



EPD - BANGALORE

**Purchase Specifications For
6500 kN Crimping Machine****SPECIFICATION NO.
EP-WEX-CM/2015-16**

1.0	<i>Purpose</i>	<i>To Crimp the metal end fittings over FRP rod during manufacturing of Polymer composite insulators (by mould in place technology using the Injection molding machine with Silicone rubber compound and FRP rods)</i>
2.0	<i>Description of Operation :</i>	<i>The FRP rod is inserted into the galvanized metal fittings and placed in the crimping machine jaw. The equipment on start will close the jaws and crimps the metal fitting onto the FRP rod as per the set pressure, on completion of the cycle as per the settings, the jaws retract and the crimped FPR rod & metal fitting is removed from the jaws manually.</i>
3.0	<i>Scope of Supply :</i>	<i>Crimping equipment along with Clamping unit, Hydraulic unit, operation & control unit and with set of Dies as indicated in clause 15.0 Equipment to be supplied along with standard accessories, bidders to indicate the accessories offered. Detailed technical specification of the equipment is shown in clause 15.0 of this specification.</i>
4.0	<i>Training</i>	<i>Two BHEL engineers are to be trained for acquaintance on operation and maintenance of the equipment at vendors' works during Pre-Dispatch Inspection. Further, training shall be provided to the operators during installation and commissioning.</i>
5.0	<i>Inspection</i>	<i>The equipment will be inspected at the vendors' works and crimping as described above is to be demonstrated satisfactorily. The Equipment to be dispatched after inspection and dispatch clearance from BHEL. Final acceptance of the equipment will be after satisfactory performance at BHEL EPD.</i>
6.0	<i>Utilities Requirement</i>	<i>Information on requirement of various utilities such as power, compressed air, cooling water, handling facilities such as cranes are to be furnished in the Part - A : Techno-commercial bid.</i>


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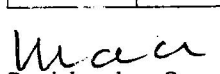
Yogesh Sharma
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Sr Manager / CI

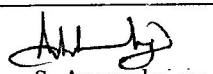
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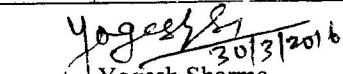
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7.0	Equipment Layout Plan:	Information on the requirements for proper layout plan for installation and commissioning of the equipment and its associated accessories to be suggested by the bidders and the same to be provided in the Part - A : Techno-commercial bid.
8.0	Manufacturing process control assistance	Manufacturer to assist BHEL in establishing suitable process control parameters for crimping of metal fittings on FRP rods of different types and sizes during installation and commissioning at BHEL.
9.0	Commercial production capacity	Equipment has to be demonstrated for continuous operation of 8 hours and the technical parameters have to be demonstrated for crimping various sizes of end metal fittings and FRP rods.
10.0	DATA acquisition System	Suitable DATA acquisition system to be provided along with the equipment for local /remote monitoring using computer interface.
11.0	Safety Devices & Features :	Bidders to provide safety devices & features incorporated in the equipment.
12.0	Any other information :	Supplier can furnish any other additional information, considering the overall requirements.
13.0	Preferred make of components	-PLC : Siemens, Schneider, ABB, Allen Bradley, OMRON, NI -Hydraulic components : Vickers, Rexroth -Pneumatic components : Festo, SMC -Electrical components : L&T, Siemens, ABB -Motors : Siemens, ABB, CG, Kirloskar
14.0	Calibration	The instruments used for process monitoring and recording shall be calibrated and certificate to that effect shall be submitted during pre-dispatch inspection.



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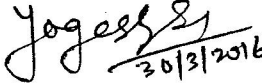
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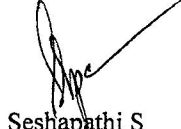
15. Technical Parameters :

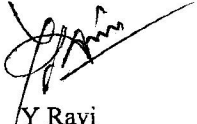
Sl No	Technical Parameter	Unit	Value	
1.	Swaging/crimping Force(max)	kN	6500	
2.	Input Power supply	--	440Volts, 3 Phase, 50 Hz	
3.	Maximum Crimping Diameter	mm	150	
4.	Crimping Range	mm	4 ~ 202	
5.	Opening without dies	mm	Bidders to Indicate	
6.	Crimping dies speed	mm / sec	Closing :Bidders to Indicate Crimping: Bidders to Indicate Open : Bidders to Indicate	
7.	Number of crimping / hour	Nos.	Bidders to Indicate	
8.	Protection class	-	IP 54	
9.	Noise Level	dB	Bidders to Indicate	
10.	Master die Shoe Length	mm	Bidders to Indicate	
11.	Overall Dimensions and weight	-	Bidders to Indicate	
12.	Hydraulic oil – specification and quantity for first fill	Liter	Bidders to Indicate	
13.	Type of Dies	ID	Length	OD *
	(* OD is component OD dimension for reference purpose only which need to be considered while designing the Jaw arrangement in the machine, as the component max dia to enter between the jaws and clearance from intermediate or master jaws while crimping operation.	26	55	75
		26	60	100
		30	60	100
		30	90	100
		30	110	150
		45	40	150
		48	65	160
		50	70	160
		52	70	150
		80	30	162
		80	90	162
		115	40	160
		115	110	216
14.	Operational control	1. Machine Shall have user friendly HMI with touch screen for setting various parameters like pressure, dimensions etc., and to see various operational parameters during crimping operation with a mimic diagram.		



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		<p>2. Machine control design to incorporate simultaneous dimension and Pressure control.</p> <p>3. Suitable mechanism is to be incorporated to hold the set pressure steady for a minimum of 5 minutes on the job.</p> <p>4. Equipment to incorporate slide bearing mechanism for crimping jaws.</p>
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Qualification criterion:


Sl. No	BHEL Standard Terms & Conditions	Documentary Evidence provided for Compliance to be submitted with offer
1	The vendor shall be an Original Equipment Manufacturer (OEM). Dealers have to submit authorisation certificate from OEM	Copy of Company Incorporation or Management System certification
2	The vendor shall have qualified personnel, their own adequate manufacturing / integrating and testing facilities for the equipment offered.	Submit company profile with details of qualified staff
3	The vendor shall have manufactured, supplied and successfully commissioned minimum two Crimping Machines injection Molding Machine for manufacturing of Composite insulators with a minimum crimping force of Minimum 4500 kN in the last 3 years	PO copies to be submitted along with performance certificate from the users
4	The vendor shall submit audited balance sheet or tax returns or profit loss account for the last 3 years	Copy to be submitted


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