Indent no. 20222556

Mandatory Pre-Qualification requirements for Duplex Platinum RTD (W96414500224,W96414501557)

Description:

The Duplex platinum RTD with PT100 Sensor is used in generators/exciter for Measurement of temperature of ventilation air/gas/water. The PT 100 Sensor should be of very reliable and proven design for temperature measurement.

1.0 The vendor should be a regular manufacturer of such RTD with Non inductively wound platinum wire-PT100 with following requirements –

S. No.	Parameter	Value
(i)	Suitable Atmosphere	Tropical, humid and dusty atmosphere
(ii)	Material of Protective sheath for RTD Element	Special Brass(SoMs58A12)/SS316/SS321 or equivalent.
(iii)	Operating Temperature	0 °C to 150 °C (minimum)
(iv)	Terminal head	The terminal/connection head should be die cast Aluminum or light metal alloy with protection class IP65 or better.
(v)	Terminal block	Terminal block should be of ceramic material and fixed inside the terminal head with the help of spring loaded fixing screws. The measuring tip of RTD should be pressed inside thermowell in assembled condition with the help of spring loaded fixing screw.
(vi)	Resistance element	Resistance value and tolerance as per IS 2848. Or IEC:60751, Tolerance class A.The Measuring insert should be consist of two resistance elements of non inductively wound platinum wire(PT100). Each resistance element should have nominal resistance of 100 ohms at 0° C. The resistance elements should be embedded with suitable insulating powder/paste in a protective sheath; and connected to PTFE insulated wire by brazing.
(vii)	Routine Test	Resistance Accuracy and IR test
(viii)	Type Test	Thermal response test, Self heating test, Thermo-electric effect test, Drop test, Vibration test, etc.

2.0 In support of above, vendor shall furnish technical details of RTD with PT100 Sensor in below mentioned format for P.O. executed in last 7 years (from date of enquiry). Vendor shall also furnish at least one PO copy from the list.

Sl No	PO No.	Quantity Nos.	Size/Dimension of Sensor Element	Material of Sensor Element	Name & address of customer	Date of supply

3.0 Vendor to furnish test certificates against P.O. submitted as per clause 2.

4.0 Vendor to furnish acceptance certificate or material receipt from one of the customer of RTD with PT100 Sensor against the P.O. submitted as per clause 3. (Original Certificate or through e-mail directly from the customer). Acceptance certificate should contain information like item details and its application or correlation with P.O.

5.0 **Manufacturing Facilities:** Vendor shall confirm that they have manufacturing facilities suitable to manufacture the RTD as per enquiry and furnish details of the manufacturing facilities available at their works. If the vendor plans to outsource any activity particulars of the same along with details of the sub-vendor/laboratory are to be furnished to BHEL.

6.0 **Testing Facilities:** Details of in-house testing facilities (like dimensional measurement, Type tests and Routine tests) as per the requirement of enquiry specification to be submitted with offer. In case of outsourcing of tests, vendor to agree for testing at Government/International agency's accredited labs only.

7.0 Vendor shall confirm to meet all the technical requirements of Mat. codes W96414500224 & W96414501557 per BHEL specification and drawing given in enquiry.

Note:

1) All correspondence shall be in English/Hindi Language.
2) If any document provided by vendor is in any language other than English/Hindi, it must be supported with its English translation.

7.1.23
Prepared by:
Reena Maurya
(Manager-EME)

07.1.2023
Approved by:
SS Meena
(DGM-EME)

PQR/EME/TG035/29

17.01.2023

Mandatory Pre-Qualification requirements for TRIPLEX NICKEL CHROME NICKEL DETECTOR as per BHEL specification TG60399 (Material code-W96413503211)

Description:

Triplex Ni/Cr-Ni Thermocouple (K type thermocouple), as per IS:7358, is used for bearing temperature monitoring. The Thermocouple should be of very reliable and proven design for temperature measurement.

1.0 The vendor should be a regular manufacturer of such Triplex Ni/Cr-Ni Thermocouple with minimum following requirements –

Si No.	Parameter	Value
(i)	Suitable Environment	Tropical atmosphere
(ii)	Range and RH	0 to 150C and 95% maximum
(iii)	Thermo element	Nickel/ Chrome-Nickel, characteristics shall confirm to DIN IEC-584
(iv)	Accuracy	Class-a Type-K as per DIN IEC-584
(v)	Type Test	As per IS:7358

2.0 In support of above serial number-1, vendor shall furnish technical details of Triplex Ni/Cr-Ni Thermocouple in below mentioned format for at least one nos. (1) of the P.O. executed in past 10 years (from date of enquiry) along with P.O. copies.

S. No.	Brief technical details	Application	Name & address of customer	Date of supply
1	-Type of thermocouple -Lead size			

3.0 Vendor to furnish correlated test certificates against the P.O. submitted as per clause 2.

4.0 Vendor to furnish acceptance certificate from the end users of Triplex Ni/Cr-Ni Thermocouple against the P.O. submitted as per clause 2. (Original Certificate or through e-mail directly from the customer). Acceptance certificate should contain information like item details and its application or correlation with P.O.

5.0 The vendor should have in-house manufacturing facilities for manufacturing of Triplex Ni/Cr-Ni Thermocouple. Vendor to furnish details of the manufacturing facilities available at their works.

PQR/EME/TG035/29 17.01.2023

Mandatory Pre-Qualification requirements for TRIPLEX NICKEL CHROME NICKEL DETECTOR as per BHEL specificatcn TG60399 (Material code-W96413503211)

6.0 The vendor should have facilities for carrying out the following tests and provide details of test ecuipment available at their works.

1) Insulation Resistance Test
2) Accuracy Test

7.0 The tasting facilities available at vendor's works should be duly calibrated against measurement standards traceable to national/international measurement standards. Vendor to confirm the same. Alternatively, vendor to indicate their tie-up with accredited laboratory for performing Routine/Type tests or agree to carry out at NABL/ILAC/APLAC approved lab and provide the details for the same.

8.0 Vender shall confirm to meet all the technical requirements of Specification TG60399.

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

PQR/EME/TG035/28

17.01.2023

Mandatory Pre-Qualification requirements for 4-Wire Simplex RTD for Core as per BHEL specification TG60661 (Material code-W96413507055)

Description:

The 4-Wire Simplex RTD is used in generators for Measurement of core temperature. The 4-Wire Simplex RTD for Core should be of very reliable and proven design for temperature measurement.

1.0 The vendor should be a regular manufacturer of such 4-Wire Simplex RTD for Core with minimum following requirements –

Si No.	Parameter	Value
(i)	Suitable Environment	Tropical, humid and dusty atmosphere
(ii)	Material of Square plate and enclosure for RTD Element	X6CrNiMoTi17122(1.4571)/SS321
(iii)	Operating Temperature (Range)	0 C to 200 C
(iv)	Leads	The leads shall be of 19/0.16mm stranded copper with poly- tetrafluoroethylene insulation (with min. radial thickness of 0.25mm).
(v)	Resistance element	Resistance value and tolerance class-A as per IS 2848. The elements shall be wire wound type using insulated wire and suitably encapsulated in silicon alumina paste and epoxy resin
(vi)	HV Test	1.5 kV AC for 1 Min
(vii)	IR Test	Should not be less than 100M ohms when measured with 500VDC meggar at 20C
(viii)	Routine Test	Resistance Accuracy and IR test
(ix)	Type Test	As per IS:2848
(x)	Pull Test	The leads shall be suitably brazed to the resistance element. Each lead shall withstand Pulling force of 4 kg when applied to each of the leads.

Mandatory Pre-Qualification requirements for 4-Wire Simplex RTD for Core as per BHEL specification TG60661 (Material code-W96413507055)

2.0 In support of above serial number-1, vendor shall furnish technical details of 4-Wire Simplex RTD for Core in below mentioned format for at least one nos. (1) of the P.O. executed in past 10 years (from date of enquiry) along with P.O. copies.

S. No.	Brief technical details	Application	Name & address of customer	Date of supply
1	Type of RTD Size of RTD-5.5X5.5X30 mm Max.			

3.0 Vendor to furnish correlated test certificates against the P.O. submitted as per clause 2.

4.0 Vendor to furnish acceptance certificate from the end users of 4-Wire Simplex RTD for Core against the P.O. submitted as per clause 2. (Original Certificate or through e-mail directly from the customer). Acceptance certificate should contain information like item details and its application or correlation with P.O.

5.0 The vendor should have in-house manufacturing facilities for manufacturing of 4-Wire Simplex RTD for Core. Vendor to furnish details of the manufacturing facilities available at their works.

6.0 The vendor should have facilities for carrying out the following tests and provide details of test equipment available at their works.

1) Insulation Resistance Test
2) High Voltage Test
3) Resistance Accuracy Test

7.0 The testing facilities available at vendor's works should be duly calibrated against measurement standards traceable to national/international measurement standards. Vendor to confirm the same. Alternatively, vendor to indicate their tie-up with accredited laboratory for performing Routine/Type tests or agree to carry out at NABL/ILAC/APLAC approved lab and provide the details for the same.

