



# BHARAT HEAVY ELECTRICALS LIMITED

( A Government of India Undertaking )  
HIGH PRESSURE BOILER PLANT  
PURCHASE DEPARTMENT - FOSSIL BOILERS  
THIRUCHIRAPALLI - 620014  
TAMILNADU (INDIA)

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GRAMS : BHARATELEC  
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429-002/A

	<b>Enquiry No</b>	<b>Enquiry Date</b>	<b>Due Date for Quotation</b>
	2661500067 - 75	25.02.2015	20.03.2015
Please quote Enquiry No, Date and due date in all correspondences. This is only a request for quotation and not an order			

Item	Description	Unit	Quantity	Delivery Quantity	Schedule Date
10	<p>7602A4600700 VVVFDRIVE FOR 7.5KW HOIST APPLICATION CR 7.5KW Hoist Duty Drive for Crane Application with Crane Control Software SPECIFICATION OF VVVF DRIVE: 1. The VVVF Drive should be dedicated for hoist application. (CRANE DUTY application for HOIST MOTION.) 2. The rated output current of the drive should be at 45 deg. C ambient Temperature and maximum operating temperature shall be 55 deg.C. 3. Duration on any account {Viz} temperature / carrier frequency should not exceed 15% of rated output current of inverter offered. 4. Inverter offered should be provided with accurate brake co-ordination signals. 5. Vibration: The drive must be Compliant with JIS C60068-2-6 or IEC 60068-2-6 6. In addition to the above crane specific features the inverter shall offer the Following features: Rated input voltage &amp; Frequency: 3 Phase, 380-460V, 50/60 Hz. Allowable Voltage Fluctuation : +10% to -15% Allowable frequency Fluctuation : +5% to -5%. Over load capability : 150% for 1 min (Heavy Duty) Multi Function Digital Inputs: Minimum 6 multifunction digital inputs. Multi Function Relay Output: Minimum 2 multifunction relay outputs (110V). Max. Output Voltage : 3 phase, 380/400/440/460V {Proportion to Input Voltage}. Max. Output frequency : 400Hz {Programmable} Control method: High carrier frequency {low noise} sine wave PWM Technique.</p>	SET	3.000	3.00	15.05.15

The offers should reach us 30 minutes before the time of opening of tenders.  
The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening.Late and delayed offers are liable to be rejected.

Yours faithfully,  
For **BHARAT HEAVY ELECTRICALS LIMITED**  
  
MANAGER / PURCHASE  
(FOSSIL BOILERS)  
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2661500067 / 25.02.2015

Control Supply : 110V AC.  
Starting Torque: 150% below 1 Hz.{150% at 0  
r/min with PG}  
Speed Control Range : 100:1 {1000:1  
with PG}  
Speed Control accuracy : +/- 2% with PG.  
Torque limit : Settable through program  
{Parameter}  
Output frequency Resolution : 0.01 Hz. / 0.02  
Frequency setting signal  
Acceleration/Deceleration  
Time : 0.01 to 60 sec.

Braking Torque : Approx. 20% {approx. 125%  
when using braking Resistor}.

MAIN CONTROL FUNCTIONS :

- a) Auto tuning
- b) Momentary loss  
restart
- c) PID control
- d) Drop control
- e) DC injection  
braking
- f) Slip compensation
- g) Speed search
- h) Excess torque  
detection and Torque limit
- i) Multi step speed  
operation
- j) Accl./Decel. Time  
change over operation.
- k) 3 Wire sequence
- l) Operation Fault  
log.

PROTECTIVE FUNCTIONS:

- a) Motor overload  
trip
- b) Instantaneous  
over current trip
- c) DC bus protection
- d) Input supply Over  
/ Under voltage trip
- e) Power loss ride  
through  
Heat sink overheat  
detection and tripping  
(both Drive , DBU,DBR)
- g) Output Short  
circuit protection
- h) Input / Output  
open circuit protection
- i) Stall prevention

6.Keypad of the drive shall be LCD

7.The keypad of the VVVF drive shall be panel  
mounted with necessary  
extension wire from the drive.

8.DBU of Drive shall be of same manufacturer.

9.DBR shall be supplied with thermal overload  
protection, so that on  
excessive temperature the signal shall be sent  
to drive and the drive

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will trip.

