

KGN-HYD - 020-2017.: INTERNATIONAL TENDER FOR REHABILITATION OF EXCITATION, GENERATOR MV SWITCHGEAR, LV SWITCHBOARDS AND PROTECTION SYSTEMS OF GITARU HYDRO POWER STATION -KENYA Clarification 3

Item	CLAUSE NO.	TENDER ARTICLE	Question/additional information sought by tenderers.	Clarification
VOL 2: EMPLOYER'S REQUIREMENTS /SPECIFICATIONS				
123	2.3.7.1	Contractor shall manufacture, test, supply, install and commission 2(two) (one for each unit) Shaft Brush gear with all associated devices for generator shaft earthing, shaft current protection and rotor earth fault sensing	If brush gear already exists please kindly send us drawings and further information about the existing arrangement. We would need drawings from the existing shaft, showing the location of the existing shaft brush.	There is no existing shaft brush gear, new ones to be installed for unit 2 and 3
124	6.2.5.2(a)	Solid insulated bus bars shall be made of high grade copper and suitable insulation for outdoor use	We would also like to propose Aluminium conductor instead of copper conductor as technically equal but cheaper solution.	copper as per tender requirements
125	6.2.5.2(c)	The solid insulated bus bars shall be designed with a safety factor of 2.5	It is not clear on which technical parameter safety factor 2.5 have to be applied and why? Please clarify for which technical parameter, do we need an safety factor of 2.5?	Electrical fault & environmental conditions withstand ability of the busbars. The busbars and their supports shall be designed to have a safety factor of 2.5 for electrical faults and environmental extremities (temperature, wind gusts, vibrations etc) from the values given in the tender document.
126	6.2.5.2(d)	Solid insulated bus bars shall be designed and tested to meet requirements of IEC 62271-1 and IEC 62271-200	The required standards (IEC 62271-1 and IEC 62271-200) are related to switchgears and it is not clear why you want to apply this standard or which part of this standard you want to apply. Please specify which points of particular standard you consider to be apply for application solid insulated Busbars. Instead of mentioned standards, we as manufacturer of solid insulated Busbars follow IEC60137. This IEC standard applies for cast resin insulated bushings and also for cast resin insulated Busbars. We perform for each Busbar element and connection a routine test according to standard IEC60137. The following test have to be performed under this routine test: - Power Frequency Test - Partial Discharge Test - Tan-Delta Measurement	The solid insulated busbars are considered an extension of the MV generator switchgear by the employer. All requirements applicable to the MV switchgear as defined by IEC62271 shall be met by the busbars e.g. temperature rise, short circuit withstand etc. Use of other IEEE or IEC standards for design, manufacture and testing of solid insulated bus bars are acceptable if the requirements of the proposed standard/s meets or exceed requirements of IEC62271 requirements for metal enclosed switchgear. Proposal to perform dielectric tests as per IEC60137 is accepted.

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			<p>- Capacitance Measurement</p> <p>At site producer of busbar recommend to perform after installation a VLF (Very low Frequency) test with 80% of the voltage level used during routine testing Please clarify and confirm</p>	
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ACKNOWLEDGEMENT OF CLARIFICATION NO. 3

We, the undersigned hereby certify that the addendum is an integral part of the document and the alterations set out in this clarification have been incorporated in the tender proposal.

Signed.....

Tenderer.....

Date.....