

 BHARAT HEAVY ELECTRICALS LIMITED Heavy Power Equipment Plant Hyderabad – 502032, INDIA Phones: Fax No.s : 040-23021910 & 23021954 E-Mail :					
TENDER DOCUMENTS TO BE FILLED BY THE SUPPLIER FOR SUPPLY OF CRANE SUSPENDED 3T SGI LADLE /TUNDISH LADLE					
ADDRESS OF THE SUPPLIER:					
TELEPHONE NO.S :					
FAX NO.S :					
E MAIL ADDRESS :					
Sl. No.	DESCRIPTION OF BHEL REQRIMENT	BHEL SPEC.	Specified/ To be Confirmed	OFFERED	REMARKS
1	PURPOSE				
	a)Tundish pouring ladle of 3Ton capacity is required to handle molten SGI (Spheroidized graphite Iron) and to carry out pouring operations in Foundry.		Vendor to Confirm		
	b)Suitable Tundish Cover is provided along with supplied ladle for treatment purpose.		Vendor to Confirm		
2	TECHINICAL DETAILS				
2.1	Liquid Metal Holding Capacity of Ladle	3 Ton	Vendor to Confirm		
2.2	Quantity required	1 Set	Vendor to Confirm		
2.3	Type of Ladle	SGI Treatment Ladle with Straight Vertical Body with integrated Gear Box Assembly and removable Tundish Cover	Vendor to Confirm		
2.4	DIMENSIONS				
	Supplier has to get the type and dimensions of the ladle approved by M/s BHEL after placement of Order and adopt the necessary changes if any.		Vendor to Confirm		
	The tentative dimensional details of the ladle can be as follows				
2.4.1	Shell Dimensions				
	Top Dia	915 mm	Vendor to specify		
	Bottom Dia	915 mm	Vendor to specify		
	Height	1830 mm	Vendor to specify		
2.4.2	Plate or Shell Thickness				
	Side	8 mm	Vendor to specify		
	Bottom	10 mm	Vendor to specify		
2.4.3	Refractory Lining Thickness				
	Side	113 mm	Vendor to specify		
	Bottom	113 mm	Vendor to specify		
2.4.4	Top Clearance for slag Portion	475 mm	Vendor to specify		
2.4.5	Dimensions of Tundish Cover				
	Top Dimensions		Vendor to specify		
	Bottom Dimensions		Vendor to specify		
	Height Dimensions		Vendor to specify		
	Lifting Mechanism/provision to be provided		Vendor to specify		
3	FEATURES :				
3.1	DOUBLE LIP		Vendor to Confirm		
3.1.1	Lip to be provided on both sides of the ladle for pouring on either left or right as per mold requirement/location.		Vendor to Confirm		

