

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 1 of 22
 Section : Formats
 Topic : e-Tender
 Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
FORMAT NO.:CPRI/PUR/ETBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Tender Enquiry No : STDS/12-1/2019-20/PUR/O&M/A-1985/

Description of the Equipment/Goods/Services : MAKE SWITCHES FOR 1250 MVA, SHORT CIRCUIT TESTING STATION.

Note : 1) The Offers should be submitted only in this format otherwise the offer will be liable to be rejected.

2) All blue fields are mandatorily to be filled in.

3) Pre-despatch Inspection & Training expenses shall be borne by CPRI. Information regarding the readiness of the equipment/machinery for the Pre-despatch Inspection should be communicated in writing by the supplier at least 70 (Seventy) days in advance, to obtain clearance from the Ministry, Government of India for deputation of nominated CPRI officers.

Name of the Vendor

Quotation Number and Date

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/Remarks if any
1	SPECIAL INSTRUCTIONS FOR BIDDER				
	Please read following instructions carefully before submitting your bid.				
1.1	All the drawings, i.e. elevation, side view, plan, cross sectional view, wiring, well as in soft copy (PDF format). All documents shall be written in English and THREE copies shall be delivered. connections etc., shall be submitted in hard copies as well as in soft copy (PDF format). All documents shall be written in English and THREE copies shall be delivered.				
1.2	The bidder shall submit Quality Assurance Plan for manufacturing process with the technical bid.				
1.3	The bidder shall have to submit all the required type test reports for the offered item. In absence of this, the evaluation shall be carried out accordingly as non-submission of type test reports.				
1.4	The bidder must fill up all the point of GTP for offered item/s. Instead of indicating "refer drawing, or as per IS/IEC", the exact value/s must be filled in.				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 2 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
1.5	All the points other than GTP, which are asked to confirm in technical specifications must be submitted separately with the bid.				
1.6	The bidder is required to impart training in view of manufacture, assembly, erection, operation and maintenance for offered item, at his works, to the person/s identified by CPRI, in the event of an order, free of cost. The cost of logistics (all travel, stay etc.) will be borne by the supplier.				
1.7	Please note that the evaluation will be carried out on the strength of content of bid only. No further correspondence will be made.				
1.8	The bidder shall bring out all the technical deviation/s only at the specified annexure.				
2	QUALIFYING REQUIREMENT DATA (FOR SUPPLY)				
	Bidder to satisfy all the following requirements:				
2.1	The bidder shall be Original Equipment Manufacturer (OEM).The offered equipment have to be designed, manufactured and tested as per relevant IS/IEC with latest amendments.				
2.2	The bidder should have supplied or higer rating make switch in the last five years and shall be in operation as on date of bid submission. The performance certificate from end user shall be submitted.				
2.3	Equipment offered shall have Type Test Certificates from accredited (traceability to ILAC or APLAC shall be mentioned) laboratory (accredited based on ISO/IEC Guide 25 / 17025 or EN 45001 by the National Accreditation body of the country where laboratory is located) who must be member of STL, as per IEC / IS / technical specification. The type test reports shall not be older than FIVE years and shall be valid up to expiry of validity of offer.				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 3 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
 FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/Remarks if any
3	TECHNICAL SPECIFICATIONS FOR 15 kV MAKE SWITCH				
	The specification details the requirement of four numbers making switches intended for use for short circuit test duties at short circuit test laboratory of CPRI, Bhopal.				
3.1	SCOPE:				
	The scope covers design, engineering, manufacture, assembly, inspection and testing at manufacture's works, supply, delivery and erection & commissioning of Four numbers Make Switches complete with structures, accessories, auxiliary equipment and mandatory spares specified herein for their satisfactory operation. It is not the intent to specify completely here all the details of design and construction of the Make Switches, which shall conform in all respects to the high standard of engineering design and workmanship and shall be capable of performing in continuous commercial operation up to the guarantee in manner acceptable to the CPRI who will interpret the meanings of drawings and specifications and shall have power to reject and work or material which in his judgment is not in accordance therewith. The Make Switches offered shall be complete with all components necessary for their effective and trouble-free operation.				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 4 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
	Such components shall be deemed to be within the scope of the Bidder irrespective of whether they are specifically brought out in this specification and / or in the commercial order or not. It should also be type tested and supposed to pass all accepted tests as per IEC/IS.				
3.1.1.	Service condition				
	1) Altitude above MSL : 527m				
	2) Ambient Tempertaure : Min: 4°C and Max: 50°C				
	3) Type of Installation: Indoor				
3.2	SYSTEM PARTICULARS				
3.2.1	This covers the synchronized make switches use for making high currents at accurate and reliable switching times and with minimum deviation so that tests can be initiated at the optimum preset instant.				
3.2.2	They shall be installed on the basement of the short-circuit generator building, downstream of the master circuit-breakers.				
3.2.3	They shall be single pole type and suitable for indoor operation.				
3.3	STANDARDS				
	The Make Switches shall conform to the latest revisions with amendments available at the time of testing of relevant standards, rules and codes. Equipment meeting with the requirements of any other authoritative standards, which ensures equals or better quality than the standards may also be offered. In that case, salient points of difference between the standards adopted and the specified standards shall be clearly				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 5 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
 FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/Remarks if any
	brought out in the bid and shall be considered acceptable, if found justified after due technical evaluation. Along with test report the copy of the standard shall be attached.				
3.4	LIST OF DRAWINGS AND DOCUMENTS				
	The Bidder shall furnish three sets of relevant descriptive and illustrative published literature pamphlets and the following drawings for preliminary study along with the offer.				
a)	General outline drawings showing dimensions and shipping weights, quantity of insulating media, air receiver capacity if any etc.				
b)	Sectional views showing the general constructional features of the Make Switches s including operating mechanism, arcing chambers and contacts etc., with lifting dimensions for maintenance.				
c)	Schematic diagrams of Make switch offered for control supervision and re-closing.				
d)	Structural drawing, design calculations and loading data for support structures.				
e)	Foundation drilling plan and loading data for foundation design.				
f)	Terminal pads.				
	The bidder may submit any other drawing found necessary in addition to the drawings stated above. documents must be written in English and three copies shall have to be submitted.				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 6 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
3.5	TEST REPORTS				
i)	Two copies of acceptance test reports shall be furnished to the CPRI. One copy will be returned, duly certified by the CPRI and only there afterwards the material be dispatched.				
ii)	List of records and routine test reports shall be maintained by the supplier at his works for inspection by the CPRI.				
iii)	All test reports of tests conducted during manufacture shall be maintained by the Supplier. These shall be produced for verification as and when requested for by the CPRI.				
3.6	TEMPERATURE RISE				
	The temperature rise and the maximum temperature on any part of the equipment when in service of site under continuous full load conditions shall not exceed the permissible limits as per IEC latest publication, this shall not be exceeded when corrected for the difference between ambient temperature at site and the ambient temperature specified in the relevant specification. The correction proposed shall be stated in the bid and shall be subject to the approval of the CPRI. Make switch shall be so designed that when operated within their specified rating, the temperature of each part will be limited to values consistent with a long life of the material used. The temperature shall not exceed that indicated in IEC-62271-100 under specified ambient conditions.				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 7 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
3.7	PRINCIPAL PARAMETERS				
	The make switches shall conform to the specific technical requirements specified hereunder:				
S.NO.	Parameters	Value			
1	Rated system voltage (kV rms),	15			
2	Rated Frequency	(50 Hz)(+/-5%)			
3	Maximum/Highest system Voltage kV rms	17.5kV			
4	Continuous current rating (A) rms	To be mentioned by bidder			
5	Type	1 pole indoor			
6	Number of Poles	1			
7	Type of operation	Individually operated single pole			