10.When DBU Power transistor gets shorted then drive needs to be tripped for that necessary provision must be present.

11.Drives shall have protective PCB coating (Conformal coating)

12.DC Reactor as per the OEM recommendation.

Scope Of Supply:

1. Each VVVF Drive unit should be supplied with Suitable hoist Dynamic Braking Unit & Dynamic Braking Resistor(atleast 50% of motor KW),

all manual & crane software installed

2. The VVVF Drive unit should be loaded with software needed for Hoist applications in cranes.

3.For Every VVFD drive instruction manual, User manual, starting guide,

necessary parameter catalogues shall be supplied in Hardcopy manner.

4.DBR shall be 50% of the motor KW.

Resistance calculation value shall be given by supplier. DBR make shall be either by OEM or OEM recommended.

5.DC Reactor as per OEM recommendation.

6.Only YASKAWA, MITSUBHISHI&FUJI make of VVVF Drives are

acceptable. Other makes are liable for rejection.

20 7602A4600500 SET 3.000 3.00 15.05.15

VVVFDRIVE FOR 22KW HOIST APPLICATION CR,

22KW Hoist Duty Drive for Crane Application with Crane Control Software

SPECIFICATION OF VVVF DRIVE:

1. The VVVF Drive should be dedicated for hoist application. (CRANE DUTY application for HOIST MOTION.)

2. The rated output current of the drive should be at 45 deg. C ambient Temperature and maximum operating temperature shall be 55 deg. C.

3. Duration on any account {Viz} temperature / carrier frequency should not exceed 15% of rated output current of inverter offered.

4. Inverter offered should be provided with accurate brake co-ordination signals.

5. Vibration: The drive must be Compliant with JIS C60068-2-6 or IEC 60068-2-6. All the Control and PCB cards shall be tightly mounted within VVFD Drive.

6. In addition to the above crane specific features the inverter shall offer the Following features:

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
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2661500067 / 25.02.2015

Rated input voltage & Frequency: 3 Phase,  
380-460V, 50/60 Hz.  
Allowable Voltage Fluctuation :  
+10% to -15%  
Allowable frequency Fluctuation :  
+5% to -5%.  
Over load capability : 150% for 1 min (Heavy  
Duty) and 200% for how many  
seconds.  
Multi Function Digital Inputs: Minimum 6  
multifunction digital inputs.  
Multi Function Relay Output: Minimum 2  
multifunction relay outputs  
(110V)  
Max. Output Voltage : 3 phase,  
380/400/440/460V {Proportion to  
Input Voltage}.  
Max. Output frequency : 400Hz  
{Programmable}  
Control method: High carrier frequency {low  
noise} sine wave  
PWM Technique.  
Control Supply : 110V AC.  
Starting Torque: 150% below 1 Hz.{150% at 0  
r/min with PG}  
Speed Control Range : 100:1 {1000:1  
with PG}  
Speed Control accuracy : +/- 2% with PG.  
Torque limit : Settable through program  
{Parameter}  
Output frequency Resolution : 0.01 Hz. / 0.02  
Frequency setting signal  
Acceleration/Deceleration  
Time : 0.01 to 60 sec.  
Braking Torque : Approx. 20% {approx. 125%  
when using braking Resistor}.  
MAIN CONTROL FUNCTIONS :  
a) Auto tuning  
b) Momentary loss  
restart  
c) PID control  
d) Drop control  
e) DC injection  
braking  
f) Slip compensation  
g) Speed search  
h) Excess torque  
detection and Torque limit  
i) Multi step speed  
operation  
j) Accl./Decel. Time  
change over operation.  
k) 3 Wire sequence  
l) Operation Fault  
log.  
PROTECTIVE FUNCTIONS:  
a) Motor overload  
trip  
b) Instantaneous  
over current trip

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c) DC bus protection  
d) Input supply Over  
/ Under voltage trip  
through  
e) Power loss ride  
Heat sink overheat  
detection and tripping  
(both Drive , DBU,DBR)  
g) Output Short  
circuit protection  
h) Input / Output  
open circuit protection  
i) Stall prevention

6.Keypad of the drive shall be LCD  
7.The keypad of the VVVF drive shall be panel  
mounted with necessary  
extension wire from the drive.  
8.DBU of Drive shall be of same manufacturer.  
9.DBR shall be supplied with thermal overload  
protection, so that on  
excessive temperature the signal shall be sent  
to drive and the drive  
will trip.  
10.When DBU Power transistor gets shorted  
then drive needs to be tripped  
for that necessary provision must be present.  
11.Drives shall have protective PCB coating  
(Conformal coating)  
12.DC Reactor as per the OEM  
recommendation.

