Mandatory Pre-Qualification Requirements-Technical for RC-Block (W96414300136), used in Revolving 3-phase rectifier bridge of high rating Brushless Exciters

Introduction:

RC Blocks are used in 3000rpm (max 3600 RPM) rotating 3-phase full wave rectifier bridge of Brushless Exciter in large ratings sets. Not only Electrical proven-ness of the components is important, but the Mechanical design of these components and their proven-ness is of utmost importance.

Pre-Qualification Requirements:

1. Vendor must confirm that they are regular manufacturer, and have supplied RC Block with minimum rating 5.6Ω, 0.6μF, 750Vrms AC, or higher, of 3-phase full wave Rectifier Bridge for rotating application (speed 3000rpm or more) during last 5 years. In support of this, vendor should furnish list of Purchase Orders, Customer name, rating, quantity and year of supply.

2. Vendor to also furnish copy of at least one PO (not older than Five year) from above list and detailed test certificates.

3. Routine and Type tests as listed below are required as per specification. The vendor should provide details of in-house testing facilities for these tests. In case of non-availability of facilities for type tests, vendor shall have tie-up with any National / International accredited test house. The details of the same shall be furnished to BHEL for reference purpose.

   3.1 Type test:

   - Over speed withstand ability test for centrifugal acceleration of 8200g minimum (1 cycle).
   - Fatigue cyclic test for centrifugal acceleration of 5750g minimum (1000 cycles).
   - Electrical loading during cyclic fatigue test.
   - Radiographic examination.

   NOTE: In case vendor has performed type tests on similar RC blocks manufactured by them (of rating and application as defined in clause-1), type test reports has to be submitted for our review. Else, they have to confirm that all type tests shall be performed.

   3.2 Routine test:

   - Capacitor unit (0.6μF±5%, 750Vrms AC) tested at 4KV DC for 5 minutes
   - Complete RC Block tested at 2.5KV DC for 5 minutes.
   - HV testing against earth at 6KV AC for one minute.
   - Resistance & capacitance measurement.

4. Vendor shall confirm to meet all the technical requirements of Drg. 01431001003 and clauses of spec.TG60562.

5. Vendor shall confirm that RC Block shall be capable to work at 150Hz sinusoidal 3-phase AC supply for rotating application.

6. Vendor shall confirm that the raw material/components Capacitor, Resistance wire, Casing, Epoxy resin/hardener, solder etc.) shall be sourced from reputed suppliers and details of the same shall be furnished to BHEL.

7. Vendor shall also confirm that in case of award of PO, detailed test certificates for tests mentioned in clause 3.1 and 3.2 including test certificates of sub-items shall be furnished along with supply.

Notes:

1. Details against clause 1 to 7 are mandatory to be submitted by vendor. Offers of vendors not meeting the mandatory PQR are liable to be rejected.

2. BHEL reserves the right to verify information submitted by vendor. In case any information is found to be false/ incorrect, the offer shall liable to be rejected.

3. All the documents and correspondence shall be in English/Hindi language.

Mandatory Pre-Qualification Requirements-Technical for RC-Block (W96414300896), used in Revolving 3-phase rectifier bridge of high rating Brushless Exciters

Introduction:

RC Blocks are used in 3000rpm rotating 3-phase full wave rectifier bridge of Brushless Exciter in large ratings sets. Not only Electrical proven-ness of the components is important, but the Mechanical design of these components and their proven-ness is of utmost importance.

Pre-Qualification Requirements:

1. Vendor must confirm that they are regular manufacturer, and have supplied RC Block with minimum rating 5.6Ω, 0.6µF, 750Vrms AC, or higher, of 3-phase full wave Rectifier Bridge for rotating application (speed 3000rpm or more) during last 7 years. In support of this, vendor should furnish list of Purchase Orders, Customer name, rating, quantity and year of supply.

2. Vendor to also furnish copy of at least one PO (not older than seven year) from above list and detailed test certificates.

3. Routine and Type tests as listed below are required as per specification. The vendor should provide details of in-house testing facilities for these tests. In case of non-availability of facilities for type tests, vendor shall have tie-up with any National / International accredited test house. The details of the same shall be furnished to BHEL for reference purpose.