8.0 Vendor shall confirm to meet all the technical requirements of Specification TG60661.

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

PQR/EME/TG035/25 **17.01.2023**

Mandatory Pre-Qualification requirements for P.T Sensor for Header Nipple(RTD) as per BHEL specification TG60731 (Material code-W96413508612)

Description:

The P.T.Sensor for Header Nipple(RTD) is used in generators for Measurement of temperature of water which is flowing in the stator winding bars. The P.T.Sensor for Header Nipple(RTD) should be of very reliable and proven design for temperature measurement.

1.0 The vendor should be a regular manufacturer of such P.T.Sensor for Header Nipple(RTD) with minimum following requirements –

Si No.	Parameter	Value
(i)	Suitable Environment	Tropical, Humid and dusty atmosphere
(ii)	Material of Square plate and enclosure for RTD Element	X6CrNiMoTi17122(1.4571)/SS321
(iii)	Operating Temperature (Range)	0 C to 150 C
(iv)	Leads	The leads shall be of 19/0.16mm stranded copper with poly- tetraflouroethylene Insulation (with min. radial thickness of 0.25mm).
(v)	Resistance element	Resistance value and tolerance as per IS 2848. The elements shall be wire wound type using insulated wire and suitably encapsulated in silicon alumina paste and epoxy resin
(vi)	HV Test	1.5 kV AC for 1 Min
(vii)	IR Test	Should not be less than 100M ohms when measured with 500VDC meggar at 20C
(viii)	Routine Test	Resistance Accuracy and IR test
(ix)	Type Test	As per IS 2848
(x)	Pull Test	The leads shall be suitably brazed to the resistance element. Each lead shall withstand Pulling force of 4 kg when applied to each of the leads.

PQR/EME/TG035/25 17.01.2023

Mandatory Pre-Qualification requirements for P.T.Sensor for Header Nipple(RTD) as per BHEL specification TG60731 (Material code-W96413508612)

2.0 In support of above serial number-1, vendor shall furnish technical details of P.T.Sensor for Header Nipple(RTD) in below mentioned format for at least one nos. (1) of the P.O. executed in past 10 years (from date of enquiry) along with P.O. copies.

S. No.	Brief technical details	Application	Name & address of customer	Date of supply
1	Type of RTD Size of RTD-4X4X30 mm Max.			

3.0 Vendor to furnish correlated test certificates against the P.O. submitted as per clause 2.

4.0 Vendor to furnish acceptance certificate from the end users of P.T.Sensor for Header Nipple(RTD) against the P.O. submitted as per clause 2. (Original Certificate or through e-mail directly from the customer). Acceptance certificate should contain information like item details and its application or correlation with P.O.

5.0 The vendor should have in-house manufacturing facilities for manufacturing of P.T.Sensor for Header Nipple(RTD). Vendor to furnish details of the manufacturing facilities available at their works.

6.0 The vendor should have facilities for carrying out the following tests and provide details of test equipment available at their works.

1) Insulation Resistance Test
2) High Voltage Test
3) Resistance Accuracy Test

7.0 The testing facilities available at vendor's works should be duly calibrated against measurement standards traceable to national/international measurement standards. Vendor to confirm the same. Alternatively, vendor to indicate their tie-up with accredited laboratory for performing Routine/Type tests or agree to carry out at NABL/ILAC/APLAC approved lab and provide the details for the same.

8.0 Vendor shall confirm to meet all the technical requirements of Specification TG60731.

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

PQR/EME/TG035/26 17.01.2023

Mandatory Pre-Qualification requirements for PRTD as per BHEL specification TG60734 (Material code- W96413508620)

Description:

The four-wire duplex flat platinum resistance temperature detector is used in generators for Measurement of temperature of stator winding bars. The PRTD should be of very reliable and proven design for temperature measurement.

1.0 The vendor should be a regular manufacturer of such four-wire duplex flat platinum resistance temperature detector) with minimum following requirements –

Sl No.	Parameter	Value
(i)	Suitable Environment	Tropical, humid and dusty atmosphere
(ii)	Minimum dimension	150X10X2 mm
(iii)	Operating Temperature (Range)	0 C to 200 C
(iv)	Leads	The leads shall be of 19/0.16mm stranded copper with poly- tetrafiouroethylene Insulation (with min. radial thickness of 0.25mm)
(v)	Resistance element	Resistance value and tolerance class-A as per IS 2848. The wire wound resistance element shall be laid down in glass epoxy sheet in totally strain free manner. Empty space shall be filled with insulated powder.
(vi)	HV Test	2.5 kV AC for 3 Min
(vii)	IR Test	Should not be less than 100M ohms when measured with 100VDC meggar at 20C
(viii)	Routine Test	Resistance Accuracy and IR test
(ix)	Type Test	As per IS:2848
(x)	Pull Test	The leads shall be suitably brazed to the resistance element. Each lead shall withstand Pulling force of 5 kg when applied to each of the leads.
(xi)	Compression load	Construction shall be such that it can bear compression load greater than 1 metric ton without any damage.

PQR/EME/TG035/26 17.01.2023

Mandatory Pre-Qualification requirements for PRTD as per BHEL specification TG60734 (Material code- W96413508620)

2.0 In support of above serial number-1, vendor shall furnish technical details of four-wire duplex flat platinum resistance temperature detector in below mentioned format for at least one no. (1) of the P.O. executed in past 10 years (from date of enquiry) along with P.O. copies.

S. No.	Brief technical details	Application	Name & address of customer	Date of supply
1	Flat PRTD Size- 150X10X2 Min			

3.0 Vendor to furnish correlated test certificates against any one of the P.O. submitted as per clause 2.

4.0 Vendor to furnish acceptance certificate from one of the end users of four-wire duplex flat platinum resistance temperature detector against any one of the P.O. submitted as per clause 2. (Original Certificate or through e-mail directly from the customer). Acceptance certificate should contain information like item details and its application or correlation with P.O.

5.0 The vendor should have in-house manufacturing facilities for manufacturing of four-wire duplex flat platinum resistance temperature detector Vendor to furnish details of the manufacturing facilities available at their works.

6.0 The vendor should have facilities for carrying out the following tests and provide details of test equipment available at their works.

1) Insulation Resistance Test
2) High Voltage Test
3) Resistance Accuracy Test

7.0 The testing facilities available at vendor's works should be duly calibrated against measurement standards traceable to national/international measurement standards. Vendor to confirm the same. Alternatively, vendor to indicate their tie-up with accredited laboratory for performing Routine/Type tests or agree to carry out at NABL/ILAC/APLAC approved lab and provide the details for the same.

8.0 Vendor shall confirm to meet all the technical requirements of Specification TG60734.

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

PQR/EME/TG035/24 **17.01.2023**

Mandatory Pre-Qualification requirements for RTD as per BHEL specification TG60751 (Material code-W96413509945)

Description:

The Duplex platinum resistance temperature detector is used in generators for Measurement of temperature of air, gas and oil. The RTD should be of very reliable and proven design for temperature measurement.

1.0 The vendor should be a regular manufacturer of such RTD with minimum following requirements –

Sl No.	Parameter	Value
(i)	Suitable Environment	Tropical ,dusty and humid atmosphere
(ii)	Terminal Block	Ceramic terminal block fixed with the help of spring loaded screw
(iii)	Operating Temperature (Range)	0 C to 200 C
(iv)	Protective Sheath and Extension pipe	SS316 or equivalent
(v)	Resistance element	Resistance value and tolerance class-A as per IS 2848. Duplex non- inductive wire wound platinum resistance element.
(vi)	IR Test	Should not be less than 100M ohms at room temperature
(vii)	Routine Test	As per IS:2848
(viii)	Type Test	As per IS:2848
(ix)	Terminal head	Die cast aluminum/light metal alloy with protection class-IP65
(x)	Wires	Each of the two RTD elements shall consist of 2 PTFE insulated wires which shall terminate on the terminal block.
(xi)	Connection	Threaded connection for fitting into thermowell.

PQR/EME/TG035/24 **17.01.2023**

Mandatory Pre-Qualification requirements for RTD as per BHEL specification TG60751 (Material code-W96413509945)

2.0 In support of above serial number-1, vendor shall furnish technical details RTD in below mentioned format for at least one nos. (1) of the P.C. executed in past 10 years (from date of enquiry) along with P.O. copies.

S. No.	Brief technical details	Application	Name & address of customer	Date of supply
1	Type of RTD			

3.0 Vendor to furnish correlated test certificates against the P.O. submitted as per clause 2.

4.0 Vendor to furnish acceptance certificate from the end users of RTD against the P.O. submitted as per clause 2. (Original Certificate or through e-mail directly from the customer). Acceptance certificate should contain information like item details and its application or correlation with P.O.

5.0 The vendor should have in-house manufacturing facilities for manufacturing of RTD. Vendor to furnish details of the manufacturing facilities available at their works.

6.0 The vendor should have facilities for carrying out the following tests and provide details of test equipment available at their works.