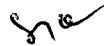
#### Scope Of Supply:

1. Each VVVF Drive unit should be supplied  
with Suitable hoist Dynamic  
Braking Unit & Dynamic Braking Resistor(atleast  
50% of motor KW),  
all manual & crane software installed
2. The VVVF Drive unit should be loaded with  
software needed for Hoist  
applications in cranes.
- 3.For Every VVFD drive instruction manual, User  
manual, starting guide,  
necessary parameter catalogues shall be  
supplied in Hardcopy manner.
- 4.DBR shall be 50% of the motor KW.  
Resistance calculation value shall  
be given by supplier. DBR make shall be either  
by OEM or OEM  
recommended.
- 5.DC Reactor as per OEM recommendation.
- 6.Only YASKAWA, MITSUBHISHI & FUJI make  
of VVVF Drives are  
acceptable. Other makes are liable for rejection.

30	7602A4600400	SET	3.000	3.00	15.05.15
	VVVFDRIIVE FOR 30KW HOIST APPLICATION CR 30KW Hoist Duty Drive for Crane Application with Crane Control Software SPECIFICATION OF VVVF DRIVE:				

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2661500067 / 25.02.2015

1. The VVVF Drive should be dedicated for hoist application. (CRANE DUTY application for HOIST MOTION.)
2. The rated output current of the drive should be at 45 deg. C ambient Temperature and maximum operating temperature shall be 55 deg.C.
3. Duration on any account {Viz} temperature / carrier frequency should not exceed 15% of rated output current of inverter offered.
4. Inverter offered should be provided with accurate brake co-ordination signals.
5. Vibration: The drive must be Compliant with JIS C60068-2-6 or IEC 60068-2-6
6. In addition to the above crane specific features the inverter shall offer the Following features:  
Rated input voltage & Frequency: 3 Phase, 380-460V, 50/60 Hz.  
Allowable Voltage Fluctuation : +10% to -15%  
Allowable frequency Fluctuation : +5% to -5%.  
Over load capability : 150% for 1 min (Heavy Duty)  
Multi Function Digital Inputs: Minimum 6 multifunction digital inputs.  
Multi Function Relay Output: Minimum 2 multifunction relay outputs (110V)  
Max. Output Voltage : 3 phase, 380/400/440/460V {Proportion to Input Voltage}.  
Max. Output frequency : 400Hz {Programmable}  
Control method: High carrier frequency {low noise} sine wave PWM Technique.  
Control Supply : 110V AC.  
Starting Torque: 150% below 1 Hz.{150% at 0 r/min with PG}  
Speed Control Range : 100:1 {1000:1 with PG}  
Speed Control accuracy : +/- 2% with PG.  
Torque limit : Settable through program {Parameter}  
Output frequency Resolution : 0.01 Hz. / 0.02  
Frequency setting signal Acceleration/Deceleration Time : 0.01 to 60 sec.  
Braking Torque : Approx. 20% {approx. 125% when using braking Resistor}.  
MAIN CONTROL FUNCTIONS :  
a) Auto tuning  
b) Momentary loss  
restart  
c) PID control

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- d) Drop control  
e) DC injection
- braking
- f) Slip compensation  
g) Speed search  
h) Excess torque
- detection and Torque limit
- i) Multi step speed
- operation
- j) Accl./Decel. Time
- change over operation.
- k) 3 Wire sequence  
l) Operation Fault
- log.
- PROTECTIVE FUNCTIONS:
- a) Motor overload
- trip
- b) Instantaneous
- over current trip
- c) DC bus protection  
d) Input supply Over
- / Under voltage trip
- e) Power loss ride
- through
- Heat sink overheat
- detection and tripping  
(both Drive , DBU,DBR)
- g) Output Short
- circuit protection
- h) Input / Output
- open circuit protection
- i) Stall prevention

- 6.Keypad of the drive shall be LCD  
7.The keypad of the VVVF drive shall be panel mounted with necessary extension wire from the drive.  
8.DBU of Drive shall be of same manufacturer.  
9.DBR shall be supplied with thermal overload protection, so that on excessive temperature the signal shall be sent to drive and the drive will trip.  
10.When DBU Power transistor gets shorted then drive needs to be tripped for that necessary provision must be present.  
11.Drives shall have protective PCB coating (Conformal coating)  
12.DC Reactor as per the OEM recommendation.

