Y		Vendor to specify
e	No. of Jaws per jaw line and dimensions of each jaw	Y		Vendor to specify
f	The machine shall have all linear movements a minimum of 100 mm more than the required level for the given components.	Y		Vendor to confirm
g	The machine shall have all angular movements minimum of 5 deg. More than the required level for the given components.	Y		vendor to confirm
7	Gripping force			
a	Gripping force should be enough to hold the job to form as per Annexure 2 considering the below inclinations	Y		Vendor to specify
b	Horizontal Inclination of Jaw on each side of Horizontal center plane of the machine : suitable for the given product in annexure 2	Y		Vendor to specify
c	Vertical inclination of Jaw in horizontal plane around vertical traverse axis: suitable for the given product in annexure 2	Y		Vendor to specify
8	Tool Die Holder / Spacer			
a	Vendor shall supply the drawing of Dies required for manufacturing of the components given in Annexure 2, for prove out and subsequent manufacturing of these components.	Y		vendor to specify
b	The Die drawing shall have all the details required for manufacturing of die in India by BHEL. Complete details (Drawing/sketch) of tool holding / fixing arrangements including the dimensions of pitch of T-slots, holes etc. should be provided	Y		vendor to specify
c	Vendor has to inspect the die before accepting the BHEL made Die.No extra cost is admissible for above.	Y		vendor to specify
d	Prove out of components should be done with these dies as per Point 23 (Prove out of BHEL components) of this tech spec. Responsibility of proveout lies fully with vendor.	Y		Vendor to confirm
e	A suitable mechanism preferably T-slot should be provided on the upper face of tool holder/ spacer to firmly hold the forming tools in place.	Y		vendor to specify

9	Hydraulic System			
a	Detail description of hydraulic unit and its associated equipment like pressure accumulators, tanks, pump, and valves must be provided.	Y		vendor to specify
b	Details of electric motors and its type should be provided. Availability of sales and servicing facilities in India should be available.	Y		vendor to specify
c	Tanks of suitable capacity and number with visual indicator, low level switch, safety switches, air filters should be provided. Facility for Failure indication shall also be provided.	Y		vendor to specify
d	A suitable heat exchanger system or any other advance system shall be fitted in the machine to ensure normal working of hydraulic system to suit Ranipet, Tamil Nadu, India conditions.	Y		vendor to specify
e	Pumps, Valves, Switches (Pressure & flow) should be of Make - Rexroth / Vickers / Parker / Hawe or of any other reputed make with Sale / Service facilities available in India.	Y		vendor to specify
f	Sufficient no. of filters (with electric clogging indicator and alarm on Human Machine Interface) should be used to avoid frequent clogging of the filters and other maintenance related problems. Filter elements should be of Make: EPE / HYDAC/ PUROLATOR/MANN or of any other reputed make with sales & service facilities in India.	Y		vendor to specify
g	Automatic shut off provision should be provided. Necessary electrical and Hydraulic systems shall be shut off in order to prevent any damage to machine and parts(job)	Y		Vendor to detail
h	First filling of all required Oils & Grease etc to be supplied by vendor. Specifications of oils/greases are also to be provided by the vendor.	Y		
10	Control System			
a	Machine should be equipped with HMI / PLC based Controlled System to provide permanent, positive and timed control of forming motion should be provided. Details of HMI / PLC controller should be provided	Y		vendor to specify
b	It should include closed axis control loop system for individually controlling the cylinders stroke	Y		vendor to specify
c	It Should have yield point detection during pre-stretching.	Y		vendor to specify
d	Should have Graphic Analysis Software	Y		vendor to specify
e	A Computer based system of latest configuration, 17" or above TFT color Screen, Standard Key board, Mouse, SSD (Min 240 GB), USB Ports, Ethernet. Operating System with license, Graphic User interface, Graphic Analysis software, PLC Software etc. and any other software required for operation and interaction with machine control system shall be offered	Y		vendor to specify
11	Fault Diagnostic System			
	An Alarm system with probable cause of fault to be displayed on the operator's screen in English. PLC ladder diagram should also be visible on the operator's screen. Help guide should be provided	Y		vendor to specify