1) Insulation Resistance Test
2) High Voltage Test
3) Resistance Accuracy Test

7.0 The testing facilities available at vendor's works should be duly calibrated against measurement standards traceable to national/international measurement standards. Vendor to confirm the same. Alternatively, vendor to indicate their tie-up with accredited laboratory for performing Routine/Type tests or agree to carry out at NABL/ILAC/APLAC approved lab and provide the details for the same.

8.0 Vendor shall confirm to meet all the technical requirements of Specification TG60751.

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

PQR/EME/TG035/30

17.01.2023

Mandatory Pre-Qualification requirements for RTD for PW Header as per BHEL specification TG60752 (Material code-W96413509953)

Description:

The Duplex platinum resistance temperature detector for primary water header is used in generators for Measurement of temperature of water in water header. The RTD for PW Header should be of very reliable and proven design for temperature measurement.

1.0 The vendor should be a regular manufacturer of such RTD for PW Header with minimum following requirements –

Sl No.	Parameter	Value
(i)	Suitable Environment	Tropical and humid atmosphere
(ii)	Terminal Block	Ceramic terminal block fixed with the help of spring loaded screw
(iii)	Operating Temperature (Range)	0 C to 200 C
(iv)	Extension Pipe	X10CrNiTi189 or equivalent
(v)	Resistance element	Resistance value and tolerance class-A as per IS 2848. Duplex non- inductive wire wound platinum resistance element.
(vi)	IR Test	Shouldl not be less than 100M ohms at room temperature
(vii)	Routine Test	As per IS:2848
(viii)	Type Test	As per IS:2848
(ix)	Terminal head	Plastic Form-B as per DIN 43729
(x)	Wires	Each of the two RTD elements shall consist of 2 PTFE insulated wires which shall terminate on the terminal block.
(xi)	Connection	Threaded connection for fitting into thermowell.

PQR/EME/TG035/30 **17.01.2023**

Mandatory Pre-Qualification requirements fer RTD for PW Header as per BHEL specification TG60752 (Materia code-W96413509953)

2.0 In support of above serial number-1, vendor shall furnish technical details RTD for PW Header in below mentioned format for at least one nos. (1) of the P.O. executed in past 10 years (from date of enquiry) along with P.O. copies.

S. No.	Brief technical details	Application	Name & address of customer	Date of supply
1	Type of RTD			

3.0 Vendor to furnish correlated test certificates against any one of the P.O. submitted as per clause 2.

4.0 Vendor to furnish acceptance certificate from one of the end users of RTD for PW Header against any one of the P.O. submitted as per clause 2. (Original Certificate or through e-mail directly from the customer). Acceptance certificate should contain information like item details and its application or correlation with P.O.

5.0 The vendor should have in-house manufacturing facilities for manufacturing of RTD for PW Header. Vendor to furnish details of the manufacturing facilities available at their works.

6.0 The vendor should have facilities for carrying out the following tests and provide details of test equipment available at their works.

1) Insulation Resistance Test
2) High Voltage Test
3) Resistance Accuracy Test

7.0 The testing facilities available at vendor's works should be duly calibrated against measurement standards traceable to national/international measurement standards. Vendor to confirm the same. Alternatively, vendor to indicate their tie-up with accredited laboratory for performing Routine/Type tests or agree to carry out at NABL/ILAC/APLAC approved lab and provide the details for the same.

8.0 Vendor shall confirm to meet all the technical requirements of Specification TG60752.

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

Annexure- B

Framework Confidentiality Agreement (FCA)

Framework Confidentiality Agreement cum Undertaking

This Agreement made on this the _____ day of (month) _____ 20___ ("Effective Date") by and between
M/s BHARAT HEAVY ELECTRICALS LIMITED, having registered office at "BHEL House", Siri Fort, New Delhi – 110049 (India), acting through its _____ Unit (hereinafter may be referred to as "BHEL" or "the Company").

And

M/s _____ (address) _____ represented by authorized representative Sri _____ (herein after referred to as the "Supplier").

The Supplier and the Company may, unless the context otherwise requires, hereinafter be collectively referred to as "Parties" or singly as the "Party".

RECITALS

Whereas, BHEL is engaged in the design, engineering, manufacturing, construction, testing, commissioning and servicing of a wide range of products, systems and services for the core sectors of the economy, viz. Power, Transmission, Industry, Transportation, Renewable energy, Oil & Gas and Defence and providing associated services to varied customers in relation to which BHEL/its affiliates own valuable information of a secret and confidential nature.

Whereas the Company may, in connection with Contract(s) (as defined hereunder) placed or to be placed upon the Supplier, or otherwise, from time to time, make available, Technical Information as is defined hereunder.

And Whereas BHEL is willing to provide such Technical Information to the Supplier from time to time and the Supplier understands and acknowledges that such Technical Information is valuable for the Company and as such is willing to protect confidentiality of such information, subject to the terms and conditions set out hereunder.

Now therefore, in view of the foregoing premises and in consideration of the mutual covenants and agreements hereinafter set forth, the Parties agree as under:

1. Definitions:

Unless the context so requires, in this Agreement, the following terms will bear the meaning ascribed to the said term in this clause.

A. **"Contract"** means the Contract entered into with a Supplier and includes a Purchase Order, or a Work Order for procurement of any goods or for provision of any services.
B. **"Effective Date"** means the date of this Agreement as mentioned in the preamble of this Agreement.

C. **"Supplier"** includes a Contractor or a Vendor of the Company whether for supplying of goods or for providing any services under a Contract or both.

D. **"Technical Information"** includes Drawings, and/or Product Standards and/or Specifications and/or Corporate / Plant Specifications and/or Technological Process Sheets and/or Technical Data Sheets and/or Jigs & Fixtures and/or Pattern & Dies and/or Special Gauges and/or Tools etc. belonging to or wherein the Company has acquired from a third party a right of user and includes any improvement thereto from time to time whether carried out by the Company or by the Supplier.

E. **"Intended Purpose"** means the purpose for which the Technical Information is provided to the Supplier under or in connection with a Contract.

F. **"Improvement"** includes any modification made to, or adaptation of, the Technical Information which enhances or is calculated to enhance the performance (whether in terms of effectiveness or in terms of efficiency or both) of the product and/or the service to be provided by the Supplier under a Contract.

2. This Agreement shall come into force/deemed to have come into force, as the case may be, on the Effective Date; or, on the first date when the Technical Information or any part thereof is provided by BHEL to the Supplier; whichever is earlier.

3. **Agreement deemed to be incorporated in each Contract:** Unless and to the extent otherwise stipulated in the Contract, the conditions of this Agreement are deemed to be incorporated in all Contracts which may be entered into between the Company and the Supplier. Further, unless otherwise stipulated, the obligations under this Agreement are and will be independent of the obligations under the Contracts and such obligations of the Supplier hereunder will remain of full effect and validity notwithstanding that the period of validity of the Contracts has expired by efflux of time stipulated therein; or, the contract has been discharged by performance or breach; or, the termination of the Contracts for any reason whatsoever.

4. **Ownership:**

4.1 The Company may, from time to time, make available to the Supplier, Technical Information on a non-exclusive basis by way of loan.

4.2 The Supplier acknowledges and agrees that all Technical Information and copies thereof that are or may be provided by the Company to the Supplier, are and shall remain the property of BHEL or that of the concerned entity from whom BHEL has obtained the Technical Information and such Technical Information are and shall constitute trade secrets of the BHEL. Nothing in this Agreement or in any disclosures made hereunder by or on behalf of the Company shall be construed as granting upon the Supplier any patent, copyright or design or any other intellectual property rights of whatsoever description that subsists or may hereinafter exist in the Technical Information. Furthermore, nothing in this Agreement or in any disclosures made hereunder by or on behalf of the Company shall be construed as granting upon the Supplier any license or rights of use of such patent, copyright or design or any other

intellectual property rights of whatsoever description which may now or hereafter exist in the Technical Information except for use of the Technical Information strictly in accordance with this Agreement and the Contract and/or as directed in writing by the Company, solely for the Intended Purpose under the Contract.

4.3 Neither Party is obligated by or under this Agreement to purchase from or provide to the other Party any service or product and that any such purchase/sale of any product and/or service by one Party to the other Party will be governed by the Contract if any, that may be entered into by and between the Company and the Supplier.

4.4 The Supplier is/has been made well aware and acknowledges that the Technical Information being/which may be shared with it by the Company has been either generated by the Company by incurring huge investment and cost or obtained from foreign collaborators under Technical Collaboration Agreement (TCA) with stringent confidentiality conditions.

4.5 The Supplier agrees and undertakes to adhere to confidentiality requirements as applicable to BHEL under a TCA and also ensure that the confidentiality requirements are adhered to by all its concerned employees or sub-contractors/suppliers (where permitted to be engaged by BHEL). Any damages, losses, expenses of any description whatsoever, arising out of or in connection with a breach of the confidentiality requirements under a TCA owing to any act or omission on the part of the Supplier or its employees or sub-contractors/suppliers that is claimed by a foreign collaborator from the Company shall be wholly borne by the Supplier and it shall keep BHEL fully indemnified in this behalf. The demand by the Company shall be conclusive upon the Supplier who shall thereupon forthwith pay to the Company without demur, dispute or delay the amount as demanded without demanding any further proof thereof.