8	Nominal duty Cycles	<p>The making switch will be operated with the basic duty cycles described here under, at rated voltage and rated short-time current IR as specified in Sl. No. 3.7- Principle Parameters</p> <p><u>NOTE:</u> "ON" means "current flowing through the making switch"</p> <p>"OFF" means "no current flowing through the making switch"</p> <p>a) 6 nos. of totally asymmetrical short circuits at rated current (Sl. No. 12), each one lasting 0.15 s, following the operating dutycycle: closing operation, asymmetrical, 0.15 s ON, opening at on load; 3 min OFF; closing operation, asymmetrical, 0.15 s ON, opening on load; 3 min OFF; closing operation, asymmetrical, 0.15 s ON, opening on load; 3 min OFF; closing operation, asymmetrical, 0.15 s ON, opening on load; 3 min OFF; closing operation, asymmetrical, 0.15 s ON, opening on load; 3 min OFF; closing operation, asymmetrical, 0.15 s ON, opening on load; 3 min OFF; closing operation, asymmetrical, 0.15 s ON, opening on load; 3 min OFF; closing operation, asymmetrical, 0.15 s ON, opening on load; 3 min OFF; At the end of this test cycle, a pause of 30 min shall be followed.</p>			
		<p>b) 1no. of closing operation of a totally asymmetrical short-circuit at rated current (Sl. No. 12), repeatable every 30 minutes. The duration of the current flow shall be 1 s.</p>			
9	Max. closing time (as per CESI Spec)	<10msec.			
10	1.0 minute power frequency withstand voltage (kV rms)	38			
11	Impulse lightning withstand voltage, kV (peak)	95			
12	Rated short circuit making current capacity symmetrical (kA)	100			
13	Rated short circuit making current capacity asymmetrical (kApeak)	300kApeak			
14	Short time current carrying capability for one second (kA)	100			
15	Short time current carrying capability for three second (kA)	60			
16	The maximum pre-arcing time of the make switches shall not exceed	≤0.2msec.			