   3.1 Type test:

   - Over speed withstand ability test for centrifugal acceleration of 8200g (1 cycle)
   - Fatigue cyclic test for centrifugal acceleration of 5750g (1000 cycles)
   - Electrical loading during cyclic fatigue test.
   - Radiographic examination

   NOTE: In case vendor has performed type tests on similar RC blocks manufactured by them (of rating and application as defined in clause-1), type test reports has to be submitted for our review. Else, they have to confirm that all type tests shall be performed.

   3.2 Routine test:

   - Capacitor unit (0.6µF±5%, 750Vrms AC) tested at 4KV DC for 5 minutes
   - Complete RC Block tested at 2.5KV DC for 5 minutes.
   - HV testing against earth at 6KV AC for one minute.
   - Resistance & capacitance measurement.

4. Vendor shall confirm to meet all the technical requirements of Drg. 31431001169, Drg. 11431001039, Drg. 21431001083 and clauses of spec.TG60562.

5. Vendor shall confirm that RC Block shall be capable to work at 150Hz sinusoidal 3-phase AC supply for rotating application.

6. Vendor shall confirm that the raw material/components Capacitor, Resistance wire, Casing, Epoxy resin/hardener, solder etc.) shall be sourced from reputed suppliers and details of the same shall be furnished to BHEL.

7. Vendor shall also confirm that in case of award of PO, detailed test certificates for tests mentioned in clause 3.1 and 3.2 including test certificates of sub-items shall be furnished along with supply.

Notes:

1. Details against clause 1 to 7 are mandatory to be submitted by vendor. Offers of vendors not meeting the mandatory PQR are liable to be rejected.

2. All the documents and correspondence shall be in English language.

Mandatory Pre-Qualification Requirements-Technical for Fuse (W96414300500), used in Revolving 3-phase rectifier bridge of high rating Brushless Exciters

Introduction:

Fuses are used in 3000rpm rotating 3-phase full wave rectifier bridge of Brushless Exciter in large ratings sets. Not only Electrical proven-ness of the components is important, but the Mechanical design of these components and their proven-ness is of utmost importance.

Pre-Qualification Requirements:

1. Vendor must confirm that they are regular manufacturer, and have supplied Fuse (minimum rating 400A, 700V or higher) for 3-phase full wave Rectifier Bridge for rotating application (speed 3000rpm or more) during last 7 years. In support of this, vendor should furnish list of Purchase Orders, Customer name, Fuse rating, quantity and year of supply.

2. Vendor to also furnish copy of at least one PO (not older than seven year) from above list and detailed test certificates.

3. Routine and Type tests as listed below are required as per specification. The vendor should provide details of in-house testing facilities for these tests. In case of non-availability of facilities for type tests, vendor shall have tie-up with any National / International accredited test house. The details of the same shall be furnished to BHEL for reference purpose.

   3.1 Type test:

   - Over speed withstand ability test for centrifugal acceleration of 6396g min. (1 cycle)
   - Fatigue cyclic test for centrifugal acceleration of 4442g min. (100 cycles)
   - Current loading during cyclic test
   - I^2t characteristics
   - Time-current characteristics
   - Current Interruption tests
   - Radiographic examination

   NOTE: In case vendor has performed type tests on similar Fuses manufactured by them (of rating and application as defined in clause-1), type test reports has to be submitted for our review. Else, they have to confirm that all type tests shall be performed.

   3.2 Routine test:

   - Measurement of fuse resistance (300μΩ ± 6%)
   - Measurement of dimensions and weight

4. Vendor shall confirm to meet all the technical requirements of Drg. 21431001031 and all clauses of spec. TG60563.

5. Vendor shall confirm that offered Fuse shall be capable to work at 150Hz sinusoidal 3-phase AC supply for rotating application.

6. Vendor shall confirm that the raw material / components (Silver foil, Insulation tube, Connection terminals, Quartz sand etc.) shall be sourced from reputed suppliers.