4.6 The Supplier agrees and undertakes that unless so decided and advised by the Company in writing all rights/title to any Improvement to the Technical Information shall vest in the Company. The Supplier undertakes and agrees to inform forthwith to the Company of any such Improvement made to the Technical Information and transfer all drawings/documents or other materials connected with such Improvement to the Company and also agrees to fully cooperate with the Company for protecting the Company's interests in such Improvement in the Technical Information including but not limited to obtaining necessary protection for the intellectual property rights in such improvement, if so desired by the Company. If a question arises whether a modification amounts to Improvement to the Technical Information, the same shall be decided by the Company and such decision shall be final and binding upon the Supplier.

5. <u>Use and Non-Disclosure</u>:

5.1 Unless otherwise stipulated by the Company, all Technical Information made available to the Supplier, by the Company shall be treated as Confidential irrespective of whether the same is marked or otherwise denoted to be Confidential or not.

5.2 The Supplier undertakes and agrees that the Technical Information in its possession shall be held in strict confidence and will be used strictly in accordance with this Agreement and solely for the Intended Purpose under the Contract. Use of the Technical Information for any other purpose other than Intended Purpose is prohibited.

5.3 In particular, the Supplier shall not use Technical Information or any Improvement in its possession for the manufacture or procurement of the Product(s) or components or parts thereof or use the Technical Information or any portion thereof or any modification or adaptation thereof in any form to provide any product and/or service to any third party, without the prior written consent of the Company.

5.4 The Supplier shall not disclose any of such Technical Information to any third party without the prior written consent of the Company. The Supplier agrees that without prior written consent of the Company, the Supplier shall not disclose to a third party about the existence of this Agreement, or of the fact that it is/was in possession of or has experience in the use of any Technical Information nor shall the Supplier share in any manner whatsoever, with a third party, the name or details of any Contract(s) awarded by the Company to it or performed by the Supplier or the scope of work thereof or share any document or correspondence by and between the Company and the Supplier in or in connection with this Agreement or such Contract(s). Notwithstanding what is stated elsewhere, the overall responsibility of any breach of the confidentiality provisions under this Agreement shall rest with the Supplier.

5.5 The Supplier undertakes and agrees not to make copies or extracts of and not to disclose to others any or all of the Technical Information in its possession, except as follows:

(a) The Supplier may disclose the Technical Information to such of its officers and employees strictly to the extent as is necessary for such officer or employee for the Intended Purpose, provided that the Confidential Information (or copies thereof) disclosed shall be marked clearly as the confidential and proprietary information of Company and that such officers and employees shall similarly be bound by undertakings of confidence, restricted use and non-disclosure in respect of the Technical Information. The Supplier shall be responsible for any breach of such confidentiality provisions by such officers and employees.

(b) With the prior written consent of Company, the Supplier may disclose for the Intended Purpose such Technical Information as is provided for in such consent to such of its professional advisers: consultants, insurers and subcontractors who shall be similarly bound by undertakings of confidence, restricted use and non-disclosure in respect of such Technical Information.

(c) The Supplier shall not be prevented to make any disclosure required by (i) order of a court of competent jurisdiction or (ii) any competent regulatory authority or agency where such disclosure is required by law, provided that where the Supplier

intends to make such disclosure, it shall first consult Company and take all reasonable steps requested by it to minimize the extent of the Technical Information disclosed and to make such disclosure in confidence and also shall cooperate with the Company in seeking any protective order or any other remedy from proper authority in this matter.

6. Exceptions:

The obligations of the Supplier pursuant to the provisions of this agreement shall not apply to any Confidential Information that:

a) was/is known to, or in the possession of the Supplier prior to disclosure thereof by the Company;

b) is or becomes publicly known, otherwise than as a result of a breach of this agreement by the Supplier.

c) is developed independently of the Disclosing Party by the Supplier in circumstances that do not amount to a breach of the provisions of this Agreement or the Contract;

d) is received from a third party in circumstances that do not result in a breach of the provisions of this Agreement.

7. The obligation of maintaining confidentiality of the Technical Information on each occasion, shall subsist for the entire duration during which the Technical Information / equipment is in possession of the Supplier and shall thereafter subsist for a further period of ---- years from the date when the complete Technical Information has been returned to the Company and if Technical Information has been returned in portions on different dates then, the period of ---- years will be reckoned from the date when the last portion of the Technical Information has been returned. Notwithstanding the expiry of the confidentiality obligation, the obligation of the Supplier under clause 5.4 shall continue to subsist for a further period of ----- years.

8. Warranties & Undertakings:

a) The Supplier undertakes to ensure the due observance of the undertakings of confidence, restricted use and non-disclosure by its persons to whom it discloses or releases copies or extracts of the Technical Information.

b) The Supplier shall keep the Technical Information or improvement made therein properly segregated and not mix up the same with any other material/documents belonging to him/it or to any other third party.

c) The Supplier further undertakes that he/it shall not hypothecate or give on lease or otherwise alienate or do away with any of the Technical Information and/or equipment of the Company, made available to him/it, and undertakes that he/it shall hold the same as a trustee, in capacity of custodian thereof and use/utilise the same solely for the purpose of executing the Contract awarded by the Company.

d)The Supplier further undertakes that he/it shall return all the equipment and/or Technical Information as far as practicable in the same condition in which the same was made available to him/it by the Company together with any Improvement thereon and the documents connected with such Improvement, to the Company forthwith upon completion of the scope

of work or Contract for which such Technical Information was provided by the Company to it or as directed by the Company together with a confirmation by way of an affidavit or in such manner as directed by the Company that it has not retained any equipment and/or Technical Information/Improvement thereof. In case any such equipment and/or Technical Information or Improvement thereof shall remain in his possession or is not capable of being returned, the retention and use of such Technical Information or Improvement thereto shall continue to be governed by this Agreement.

e) The Supplier undertakes to indemnify the Company for all the direct, indirect and/or consequential losses, damages, expenses whatsoever including any consequential loss of business, profits suffered by the Company owing to breach by the Supplier of its obligations under this Agreement and/or the confidentiality requirements, if any, contained in the Contract and that the Supplier hereby agrees that the decision of the Company in all such or any such matter/s shall be final and binding on the Supplier. On mere written demand of the Company, the Supplier shall forthwith and without demur or delay pay to the Company any such sum as determined by the Company as the amount of loss or damage or expense which has been suffered by the Company. The Supplier agrees that the Company shall be entitled to withhold and appropriate any amount payable to the Supplier under any Contract then existing between the Company and the Supplier, in case the Supplier fails to make payment, in terms of the written demand, within 7 days thereof. Without prejudice to the foregoing actions, in respect to any breach of this Agreement, the Company shall be entitled to take any other action against the Supplier as per applicable laws, the Contract, Company's applicable policies, guidelines rules, procedures, etc.

9. Without prejudice to any other mode of recovery as may be available to the Company for recovery of the amount determined as due as per Clause 8(e) hereinabove, the Company shall have a right to withhold, recover and appropriate the amount due towards such losses, damages, expenses, from any amount due to the Supplier in respect of any other Contract (s) placed on him/it by any department/office/Unit/Division of the said Company.

10. <u>Arbitration & Conciliation:</u>

a) In case amicable settlement is not reached between the Parties, in respect of any dispute or
difference or claim or controversy arising out of the formation, breach, termination, validity or execution of the Contract(or Agreement) or the respective rights and liabilities of the parties or in relation to interpretation of any provision of the Contract or in any manner touching upon the Contract, then, either Party may, by a notice in writing to the other Party refer such dispute or difference or controversy or claim, (except as to any matters, the decision of which is specifically provided for therein) to the sole arbitration by the arbitrator appointed by Head/In-Charge of the Unit/Division/Region.

b) The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the parties to the dispute.

c) Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India), or other statutory modifications or re enactments thereof and the rules made thereunder and for

the time being in force shall apply to the arbitration proceedings under this clause. The seat of arbitration shall be at ---------- **(Insert the name of the city/town of the concerned BHEL Unit/Division).**

d) In case of Contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable:
In the event of any dispute or difference relating to the interpretation and application of the provisions of the Contract, such dispute or difference shall be referred to by either party to the arbitration of one of the arbitrators in the department of public enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the parties hereto finally and conclusively.

e) Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the Supplier shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and expedition in a professional manner.