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 8 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
17	The reliability of the make time shall be at least	≤0.2 msec.			
18	i) Rating of auxiliary contacts	10 A at 110 V DC			
	ii) No. of auxiliary contacts	10 NO and 10 NC as spare			
19	Noise level during no load operation.	70 db (max.)			
20	No. of closing and tripping coils.	One trip coil and one close coil			
3.8	DESIGN REQUIREMENTS				
3.8.1	The four make switches to be supplied as well as their control units shall be identical and shall be such that one unit could be replaced by another.				
3.8.2	It shall be possible to know the operating position of the make switches by means of a reliable position indicating device whose information will be remotely transmitted to the station control room. Reliability of the indicating device shall be proved to guarantee that the actual positions of the make switches are displayed so as to ensure safety of operating personnel and equipment.				
3.8.3	The bidder shall provide all the electronic and pressure control system items necessary to allow operation of make switches in compliance with the requirements of this specification, i.e. mainly a control unit per make switch.				
3.8.4	Each make switch shall be selected independently for making operation:				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 9 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
 FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
	- If a make switch, as one of the three poles of the three-phase making system is selected, it shall be controlled in parallel with the other poles,				
	- If this pole is not selected (single-phase test), it shall be safely positioned (either in closed or open position), the convenient position being chosen by the test operator according to the test to be performed.				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 10 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
4	GENERAL TECHNICAL REQUIREMENTS				
	Any part of the Make Switches, especially the removable ones, shall be freely interchangeable without the necessity of any modification at site. Base, support structure, control cabinet, central control cabinet and foundation bolts and operating mechanisms are included in the scope of supply. Compressed SF6 gas (if applicable) also included in scope of supply. All necessary parts to be provided for a complete Make Switches installation such as main equipment, terminal, control parts, connectors and other devices, whether specifically called for herein or not. The Make Switches shall be designed for single phase reclosing breaker. All other parts like control cabinet, mechanism, housing shall be epoxy painted as per shade 697 IS-5. Bolts, nuts etc shall be hot dip galvanized/steel. The terminal pads shall be of aluminium alloy/copper. In case if terminal pads are of copper, than they will be silver plated with				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 11 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
 FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
	All surfaces with gaskets shall be smooth, straight and reinforced, if necessary to minimize distortion and to make a tight seal. The operating rod connecting the operating mechanism to the arc chamber shall have adequate seals. The manufacturer shall guarantee that the gas leakage rate should not exceed 1 % p.a. failing which total cost of refilling the gas including service charges shall be borne by the supplier. Facility shall also be provided to reduce the gas pressure within the breaker to a value not exceeding 8 millibars within 4 hours or less. Sufficient gas shall be provided to fill all the Make Switches installed. In addition to this 20% of the total gas requirement shall be supplied in separate cylinders as spare requirement. The bidder shall furnish complete literature regarding assembly, maintenance and charging procedures. The supply shall cover necessary remote control switches, temperature compensated gas pressure switches which shall give an alarm or lockout operation of the Make switch in case density of SF6 fall below a predetermined value or when the air pressure falls below the present values. The bidder shall provide the following spare parts of Make Switches for free of cost:				
i)	SF6 gas together 1 No. (Cylinder preferably 10 KG along with gas cylinder with manufacture's certificate for quality of SF6 gas and certificate of explosive for cylinder).				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 12 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
ii)	Trip coil 3 sets				
iii)	Closing coil 3 sets One set of special tools, if any, required for assembly gas charging and maintenance of the SF6 Make Switches s shall be supplied. The prices of the same may be quoted along with list separately.				
5	NAME AND RATING PLATES				
	Make Switches and its operating device shall be provided with a rating plate or plates marked with but not limited to following data:				
a)	Manufacturer's or trade mark.				
b)	Serial number or type designation making it possible to get all the relevant information from the manufacturer.				
c)	Year of manufacture.				
d)	Rated voltage.				
e)	Rated insulation level.				
f)	Rated frequency.				
g)	Rated normal current.				
h)	Rated short circuit breaking current.				
i)	First pole to clear factor.				
j)	Rated duration of short circuit.				
k)	Rated auxiliary DC supply voltage of closing and opening devices.				
l)	Rated pressure of compressed air gas for operation and interruption.				
m)	Rated out of phase breaking current.				
n)	Rated supply voltage of auxiliary circuits.				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 13 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
o)	Rated supply frequency of auxiliary circuits.				
p)	Purchase order number and customer's name.				
	The coils of operating devices shall have a reference mark permitting the data to be obtained from the manufacturer. The rating plate shall be visible in position of normal service and installation. The rating plate shall be weather proof and corrosion proof.				
6	TESTS				
6.1	TYPE TESTS				
	Making switches shall have been type tested according to a specific test program to be communicated to the CPRI, based on the technical feasibility and following IEC Standards 62271-1 and 62271-100 where applicable. In principle the following type of tests shall have been performed, for which reference to the corresponding clause of IEC 62271-100 is given hereinafter, as far as applicable.				
No.	TESTS	IEC 62271-100 Clause			
1)	General	6.1			
2)	Dielectric tests	6.2			
3)	Measurement of the resistance of circuit	6.4			
4)	Temperature rise test.	6.5			
5)	Short-time withstand current and peak with stand current tests	6.6			
6)	Mechanical and environmental tests	6.101			
7)	Basic short-circuit test-duty TD 100 S, restricted to making operation	6.106.4.4			
	Type test repetition is not required provided that the Bidder can submit valid type test certificates. Otherwise type test will be performed at Bidder's exclusive cost.				
6.2	ACCEPTANCE AND ROUTINE TESTS				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 14 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
 FORMAT NO.:CPRI/PUR/ETBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
	Making switches shall be subjected to routine tests according to a specification program to be agreed with the CPRI, based on the technical feasibility and following IEC Standards 62271-1 and 62271-100 where applicable, to verify the quality and performances of the product. In principle the following type of tests shall be performed, for which reference to the corresponding clause of IEC 62271-100 is given hereinafter, as far as applicable.				
No.	TESTS	IEC 62271-100 Clause			
1	Dielectric test on the main circuit	7.1			
2	Dielectric test on the auxiliary and control circuits	7.2			
3	Measurement of the resistance of the main circuit	7.3			
4	Tighness Test	7.4			
5	Mechanical operation tests (including resistance and current measurements of closing oils and checking anti-pumping function)	7.101			
6	Desing and visual checks	7.5			
7	Timing test of making switch (including measurement of operating time, stroke, speed, current consumption of closing coil and also auxiliary contacts of close coil). The uncertainty of closing times shall be evaluated.	--			
	The Bidder shall inform CPRI of the Acceptance Tests program 60 days in advance and shall allow CPRI representatives to witness them.				

