

BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

Guaranteed Technical Particulars for 176kV Current Transformer

Type-1

Current Ratio: 100-50-25-10/1A

Quantity: 03 Nos

SL .N o.	Particulars	Description
1.	Type of tank	1-Ph , Out Door, Oil filled, hermetically sealed, Dead Tank/Live Tank
2.	Type of installation	Indoor
3.	Type of mounting	Pedestal type /Structure
4.	Manufacturers name	Bidder to submit
5.	Conforming to standard	IS-2705/IEC-44-1
6.	Rated system voltage	176 KV
7.	Suitable for System frequency	50
8.	Highest system voltage	176 kV
9.	Rated continuous primary current	100 A
10.	Maximum continuous primary current	120% of rated primary current Amps
11.	Material of Primary winding	Copper
12.	Material of Secondary winding	Copper
13.	No of cores	1
14.	Core details	Core-I
i)	Current ratio A/A	100-50-25-10/1A
ii)	Class of accuracy	0.1
iii)	Output burden(VA)	15 VA
iv)	ALF/ISF	<5
v)	Min. Knee point voltage(KPV)	NA
vi)	Max. Exciting current at (Vk)	NA
vii)	Secondary resistance corrected to 75 deg.C	NA
15.	Ratio selection	From secondary taping
16.	Rated short time withstand current(KA/Sec)	25 KA/1sec
17.	Rated dynamic current withstand current (KAp)	62.5 KAp
18.	One minute power frequency withstand voltage voltage(KVrms)	
i)	On primary	325 kVrms
ii)	On secondary	3 kVrms
19.	Temperature rise in deg C	Within limit as per IS-2705/IEC-44-1
20.	Quantity of oils in litres	Bidder to submit
21.	Total weight of oil in Kg	Bidder to submit
22.	Overall dimensions in mm	Bidder to submit

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23.	1.2/50 microsecond lightning impulse withstand voltage(kVp)	750 kVp
24.	Creepage distance of porcelain total(mm)	4400 mm
25.	Type of insulator	Composite insulator/ceramic insulator
26.	Partial discharge	As per IS-2705/IEC-44-1
27.	Tan delta Value	As per IS-2705/IEC-44-1
28.	Treatment of total external surfaces	Epoxy Painted With shade 631 of IS 5
29.	Fixing centers	560X560 mm or to match with existing fixing center

NOTE:-

1. Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
2. The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
3. All Type tests reports (not older than 5 year) as per IS-2705/IEC60044-1 shall be furnished for our reference along with the offer.
4. GTP of the CT/VTs to be submitted in given format as above.
5. OGA / Sectional View drawings to be submitted with the offer.
6. Design Review, GTP, OGA & R&D plate drgs with QAP and vender list etc. shall be got approved before manufacturing of CTs in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with 3rd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

3A

Guaranteed Technical Particulars for 66kV Current Transformer

Type-2

Current Ratio: 100-50-25-10/1A

Quantity: 03 Nos

SL.No.	Particulars	Description
1.	Type of tank	1-Ph ,Out Door, Oil filled, hermetically sealed, Dead Tank/Live Tank
2.	Type of installation	Indoor
3.	Type of mounting	Pedestal type /Structure
4.	Manufacturers name	Bidder to submit
5.	Conforming to standard	IS-2705/IEC-44-1
6.	Rated system voltage	66 KV
7.	Suitable for System frequency	50
8.	Highest system voltage	72.5 kV
9.	Rated continuous primary current	100 A
10.	Maximum continuous primary current	120% of rated primary current Amps
11.	Material of Primary winding	Copper
12.	Material of Secondary winding	Copper
13.	No. of cores	1
14.	Core details	Core-I
i)	Current ratio A/A	100-50-25-10/1A
ii)	Class of accuracy	0.1
iii)	Output burden(VA)	15 VA
iv)	ALF/ISF	<5
v)	Min. Knee point voltage(KPV)	NA
vi)	Max. Exciting current at (Vk)	NA
vii)	Secondary resistance corrected to 75 deg.C	NA
15.	Ratio selection	From secondary taping
16.	Rated short time withstand current(KA/Sec)	25 KA/1sec
17.	Rated dynamic current withstand current (KAp)	62.5 KAp
18.	One minute power frequency withstand voltage voltage(KVrms)	
i)	On primary	140 kVrms
ii)	On secondary	3 kVrms
19.	Temperature rise in deg C	Within limit as per IS-2705/IEC-44-1
20.	Quantity of oils in litres	Bidder to submit
21.	Total weight of oil in Kg	Bidder to submit
22.	Overall dimensions in mm	Bidder to submit
23.	1.2/50 microsecond lightning impulse withstand voltage(KVp)	350 kVp

