

SCOPE, DESIGN ,SUPPLY , ERECTION AND COMMISSIONING OF RING GRANULATOR ALONWITH VIBERATING PRESCREEN SYSTEM TO CRUSH STEAM COAL FOR OUR FBC BOILER COMPLYING WITH SPECIFICATION AS BELOW:			
S No.	Description - BHEL's Requirement	Vender To confirm	Offered
1.0	GENRAL FEATURES		
	The proposed Ring granulator with viberating pre screen system shall be suitable for curshing 10 TPH stem coal .Specification envisaged will be as follows:	Vendor to confirm	
2.0	COAL CRUSHER		
2.1	Output Capacity : 10 TPH	Vendor to confirm	
2.2	Material : STEAM COAL ,Grade "B"	Vendor to confirm	
2.3	Feed Size : 150 MM(Max)	Vendor to confirm	
2.4	Output Product Size : 6mm(Max)	Vendor to confirm	
2.5	Feed Opening area : 3 Sq feet (min)	Vendor to specify	
3.0	ROTOR ASSEMBLY		
3.1	Rotor Size	Vendor to specify	
3.2	Rotor Speed	Vendor to specify	
3.3	Hammer Circle diameter	Vendor to specify	
3.4	Effective Crushing Width	Vendor to specify	
4.0	MOTOR AND STARTER		
4.1	3 phase TEFC Squirrel cage Induction motorto be fitted with crusher to drive rotor assembly.	Vendor to confirm	
4.2	Motor Power(KW/H.P)	Vendor to specify	
4.3	Make : ABB/BB/CG/Seimens/Alstom or any reputed make	Vendor to confirm	
4.4	RPM : 1440	Vendor to confirm	
4.5	Motor Starter: Suitable motor starter to be provided for starting of motor.	Vendor to confirm	
4.6	Motor slide rails to be provided by suplier.	Vendor to confirm	
5.0	DRIVE		
5.1	"V" Belt & "" Pulley transmission should be used for transmitting power from motor to rotor of crusher .	Vendor to confirm	
5.2	Plummer Block : 02 No made of Cast Iron(Dust proof) to be provided to support the shaft at both ends.	Vendor to confirm	
5.3	Bearing: Self aligned roller Bearing to be provided to bear the laod . Bearing should be of Reputed make like SKF/FAG/RHP/TIMKEN/NBC only.	Vendor to confirm	
5.4	Lubrication: Grease		
6.0	BREAKER PLATE AND BODY LINERS		
6.1	Breaker Plate: Fabricated from heavy steel plates and lined with renewable abrasion resistant Cast Manganese Steel as per IS-276, and loaded with heavy spring.	Vendor to confirm	
6.2	Body liners:Renewable Cast Mn. Steel as per IS-276, Gr.III bolted with M.S.Forged Bolts	Vendor to confirm	
7.0	HAMMERS		
7.1	Suitable no of Plain and toothed type hammers are to be provided for obtaining desired output(10TPH) of crushed coal.No of plane and toothed hammers to be specifed in the tender by vendor .	Vendor to confirm	
7.2	Material of hammer : Mn. Steel as per IS-276, Gr.III.- with Chromium hardened.	Vendor to confirm	
8.0	DUST NOZZLES		
8.1	02 No Dust Nozzles to be provided where air suction Coal crusher and vibrating pre screen system can be mounted.	Vendor to confirm	
9.0	INSPECTION AND MAINTENANCE DOORS		
9.1	For easy maintenace and inspection atleast 02 no doors should be provided across peripheri of coal crusher body.	Vendor to confirm	
9.2	Arrangement should be provided for adjustment of gap between breaker plate and hammers to maintain output size of coal when hammers got worn out.		
10.0	VIBRATING PRE SCREEN		
10.1	Vibrating pre screen should be suitable for seperating undersize(below 6 mm) material before feeding to the crusher.	Vendor to confirm	
10.2	Minimum Screen area : 24 sq feet (min)	Vendor to specify	
10.3	Input /Output product size : 150 mm/6 mm	Vendor to confirm	
10.4	Type : Single Deck.	Vendor to confirm	
10.5	No. of deck : 1 (One)	Vendor to confirm	