6.3	Special tests (short-circuit cycle tests)				
	<p>The execution of the special tests is subjected to CPRI decision. Alternatively the Bidder may demonstrate the capability of his product by appropriate certifications. Short circuit cycle test foresees the application of the rated duty cycles to be withstood by the making switches(defined in Procedure A).</p> <p>The following test cycle shall be the withstood with success:</p> <ol style="list-style-type: none"> 1. Application of duty cycle a) of Procedure A. 2. After 30 mintues, appliacion of duty cycle b) of Procedure A. <p>Test procedure and evaluation of results shall comply with relevant IEC Standards. All the above tests (type, routine and special tests), measurements and verifications are totally included under the Bidder's scope of work and shall be performed on all the furnished equipment inb accordance to relevant standards.</p>				
7	INSPECTION				
	<p>The inspection may be carried out by the CPRI at any stage of manufacture. The Supplier shall grant free access to the CPRI/CPRI's representative at a reasonable time when the work is in progress. Inspection and acceptance of any equipments under this specification by the CPRI shall not relieve the Supplier of his obligation of furnishing equipment in accordance with the</p>				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 15 of 22
 Section : Formats
 Topic : e-Tender
 Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
 FORMAT
 NO.:CPRI/PUR/eT
 BID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/Remarks if any
	specification and shall not prevent subsequent rejection if the equipment is found to be defective. The supplier shall keep the CPRI informed in advance, about the manufacturing programme so that arrangement can be made for inspection. The CPRI reserves the right to insist on witnessing the acceptance/routine testing of the bought out items. No material shall be dispatched from its point of manufacture unless the material has been satisfactorily inspected and tested. All charges in connection with inspection by CPRI's personal such as travel, accommodation and incidentals shall be borne by the CPRI.				
8	TRAINING OF PERSONNEL				
	The supplier shall provide necessary facilities for training personnel at their works/principals works relating to design, manufacture, assembly and testing and operation maintenance for two personnel free of cost. All, travel and incidental charges of the personnel will be borne by the Supplier.				
9	PACKING AND FORWARDING & UNLOADING				
	The equipment shall be packed in suitable crates so as to withstand handling during transit. The supplier shall be responsible for any damage to the equipment during transit, due to improper and inadequate packing and handling.				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 16 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
	The easily damageable materials shall be carefully packed and marked with the appropriate caution symbols. Wherever necessary, proper arrangement for lifting, such as lifting hooks etc., shall be provided. Any material found short inside the packing cases shall be supplied by the Supplier without any extra cost. Each consignment shall be accompanied by a detailed packing list containing the following information:				
a)	Name of the consignee.				
b)	Details of consignment.				
c)	Destination.				
d)	Total weight of consignment.				
e)	Handling and unpacking instructions.				
f)	Bill of material indicating contents of each package and spare material. The Supplier shall ensure that the packing list and bill of material are approved by the CPRI before despatch.				
10	MANDATORY SPARES AND TOOLS				
	Mandatory spares and tools shall also be included in the scope.				
11	WARRANTY				
	The Supplier has to provide warranty for the product supplied for a period of two years from the date of commissioning.				
12	GUARANTEED TECHNICAL PARAMETERS				
	The Guaranteed Technical particulars for the equipment being supplied shall be provided with the Bid as specified in this technical specification at Annexure-I. The Bids received without guaranteed technical particulars shall be treated as Non-responsive.				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017