12	Operator's Control Panel			
a	Two remote push button boxes are to be provided each hanging at one end of the jaw block for machine operation.	Y		vendor to specify
b	Operator Panel to have switches/ push buttons for manual ON/ OFF System, Hydraulics/Coolant, Feed/ Air Compressor/ pump and emergency stop.	Y		vendor to specify
c	Control panel should have mode selector switch to select Manual Mode, Teaching Mode, and Production mode. Manual Mode will perform setting position and actuation of all machine's function.	Y		vendor to specify
d	Teaching Mode will teach machine the jaw paths / movements by using buttons and joysticks located in control panel, stores part program in control system after validation of cycle.	Y		vendor to specify
e	Production mode will actuate all machine's component required for stretch forming operation.	Y		vendor to specify
f	Details of operator panel features, selector switches, push buttons, graphical display, Alarm message display, pilot light and its operation must be provided in the technical bid.	Y		vendor to specify
13	Pneumatic System			
a	Machine should suit the operating Air Pressure at BHEL Ranipet: 5-6 Bar	Y		vendor to confirm
b	Any parts of machine requiring pneumatic operation should be specified with complete details in the technical offer.	Y		vendor to specify
14	Lubricating System			
	Machine should be equipped with lubrication system with low pressure alarm, and low level lubrication alarm.	Y		vendor to specify
15	Panel Air Conditioner			
	Panel Air Conditioner with Dehumidifiers of suitable/ sufficient capacity and proper drainage pipes for condensate, are to be provided for all Electrical/ Electronic Panels/ Cabinets considering specified ambient conditions. The Air Conditioners are not to be mounted on top of the panels.	Y		vendor to confirm
16	Electrical System.			
a	415V with fluctuation $\pm 10\%$, 50HZ ± 3 , 3 Phase 3 wire AC .Power Supply Source will be provided by BHEL at a single point near the machine, as per layout recommended by Vendor. All 3 phase motors shall operate in 415 $\pm 10\%$ Volts, 50Hz ± 3 only.	Y		vendor to confirm
b	Line Filters, Block Reactor and Surge Arrester of suitable capacity at incoming supply of machine to be provided for control of supply and prevention of spikes in the line.	Y		vendor to specify
c	Electrical wired up panel to confirm to IP65 / IP55 / IP54 norms or its equivalent.	Y		vendor to specify
d	MCCB of suitable capacity to provided at the incoming of electrical wired up Panel.	Y		vendor to confirm
e	Tropicalisation : All electrical/ electronic equipment shall be tropicalized.	Y		vendor to confirm