11. Governing Law & Jurisdiction:
This Agreement shall be governed by and be construed as per applicable Indian Laws in force at the relevant time.
Subject to clauses 10(a) and 10(d) hereinabove, all matters in connection with the subject agreement shall be subject to exclusive jurisdiction of Courts situated at ----------**(insert the name of the place where the BHEL Unit/Division is located)**

SIGNATURE

WITNESSES
1.
Name
Address:

2.
Name:
Address:

NON-DISCLOSURE AGREEMENT

All Drawing and Technical Documents relating to the product or it's manufacture submitted by one party to the other, prior or subsequent to the formation of contract, shall remain property of the submitting party. Drawing, technical documents or other technical information received by one party, shall not without the consent of the other party, be used for any other purpose than that, for which they were provided. Such technical information shall not without the consent of the submitting party, otherwise be used or copied, reproduced, transmitted or communicated to a third party. Patterns supplied by BHEL will remain BHEL's property which shall be returned by the bidder on demand to BHEL. Bidder shall in no way share or use such intellectual property of BHEL to promote his own business with others. BHEL reserves the right to claim damages from the bidder, or take appropriate penal action as deemed fit against the bidder.

Signature with stamp

Quality Requirement will be as follows: -

Vendor approval from End Customer (**NPCIL**) is required. Unapproved vendors to submit Vendor Credentials along with Format (attached with Tender Documents) for End Customer (**NPCI**L) approval.
Indigenous Vendors to confirm for inspection by BHEL/ BHEL nominated Inspection agency (**M/s. TUV**) & **NPCIL** as per **NPCIL** approved QP (attached with Tender Documents).
Vendors to confirm & endorsed General Quality Requirements (attached with Tender Documents) of **NPCIL** project.
In case of ordering vendors have to follow Inspection Terms & Conditions as per approved QP only.

Item details are as follows –

1. **MATERIAL CODE- W96413508612**

CLASS A - PT SENSORS(RTD) FOR
HEADER NIPPLE
SPEC: TG60731 REV: 01
SIZE: TG60731
QTY- 227 Nos.

2. **MATERIAL CODE- W96413508620**

CLASS A- FOUR WIRE
DUPLEX FLAT PLATINUM
RESISTANCE TEMPERATURE
DETECTOR AS PER SPEC TG60734
SPEC: TG60734 REV: 01
QTY- 88 Nos.

3. **MATERIAL CODE- W96413507055**

4 WIRE SIMPLEX RTD FOR CORE
SPEC: TG60661 REV: 02
QTY- 120 Nos.

4. MATERIAL CODE- W96413503211
TRIPLEX NICKEL CHROME NICKEL
DETECTOR, NI/CR-NI TC TD 200L18000(ANNEX-I)
SPEC: TG60399 REV: 03
QTY- 10 Nos.

5. MATERIAL CODE- W96414500224
DRG: 31450801003 REV: 03
RESISTANCE THERMOMETER DUPLEX
QTY- 12 Nos.

6. MATERIAL CODE- W96413509953
DUPLEX PLATINUM RTD
FOR PW HEADER (4 WIRE).
SPEC: TG60752 REV: 00
SIZE: TG60752
QTY- 08 Nos.

7. MATERIAL CODE- W90415302781
DUPLEX RTD 4-WIRE
TEMPRATURE RANGE 0-200C
AS PER SPECIFICATION TG60753
QTY-48 Nos.

8. MATERIAL CODE- W96413509945
DUPLEX PLATINUM RESISTANCE
TEMPERATURE DETECTOR (4 WIRE)
SPEC: TG60751 REV: 00
SIZE: TG60751
QTY- 26 Nos.

NUCLEAR POWER CORPORATION OF INDIA LTD.
(A Government of India Enterprise)
CHECKLIST & RECOMMENDATION FOR EVALUATION OF VENDORS

Tender No	:	
Item/Package	:	TG Island
Name of Main Contractor	:	BHEL, Haridwar
Address and contact details of Main Contractor	:	Heavy Electrical Equipment Plant, BHEL Ranipur, Haridwar, Uttarakhand-249403, Contact:- 01334-281363
Name of Sub-contractor/Vendor	:	
Business address of Sub-contractor	:	
Factory address of Sub-contractor	:	
Items for which approval is sought	:	

1.0 General:

1.1)	Key Personnel contacted	:	
	a) Senior Management	:	
	b) Quality Co-ordinator	:	
	c) Others (Production, Planning etc.)	:	

FOLLOWING ARE TO BE COMMENTED

1.2)	Recognition details if any code Stamps like U1, U2, ASME N, NPI or certification Like ISO 9001, 14000 etc. (Verify the records)	:	
1.3)	Floor space availability for present Activities/for future expansion	:	
	a) Indoor	:	
	b) Outdoor	:	

1.4)	Level of House keeping	:
1.5)	Whether NPC jobs executed earlier	:
	Whether BHEL jobs executed earlier for same item	:
	Whether BHEL jobs executed earlier for similar item	:
	Other than BHEL/NPC experience	:
1.6)	Delivery Performance (Schedule vs Actual) (Verify records)	:

2.0 <u>Technical</u>

2.1)	Quality Control	
	(a) Incoming Material Inspection	:
	(b) Process Inspection	:
	(c) Final Inspection	:
	(d) Manufacturing flow chart in detail along with outsourcing of items/operations	:
2.2)	Plant & Machinery	:
	(a) General condition & Age	:
	(b)Confirms to the details submitted in application	:
2.3)	Calibration facilities	:
2.4)	Calibration records	:
2.5)	NDE Qualification records	:
2.6)	Is there a system of selecting/ short listing Sub-vendors?	:
2.7)	Availability of Testing facilities (details to be submitted)	:

2.8)	Whether working of following are satisfactory?	
	(a) Production	:
	(b) Quality control	:
2.9)	Understanding of scope of work	:
2.9.1)	Understanding of technical requirement of Job	:
2.10)	Availability and understanding of related standards.	:
2.11)	Capacity of the Vendor to fabricate and inspect	:
2.12)	Understanding of special Examination/ Testing (like ultrasonic Examination/ Helium Leak testing, Optical alignment testing etc.)	:
2.13)	Availability of special facilities	:
2.14)	Facilities/Machineries/testing equipment available in the shop floor to meet technical requirement of the job	:
2.15)	Qualified and experience Manpower in the shop floor to execute the specified job	:

3.0 <u>Quality System :</u>

3.1)	If ISO certified, check the availability and accessibility of Quality system manual	:
3.2)	Validity of ISO certification	:
3.3)	Whether Quality Control plan and Procedures are prepared?	:
3.4)	Whether organisation chart is available?	:

3.5) What is the level of Quality Control in the organisation? :

3.6) Whether working of following are Satisfactory?

(a) Document control :

(b) Process Control :

(c) Non-conformances control :

3.7) Whether Internal Quality Audits are carried out? :

3.8) Whether non-conformities during Internal Audits are recorded and disposed off following laid down procedure? :

4.0 Financial Details (Previous three years) :

5.0 Assessment

5.1 Understanding and interpretation by vendor

Sl No	Area of Assessment	Observation	Remark
1	Scope of work		
2	Related standard		
3	Construction features		
4	Functional Requirement		

5.2 Capability of Vendor

Sl No	Area of Assessment	Observation	Remark
1	To design/develop		
2	To fabricate		
3	To inspect		
4	Specify remark on the capability of vendor to execute the job		

5.3 Comments if any w.r.t. delivery schedules: NA

5.4 Comments if any on quality of product: NA

6.0 Conclusion: Vendor is capable for meeting the requirement, hence acceptable to BHEL.

Signatures of BHEL evaluation Team Members

Sl No	Name (Mr.)	Designation	Signature & Date
1			
2			
3			

GENERAL QUALITY REQUIREMENTS FOR NPCIL GHAVP & KAIGA PROJECT

Vendors to confirm the followings points for enquired items/materials pertaining to NPCIL project.

S. No.	Clause	Descriptions	Vendor's response (Yes/No/Not applicable)
1	5.1	All material shall be procured from the manufacturer and not from Trader.	
2	5.1	All material used or supplied under this contract shall carry suitable identification marks.	
3	5.2	All fabrication processes are controlled and accomplished by qualified personnel using BHEL/NPCIL approved qualified procedures.	
4	5.2	Supplier to maintain a weld book for all welding related activities for records.	
5	5.2	WPS/PQR/WPQ shall be verified/approved by BHEL & NPCIL before start of the welding activity.	
6	5.4	Record of stage wise inspection record (surface preparation, primer application, each coat of paint) shall be maintained. Paint thickness shall be within 10% of the dry film thickness specified.	
7	5.7	WPS/WPQR/Welder qualification/NDE procedure/Heat Treatment/Hydrostatic pressure test/Vacuum Test/Painting/Special process/Test procedure (if any) shall be verified/approved by BHEL & NPCIL (if required) before start of activity.	
8	6.0	Chemicals used for LPT shall be from NPCIL approved brands only (attached).	
9	6.0	Welding consumables shall be from NPCIL approved brand list (attached). However, lot testing of each batch of welding consumables shall have to be carried out separately before use in the job for meeting the requirements of respective specification and code. Vendor to provide TC for the same.	
10	6.0	Brazer and Brazing procedure qualification shall be BHEL and NPCIL verified/approved (if applicable).	
11	6.0	Casting shall be procured from NPCIL/BHEL approved foundries (if applicable).	

In case vendor gives response as "No", vendor to provide reason/justification of same for BHEL review. If above activity/clause is not relevant to any item/product, vendor to provide response as "Not applicable". In case of ambiguity, vendor to comment and take clarification from BHEL during offer evaluation.