Scope Of Supply:

1. Each VVVF Drive unit should be supplied with Suitable hoist Dynamic Braking Unit & Dynamic Braking Resistor(atleast 50% of motor KW), all manual & crane software installed
2. The VVVF Drive unit should be loaded with software needed for Hoist applications in cranes.
- 3.For Every VVFD drive instruction manual, User manual, starting guide,

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4.DBR shall be 50% of the motor KW. Resistance calculation value shall be given by supplier. DBR make shall be either by OEM or OEM recommended.  
5.DC Reactor as per OEM recommendation.  
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40 7602A4600900 SET 12.000 12.00 15.05.15

VVVFDRIVE FOR 37KW HOIST APPLICATION CR

37KW Hoist Duty Drive for Crane Application with Crane Control Software  
SPECIFICATION OF VVVF DRIVE:

1. The VVVF Drive should be dedicated for hoist application. (CRANE DUTY application for HOIST MOTION.)
2. The rated output current of the drive should be at 45 deg. C ambient Temperature and maximum operating temperature shall be 55 deg. C.
3. Duration on any account {Viz} temperature / carrier frequency should not exceed 15% of rated output current of inverter offered.
4. Inverter offered should be provided with accurate brake co-ordination signals.
5. Vibration: The drive must be Compliant with JIS C60068-2-6 or IEC 60068-2-6
6. In addition to the above crane specific features the inverter shall offer the Following features:  
Rated input voltage & Frequency: 3 Phase, 380-460V, 50/60 Hz.  
Allowable Voltage Fluctuation : +10% to -15%  
Allowable frequency Fluctuation : +5% to -5%.  
Over load capability : 150% for 1 min (Heavy Duty)  
Multi Function Digital Inputs: Minimum 6 multifunction digital inputs.  
Multi Function Relay Output: Minimum 2 multifunction relay outputs (110V).  
Max. Output Voltage : 3 phase, 380/400/440/460V {Proportion to Input Voltage}.  
Max. Output frequency : 400Hz {Programmable}  
Control method: High carrier frequency {low noise} sine wave  
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#### MAIN CONTROL FUNCTIONS :

- a) Auto tuning
- b) Momentary loss
- restart
- c) PID control
- d) Drop control
- e) DC injection
- braking
- f) Slip compensation
- g) Speed search
- h) Excess torque
- detection and Torque limit
- i) Multi step speed
- operation
- j) Accl./Decel. Time
- change over operation.
- k) 3 Wire sequence
- l) Operation Fault

log.

#### PROTECTIVE FUNCTIONS:

- a) Motor overload
- trip
- b) Instantaneous
- over current trip
- c) DC bus protection
- d) Input supply Over
- / Under voltage trip
- e) Power loss ride
- through
- Heat sink overheat
- detection and tripping (both Drive , DBU,DBR)
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- circuit protection
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50	7602A4600300	SET	4.000	4.00	15.05.15
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VVVF DRIVE FOR 45KW INDUCTION MOTOR  
45KW Hoist Duty Drive for Crane Application  
with Crane Control Software

SPECIFICATION OF VVVF DRIVE:

1. The VVVF Drive should be dedicated for hoist application. (CRANE DUTY application for HOIST MOTION.)

2. The rated output current of the drive should be at 45 deg. C ambient Temperature and maximum operating temperature shall be 55 deg. C.

3. Duration on any account {Viz} temperature / carrier frequency should not exceed 15% of rated output current of inverter offered.

4. Inverter offered should be provided with accurate brake co-ordination signals.

5. Vibration: The drive must be Compliant with JIS C60068-2-6 or IEC 60068-2-6

6. In addition to the above crane specific features the inverter shall offer the Following features:

Rated input voltage & Frequency: 3 Phase,  
380-460V, 50/60 Hz.