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24.	Creepage distance of porcelain total(mm)	1815 mm	33
25.	Type of insulator	Composite insulator/ceramic insulator	
26.	Partial discharge	As per IS-2705/IEC-44-1	
27.	Tan delta Value	As per IS-2705/IEC-44-1	
28.	Treatment of total external surfaces	Epoxy Painted With shade 631 of IS 5	
29.	Fixing centers	560X560 mm or to match with existing fixing center	

NOTE:-

1. Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
2. The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
3. All Type tests reports (not older than 5 year) as per IS-2705/IEC60044-1 shall be furnished for our reference along with the offer.
4. GTP of the CT/VTs to be submitted in given format as above.
5. OGA / Sectional View drawings to be submitted with the offer.
6. Design Review, GTP, OGA & R&D plate drgs with QAP and vender list etc. shall be got approved before manufacturing of CTs in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with 3rd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

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Guaranteed Technical Particulars for 66kV Current Transformer

Type-3

Current Ratio: 1000-500-250/1A

Quantity: 03 No.

SL.No.	Particulars	Description
1.	Type of tank	1-Ph ,Out Door, Oil filled, hermetically sealed, Dead Tank/Live Tank
2.	Type of installation	Indoor
3.	Type of mounting	Pedestal type /Structure
4.	Manufacturers name	Bidder to submit
5.	Conforming to standard	IS-2705/IEC-44-1
6.	Rated system voltage	66 KV
7.	Suitable for System frequency	50
8.	Highest system voltage	72.5 kV
9.	Rated continuous primary current	100 A
10.	Maximum continuous primary current	120% of rated primary current Amps
11.	Material of Primary winding	Copper
12.	Material of Secondary winding	Copper
13.	No. of cores	1
14.	Core details	Core-I
i)	Current ratio A/A	1000-500-250/1A
ii)	Class of accuracy	0.1
iii)	Output burden(VA)	15 VA
iv)	ALF/ISF	<5
v)	Min. Knee point voltage(KPV)	NA
vi)	Max. Exciting current at (Vk)	NA
vii)	Secondary resistance corrected to 75 deg.C	NA
15.	Ratio selection	From secondary taping
16.	Rated short time withstand current(KA/Sec)	25 KA/1sec
17.	Rated dynamic current withstand current (KAp)	62.5 KAp
18.	One minute power frequency withstand voltage voltage(KVrms)	
i)	On primary	140 kVrms
ii)	On secondary	3 kVrms
19.	Temperature rise in deg C	Within limit as per IS-2705/IEC-44-1
20.	Quantity of oils in litres	Bidder to submit
21.	Total weight of oil in Kg	Bidder to submit
22.	Overall dimensions in mm	Bidder to submit
23.	1.2/50 microsecond lightning impulse withstand voltage(KVp)	350 kVp

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24.	Creepage distance of porcelain total(mm)	1815 mm
25.	Type of insulator	Composite insulator/ceramic insulator
26.	Partial discharge	As per IS-2705/IEC-44-1
27.	Tan delta Value	As per IS-2705/IEC-44-1
28.	Treatment of total external surfaces	Epoxy Painted With shade 631 of IS 5
29.	Fixing centers	560X560 mm or to match with existing fixing center

NOTE:-

- 1 Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
- 2 The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
- 3 All Type tests reports (not older than 5 year) as per IS-2705/IEC60044-1 shall be furnished for our reference along with the offer.
- 4 GTP of the CT/VTs to be submitted in given format as above.
- 5 OGA / Sectional View drawings to be submitted with the offer.
- 6 Design Review, GTP, OGA & R&D plate drgs with QAP and vender list etc. shall be got approved before manufacturing of CTs in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with 11rd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

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Guaranteed Technical Particulars for 33kV Current Transformer

Type-4

Current Ratio: 200-100-50-25/1A

Quantity: 03 Nos

SL.No.	Particulars	Description
1.	Type of tank	1-Ph ,Out Door, Oil filled, hermetically sealed, Dead Tank/Live Tank
2.	Type of installation	Indoor
3.	Type of mounting	Pedestal type /Structure
4.	Manufacturers name	Bidder to submit
5.	Conforming to standard	IS-2705/IEC-44-1
6.	Rated system voltage	33 KV
7.	Suitable for System frequency	50
8.	Highest system voltage	36 kV
9.	Rated continuous primary current	200 A
10.	Maximum continuous primary current	120% of rated primary current Amps
11.	Material of Primary winding	Copper
12.	Material of Secondary winding	Copper
13.	No. of cores	1
14.	Core details	Core-I
i)	Current ratio A/A	200-100-50-25/1A
ii)	Class of accuracy	0.1
iii)	Output burden(VA)	15 VA
iv)	ALF/ISF	<5
v)	Min. Knee point voltage(KPV)	NA
vi)	Max. Exciting current at (Vk)	NA
vii)	Secondary resistance corrected to 75 deg.C	NA
15.	Ratio selection	From secondary taping
16.	Rated short time withstand current(KA/Sec)	25 KA/1sec
17.	Rated dynamic current withstand current (KAp)	62.5 KAp
18.	One minute power frequency withstand voltage voltage(KVrms)	
i)	On primary	70 kVrms
ii)	On secondary	3 kVrms
19.	Temperature rise in deg C	Within limit as per IS-2705/IEC-44-1
20.	Quantity of oils in litres	Bidder to submit
21.	Total weight of oil in Kg	Bidder to submit
22.	Overall dimensions in mm	Bidder to submit
23.	1.2/50 microsecond lightning impulse withstand voltage(KVp)	170 kVp