Issue No : 2
 Issue Dt. : 30.06.2003

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/Remarks if any
Annexure-I					
GUARANTEED TECHNICAL PARTICULARS FOR 15 kV SF6 MAKE SWITCHES TO BE FILLED BY BIDDER					
Name of the Bidder:					
Offer Number and Date:					
S.No.	Parameters	Value			
1	Maker's name country of manufacture. a) Manufacturer's type designation.				
2	Applicable Technical Standards				
3	Rated voltage (kV) b) Rated Frequency (Hz)				
4	Number of Poles				
5	Class (Indoor)				
6	Rated normal current: a) Under site conditions (A) b) Rated (A)				
7	Rated short circuit breaking current: a) R.M.S. value of A.C. component of rated short circuit current (kA) b) Percentage DC component Asymmetrical breaking current (including DC component) c) Certificate or report no.				

8	Rated short circuit making current (kA)				
9	Rated operating sequence .				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 18 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
10	Rated duration of short circuit (sec.)				
11	Opening time (ms)				
12	Arcing time (ms) a) At 10% rated breaking current b) At 25% rated breaking current c) At 50% rated breaking current d) At 100% rated breaking current Maximum Arcing time at lowest fault currents				
13	Break time (ms) a) At 10% rated breaking current b) At 25% rated breaking current c) At 50% rated breaking current d) At 100% rated breaking current Maximum break time at lowest fault current				
14	Closing time (ms)				
15	Rate of contact travel : a) At tripping (meters/sec.) b) At closing (meters/sec.)				
16	Type of main contact				

17	Type of arcing-contacts and/or arc control device				
18	Material of contacts a) Main b) Arcing				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 19 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
 FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/Remarks if any
19	Whether contacts are silver plated				
20	Thickness of silver coating (mm)				
21	Contact pressure (kg/sq. mm.)				
22	Insulation level of the breaker : a) 1 minute power frequency withstand voltage (kV rms) b) Impulse withstand test voltage (kV peak)				
23	Type of closing mechanism				
24	a) Normal voltage of closing b) Pick up range, (volts) Power at normal voltage of closing mechanism, (watts) c) Power at 85% of normal voltage, (watts)				
25	Type of tripping mechanism				