f	All electrical & electronic control cabinets & panels should be dust and vermin proof.	Y		vendor to confirm
g	All electrical components in the cabinets should be mounted on DIN Rail	Y		vendor to confirm
h	All electrical and electronic panels including operator's panel should have provision of sufficient illumination and power receptacles of 230Volts. 5/15 Amp AC. All adapters/ receptacles should have compatibility with Indian equivalents.	Y		vendor to confirm
i	Vendor should ensure the proper earthing for the machine and its peripherals.	Y		vendor to confirm
17	Machine Lights			
	Machine Lights (preferably LED) for sufficient illumination wherever required, should be provided for clear visibility.	Y		vendor to confirm
18	Ambient Condition and Thermal Stability			
a	Vendor should specify the ambient operating condition of machine to maintain the desired accuracies.	Y		vendor to specify
b	Vendor should preferably specify necessary arrangement to be made to run the machine at BHEL Ranipet environment condition. Ambient Operating Conditions: Temperature 15 to 50 degree Celsius, Relative Humidity up to 95%.	Y		vendor to specify
c	Weather conditions are tropical. Atmosphere may be dust laden during some part of the year. Machine shall be kept in the normal shop floor condition. Max. Temperature variation is up to 20 deg Celsius in 24 hours.	Y		vendor to confirm
19	Safety Arrangement			
	Following safely features in addition to other standard safety Features should be provided on the machine:			
a	Machine should have adequate and reliable safety interlocks / devices to avoid damage to the machine, work piece and the operator due to the malfunctioning or mistakes. Machine functions should be continuously monitored through alarm / warning indications through lights/ alarm number. Suitable safety guards for roatating parts should be provided.	Y		vendor to specify
b	Machine should be equipped with all alarms / indications/ preset detector & protection devices from overheating of electrical motors, excessive power surge, high & low temperature of Hydraulic fluid, shortage of hydraulic fluid, high/ low pressure In hydraulic system, clogging of Filters etc.	Y		vendor to specify
c	All the pipes, cables etc. on the machine should be well supported and protected.	Y		vendor to specify
d	Emergency switches at suitable locations as per International norms are to be provided.	Y		vendor to specify
e	Limit switches are fitted to avoid any untimely override of machine stroke.	Y		vendor to confirm
f	Oil & water pipe lines should not run with electrical cable in the same tray / trench.	Y		vendor to confirm
20	Environmental Performance of Machine			
	The machine shall conform to following factory Environment:			
a	Maximum noise level shall be 85 dB(A) at normal load condition	Y		vendor to confirm
b	No hazardous chemicals shall be used in the machine.	Y		vendor to confirm
c	If any safety / environmental protection enclosure is required it should be built In the machine by the vendor.	Y		vendor to confirm
21	Foundation			

a	Vendor shall submit the preliminary layout drawing along with the offer. Vendor to submit Complete Foundation Design including details viz. static / dynamic load details etc. and Final Layout drawings shall be submitted by the supplier within one month after PO/LOI for BHEL approval. BHEL will approve the drawing within three weeks time from date of submission/clarification. BHEL shall construct complete foundation for the machine under supervision of supplier and at supplier's responsibility.	Y		vendor to confirm
b	The Layout should consist of all requirements pertaining to complete machine and all accessories.	Y		vendor to confirm
c	BHEL shall construct complete foundation for the machine as per the drawings/ design submitted by the vendor. Vendor shall be responsible for soundness of design. The vendor shall also indicate detailed specifications of grouting compound and grouting procedure etc. for grouting of foundation bolts of the machine. Isolation details such as separator space, isolation material also to be indicated.	Y		vendor to confirm
d	Complete anchoring system including foundation bolts, anchoring materials, fixators, leveling shoes etc shall be supplied by the Vendor.	Y		vendor to confirm
e	The tentative safe bearing capacity of soil at BHEL , Ranipet is 50 KN/m ² .			
f	After finalization of contract, vendor will reconfirm the soil condition from BHEL, Ranipet	Y		vendor to confirm
22	Pre - Dispatch Inspection (PDI)			
a	Pre Dispatch inspection of the machine shall be carried out by BHEL representatives at Vendors site.	Y		vendor to confirm
a.1	Vendor to demonstrate stretching of Al alloy plane sheets preferably AA2219 and ensure minimum 7% cold work.	Y		vendor to confirm
a.2	Vendor to demonstrate two profiles of Al alloy using dies available with them .	Y		vendor to confirm
a.3	Raw material for above a.1 and a.2 to be arranged by vendor.	Y		vendor to confirm
b	A PDI format will be prepared by the vendor and submitted within two months after placement of order.	Y		vendor to confirm
c	The PDI format will be evaluated, modified if required & approved by BHEL.	Y		vendor to confirm
d	The PDI format will be filled and signed by BHEL'S representatives during PDI.	Y		vendor to confirm
e	Vendor to submit internal test reports before offering PDI	Y		vendor to confirm
f	Representative will check machine capabilities / function , accuracies as per agreed PDI format in coordination with Vendor during PDI	Y		vendor to confirm
g	Despatch of the machine will be made only after successful completion of PDI.	Y		vendor to confirm
23	Erection and Commissioning			
a	Machine shall be transported in disassembled condition in Shipper owned container(<i>Container will become BHEL property after unloading of consignment at BHEL works</i>) and erected & commissioned at BHEL site by the bidder on turnkey basis. Arrangements of Unloading and storage of same at BHEL work will only be under BHEL scope. However Vendor is suggested to depute their representative during unloading at BHEL works.	Y		vendor to confirm
b	Vendor representative at BHEL during Erection & Commissioning should be well verse in communicating in English directly or through a translator.	Y		vendor to confirm