7. Vendor shall also confirm that in case of award of PO, detailed test certificates for tests mentioned in clause 3.1 and 3.2 including test certificates of sub-items shall be furnished with supply.

Notes:

1. All the documents and correspondence shall be in English/Hindi language.

Mandatory Pre-Qualification Requirements-Technical for Fuses (W96414300128), used in Revolving 3-phase rectifier bridge of high rating Brushless Exciters

Introduction:

Fuses are used in 3000 rpm (max 3600 RPM) rotating 3-phase full wave rectifier bridge of Brushless Exciter in large ratings sets. Electrical as well as mechanical design proven-ness of the components is of utmost importance.

Pre-Qualification Requirements:

1. Vendor must confirm that they are regular manufacturer, and have supplied Fuse (minimum rating 800A, 800V or higher) for 3-phase full wave Rectifier Bridge for rotating application (speed 3000 rpm or more) during last 5 years. In support of this, vendor should furnish list of Purchase Orders, Customer name, Fuse rating, quantity and year of supply.

2. Vendor to also furnish copy of at least one PO (not older than Five years) from above list and detailed test certificates.

3. Routine and Type tests as listed below are required as per specification. The vendor should provide details of in-house testing facilities for these tests. In case of non-availability of facilities for type tests, vendor shall have tie-up with any National / International accredited test house. The details of the same shall be furnished to BHEL for reference purpose.

   3.1 Type test:

   - Over speed withstand ability test for centrifugal acceleration of 6396g minimum. (1 cycle)
   - Fatigue cyclic test for centrifugal acceleration of 4442g minimum. (100 cycles)
   - Current loading during cyclic test
   - I^2t characteristics
   - Time-current characteristics
   - Current Interruption tests
   - Radiographic examination

   NOTE: In case vendor has performed type tests on similar Fuses manufactured by them (of rating and application as defined in clause-1), type test reports has to be submitted for our review. Else, they have to confirm that all type tests shall be performed.

   3.2 Routine test:

   - Measurement of fuse resistance (150μΩ ± 6%)
   - Measurement of dimensions and weight

4. Vendor shall confirm to meet all the technical requirements of Drg. 21431001010 and all clauses of spec.TG60563.

5. Vendor shall confirm that offered Fuse shall be capable to work at 150 Hz sinusoidal 3-phase AC supply for rotating application.

6. Vendor shall confirm that the raw material / components (Silver foil, Insulation tube, Connection terminals, Quartz sand etc.) shall be sourced from reputed suppliers. Name of such suppliers shall be informed to BHEL.

7. Vendor shall also confirm that in case of award of PO, detailed test certificates for tests mentioned in clause 3.1 and 3.2 including test certificates of sub-items shall be furnished with supply.

Notes:

1. Details against clause 1 to 7 are mandatory to be submitted by vendor. Offers of vendors not meeting the mandatory PQR, are liable to be rejected.

2. BHEL reserves the right to verify information submitted by vendor. In case any information is found to be false/ incorrect, the offer shall liable to be rejected.

3. All the documents and correspondence shall be in English/Hindi language.

MANUFACTURER'S NAME AND ADDRESS		QUALITY PLAN				TO BE FILLED BY BHEL	TO BE FILLED BY BHEL
BHEL	VENDOR'S NAME	ITEM		QP NO.			
				REV			
		DRG. NO.	AS PER PO				
		SPEC.	AS PER PO				
		REV		Page 1 of 1			

SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY			REMARKS
										M	B	N	
1	2	3	4	5	6	7	8	9	D	10			11

Note 1: BHEL approved NDT procedure should be obtained by vendors before performing NDT , if the same is not already available with the vendor for the job.
Note 2: All page of inspection documents shall be numbered in chronology with the QAP clause , dully mentioning the corresponding QAP clause nos. at the top of each page. One index page containing the documents descriptions, their page no & QAP clause shall be attached upfront the inspection documents.

		LEGEND: ! RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER INDICATE 'P' PERFORM 'W' WITNESS AND 'V' VERIFICATION	FOR CUSTOMER USE	
MANUFACTURER/SUBCONTRACTOR		ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER		APPROVED BY