24.	Creepage distance of porcelain total(mm)	900 mm
25	Type of insulator	Composite insulator/ceramic insulator
26	Partial discharge	As per IS-2705/IEC-44-1
27.	Tan delta Value	As per IS-2705/IEC-44-1
28	Treatment of total external surfaces	Epoxy Painted With shade 631 of IS 5
29.	Fixing centers	560X560 mm or to match with existing fixing center

NOTE:-

- 1 Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
- 2 The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
- 3 All Type tests reports (not older than 5 year) as per IS-2705/IEC60044-1 shall be furnished for our reference along with the offer.
- 4 GTP of the CT/VTs to be submitted in given format as above.
- 5 OGA / Sectional View drawings to be submitted with the offer.
- 6 Design Review, GTP, OGA & R&D plate drgs with QAP and vender list etc. shall be got approved before manufacturing of CTs in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BI-EL representative along with 3rd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

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Specification for requirement for 33kV Current Transformer

Type-5

Current Ratio: 1000-500-250-125/1A

Quantity:03 Nos

SL. No.	Particulars	Description
1.	Type of tank	1-Ph ,Out Door, Oil filled, hermetically sealed, Dead Tank/Live Tank
2.	Type of installation	Indoor
3.	Type of mounting	Pedestal type /Structure
4.	Manufacturers name	Bidder to submit
5.	Conforming to standard	IS-2705/IEC-44-1
6.	Rated system voltage	33 KV
7.	Suitable for System frequency	50
8.	Highest system voltage	36 kV
9.	Rated continuous primary current	1000 A
10.	Maximum continuous primary current	120% of rated primary current Amps
11.	Material of Primary winding	Copper
12.	Material of Secondary winding	Copper
13.	No. of cores	1
14.	Core details	Core-I
i)	Current ratio A/A	1000-500-250-125/1A
ii)	Class of accuracy	0.1
iii)	Output burden(VA)	15 VA
iv)	ALF/ISF	<5
v)	Min. Knee point voltage(KPV)	NA
vi)	Max. Exciting current at (Vk)	NA
vii)	Secondary resistance corrected to 75 deg.C	NA
15.	Ratio selection	From secondary taping
16.	Rated short time withstand current(KA/Sec)	25 KA/1sec
17.	Rated dynamic current withstand current (KAp)	62.5 KAp
18.	One minute power frequency withstand voltage voltage(KVrms)	
i)	On primary	70 kVrms
ii)	On secondary	3 kVrms
19.	Temperature rise in deg C	Within limit as per IS-2705/IEC-44-1
20.	Quantity of oils in litres	Bidder to submit

2.	Total weight of oil in Kg	Bidder to submit
22.	Overall dimensions in mm	Bidder to submit
23.	1.2/50 microsecond lightening impulse withstand voltage(KVp)	170 kVp
24.	Creepage distance of porcelain total(mm)	900 mm
25.	Type of insulator	Composite insulator/ceramic insulator
26.	Partial discharge	As per IS-2705/IEC-44-1
27.	Tan delta Value	As per IS-2705/IEC-44-1
28.	Treatment of total external surfaces	Epoxy Painted With shade 631 of IS 5
29.	Fixing centers	560X560 mm or to match with existing fixing center

NOTE:-

- 1 Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
- 2 The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
- 3 All Type tests reports (not older than 5 year) as per IS-2705/IEC60044-1 shall be furnished for our reference along with the offer.
- 4 GTP of the CT/VTs to be submitted in given format as above.
- 5 OGA / Sectional View drawings to be submitted with the offer.
- 6 Design Review, GTP, OGA & R&D plate drgs with QAP and vender list etc. shall be got approved before manufacturing of CTs in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with IIIrd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

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Guaranteed Technical Particulars for 11kV Current Transformer