10.6	Capacity : 10 Ton/hr.	Vendor to confirm	
10.7	3 phase TEFC ,Squirrel cage Induction motor to be fitted with Vibrating pre screen system	Vendor to confirm	
10.8	Motor Power(KW/H.P)	Vendor to specify	
10.9	Make : ABB/BB/CG/Seimens/Alstom or any reputed make	Vendor to confirm	
10.10	Motor RPM : 1440	Vendor to confirm	
10.11	Motor pulley: To be provided by supplier	Vendor to confirm	
10.12	Driven pulley : To be provided by supplier	Vendor to confirm	
10.13	Angle of Inclination : 20-22 Degree	Vendor to confirm	
10.14	Frequency : 1000/min(min)	Vendor to confirm	
10.15	Spring Wire size: 04 mm(min)	Vendor to confirm	
10.16	Screen opening : 8 Sq mm	Vendor to confirm	
10.17	Drive through : V belt and pulley	Vendor to confirm	
10.18	Roller bearing : Self aligned roller bearing(dust proof) to be provided by supplier.Make : SKF/FAG/RHP/TIMKEN//NBC only.	Vendor to confirm	
10.19	Roller bearing : Self aligned roller bearing(dust proof) to be provided by supplier.Make : SKF/FAG/RHP/TIMKEN//NBC only.	Vendor to confirm	
10.20	Motor slide rails to be provided by supplier.		
11.0	MOC OF COAL CRUSHER		
11.1	Body : Thick MS fabricated (IS 2062)	Vendor to confirm	
11.2	Body Liners: Renewable Cast Mn. Steel as per IS-276, Gr.III	Vendor to confirm	
11.3	Shaft : Forged Steel EN-9 and unifromly machined	Vendor to confirm	
11.4	Crushing Chamber : SAIL Hard/Tiscral Plates	Vendor to confirm	
11.5	Body : Thick MS fabricated	Vendor to confirm	
11.6	Belt Gurads : GI sheet	Vendor to confirm	
11.7	Pulley : Cast Iron	Vendor to confirm	
11.8	V- Belt: Gates/Fenner/Endura/Pix make only		
11.9	Plumber Block: CI	Vendor to confirm	
11.10	Suspension shaft :EN9/EN8	Vendor to confirm	
11.11	Bottom screen : Sail hard/Tiscral	Vendor to confirm	
11.12	Kick off plate: Sail hard/Tiscral	Vendor to confirm	
11.13	Fly wheel(If required) : Cast Iron	Vendor to confirm	
12.0	MOC OF VIBRATING PRE SCREEN		
12.1	Frame: Thick MS fabricated(IS2062)	Vendor to confirm	
12.2	Side plate : Thick MS plate	Vendor to confirm	
12.3	Shaft : Forged steel EN8/EN9	Vendor to confirm	
12.5	Wire: Spring steel	Vendor to confirm	
12.6	Bearing: Self aligned roller Bearing(Dust proof) to be provided .Bearing should be of Reputed make like SKF/FAG/RHP/TIMKEN//NBC only.	Vendor to confirm	
12.7	Belt Gurads : GI sheet	Vendor to confirm	
12.8	Pulley : Cast Iron	Vendor to confirm	
12.9	V Belt : Gates/Fenner/Endura/Pix make only	Vendor to confirm	
13.0	DUCT AND HOOPERS		
13.1	Chute between coal crusher and vibrating pre screen & hoppers for coal crusher and pre screen shall be in scope of vendor .	Vendor to confirm	
14.0	PAINTING		
14.1	Painting 1 coat of Red Oxide followed by 2 coats of Enamel Paint on both coal crusher and vibrating pre screen to be done by vendor before dispatch. Final touching shall also be done by supplier after receipt and installation of system at BHEL Jhansi.	Vendor to confirm	
15.0	ELECTRICAL		
15.1	Input Power Supply: 3 Phase,415 \pm 10% Volt, 50 \pm 3% Hz	Vendor to Confirm	
15.2	Tropicalisation: All electrical / electronic equipment shall be tropicalized.	Vendor to Confirm	
15.3	Motors shall conform to IEC or Indian Standards .	Vendor to Confirm	
16.0	SAFETY		
16.1	Safety feature should be incorporated for safety of operator and the Coal crushing system.		
17.0	ERECTION AND COMMISSIONING		