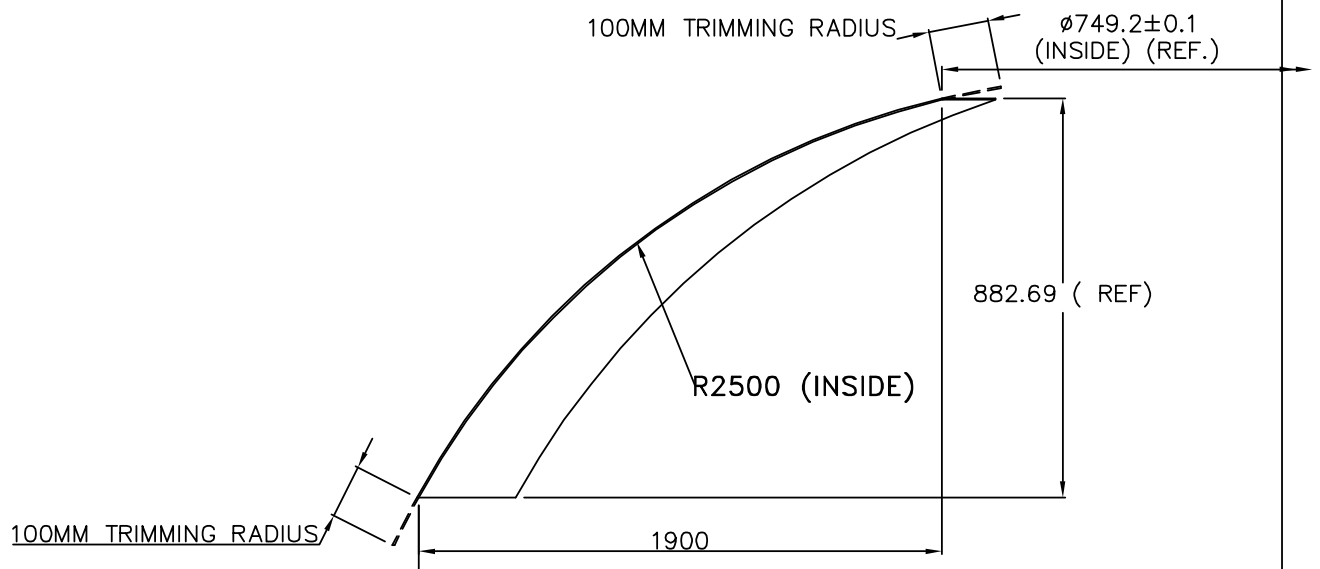
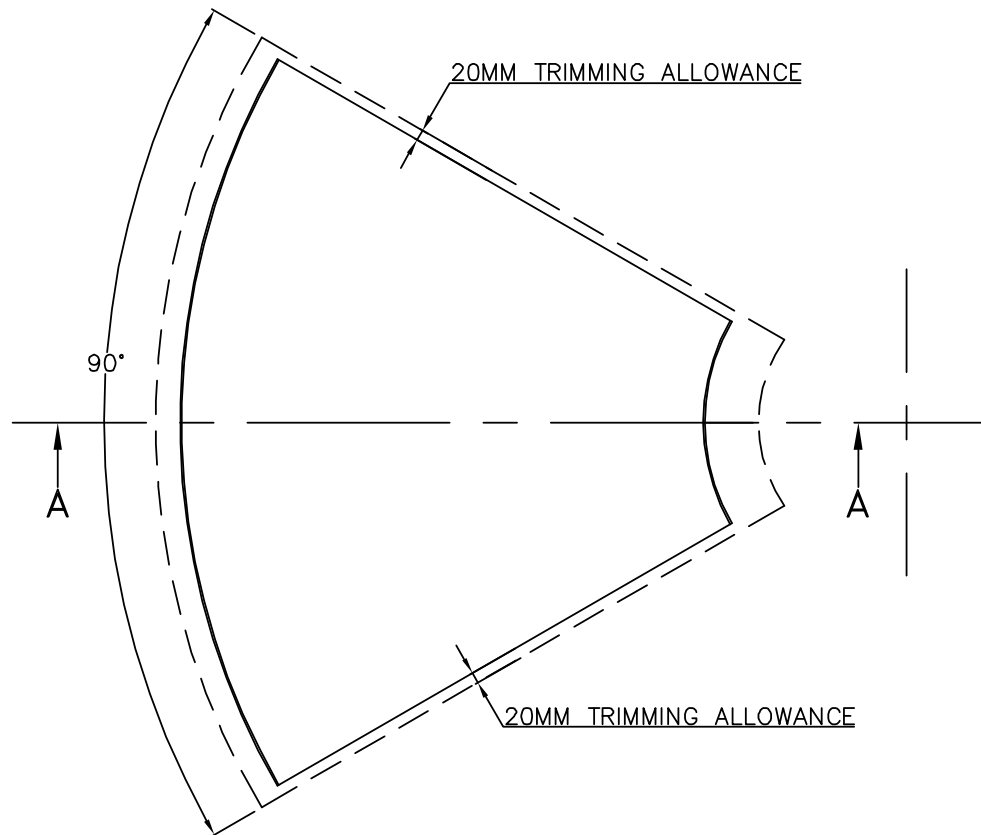
c	Vendor to take Full responsibility for carrying out the erection, start up, testing of machine. It's control system & all types of Other Supplied equipment, machining of test pieces, prove out of parts etc. Service requirement like power, air , water shall be provided by BHEL at only one point (to be indicated by supplier in their foundation/layout drawings).	Y		vendor to confirm
d	Successful proving of BHEL components by the supplier shall be considered as part of commissioning. All tests, as mentioned ,Machine Acceptance test form part of the commissioning activity.	Y		vendor to confirm
e	Vendor should depute/hire necessary skilled engineer/technicians for erection and commissioning.	Y		vendor to confirm
f	Tools, Testers, instruments and other necessary equipment Including Laser equipment, if required to carry out the above activities should be brought by the supplier.	Y		vendor to confirm
g	Commissioning spares, required for commissioning of the machine within stipulated time, shall be brought by the supplier on non returnable basis.	Y		vendor to confirm
h	All Cover Plates required for the machine and its peripherals shall be supplied by the vendor.	Y		vendor to confirm
i	The vendor shall supply sufficient quantity of paint of the machine and carry out touch up wherever the paint is damaged during transit or erection of the machine.	Y		vendor to confirm