न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
NUCLEAR POWER CORPORATION OF INDIA LTD.
(A Government of India Enterprise)
गुणवत्ता आश्वासन निदेशालय
Directorate of Quality Assurance
नाभिकीय ऊर्जा भवन, अणुशक्तिनगर, मुंबई-400 094
Nabhikiya Urja Bhavan,Anushaktinagar, Mumbai-400094
Corporate Identification No. U40104MH1987GOI149458

थॉमस मॅथ्यू **Thomas Mathew**
उत्कृष्ट वैज्ञानिक **Outstanding Scientist**
अधिशासी निदेशक (गुणवत्ता आश्वासन)**Executive Director (QA)**

Phone: 022- 25995030/25558487
Fax.No.: 022-25565354
e-mail: edqa@npcil.co.in

संख्या /No. NPCIL/ED (QA)/2023/M/152

तिथि: 12th July, 2023

Sub: Updated List of approved brands of welding consumables

The lists of approved brands of welding consumables for use on NPCIL jobs as on 12.07.2023 are enclosed herewith:

1) List of approved Carbon steel & Low Alloy Steel Welding Electrodes (2 sheets)
2) List of approved Stainless Steel & other Ni Alloy electrodes (2 Sheets)
3) List of Approved Brands of Wire and Wire flux combination (2 Sheets)

The approvals are granted in conformance to the requirements stipulated in procedure for approval of Welding Consumables (QAD/Proc/Welding Consumables/002 Rev2) and latest edition of ASME Section II Part C. However, batch qualification wherever called for in specific cases will have to be carried out separately.

For use in nuclear application, welding consumable manufacturing requirement shall be as per lot class C3 /S2 as per ASME Section II Part C and any other specific requirements mentioned in purchase document.

थॉमस मॅथ्यू 12.07.2023 Mathew 12.07.2023

(थॉमस मॅथ्यू Thomas Mathew)
Executive Director (QA)

1). LIST OF APPROVED CARBON STEEL AND LOW ALLOY STEEL ELECTRODES AS ON 03-07-2023

SR. NO	MANUFACTURERS	BRAND NAME	AWS NO.	VALID UP TO
1.	ADOR WELDING LIMITED, SILVASSA	MOLYTEN	E7018-A1	July 2026
2.	ADOR WELDING LIMITED, SILVASSA	CROMOTEN	E 8018 B2	July 2026
3.	ADOR WELDING LIMITED, SILVASSA	CROMOTEN C	E 9018 B3	July 2026
4.	ADOR WELDING LIMITED, SILVASSA	TENALLOY Z PLUS	E7018-1	Jul 2027
5.	ADOR WELDING LIMITED, SILVASSA	SUPABASE X PLUS	E7018	Feb 2024
6.	ADOR FONTECH LIMITED, BENGALURU	LH511	E NiCu7	Dec 2025
7.	ADOR FONTECH LIMITED, BENGALURU	LH-521	NiCrFe3	Dec 2025
8.	SUPERON SCHWEISSTECHNIK INDIA LTD, DELHI	SUPERON 7018S (SUPERCITO)	E7018-1	Jun 2026
9.	SUPERON SCHWEISSTECHNIK INDIA LTD, DELHI	SUPERON 7018 (SUPERCITO)	E7018	Jun 2026
10.	SUPERON SCHWEISSTECHNIK INDIA LTD, DELHI	SUPERON 6013S (OVERCORD S)	E6013	Jun 2026
11.	HONAVAR ELECTRODES PVT. LTD, THANE	Ultimate-18SPL	E 7018-1	Sep 2025
12.	HONAVAR ELECTRODES PVT. LTD, THANE	Ultimate-18	E 7018	Sep 2025
13.	HONAVAR ELECTRODES PVT. LTD	Regular S	E 6013	Sep 2025
14.	ROYAL ARC ELECTRODES LTD, VASAI	ROYAL THERM SPL.	E 7018-1	Mar 2027
15.	RAAJARATNA ELECTRODES PVT. LTD, AHMEDABAD	RATNA 7018 SPL E 7018-1	E 7018-1	Feb 2025
16.	RAJRATNA ELECTRODES PVT LTD , AHMEDABAD	RATNA 7018	E7018	NOV 2023
17.	MAILAM INDIA LTD, PUDUCHERRY	MAILARC-1 CR	E 8018-B2	Jun 2024
18.	MAILAM INDIA LTD, PUDUCHERRY	MAILARC-18 PLUS	E-7018-1	May 2026
19.	MAILAM INDIA LTD, PUDUCHERRY	MAILARC-2 CR	E 9018-B3	Jun 2024
20.	D&H SCHERON ELECTRODE Pvt. Ltd, Indore	SUPERTHERME(SPL)	E7018-1	NOV 2023
21.	D&H SCHERON ELECTRODE Pvt. Ltd, Indore	EXOBEL	E6013	May 2026
22.	D&H SCHERON ELECTRODE Pvt. Ltd, Indore	MEDIO	E6013	May 2026
23.	D&H SCHERON ELECTRODE Pvt. Ltd, Indore	SUPRATHERME	E7018	May 2026
24.	D&H SCHERON ELECTRODE Pvt. Ltd, Indore	MOLYTHERME	E7018-A1	May 2026
25.	Weld fast Electrodes Pvt ltd, Nagpur	WELDFAST LH-18	E7018	August 2026
26.	Weld fast Electrodes Pvt ltd, Nagpur	WELDFAST LH-18-1	E7018-1	August 2026

The approvals are granted in conformance to the requirements stipulated in procedure for approval of Welding Consumables (QAD/Proc/Welding Consumables/002 Rev:2) and latest edition of ASME Section II

Part C. However, batch qualification wherever called for in specific cases, will have to be carried out separately.

For use in nuclear application the welding consumable manufacturing requirement shall be as per lot class C3 as per ASME Section II Part C.

12.07.2023

(थॉमस मॅथ्यू Thomas Mathew)
Executive Director (QA)

2). LIST OF APPROVED STAINLESS-STEEL & OTHER ALLOY ELECTRODES AS ON 03-07-2023

SR. NO	MANUFACTURER	BRAND NAME	AWS No.	VALID UP TO
1.	ADOR WELDING LIMITED, SILVASSA	BETANOX-DL	E309L-16	July 2026
2.	ADOR WELDING LIMITED, SILVASSA	SUPERINOX-2C	E316L-16	July 2026
3.	ADOR WELDING LIMITED, SILVASSA	SUPERINOX-1C	E308L-16	July 2026
4.	SUPERON SCHWEISSTECHNIK INDIA LTD, DELHI	SUPER OPTIMAL 309 MOL	E309 MoL-16	Feb 2025
5.	SUPERON SCHWEISSTECHNIK INDIA LTD, DELHI	SUPER OPTIMAL 308 L	E308L-16	Feb 2025
6.	SUPERON SCHWEISSTECHNIK INDIA LTD, DELHI	SUPER OPTIMAL 309 L	E309L-16	Feb 2025
7.	SUPERON SCHWEISSTECHNIK INDIA LTD, DELHI	SUPER STAINLESS 347 L	E347L-16	Feb 2025
8.	SUPERON SCHWEISSTECHNIK INDIA LTD, DELHI	SUPER OPTIMAL 316 L	E316L-16	Feb 2025
9.	HONAVAR ELECTRODES PVT. LTD, THANE	SILVER SHINE 308L-15	E308L-15	Feb 2024
10.	HONAVAR ELECTRODES PVT. LTD, THANE	SILVER SHINE 316L	E316L-16	Nov 2023
11.	RAAJARATNA ELECTRODES, AHMEDABAD	RATNA 308L	E 308L-16	Feb 2025
12.	RAAJARATNA ELECTRODES, AHMEDABAD	RATNA 316L	E 316L-16	Feb 2025
13.	MAILAM INDIA LTD, PUDUCHERRY	MAILEX-A	E 308-16	Jun 2024
14.	MAILAM INDIA LTD, PUDUCHERRY	MAILEX-AL	E 308L-16	Jun 2024
15.	MAILAM INDIA LTD, PUDUCHERRY	MAILEX-AL-15	E 308L-15	Jun 2024
16.	MAILAM INDIA LTD, PUDUCHERRY	MAILEX-25/12	E 309-16	Jun 2024
17.	MAILAM INDIA LTD, PUDUCHERRY	MAILEX-25/12L	E 309L-16	Jun 2024
18.	MAILAM INDIA LTD, PUDUCHERRY	MAILEX-25/12-MO	E 309 Mo-16	Jun 2024
19.	MAILAM INDIA LTD, PUDUCHERRY	MAILEX MO	E 316-16	Jun 2024
20.	MAILAM INDIA LTD, PUDUCHERRY	MAILEX MOL	E 316L-16	Jun 2024
21.	D&H SECHERON, INDORE	D&H 309L	E309L-16	NOV 2023
22.	D&H SECHERON, INDORE	RUTOX-A	E308-16	NOV 2023
23.	D&H SECHERON, INDORE	RUTOX-A ST	E347-16	NOV 2023
24.	D&H SECHERON, INDORE	RUTOX-MO	E316-16	NOV 2023
25.	ROYAL ARC ELECTRODES, VASAI	ROYAL 1C	E308L-16	OCT 2024
26.	ROYAL ARC ELECTRODES, VASAI	ROYAL 2C	E316L-16	OCT 2024
27.	ROYAL ARC ELECTRODES, VASAI	ROYAL D2L	E309L-16	OCT 2024
28.	D&H SECHERON ELECTRODE Pvt. Ltd, Indore.	RUTOX-D	E316L-16	May 2026
29.	D&H SECHERON ELECTRODE Pvt. Ltd, Indore.	RUTOX-B	E308L-16	May 2026
30.	D&H SECHERON ELECTRODE Pvt. Ltd, Indore.	Cronitherme-25/12	E309-16	May 2026