Type-6

Current Ratio: 100-50-25-10/1A

Quantity:06 Nos

SL No.	Particulars	Description
1.	Type of tank	1-Ph ,ring type frame mounted
2.	Type of installation	Indoor
3.	Type of mounting	Mounted on roof structure
4.	Manufacturers name	Bidder to submit
5.	Conforming to standard	IS-2705/IEC-44-1
6.	Rated system voltage	11 KV
7.	Suitable for System frequency	50
8.	Highest system voltage	12 kV
9.	Rated continuous primary current	100 A
10.	Maximum continuous primary current	120% of rated primary current Amps
11.	Material of Primary winding	Copper
12.	Material of Secondary winding	Copper
13.	No. of cores	1
14.	Core details	Core-I
i)	Current ratio A/A	100-50-25-10/1A
ii)	Class of accuracy	0.1
iii)	Output burden(VA)	15 VA
iv)	ALF/ISF	NA
v)	Min. Knee point voltage(KPV)	NA
vi)	Max. Exciting current at (Vk)	NA
vii)	Secondary resistance corrected to 75 deg.C	NA
15.	Ratio selection	From secondary taping
16.	Rated short time withstand current(KA/Sec)	25 KA/1sec
17.	Rated dynamic current withstand current (KAp)	62.5 KAp
18.	One minute power frequency withstand voltage voltage(KVrms)	
i)	On primary	28 kVrms
ii)	On secondary	3 kVrms
19.	Temperature rise in deg C	Within limit as per IS-2705/IEC-44-1
20.	Quantity of oils in litres	Bidder to submit
21.	Total weight of oil in Kg	Bidder to submit

22.	Overall dimensions in mm	Bidder to submit
23.	1.2/50 microsecond lightning impulse withstand voltage(KVp)	75 kVp
24.	Creepage distance of porcelain total(mm)	300 mm
25.	Type of insulator	Composite insulator/ceramic insulator
26.	Partial discharge	As per IS-2705/IEC-44-1
27.	Tan delta Value	As per IS-2705/IEC-44-1
28.	Treatment of total external surfaces	Epoxy Painted With shade 631 of IS 5
29.	Fixing centers	To match with existing fixing Centre

NOTE:-

1. Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
2. The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
3. All Type tests reports (not older than 5 year) as per IS-2705/IEC60044-1 shall be furnished for our reference along with the offer.
4. GTP of the CT/VTs to be submitted in given format as above.
5. OGA / Sectional View drawings to be submitted with the offer.
6. Design Review, GTP, OGA & R&D plate drgs with QAP and vender list etc. shall be got approved before manufacturing of CTs in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with IIIrd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

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Guaranteed Technical Particulars for 11kV Current Transformer

Type-7

Current Ratio: 200-100-50-25/1A

Quantity:03 Nos

SL No.	Particulars	Description
1.	Type of tank	1-Ph ,ring type frame mounted
2.	Type of installation	Indoor
3.	Type of mounting	Mounted on roof structure
4.	Manufacturers name	Bidder to submit
5.	Conforming to standard	IS-2705/IEC-44-1
6.	Rated system voltage	11 KV
7.	Suitable for System frequency	50
8.	Highest system voltage	12 kV
9.	Rated continuous primary current	200 A
10.	Maximum continuous primary current	120% of rated primary current Amps
11.	Material of Primary winding	Copper
12.	Material of Secondary winding	Copper
13.	No. of cores	1
14.	Core details	Core-I
i)	Current ratio A/A	200-100-50-25/1A
ii)	Class of accuracy	0.1
iii)	Output burden(VA)	15 VA
iv)	ALF/ISF	NA
v)	Min. Knee point voltage(KPV)	NA
vi)	Max. Exciting current at (Vk)	NA
vii)	Secondary resistance corrected to 75 deg.C	NA
15.	Ratio selection	From secondary taping
16.	Rated short time withstand current(KA/Sec)	25 KA/1sec
17.	Rated dynamic current withstand current (KA _p)	62.5 KA _p
18.	One minute power frequency withstand voltage(KVrms)	
i)	On primary	28 kVrms
ii)	On secondary	3 kVrms
19.	Temperature rise in deg C	Within limit as per IS-2705/IEC-44-1
20.	Quantity of oils in litres	Bidder to submit

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21.	Total weight of oil in Kg	Bidder to submit
22.	Overall dimensions in mm	Bidder to submit
23.	1.2/50 microsecond lightning impulse withstand voltage(KVp)	75 kVp
24.	Creepage distance of porcelain total(mm)	300 mm
25.	Type of insulator	Composite insulator/ceramic insulator
26.	Partial discharge	As per IS-2705/IEC-44-1
27.	Tan delta Value	As per IS-2705/IEC-44-1
28.	Treatment of total external surfaces	Epoxy Painted With shade 631 of IS 5
29.	Fixing centers	To match with existing fixing Centre

NOTE:-

1. Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
2. The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
3. All Type tests reports (not older than 5 year) as per IS-2705/IEC60044-1 shall be furnished for our reference along with the offer.
4. GTP of the CT/VTs to be submitted in given format as above.
5. OGA / Sectional View drawings to be submitted with the offer.
6. Design Review, GTP, OGA & R&D plate drgs with QAP and vendor list etc. shall be got approved before manufacturing of CTs in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with 3rd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