24	Prove out of BHEL Components			
a	Drawings and details of the components for prove out at BHEL are enclosed in Annexure-2 of this Technical Specification.	Y		vendor to confirm
a.1	Vendor should demonstrate stretch forming of three consecutive AA2219 Al alloy sheet in solutionised condition of each profile shown in Annexure 2(R 1550 and 2500 mm) of sheets provided by BHEL. Minimum 7% cold work is to be ensured through out the profile for acceptance of prove out.	Y		vendor to confirm
a.2	Sheets stretch formed above should meet T87 properties after subsequent Aeging Heat treatment at BHEL	Y		vendor to confirm
b	Complete forming of above components at BHEL works should be done by vendor. Raw Material will be provided by BHEL .	Y		vendor to confirm
c	The forming tools should be made up of suitable metal to meet the production requirement of at least 500 components.	Y		vendor to confirm
25	Machine Acceptance Test			
	Acceptance of machine will be subject to successful demonstration of following by Vendor at BHEL works after commissioning the machine:			vendor to confirm
a	Checking of Technical details.	Y		vendor to confirm
b	Checking of safety system. Hydraulic system, Cooling system, lubrication system etc.	Y		vendor to confirm
c	Demonstration of all features of the machine. Control System & all accessories to the satisfaction at BHEL for their efficient and effective use.	Y		vendor to confirm
d	Prove out of BHEL components-(As per Annexure - 2)	Y		vendor to confirm
e	Supervision of independent operation of machine by BHEL after job prove out for one month.	Y		vendor to confirm
26	Training			

