

Technical Specification for Chromium Carbide HVOF Coating Powder						
Technical Specification No: FBM/KS/TS/09 Rev 01				Date: 15.9.2020		
S. No	Description	Requirement	Vendor	Offered	Deviation (if any)	Remark
1	Purpose	Chromium Carbide HVOF Coating powder to be used with Sulzer Metco system with Woka Star 600/610 (Liquid Fuel Gun) and DJ-2600 (Hydrogen fuel Gun) for coating on various components like spindle shaft etc.				
2	General:					
2.1	Chemical Composition Nominal Range in percentage by weight	Nickel: 17% - 23% Carbon: 9% - 11% Total All Others: 0.5 % (max) Chromium Balance	OPM to confirm. (Detailed Technical catalalogue/dat a sheet with mention of proerties to be submitted with offer.)			
2.2	Manufacturing	Agglomerated and Sintered				
2.3	Shape	Spheroidal				
2.4	Particle size:	- 45 to + 15 microns				
2.5	Apparent Density	2.25-3.25 g/cc				
2.6	Hall Flow	Vendor to Specify	OPM to specify			
3	The quoted powder should be compatible with liquid fuel based and Gas fuel based HVOF system		OPM to confirm			

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4	Coating Properties of powder	Refer S.No 4.1 to 4.3 for properties to be achieved.(Vendor may suggest the recommended parameters for BHEL equipment, however, BHEL will coat the powders at parameters suitable to the BHEL equipment and it will be at sole descretion of BHEL to disclose the parameters or not. BHEL Equipment details is mentioned at clause 1.)	Vendor to confirm (Data sheet with mention of properties by OPM to be submitted with offer.)			
4.1	Hardness (0.3 Kg Load)	> 800 HV 0.3				
4.2	Porosity	< 1%				
4.3	Bond Strength:	10000 Psi or more (ASTM C 633/ Pull off Test (ASTM D4541)				
5	Testing of Samples:					
5.1	BHEL reserves the right to call for Free Sample (approximately 5 Kg) of quoted Make and Brand. Vendor to provide sample with in 15 days of BHEL intiation (By e-mail) Brands that are already tested and passed at BHEL Bhopal may not be called for fresh submission of samples Interested Vendors to send free samples on DDP, BHEL Bhopal basis INCOTERM 2020		Vendor to confirm.			
5.2	BHEL will coat the received samples(Ref S.No 5.1 of this spec) and test at BHEL Lab to evaluate coating propoerties of powder (As per S.No 4) .The test results of BHEL will be final.		Vendor to agree			
6	Test certificate/Data Sheet. (All details to be submitted with offer)	Test certificates/Data Sheets with specific mention of properties as mentioned at S No 2 (S.No 2.1 to 2.6) to be provided with offer.	OPM to confirm			

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7	Correspondence	In case of authorized vendor quotes for the tender then the following must be met:	OPM to confirm			
		All Technical correspondence and confirmation shall be done with their principal supplier (original powder manufacturer).				
		Original powder manufacturer shall provide to BHEL the dispatch details (Bill of lading/GR/RR/AWB) along with packing list of the material				
		All correspondence and documents including Test certificates/Data Sheets shall be in english language.If any document provided by vendor is in language other than english, it must be supported with valid english translation.				
		All liability shall be of principal in the event of default by the authorized agent/dealer.				
8	Conditions for acceptance of material (Sent against Purchase Order of BHEL Bhopal)	Review(By BHEL) of test certificates (for each Batch/Lot of powder) for properties mentioned at S.No 2.1 to 2.6 this specification	Vendor to agree and provide details prior to dipatch of material			
Note: Original Powder Manufacturer may provide response in lieu of vendor wherever required as per this technical specification however vice-versa is not allowed Legend: OPM- Original Powder Manufacturer						