Guaranteed Technical Particulars for 11kV Current Transformer

Type-8

Current Ratio: 300-150-75-37.5/1A

Quantity: 03 Nos

SL .N o.	Particulars	Description
1.	Type of tank	1-Ph ,ring type frame mounted
2.	Type of installation	Indoor
3.	Type of mounting	Mounted on roof structure
4.	Manufacturers name	1-Ph ,ring type frame mounted
5.	Conforming to standard	IS-2705/IEC-44-1
6.	Rated system voltage	11 KV
7.	Suitable for System frequency	50
8.	Highest system voltage	12 kV
9.	Rated continuous primary current	300 A
10.	Maximum continuous primary current	120% of rated primary current Amps
11.	Material of Primary winding	Copper
12.	Material of Secondary winding	Copper
13.	No. of cores	1
14.	Core details	Core-I
i)	Current ratio A/A	300-150-75-37.5/1A
ii)	Class of accuracy	0.1
iii)	Output burden(VA)	15 VA
iv)	ALF/ISF	NA
v)	Min. Knee point voltage(KPV)	NA
vi)	Max. Exciting current at (Vk)	NA
vii)	Secondary resistance corrected to 75 deg.C	NA
15.	Ratio selection	From secondary taping
16.	Rated short time withstand current(KA/Sec)	25 KA/1sec
17.	Rated dynamic current withstand current (KAp)	62.5 KAp
18.	One minute power frequency withstand voltage voltage(KVrms)	
i)	On primary	28 kVrms
ii)	On secondary	3 kVrms
19.	Temperature rise in deg C	Within limit as per IS-2705/IEC-44-1
20.	Quantity of oils in litres	Bidder to submit
21.	Total weight of oil in Kg	Bidder to submit
22.	Overall dimensions in mm	Bidder to submit
23.	1.2/50 microsecond lightning impulse withstand voltage(KVp)	75 kVp

24.	Creepage distance of porcelain total(mm)	300 mm
25.	Type of insulator	Composite insulator/ceramic insulator
26.	Partial discharge	As per IS-2705/IEC-44-1
27.	Tan delta Value	As per IS-2705/IEC-44-1
28.	Treatment of total external surfaces	Epoxy Painted With shade 631 of IS 5
29.	Fixing centers	To match with existing fixing Centre

NOTE:-

1. Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
2. The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
3. All Type tests reports (not older than 5 year) as per IS-2705/IEC60044-1 shall be furnished for our reference along with the offer.
4. GTP of the CT/VTs to be submitted in given format as above.
5. OGA / Sectional View drawings to be submitted with the offer.
6. Design Review, GTP, OGA & R&D plate drgs with QAP and vendor list etc. shall be got approved before manufacturing of CTs in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with 3rd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

20

Guaranteed Technical Particulars for 11kV Current Transformer

Type-9

Current Ratio: 1200-600-300-150/1A

Quantity:03 Nos

SL. No.	Particulars	Description
1.	Type of tank	1-Ph ring type frame mounted
2.	Type of installation	Indoor
3.	Type of mounting	Mounted on roof structure
4.	Manufacturers name	Bidder to submit
5.	Conforming to standard	IS-2705/IEC-44-1
6.	Rated system voltage	11 KV
7.	Suitable for System frequency	50
8.	Highest system voltage	12 kV
9.	Rated continuous primary current	1200 A
10.	Maximum continuous primary current	120% of rated primary current Amps
11.	Material of Primary winding	Copper
12.	Material of Secondary winding	Copper
13.	No. of cores	1
14.	Core details	Core-I
i)	Current ratio A/A	1200-600-300-150/1A
ii)	Class of accuracy	0.1
iii)	Output burden(VA)	15 VA
iv)	ALF/ISF	NA
v)	Min. Knee point voltage(KPV)	NA
vi)	Max. Exciting current at (Vk)	NA
vii)	Secondary resistance corrected to 75 deg.C	NA
15.	Ratio selection	From secondary taping
16.	Rated short time withstand current(KA/Sec)	25 KA/1sec
17.	Rated dynamic current withstand current (KAp)	62.5 KAp
18.	One minute power frequency withstand voltage voltage(KVrms)	
i)	On primary	28 kVrms
ii)	On secondary	3 kVrms
19.	Temperature rise in deg C	Within limit as per IS-2705/IEC-44-1
20.	Quantity of oils in litres	Bidder to submit
21.	Total weight of oil in Kg	Bidder to submit
22.	Overall dimensions in mm	Bidder to submit
23.	1.2/50 microsecond lightning impulse withstand voltage(KVp)	75 kVp

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24.	Creepage distance of porcelain total(mm)	300 mm
25.	Type of insulator	Composite insulator/ceramic insulator
26.	Partial discharge	As per IS-2705/IEC-44-1
27.	Tan delta Value	As per IS-2705/IEC-44-1
28.	Treatment of total external surfaces	Epoxy Painted With shade 631 of IS 5
29.	Fixing centers	To match with existing fixing centers