26	Normal voltage of tripping coils, (volts)				
27	a) Power at normal voltage for tripping coils, (watts) b) Power at 70% normal voltage for tripping coils, (watts)				
28	Arc duration at 100% current (ms) Interruption capacity: a) Opening Arcing time Total interrupting time measured from instant of trip coil energisation to arc extinction b) Closing time measured from instant of application of power to closing device up to arcing contacts touching,				
29	Critical current (current giving the longest arc when a break takes place) (kA)				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
 Dt of Revision : 25.07.2017
 Page No. : 20 of 22
 Section : Formats
 Topic : e-Tender Technical Specification Document

Issue No : 2
 Issue Dt. : 30.06.2003
 Issued by : P A
 Documents : PPM
 FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
30	No. of openings the Make Switches is capable of performing without inspection, replacement of contacts or other main parts. a) at 50% rated current b) at 100% rated current c) at current corresponding to 50% rated breaking capacity d) at current corresponding to 100% rated breaking capacity				
31	a) Weight of complete Make Switches (kg.) b) Impact loading for foundation design, to include dead load plus impact value on opening at maximum interrupting ratings, in terms of equivalent static load, (kg.) c) Overall dimensions: Height (mm) Width (mm) Length (mm)				
32	Operating mechanism Details:				
33	SF6 GAS (if applicable) Rated pressure of SF6 gas in the Make Switches (kg/sq.cm)				
34	Rated pressure of SF6 gas in the gas cylinders (kg./sq.cm.)				

35	Quantity of SF6 gas required per single pole unit (kg.)				
36	Quantity of SF6 gas per cylinder (kg.)				
37	Weight of empty cylinder (kg.)				
38	Quantity of absorbent required per pole (kg.)				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03
Dt of Revision : 25.07.2017
Page No. : 21 of 22
Section : Formats
Topic : e-Tender Technical Specification Document

Issue No : 2
Issue Dt. : 30.06.2003
Issued by : P A
Documents : PPM
FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/Remarks if any
39	Pressure and temperature at which the temperature compensated gas pressure switch a) Alarm (kg./sq.cm., deg.C) b) Cut off (kg/sq.cm. deg.C)				
40	Name of SF6 supplier and country of origin				
41	Quantity of SF6 gas supplied for a) Actual use in Make switch (kg.) b) As spare (kg.)				

42	Chemical composition of gas: a) Qty. of air by weight (ppm) b) Qty. of H2O by weight (ppm) c) Qty. of CF4 by weight (ppm) d) Qty of free acid by weight (ppm)				
43	No. of auxiliary contacts provided a) Those close when breaker is closed. b) Those open when breaker is closed. c) Those adjustable with respect to the position of main contacts.				
44	d) Continuous rating of contacts. e) Breaking capacity of contacts.				
45	Whether the equipment covered by this Bid have been fully type tested and if so, whether the copies of the type test cert. enclosed to the bid offer.				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 03

Dt of Revision : 25.07.2017

Page No. : 22 of 22

Section : Formats

Topic : e-Tender Technical Specification Document

Issue No : 2

Issue Dt. : 30.06.2003

Issued by : P A

Documents : PPM

FORMAT NO.:CPRI/PUR/eTBID/GTP

Section II -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BANGALORE Web: www.cpri.in, www.tenderwizard.com/CPRI, Telefax: 080-2360 4446

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any

PN: 1) Bidder shall indicate complete details/information how the CPRI GTP are complied with against each and every specification parameters & mere statement of '**complied**' do not suffice the requirement.

2)A detailed technical/catalogue/literature/phamplet and any other technocal details shall be submitted in hard copy in a sealed cover superscribing enquiry number and due date so as to reach the below mentioned address within due date and time.

3) The Indian representative of the foreign/overseas firms shall submit the Letter of Authorization issued by their principals.

4)The bidder shall submit the quotation / offer in the above prescribed format of Section IA, IB and II only . Informations any other forms shall shall be rejected.

**Address : Joint Director (Purchase), Purchase Authrity ,
Central Power Research Institute, Govindpura, Bhopal-4620223
Telefax: 0755-2586283, email:praveens@cpri.in , web : www.cpri.in**