17.2	Erection and commissioning shall be done by supplier at BHEL Jhansi works. Manpower required for above shall be in scope of supplier only. Foundation bolts, welding electrodes, and other necessary consumables (if any) shall also be in scope of supplier. BHEL shall provide following items:	Vendor to confirm	
	a) Electricity	Vendor to confirm	
	b) Water	Vendor to confirm	
	c) Welding machine	Vendor to confirm	
	d) Cutting gasses	Vendor to confirm	
	e) Material handling equipments	Vendor to confirm	
18.0	FOUNDATION		
18.1	Vendor shall submit the preliminary layout drawing for getting BHEL's approval within one month from date of Letter of Intent (LOI)/P.O. Soil condition data (if required) will be furnished by BHEL along with the approval. Complete foundation design including details viz static/dynamic load details and final layout drawings shall be submitted by supplier within 01 months after getting BHEL approval. The layout should consist of all requirements pertaining to complete coal system including space requirement for other necessary equipments. BHEL shall construct complete foundation for the machine under supervision of supplier and at supplier's responsibility. Vendor should arrange equipments required for the testing of foundation, if required by vendor. The vendor shall also indicate detailed specification of grouting compound and grouting procedure for foundation bolts of the machine.	Vendor to confirm	
19.0	CONVEYOR SYSTEM		
19.1	Conveyor system shall be separately procured by BHEL as per design suggested by vendor. Vendor should visit our site before ordering to provide us suitable design as per our space and other constraint of site. Foundation drawing shall be submitted by vendor after visit only.	Vendor to confirm	
20.0	TOOLS FOR ERECTION, OPERATION & MAINTENANCE :		
20.1	Special tools and equipment required for erection and necessary tools like Torque Wrench, Spanners, Keys, etc. for operation and maintenance of the Coal crusher and vibrating pre screen should be supplied. List of such tools should be submitted with offer.	Vendor to confirm	
21.0	DOCUMENTATION : Three sets of following documents (Hard copies) in English language should be supplied along with the Coal crusher and vibrating pre screen	Vendor to confirm	
21.1	Operating & maintenance manuals of Coal crusher and vibrating pre screen.	Vendor to confirm	
21.2	Detailed electrical circuit and spare parts manual should also be supplied along with the Coal crusher and vibrating pre screen.	Vendor to confirm	
21.3	Detailed Maintenance manual of Coal crusher and vibrating pre screen with drawings of Coal crusher and vibrating pre screen assemblies/sub-assemblies/parts.	Vendor to confirm	
21.4	Detailed specification of all bearings/Plumber block/V belt/Pulley etc to be provided by vendor in manual.	Vendor to confirm	
22.0	OPERATING CONDITIONS & THERMAL STABILITY :		
22.1	Coal crusher and vibrating pre screen should work trouble free and efficiently under following operating conditions and should give specified accuracies. Power Supply: Voltage: 415 V - 10%, +10% Frequency: 50 Hz +3%, - 3% No. of phases = 3 Ambient Conditions: Temperature = 5 to 45 degree Celsius Relative Humidity = 95% max. (Vendor to confirm that Coal crusher and vibrating pre screen is suitable for above and details of provisions on the Coal crusher and vibrating pre screen for the same are to be furnished by Vendor)	Vendor to confirm	
22.2	Weather conditions are tropical, Atmosphere may be dust laden during some part of the year. Coal crusher and vibrating pre screen shall be kept in the normal shop floor condition. Max. temperature variation is up to 25 deg Celsius in 24 hours. (Vendor to confirm that Coal crusher and vibrating pre screen is suitable for above and details of provisions on the Coal crusher and vibrating pre screen for the same are to be furnished by Vendor)	Vendor to confirm	
22.3	Thermal Stability of the complete Coal crusher and vibrating pre screen keeping in view specified Ambient Conditions and trouble free operation should be ensured by vendor. (Vendor to confirm that Coal crusher and vibrating pre screen is suitable for above and details of provisions on the Coal crusher and vibrating pre screen for the same are to be furnished by Vendor)	Vendor to confirm	
23.0	TEST ACTIVITIES		