31.	D&H SECHERON ELECTRODE Pvt. Ltd, Indore.	BATOX B	E308L-15	May 2026
32.	D&H SECHERON ELECTRODE Pvt. Ltd, Indore.	D&H-1212 (NS)	ENiCrFe-3	May 2026
33.	D&H SECHERON ELECTRODE Pvt. Ltd, Indore.	D&H-1250	ENiCu-7	May 2026
34.	Weld fast Electrodes Pvt ltd, Nagpur	WELDFAST 308L	E 308L-16	August 2026
35.	Weld fast Electrodes Pvt ltd, Nagpur	WELDFAST 316L	E 316L-16	August 2026
36.	Weld fast Electrodes Pvt ltd, Nagpur	WELDFAST 309L	E 309L-16	August 2026
37.	Weld fast Electrodes Pvt ltd, Nagpur	WELDFAST 309 MoL	E 309 L-Mo-16	August 2026

The approvals are granted in conformance to the requirements stipulated in procedure for approval of Welding Consumables (QAD/Proc/Welding Consumables/002 Rev:2) and latest edition of ASME Section II Part C. However, batch qualification wherever called for in specific cases, will have to be carried out separately.

For use in nuclear application the welding consumable manufacturing requirement shall be as per lot class C3 as per ASME Section II Part C

12.07.2023

(थॉमस मॅथ्यू Thomas Mathew)
Executive Director (QA)

3) List of Approved Brands of wire and wire flux combination as on 03-07-2023

SR NO	MANUFACTURERS	BRAND NAME	AWS NO.	VALID UPTO
1	ADOR FONTECH LIMITED, BENGALURU	TIG 120	ER 308L	OCT 2024
2	ADOR FONTECH LIMITED, BENGALURU	TIG 121	ER 316L	OCT 2024
3	ADOR FONTECH LIMITED, BENGALURU	TIG 123	ER 309L	OCT 2024
4	ADOR FONTECH LIMITED, BENGALURU	TIG 120S	ER 347	OCT 2024
5	ADOR FONTECH LIMITED, BENGALURU	TIG 521	ER NICR3	OCT 2024
6	ADOR WELDING LIMITED, SILVASSA	TIGINOX-308L	ER 308L	JUL 2026
7	ADOR WELDING LIMITED, SILVASSA	TIGINOX-309L	ER 309L	JUL 2026
8	VENUS WIRE INDUSTRIES PVT. LTD, KHOPOLI	VENUS 308L	ER 308L	NOV 2026
9	VENUS WIRE INDUSTRIES PVT. LTD, KHOPOLI	VENUS 316L	ER 316L	NOV 2026
10	VENUS WIRE INDUSTRIES PVT. LTD, KHOPOLI	VENUS 309L	ER 309L	NOV 2026
11	VENUS WIRE INDUSTRIES PVT. LTD, KHOPOLI	VENUS 347	ER 347	NOV 2026
12	RAAJARATNA ELECTRODES PVT. LTD, AHMEDABAD	RAAJTIG ER 308L	ER 308L	FEB 2025
13	RAAJARATNA ELECTRODES PVT. LTD, AHMEDABAD	RAAJTIG ER 316L	ER 316L	FEB 2025
14	ADOR WELDING LIMITED, SILVASSA	TIGFIL 90S-B3	ER 90S-B3	JAN 2026
15	ADOR WELDING LIMITED, SILVASSA	TIGFIL 70S-2	ER70S-2	JUL 2027
16	ADOR WELDING LIMITED, SILVASSA	AUTOMIG 70S-6	ER 70S-6	DEC 2023
17	ADOR WELDING LIMITED, SILVASSA	AUTOMELT B71+ AUTOMELT EH14	F7A2-EH14	FEB 2024
18	D&H SECHERON ELECTRODE Pvt. Ltd, Indore	F70S-2	ER70S-2	May 2026
19	D&H SECHERON ELECTRODE Pvt. Ltd, Indore	FW-309L	ER309L	May 2026
20	D&H SECHERON ELECTRODE Pvt. Ltd, Indore	FW-308L	ER308L	May 2026
21	Weld fast Electrodes Pvt ltd, Nagpur	MIG FAST-1	ER70S-6	August 2026
22	Weld fast Electrodes Pvt ltd, Nagpur	TIGFAST-3	ER70S-2	August 2026

The approvals are granted in conformance to the requirements stipulated in procedure for approval of Welding Consumables (QAD/Proc/Welding Consumables/002 Rev:2) and latest edition of ASME Section II Part C. However, batch qualification wherever called for in specific cases, will have to be carried out separately.

For use in nuclear application the welding consumable manufacturing requirement shall be as per lot class C3 as per ASME Section II Part C

12.07.2023

(थॉमस मॅथ्यू Thomas Mathew)
Executive Director (QA)

LIST OF APPROVED PENETRANT TESTING MATERIALS

(As on 28-06-2022)

Sr. No.	Manufacturers	Brand name	Description	Valid up to
1.	ORIENTAL CHEMICAL WORKS (P) LTD.KOLKATA	Orion 119 P	Red Dye Penetrant	**FEB-2026**
2.	ORIENTAL CHEMICAL WORKS (P) LTD.KOLKATA	Orion 119 PR	Penetrant Remover	**FEB-2026**
3.	ORIENTAL CHEMICAL WORKS (P) LTD.KOLKATA	Orion 119 D	Developer (Non-Aqueous)	**FEB-2026**
4.	MAGNAFLUX ITW INDIA PVT.LTD.SECUNDERABAD	SKL-SP 1	Red Coloured Solvent Removable Penetrant	**July2024**
5.	MAGNAFLUX ITW INDIA PVT.LTD.SECUNDERABAD	SKC-1	Solvent Cleaner	**July2024**
6.	MAGNAFLUX ITW INDIA PVT.LTD.SECUNDERABAD	SKD-S2	Solvent Base Developer	**July2024**
7.	MAGNAFLUX ITW INDIA PVT.LTD.SECUNDERABAD	SKL-WP2	Red Coloured Water Washable Penetrant	**July2024**
8.	MAGNAFLUX ITW INDIA PVT.LTD.SECUNDERABAD	SKL-SP2	Red Coloured Solvent Removable Penetrant.	**July2024**
9.	PRADEEP METAL TREATMENT CHEMICALS PVT. LTD., THANE	Flaw Guide Penetrant (NP Grade)	Red Coloured Solvent Removable Penetrant.	**Oct2024**
10	PRADEEP METAL TREATMENT CHEMICALS PVT. LTD., THANE	Flaw Guide Cleaner (NP Grade)	Solvent Cleaner	**Oct2024**
11	PRADEEP METAL TREATMENT CHEMICALS PVT. LTD., THANE	Flaw Guide Developer (NP Grade)	Solvent Base Developer	**Oct2024**
12	PRADEEP METAL TREATMENT CHEMICALS PVT. LTD., THANE	Flaw Guide Red Dye Penetrant-W	Water Washable Dye Penetrant	**Oct2024**
13	3AK Chemie India Pvt.Ltd. (Formerly known as MR Chemie India Pvt. Ltd.),Hyderabad	MR(R) 62	Solvent Removable Penetrant–Red	**Dec2026**
14	3AK Chemie India Pvt.Ltd .(Formerly known as MR Chemie India Pvt. Ltd.), Hyderabad	MR(R) 68 NF	Solvent Removable and Water Washable Penetrant–Red	**Dec2026**
15	3AK Chemie India Pvt. Ltd. (Formerly known as MR Chemie India Pvt. Ltd.)., Hyderabad	MR(R) 67	Solvent Removable and Water Washable Penetrant–Red	**Dec2026**
16	3AK Chemie India Pvt. Ltd. (Formerly known as MR Chemie India Pvt. Ltd.), Hyderabad	MR(R) 672 F	Solvent Removable and Water Washable Penetrant–Fluorescent	**Dec2026**
17	3AK Chemie India Pvt. Ltd. (Formerly known as MR Chemie India Pvt. Ltd.)., Hyderabad	MR(R) 85	Solvent Remover suitable for MR(R) 68NF, MR(R) 67, MR(R) 672F and MR(R) 62.	**Dec2026**
18	3AK Chemie India Pvt. Ltd. (Formerly known as MR Chemie India Pvt. Ltd.), Hyderabad	MR(R) 70	Non-Aqueous Developer suitable for MR(R) 68 NF, MR(R) 67 and MR(R) 672F	**Dec2026**