3.1.2	Tundish ladle shall be supplied with integrated gear mechanism with hand wheel for tilting the ladle, trunnions, trunion shaft, heat shield, Crane hook eye / shackle for lifting with EOT crane lop, legs, refractory lining ring, locking lever etc.		Vendor to Confirm		
3.1.3	Gear Box Assembly Details				
	Gear Box Tilting Arrangement	Worm & Worm Wheel	Vendor to Confirm		
	Body	Steel	Vendor to Confirm		
	Worm Wheel	Phosphorous Bronze	Vendor to Confirm		
	Worm Shaft	EN-8 Bar	Vendor to Confirm		
3.1.4	Bevel Gears	EN-8 Bar	Vendor to Confirm		
	Crane hook eye				
	Crane hook eye should be in single Piece design		Vendor to Confirm		
	Standard Test to be done so as to avoid cracks/damage to the Crane hook eye during usage of ladle.		Vendor to Confirm		
3.1.5	Provision for adjustment to balance the ladle		Vendor to Specify		
	Heat/Splash				
	Ladle should be furnished with a heat shield fixed to the underside of the bail to aid in deflecting heat away from the Crane hook eye and hoist Crane hook eye"		Vendor to Confirm		
3.1.6	SPLASH Guard to be provided over the rotating parts of gear box which are exposed outside atmosphere.		Vendor to Confirm		
	Handle Wheel				
3.1.7	It should be sufficiently large for easy tilting of ladle		Vendor to Confirm		
3.1.8	Locking Arrangement				
3.1.9	Lock should be provided to avoid tilting while transporting the liquid metal.		Vendor to Confirm		
3.1.10	Tundish Cover				
	Supplied Tundish cover must be robust and suitably designed to ensure streamline flow of liquid metal into the ladle while having a provision for slag entrapment. It must be perfectly covering the ladle top for effective treatment procedure.		Vendor to Confirm		
	Safety				
3.1.11	a) Bidder should ensure to design & manufacture the ladle with relevant standard norms and conditions.		Vendor to Confirm		
	b) Bidder should ensure to provide all safety interlocks such as Safety Locks for Both Arms, Secondary Locking Assembly fitted to the Gearbox Handle which is intended to be used to lock the gearbox when the ladle is being moved with the shell in partly rotated position.		Vendor to Confirm		
	c) Bidder should ensure to use all hardware and fasteners are of High tensile materials.		Vendor to Confirm		
3.2	a) Features: Tundish ladle -3T ton capacity is used for treatment purpose with Tundish provided on the top of supplied ladle. Tundish ladle should have a robust gear box for easy manual tilting of ladle. The trunnion shaft should be welded integral to the ladle shell through trunnion pads and be mounted on ball bearings. Ladles should be fabricated from heavy steel plates and should be provided with stiffener rings to avoid any distortion of shell. Ladles should be designed to have proper stability when emptied in all positions. Proper lock shall be provided to avoid tilting of ladle when the liquid metal is filled in the ladle. Lips shall be provided on both side of the ladle. Ladle to remain stable at all the angles and should not move forward or backward due to its own weight and weight of the metal.		Vendor to Specify		
	b) Control: The tundish pouring ladle should be capable of operating smoothly on regular basis in melting area. It must work at low maintenance level. There should be easy accessibility for periodic greasing of the gear box. Tundish ladle should be provided with a suitable tight cover where the reaction between the alloys is maintained in ladle atmosphere only.		Vendor to Specify		
3.21	Spares				
	Spares for two years trouble free operation with item wise unit price		Vendor to Confirm		
	i) Bevel Gear		Vendor to Confirm		
	ii) Bevel pinion		Vendor to Confirm		
	iii) Worm Wheel		Vendor to Confirm		
3.22	iv) Worm Shaft		Vendor to Confirm		
	Refractory Details				
	A) Side Brick Drawing		Vendor to confirm		
	B) Bottom Brick Drawing		Vendor to confirm		

	C) Specification of refractory brick & Motor		Vendor to confirm		
3.23	Refractory Spares One Set (optional & to be quoted Separately)		Vendor to Confirm		
	A) Side Bricks		Vendor to Confirm		
	B) Bottom Bricks		Vendor to Confirm		
	C) Any other material if required for lining Purpose.		Vendor to Confirm		
4	DOCUMENTATION:				
4.1	Supplier shall furnish constructional details of the Ladle, i.e. General arrangement drawing, volume to weight calculations for molten steel along with the quotation and also the gear box design details along with drawings.		Vendor to Confirm		
4.2	Supplier shall furnish detailed dimensional sketches of ladle, Tundish Cover refractory materials both for Ladle and also for Tundish cover etc.		Vendor to Confirm		
4.3	Three sets of each of the following documents to be furnished along with the Ladle		Vendor to Confirm		
	Operation Manual	3 sets	Vendor to Confirm		
	Maintenance Manual	3 sets	Vendor to Confirm		
4.4	List of customers to whom similar type of ladles are supplied has to be furnished.		Vendor to Confirm		
5	PRE INSPECTION :				
	M/s BHEL Engineers will inspect the Ladle at suppliers works before dispatch and hence to be intimated sufficiently in advance to avoid delivery delays.		Vendor to Confirm		
5.1	TEST CERTIFICATE: Test certificate for Body, Gear Box, Crane hook eye and also for Welding procedure if adopted during manufacturing process.		Vendor to Confirm		
6	GUARANTEE :				
	The Ladle shall be guaranteed for a period of one year from date of commissioning/ supply.		Vendor to Confirm		
7	SPECIAL REMARKS:				
7.1	Vendor shall submit technical offer and price offer separately in two sealed covers		Vendor to Confirm		
7.2	They shall be original equipment manufacturers		Vendor to Confirm		
7.3	a) The above points are indicative, but not exhaustive. Hence any other essential accessories / parts that need to be incorporated to ensure safe operation with robust mechanism having all features for the ease of the operators to be considered and provided. b) Cost of refractories has to be mentioned separately in the price bid.		Vendor to Confirm		