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NOTE:-

1. Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
2. The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
3. All Type tests reports (not older than 5 year) as per IS-2705/IEC60044-1 shall be furnished for our reference along with the offer.
4. GTP of the CTs to be submitted in given format as above.
5. OGA / Sectional View drawings to be submitted with the offer.
6. Design Review, GTP, OGA & R&D plate drgs with QAP and vendor list etc. shall be got approved before manufacturing of CTs in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with IIIrd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

18

Guaranteed Technical Particulars for 11kV Current Transformer

Type-10

Current Ratio: 3000-1500/1A

Quantity:03 Nos

SL. No.	Particulars	Description
1.	Type of tank	1-Ph ,ring type frame mounted
2.	Type of installation	Indoor
3.	Type of mounting	Mounted on roof structure
4.	Manufacturers name	Bidder to submit
5.	Conforming to standard	IS-2705/IEC-44-1.
6.	Rated system voltage	11 KV
7.	Suitable for System frequency	50
8.	Highest system voltage	12 kV
9.	Rated continuous primary current	3000 A
10.	Maximum continuous primary current	120% of rated primary current Amps
11.	Material of Primary winding	Copper
12.	Material of Secondary winding	Copper
13.	No. of cores	1
14.	Core details	Core-I
i)	Current ratio A/A	3000-1500/1A
ii)	Class of accuracy	0.1
iii)	Output burden(VA)	15 VA
iv)	ALF/ISF	NA
v)	Min. Knee point voltage(KPV)	NA
vi)	Max. Exciting current at (Vk)	NA
vii)	Secondary resistance corrected to 75 deg.C	NA
15.	Ratio selection	From secondary taping
16.	Rated short time withstand current(KA/Sec)	25 KA/1sec
17.	Rated dynamic current withstand current (KAp)	62.5 KAp
18.	One minute power frequency withstand voltage voltage(KVrms)	
i)	On primary	28 kVrms
ii)	On secondary	3 kVrms
19.	Temperature rise in deg C	Within limit as per IS-2705/IEC-44-1
20.	Quantity of oils in litres	Bidder to submit
21.	Total weight of oil in Kg	Bidder to submit

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22.	Overall dimensions in mm	Bidder to submit
23.	1.2/50 microsecond lightning impulse withstand voltage(KVp)	75 kVp
24.	Creepage distance of porcelain total(mm)	300 mm
25.	Type of insulator	Composite insulator/ceramic insulator
26.	Partial discharge	As per IS-2705/IEC-44-1
27.	Tan delta Value	As per IS-2705/IEC-44-1
28.	Treatment of total external surfaces	Epoxy Painted With shade 631 of IS 5
29.	Fixing centers	To match with existing fixing centre

NOTE:-

1. Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
2. The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
3. All Type tests reports (not older than 5 year) as per IS-2705/IEC60044-1 shall be furnished for our reference along with the offer.
4. GTP of the CT/VTs to be submitted in given format as above.
5. OGA / Sectional View drawings to be submitted with the offer.
6. Design Review, GTP, OGA & R&D plate drgs with QAP and vender list etc. shall be got approved before manufacturing of CTs in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with 3rd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

16

Guaranteed Technical Particulars for 176 kV Voltage Transformer (VT)

Type-11

Quantity: 03 Nos

Sl	Particulars	Required parameters	Offered parameters
1.	Type	Indoor EM VT	
2.	Manufacture's Type and Designation	Oil filled, Single phase, hermetically sealed, 176kV EMVT	
3.	Rated primary voltage	$176000V/\sqrt{3}$ - $88000V/\sqrt{3}$ - $44000V/\sqrt{3}$	
4.	Standard to which the VT confirms	IS-3156-1992/IEC-44-2	
5.	Number of secondary winding	01 No.	
6.	Type of insulation used	Class "A"	
7.	Rated secondary voltage	$110 V/\sqrt{3}$	
8.	Rated secondary burden (VA)	30VA	
9.	Rated transformation ratio	$176000V/\sqrt{3} - 88000V/\sqrt{3} - 44000V/\sqrt{3} / 110 V/\sqrt{3}$	
9.a	Ratio selection	with tapping on secondary side	
10.	Rated thermal burden(VA)	30 VA	
11.	Accuracy Class	0.1	
12.	Rated Frequency	50Hz	
13.	Number of phases	Single Phase	
14.	Grade of oil	As per IS-335	
15.	Temperature rise 1.1 times rated voltage with rated burden	As per IS-3156/IEC-44-1	
16.	Rated voltage factor and time	1.2 cont. & 1.5 For 30 Second	
17.	Temperature rise for(12 above)	10 ° C.	
18.	One minute power frequency Dry withstand test voltage	325 kVrms	
19.	1.2/50micro Impulse wave withstand test voltage	750 kVp	