23.2	Coal crusher and vibrating pre screen ACCEPTANCE: (Tests/Activities to be Performed by Vendor)	Vendor to confirm	
23.3	Tests/Activities to be witnessed by BHEL representative at supplier's works on the Coal crusher and vibrating pre screen before dispatch :	Vendor to confirm	
23.4	Test certificates, Specification compliance and performance of the complete supplied system shall be checked and verified.		
23.5	Demonstration of all features of the Coal crusher and vibrating pre screen & accessories.	Vendor to confirm	
23.6	Tests/Activities to be carried out at BHEL works while commissioning the Coal crusher and vibrating pre screen :	Vendor to confirm	
23.7	Demonstration of all features of the Coal crusher and vibrating pre screen, & accessories to the satisfaction of BHEL for efficient and effective use of the Coal crusher and vibrating pre screen system.	Vendor to confirm	
23.8	One weeks supervision of independent operation of Coal crusher and vibrating pre screen by BHEL after job acceptance.	Vendor to confirm	
23.9	Training of BHEL operators/maintenance personnel in operation/maintenance of complete Coal crusher and vibrating pre screen & accessories etc by the supplier's experts / engineers during their stay at BHEL works .	Vendor to confirm	
23.10	Demonstration by actual use of all supplied attachments and accessories to their full capacity.	Vendor to confirm	
24.0	<u>FINAL ACCEPTANCE</u>		
24.1	Final acceptance shall be after erection and commissioning of the complete Coal crusher and vibrating pre screen system at BHEL by the vendor to the full satisfaction of BHEL. The criteria for acceptance of the Coal crusher and vibrating pre screen system after erection shall be "satisfying all the clauses of Technical Specifications" given above.	Vendor to confirm	
25.0	PACKING:		
25.1	Suitable packing for all items of complete Coal crusher and vibrating pre screen , all Accessories and other supplied items to avoid any damage/loss in transit.	Vendor to confirm	
26.0	DELIVERY:		
26.1	Delivery Period to be informed by the supplier.	Vendor to Submit	
27.0	GUARANTEE :		
27.1	24 months from the date of acceptance of the Coal crusher and vibrating pre screen.	Vendor to confirm	
28.0	GENERAL : The vendor should submit the following information:		
28.1	Equipment Model	Vendor to furnish	
28.2	Dimension of Coal crusher and vibrating pre screen separately to be mentioned by vendor	Vendor to furnish	
28.3	Total weight of the both Coal crusher and vibrating pre screen separately	Vendor to furnish	
28.4	Detailed catalogues , sketch/ photographs, of the Coal crusher and vibrating pre screen and accessories/ attachments should be submitted with the offer.	Vendor to furnish	
29.0	QUALIFYING CONDITION :		
29.1	Only those Vendors/Dealers should quote who have supplied and commissioned similar Coal crusher and vibrating pre screen . Maximum capacity of supplied Coal crusher and vibrating pre screen should be equal or greater than 10 TPH.	Vendor to accept and furnish the detail	
29.2	The following information should be submitted by the vendor about the companies where similar Coal crusher and vibrating pre screen system have been supplied. This is required from all the vendors for qualification of their offer.		
29.3	1. Name of the customer / company with complete address and contact details where similar coal crusher and vibrating system is installed.	Vendor to inform	
29.4	2. Month & Year of commissioning.	Vendor to inform	
29.5	3. Commissioning/Performance certificate of similar Coal crusher and vibrating pre screen separately.	Vendor to inform	
29.6	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.	Vendor to accept and confirm	

Sudheer Kumar
Engineer(WEX)

Amit Goyal
Engineer(WEX)

S.K.Bajpayee
Dy.Manager(WEX)

A.K.Shivpuri
DGM(WEX)

S.J.Chakraborty
AGM(WEX)