Sr. No.	Manufacturers	Brand name	Description	Valid up to
19	3AK Chemie India Pvt. Ltd. (Formerly known as MR Chemie India Pvt. Ltd.), Hyderabad	MR(R) 70 I	Non-Aqueous Developer suitable for MR(R) 62.	Dec2026
20	3AK Chemie India Pvt. Ltd. (Formerly known as MR Chemie India Pvt. Ltd.), Hyderabad	SP-10,SC-20, SD30	Solvent Removable Penetrant, Solvent Remover, Non - Aqueous Developer	April2027
21	3AK Chemie India Pvt. Ltd. (Formerly known as MR Chemie India Pvt. Ltd.), Hyderabad	WP-15, SC20, SD30	Water Washable Penetrant, Solvent Remover, Non - Aqueous Developer	April2027
22	3AK Chemie India Pvt. Ltd. (Formerly known as MR Chemie India Pvt. Ltd.), Hyderabad	MR311-R, MR85,MR70I	Water Washable & Solvent Removable Penetrant, Solvent Remover, Non - Aqueous Developer	April2027
23	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PP-15/PP-15B	Red Coloured Solvent Removable Penetrant	AUG2026
24	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PP-19/PP-19B	Red Coloured Water Washable Penetrant	AUG2026
25	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PC-21/PC-21B	Solvent Cleaner	AUG2026
26	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PD-31/PD-31B	Solvent Base Developer	AUG2026
27	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PP-110/ PP110B	Red Coloured Solvent Removable Penetrant	AUG2026
28	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PC 120/ PC-120B	Solvent Cleaner	AUG2026
29	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PD 130 /PD-130B	Solvent Base Developer	AUG2026
30	P-MET HIGH TECH CO. PVT. LTD., VADODARA	FPS46/FPS46B	Solvent Removable Fluorescent Penetrant	AUG2026
31	P-MET HIGH TECH CO. PVT. LTD., VADODARA	FPS49/FPS49B	Water Washable Fluorescent Penetrant	AUG2026
32	FERROCHEM NDT SYSTEM PVT. LTD. PUNE	FC-911, FC-811 FC-711	Solvent Removable (Visible)	JAN2027
33	FERROCHEM NDT SYSTEM PVT. LTD. PUNE	FC-931, FC-811	Water Washable (Visible)	JAN2027
34	FERROCHEM NDT SYSTEM PVT. LTD. PUNE	FC-941, FC-821	Water washable (Fluorescent)	JAN2027
35	FERROCHEM NDT SYSTEM PVT. LTD. PUNE	FC-921, FC-821, FC-721	Solvent removable (Fluorescent)	JAN2027
36	DYEGLO PVT. LTD, PUNE	RP-81	Red Coloured Solvent Removable Penetrant	DEC2023
37	DYEGLO PVT. LTD, PUNE	RP-90	Red Coloured Water Washable Penetrant	DEC2023
38	DYEGLO PVT. LTD, PUNE	CL-01	Solvent Cleaner	DEC2023
39	DYEGLO PVT. LTD, PUNE	RD-01	Solvent Base Developer suitable for RP-81 & RP-90	DEC2023
40	DYEGLO PVT. LTD, PUNE	FP-01	Fluorescent Solvent Removable Penetrant	DEC2023
41	DYEGLO PVT. LTD, PUNE	WD-01	Solvent Base Developer suitable for FP-01.	DEC2023

Note:-

1. Halogen content in Penetrant, Cleaner and Developer is 25ppm (max) and Sulphur content is 500ppm (max). However when using penetrant materials for Austenitic Stainless Steel, Titanium, Nickel base or other high temperature alloys, Halogen and Sulphur content shall not exceed 25ppm. Manufacture has to mention for each batch, the Sulphur and Halogen content in the label of each container for selection of Penetrant materials for the stated application.

2. Developer is to be used in Aerosol Cane to get the best results.

28/06/2022

(Anoop Singh)
Head QA (Baroda & Dehej)

Through: Shri Sundar Singh, AD (QA, M-1 &4) 28.06.2022

Shri A.K. Deshmukh, AD (QA Group-2) 28.6.2022

Executive Director (QA) 28.06.2022

Dept.	Document No.	Type	Rev.	Released	Lng.	Status
4555	GHP12S-----100--GS501	IEC	MA	2022-10-19	EN	Approved

Sample Quality Assurance Plan For General Purpose Resistance Temperature Detectors

Sr. No.	Component Operation	Characteristic	Type Method of check	Classification	Quantum of check	Reference of Document	Acceptance Norms	Format of Record	Agency			Remarks
									(P)	(W)	(V)	
I.	**RTD (Incoming and In-process)**											
a.	Element	Continuity	Metering	MA	100%	Visual	No open Circuit	Report	3	-	2, 1	
b.	Brazing Of element with leads	Visual	Visual	MA	100%	Visual	Good Quality braze	Report	3	-	2, 1	
II.	**RTD Assembly (with Thermowell, if applicable)**											
a.	Dimensional check on RTD insert	Dimensions	Measurement	MA	100%	NPCIL approved Test procedure	NPCIL approved Drawing	Report	3	2, 1		CHP See note-1
b.	Calibration at 0°C	Resistance	calibration	MA	100%	IEC 60751	IEC 60751	Report	3	2, 1		
c.	Insulation resistance at ambient temp.	IR	meggaring	MA	100%	IEC 60751	Greater than 100MΩ at 100V DC	Report	3	2, 1		
d.	Insulation at elevated temperature	IR	meggaring	MA	Samples of each type & range	IEC 60751	IEC 60751	Report	3	2, 1		
e.	Response time	Time Contant	IEC 60751	MA	Sample from each type & range	IEC 60751	Less than 60 secs. with thermowell & less than 20 secs.	Report	3	2, 1		

Sample Quality Assurance Plan For General Purpose Resistance Temperature Detectors

Sr. No.	Component Operation	Characteristic	Type Method of check	Classification	Quantum of check	Reference of Document	Acceptance Norms	Format of Record	Agency (P)	Agency (W)	Agency (V)	Remarks
						procedure	without thermowell.					
f.	Calibration at higher points	100 °C, 200°C , 270 °C & 350 °C	calibration	MA	100%	IEC 60751	Class B IS-2848/IEC-60751	Report	3	2,1		CHP See note-1
g.	Self heating error, Drop test and Thermal cycling test	Error	IEC 60751	MA	Sample From each type & range	IEC 60751	IEC 60751	Report	3	2, 1		
h.	Vibration Test (Non-seismic & Seismic)	Endurance	vibration	MA	Sample From each type & range	NPCIL approved Test procedure	After the test all other test requirements mentioned in spec. shall be met.	Report	4/3	3,2	1	
III.	**THERMOWELL**											
a.	Raw material test thermowell	Chemical & Mechanical	Chemical and mechanical	MA	Sample from each lot	NPCIL approved Test procedure	Applicable ASTM code	Report	3 /4	2	1	CHP See note-1
b.	Flange	Chemical & Mechanical	Chemical and mechanical	MA	Sample from each lot	NPCIL approved Test procedure	Applicable ASTM code	Report	3 /4	2	1	CHP See note-1

Sample Quality Assurance Plan For General Purpose Resistance Temperature Detectors

Sr. No.	Component Operation	Characteristic	Type Method of check	Classification	Quantum of check	Reference of Document	Acceptance Norms	Format of Record	Agency (P)	Agency (W)	Agency (V)	Remarks
		Radiography on welds	Radiography	MA	100%	NPCIL approved Test procedure	NPCIL approved procedure	Report	3 /4	2	1	CHP See note-1
c.	Finished Thermowell	Hydro tests 10 mints.	Hydro	MA	100%	NPCIL approved Test procedure	No physical damage/distortion/ leakage	Report	3	2,1		
		Concentricity	Radiography	MA	10%	NPCIL approved Test procedure	As per specification	Report	3/4	2	1	
			Ultrasonic	MA	100%	NPCIL approved Test procedure	NPCIL approved procedure	Report	3	2	1	CHP See note-1
		Dimensions	Measure-ment	MA	100%	NPCIL approved drawings	NPCIL approved drawings	Report	3	2	1	CHP See note-1

MA - MAJOR MI – MINOR P – PERFORMANCE
P - PERFORMANCE W – WITNESS V – VERIFICATION
1 - PURCHASER 2 - PRIME SUPPLIER 3 - SUB-VENDOR 4- EXTERNAL LABORATORY

Note 1- Inspection on 100%basis is to be done by the supplier. However NPCIL QA will witness as per AQL-Level-1, Table-IIIA of IS-2500 part-1

ISS - INSTRUMENT SPECIFICATION SHEET
CHP – CUSTOMER HOLD POINT