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20.	One minute power frequency (dry) withstand test on secondary	3kKV rms
20.	Visual corona extinction voltage KV rms	As per IS-3156/IEC-44-1
21.	Seismic acceleration (Horizontal)	0.3g
22.	Total Creepage distance	4400 mm
23.	Type of housing	Composite insulator /ceramic insulator
24.	Overall Dimensions	Drawings to be submitted by Vender
25.	Mounting details	600mm X 600 mm / to match existing fixing centre

NOTE:-

- 1 Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
- 2 The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
- 3 All Type tests reports (not older than 5 year) as per IS-3156/IEC60044-2 shall be furnished for our reference along with the offer.
- 4 GTP of the CT/VTs to be submitted in given format as above.
- 5 OGA / Sectional View drawings to be submitted with the offer.
- 6 Design Review, GTP, OGA & R&D plate drgs with QAP and vender list etc. shall be got approved before manufacturing of CT/VT in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL. Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with 3rd party inspection by NABL. Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

14

Guaranteed Technical Particulars for 66 kV Voltage Transformer (VT)

Type-12

Quantity: 03 Nos

Sl.	Particulars	Required parameters	Offered parameters
1.	Type	Indoor EM VT	
2.	Manufacture's Type and Designation	Oil filled, Single phase, hermetically sealed, 66kV EM VT	
3.	Rated primary voltage	$66000V/\sqrt{3}$ - $33000V/\sqrt{3}$ - $16500V/\sqrt{3}$	
4.	Standard to which the VT confirms	IS-3156-1992/IEC-44-2	
5.	Number of secondary winding	01 No.	
6.	Type of insulation used	Class "A"	
7.	Rated secondary voltage	$110 V/\sqrt{3}$	
8.	Rated secondary burden (VA)	30VA	
9.	Rated transformation ratio	$66000V/\sqrt{3} - 33000V/\sqrt{3} - 16500V/\sqrt{3} / 110 V/\sqrt{3}$	
9.a	Ratio selection	with tapping on secondary side	
10.	Rated thermal burden(VA)	30 VA	
11.	Accuracy Class	0.1	
12.	Rated Frequency	50Hz	
13.	Number of phases	Single Phase	
14.	Grade of oil	As per IS-335	
15.	Temperature rise 1.1 times rated voltage with rated burden	As per IS-3156/IEC-44-1	
16.	Rated voltage factor and time	1.2 cont. & 1.5 For 30 Second	
17.	Temperature rise for(12 above)	10 ° C.	
18.	One minute power frequency Dry withstand test voltage	140 kVrms	
19.	1.2/50micro Impulse wave withstand test voltage	350 kVp	

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20.	One minute power frequency (dry) withstand test on secondary	3kKV rms
20.	Visual corona extinction voltage KV rms	As per IS-3156/IEC-44-1
21.	Seismic acceleration (Horizontal)	0.3g
22.	Total Creepage distance	1815 mm
23.	Type of housing	Composite insulator /ceramic insulator
24.	Overall Dimensions	Drawings to be submitted by Vender
25.	Mounting details	600mm x 600 mm /to match existing fixing centre

NOTE:-

- 1 Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
- 2 The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
- 3 All Type tests reports (not older than 5 year) as per IS-3156/IEC60044-2 shall be furnished for our reference along with the offer.
- 4 GTP of the CT/VTs to be submitted in given format as above.
- 5 OGA / Sectional View drawings to be submitted with the offer.
- 6 Design Review, GTP, OGA & R&D plate drgs with QAP and vender list etc. shall be got approved before manufacturing of CT/VT in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with 3rd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

12

Guaranteed Technical Particulars for 33 kV Voltage Transformer (VT)

Type-13

Quantity: 03 Nos

Sl	Particulars	Required parameters	Offered parameters
1.	Type	Indoor EM VT	
2.	Manufacture's Type and Designation	Oil filled, Single phase, hermetically sealed, 33kV EMVT	
3.	Rated primary voltage	$33000V/\sqrt{3}$ - $16500V/\sqrt{3}$ - $8250V/\sqrt{3}$	
4.	Standard to which the VT confirms	IS-3156-1992/IEC-44-2	
5.	Number of secondary winding	01 No.	
6.	Type of insulation used	Class "A"	
7.	Rated secondary voltage	$110 V/\sqrt{3}$	
8.	Rated secondary burden (VA)	30VA	
9.	Rated transformation ratio	$33000V/\sqrt{3} - 16500V/\sqrt{3} - 8250V/\sqrt{3} / 110 V/\sqrt{3}$	
9.a	Ratio selection	With tapping on secondary side	
10.	Rated thermal burden(VA)	30 VA	
11.	Accuracy Class	0.1	
12.	Rated Frequency	50Hz	
13.	Number of phases	Single Phase	
14.	Grade of oil	As per IS-335	
15.	Temperature rise 1.1 times rated voltage with rated burden	As per IS-3156/IEC-44-1	
16.	Rated voltage factor and time	1.2 cont. & 1.5 For 30 Second	
17.	Temperature rise for(12 above)	10° C.	
18.	One minute power frequency Dry withstand test voltage	70 kVrms	
19.	1.2/50micro Impulse wave withstand test voltage	170 kVp	