	Vendor should provide training at Vendor's works / site on the machine in the discipline as given below at free of cost.Travel,Boarding & Lodging will be under BHEL scope	Y		vendor to confirm
a	Operation & maintenance of the machine & other supplied equipment.	Y		vendor to confirm
b	Mechanical & Hydraulic maintenance of the machine other supplied equipment	Y		vendor to confirm
c	Electrical, Electronic Control or machine & Other supplied equipment,	Y		vendor to confirm
d	Vendor should also offer for training of BHEL Persons in the above discipline at BHEL's works for the recommended duration of one week	Y		vendor to confirm
e	Competent, English speaking experts shall be arranged by the vendor during training for satisfactory & effective training of BHEL personal	Y		vendor to confirm
27	Spares			
a	Vendor to provide complete list of recommended spares with unit cost, for machine & accessories, for 2 years of trouble free operation ,along with specification / type / model, and name & address of the spare supplier. Price fixation for these spares for next two years, to be confirmed by the vendor.	Y		vendor to specify
b	Vendor to quote price of recommended spares along with the machine separately.	Y		vendor to confirm
c	Vendor should confirm availability of supply of all types of spares for the machine and accessories for a period of 10 years from supply of the machine If machine or controls likely to become obsolete in this period, the vendor should Inform BHEL sufficiently in advance (2 months) and provide drawings of parts/ details of spares suppliers to enable BHEL to procure these in advance, if required.		Y	vendor to confirm
28	Documentation			
a	Three sets of following documents in Hard copies as well in soft copies in English language should be supplied along with the machine:	Y		vendor to confirm
b	Operating Manuals of Machine & Control system			vendor to confirm
c	Detailed Maintenance Manual of machine and supplied systems.	Y		vendor to confirm
d	Electrical Schematic Diagrams, Ladder Diagram, Cross Reference, Alarms & Messages. Wiring Diagrams, Junction Box Layouts, Connector Diagrams and Cable layouts of the machine, PLC Backup. All licensed software shall be given with original license	Y		vendor to confirm
e	Hydraulic Manual	Y		vendor to confirm
f	List of all rubber Items and hydraulic/lube fittings with detail specifications.	Y		vendor to confirm
g	Drawings of machine sub-assemblies/part's including Pneumatic/ Coolant / Hydraulic circuit diagrams necessary for maintenance. All Sub Assembly Drawings shall be supplied with the part list in English.	Y		vendor to confirm
h	Complete list of parts used in the machine with drawings to be provided	Y		vendor to confirm
i	One additional set of all the above documentation on CD ROM, wherever possible.	Y		vendor to confirm
29	Warranty			

a	Vendor should provide warranty for entire machines inclusive of all system/ accessories against all the design, material, manufacturing or installation defects for minimum 12 months from the date of commissioning and acceptance. The machine should provide trouble free operation during warranty period.	Y		vendor to confirm
b	During warranty period, machine accuracies as per test report should comply to specified limits-	Y		vendor to confirm
c	Supplier should make free visits to BHEL works as Customer Support program during warranty period as and when required.	Y		vendor to confirm
d	The useful life of machine should be minimum 15 years from date of commissioning at BHEL Ranipet. Supplier to indicate the useful life Of the machine.	Y		vendor to confirm
30 General				
a	Machine Model	Y		vendor to specify
b	Total connected load (KVA)	Y		vendor to specify
c	Floor area required {Length, Width, Height) for complete machine & accessories.	Y		vendor to specify
d	Painting details of Machine/ Electrical Panels	Y		vendor to specify
e	Total weight of the machine	Y		vendor to specify
f	The bidders shall provide a comprehensive list of the OEM components used in the machine. The offer shall include the technical brochure indicating clearly the model used for each part / component.	Y		vendor to specify
g	Technical leaflet and write-up of equipment and CNC system must be furnished by the applicant along with the quotation. Bids without catalogue for the offered machine shall not be considered.	Y		vendor to confirm
h	In case there is a mismatch between technical offer and standard catalogue value, BHEL reserve the right to take any of the two value for evaluation on its own.	Y		vendor to confirm
i	The manufacturer has to provide a compliance matrix mentioning point by point given in the specification. It will be assumed that points are acceptable to you if not given an objection/clarification on the point. Final specification in the purchase order will be based on the compliance matrix provided by the party and the party have to satisfy all the points in the specification at the time of supply and installation of the machine.	Y		vendor to confirm
j	The bid MUST contain clear, direct, required, actual information with respect to the tender specification/clauses. Descriptive data or words viz complied, confirmed are not acceptable for the numerical data. Offers violating these will be treated as rejected.	Y		vendor to confirm
k	Relevant proof / supplementary document for the compliances shall be furnished along with the offer. Party have to satisfy all these points in the specification at the time of supply and installation of the machine.	Y		vendor to confirm
l	The price bid shall be quoted for basic machine, standard accessories, optional accessories, etc explicitly. Split-up cost details may be inside each section of quoted price.	Y		vendor to confirm
31	Vendor should provide para wise comments in the above format with relevant details and references to the submitted offer.	Y		vendor to specify