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20.	One minute power frequency (dry) withstand test on secondary	3kKV rms	
20.	Visual corona extinction voltage		
	KV rms	As per IS-3156/IEC-44-1	
21.	Seismic acceleration (Horizontal)	0.3g	
22.	Total Creepage distance	900 mm	
23.	Type of housing	Composite insulator /ceramic insulator	
24.	Overall Dimensions	Drawings to be submitted by Vender	
25.	Mounting details	600 mm X 600 mm/ To match existing fixing centre	

NOTE:-

- 1 Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
- 2 The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
- 3 All Type tests reports (not older than 5 year) as per IS-3156/IEC60044-2 shall be furnished for our reference along with the offer.
- 4 GTP of the CT/VTs to be submitted in given format as above.
- 5 OGA / Sectional View drawings to be submitted with the offer.
- 6 Design Review, GTP, OGA & R&D plate drgs with QAP and vender list etc. shall be got approved before manufacturing of CT/VT in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with IIIrd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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BHARAT HEAVY ELECTRICALS LIMITED JHANSI (UP)

10

Guaranteed Technical Particulars for 11 kV Voltage Transformer (VT)

Type-14

Quantity: 06 Nos

Sl.	Particulars	Required parameters	Offered parameters
1.	Type	Indoor EM VT	
2.	Manufacture's Type and Designation	Oil filled, Single phase, hermetically sealed, 11kV EMVT	
3.	Rated primary voltage	11000V/ $\sqrt{3}$ -5500V/ $\sqrt{3}$ -2750V/ $\sqrt{3}$	
4.	Standard to which the VT confirms	IS-3156-1992/IEC-44-2	
5.	Number of secondary winding	01 No.	
6.	Type of insulation used	Class "A"	
7.	Rated secondary voltage	110 V/ $\sqrt{3}$	
8.	Rated secondary burden (VA)	30VA	
9.	Rated transformation ratio	11000V/ $\sqrt{3}$ - 5500V/ $\sqrt{3}$ - 2750V/ $\sqrt{3}$ / 110 V/ $\sqrt{3}$	
9.a	Ratio selection	With tapping on secondary side	
10.	Rated thermal burden(VA)	30 VA	
11.	Accuracy Class	0.1	
12.	Rated Frequency	50Hz	
13.	Number of phases	Single Phase	
14.	Grade of oil	As per IS-335	
15.	Temperature rise 1.1 times rated voltage with rated burden	As per IS-3156/IEC-44-1	
16.	Rated voltage factor and time	1.2 cont. & 1.5 For 30 Second	
17.	Temperature rise for(12 above)	10 ° C.	
18.	One minute power frequency Dry withstand test voltage	28 kVrms	
19.	1.2/50micro Impulse wave withstand test voltage	75 kVp	

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19.	One minute power frequency (dry) withstand test on secondary	3kKV rms
20.	Visual corona extinction voltage KV rms	As per IS-3156/IEC-44-1
21.	Seismic acceleration (Horizontal)	0.3g
22.	Total Creepage distance	300 mm
23.	Type of housing	Composite insulator /ceramic insulator
24.	Overall Dimensions	Drawings to be submitted by Vender
25.	Mounting details	600mm X 600 mm / to match existing fixing centre

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NOTE:-

1. Paint : All external ferrous part of the CT/VT shall be painted with epoxy paint to shade 631 of IS-5.
2. The manufacturing process, quality assurance plan, vendor list of raw materials to be submitted for our review/approval.
3. All Type tests reports (not older than 5 year) as per IS-3156/IEC60044-2 shall be furnished for our reference along with the offer.
4. GTP of the CT/VTs to be submitted in given format as above.
5. OGA / Sectional View drawings to be submitted with the offer.
6. Design Review, GTP, OGA & R&D plate drgs with QAP and vender list etc. shall be got approved before manufacturing of CT/VT in case of order placed on you.
7. Instruments used during final testing shall be calibrated from NABL Accredited Lab/Agency. Calibration of all CTs & Instruments used during testing shall be done with the periodicity of 1 year by NABL Accredited Lab / Agency.
9. Testing / Inspection shall be done at supplier works by BHEL representative along with IIIrd party inspection by NABL Accredited lab. Supplier shall confirm to arrange 3rd party inspection ((NABL Accredited lab) during final inspection. An advance notice of approx. two weeks shall be given prior to final testing.
10. CT/VTs shall be suitably packed prior to its transportation to avoid any transportation damage.

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