ALL DIMENSIONS ARE IN MM



SECTION - AA

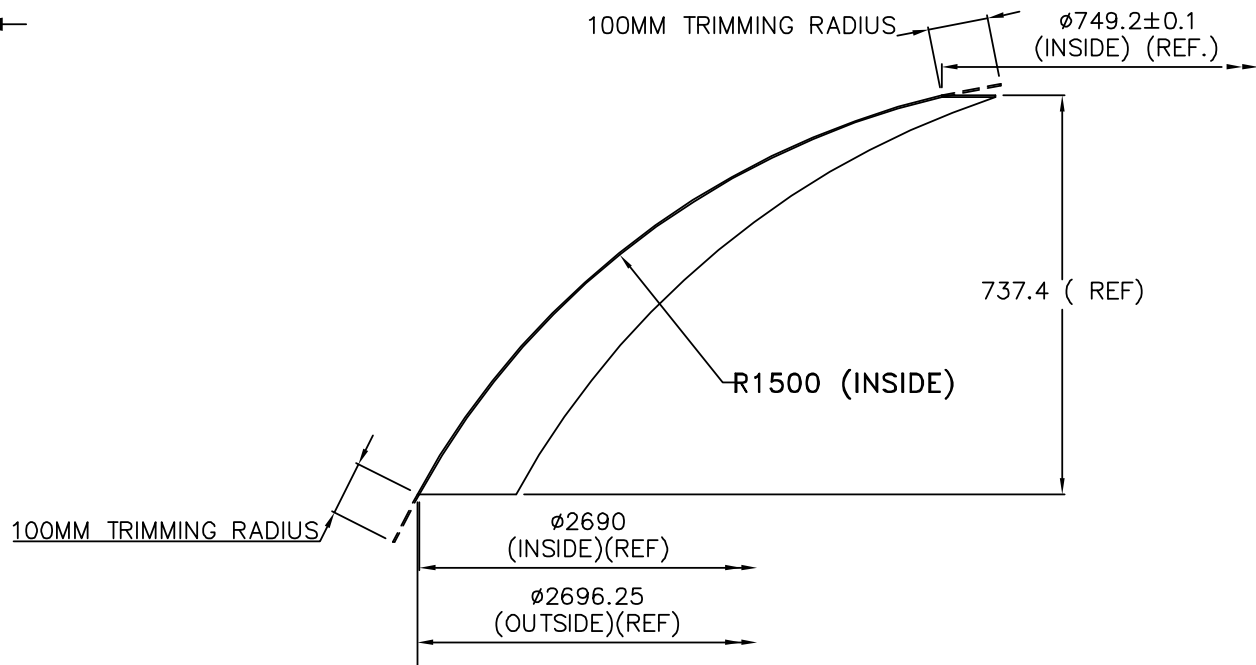
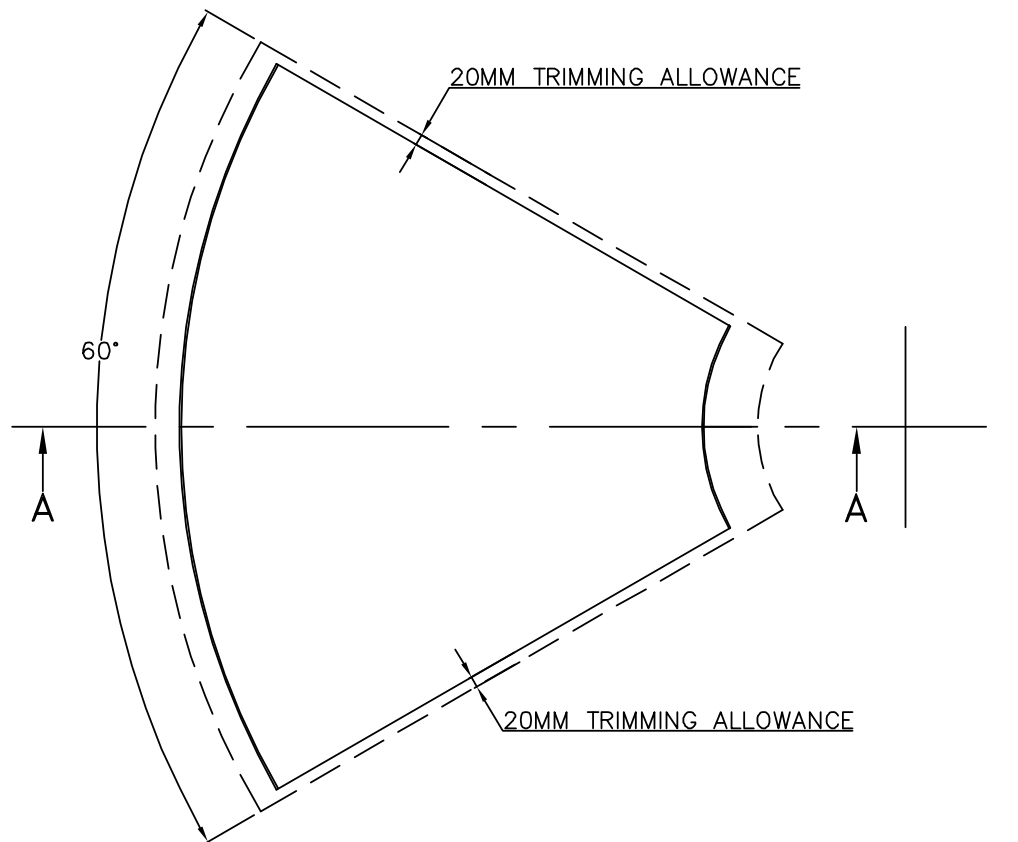
Sheet size: 4000x2300mm
Material: AA2219



Bharat Heavy Electricals Ltd
UNIT: BOILER AUXILIARIES PLANT
RANIPET - 632 406

Size-A4

ALL DIMENSIONS ARE IN MM



SECTION - AA

Sheet size: 2700x2300
Material: AA2219



Bharat Heavy Electricals Ltd
UNIT: BOILER AUXILIARIES PLANT
RANIPET - 632 406

Size-A4