Allowable Voltage Fluctuation : +10% to

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# BHARAT HEAVY ELECTRICALS LIMITED

( A Government of India Undertaking )  
HIGH PRESSURE BOILER PLANT  
PURCHASE DEPARTMENT - FOSSIL BOILERS  
THIRUCHIRAPALLI - 620014  
TAMILNADU (INDIA)

Page  
11/13

PHONE :2577331  
GRAMS : BHARATELEC  
FAX NO: 2520719  
E-mail: srchandran@bheltry.co.in  
Web:

2661500067 / 25.02.2015

-15%  
Allowable frequency Fluctuation : +5% to  
-5%.  
Over load capability : 150% for 1 min (Heavy  
Duty)  
Multi Function Digital Inputs: Minimum 6  
multifunction digital inputs.  
Multi Function Relay Output: Minimum 2  
multifunction relay outputs  
(110V)  
Max. Output Voltage : 3 phase,  
380/400/440/460V {Proportion to  
Input Voltage}  
Max. Output frequency : 400Hz  
{Programmable}  
Control method: High carrier frequency {low  
noise} sine wave  
PWM Technique.  
Control Supply : 110V AC.  
Starting Torque: 150% below 1 Hz.{150% at 0  
r/min with PG}  
Speed Control Range : 100:1 {1000:1  
with PG}  
Speed Control accuracy : +/- 2% with PG.  
Torque limit : Settable through program  
{Parameter}  
Output frequency Resolution : 0.01 Hz. / 0.02  
Frequency setting signal  
Acceleration/Deceleration  
Time : 0.01 to 60 sec.  
Braking Torque : Approx. 20% {approx. 125%  
when using braking Resistor}.  
MAIN CONTROL FUNCTIONS :  
a) Auto tuning  
b) Momentary loss  
restart  
c) PID control  
d) Drop control  
e) DC injection  
braking  
f) Slip compensation  
g) Speed search  
h) Excess torque  
detection and Torque limit  
i) Multi step speed  
operation  
j) Accl./Decel. Time  
change over operation.  
k) 3 Wire sequence  
l) Operation Fault  
log.  
PROTECTIVE FUNCTIONS:  
a) Motor overload  
trip  
b) Instantaneous  
over current trip  
c) DC bus protection  
d) Input supply Over  
/ Under voltage trip  
e) Power loss ride

The offers should reach us 30 minutes before the time of opening of tenders.  
The offers will be opened at 14.30 hrs on the due date of tender in the presence of  
tenders who have submitted their offer and who may like to be present for the tender  
opening.Late and delayed offers are liable to be rejected.

Yours faithfully,  
For **BHARAT HEAVY ELECTRICALS LIMITED**

MANAGER / PURCHASE  
(FOSSIL BOILERS)  
Yours faithfully,



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through  
Heat sink overheat  
detection and tripping  
(both Drive , DBU,DBR)  
g) Output Short  
circuit protection  
h) Input / Output  
open circuit protection  
i) Stall prevention  
6.Keypad of the drive shall be LCD  
7.The keypad of the VVVF drive shall be panel  
mounted with necessary  
extension wire from the drive.  
8.DBU of Drive shall be of same manufacturer.  
9.DBR shall be supplied with thermal overload  
protection, so that on  
excessive temperature the signal shall be sent  
to drive and the drive  
will trip.  
10.When DBU Power transistor gets shorted  
then drive needs to be tripped  
for that necessary provision must be present.  
11.Drives shall have protective PCB coating  
(Conformal coating)  
12.DC Reactor as per the OEM  
recommendation.  
Scope Of Supply:  
1. Each VVVF Drive unit should be supplied  
with Suitable hoist Dynamic  
Braking Unit & Dynamic Braking Resistor(atleast  
50% of motor KW),  
all manual & crane software installed  
2. The VVVF Drive unit should be loaded with  
software needed for Hoist  
applications in cranes.  
3.For Every VVFD drive instruction manual, User  
manual, starting guide,  
necessary parameter catalogues shall be  
supplied in Hardcopy manner.  
4.DBR shall be 50% of the motor KW.  
Resistance calculation value shall  
be given by supplier. DBR make shall be either  
by OEM or OEM  
recommended.  
5.DC Reactor as per OEM recommendation.  
6.Only YASKAWA, MITSUBHISHI& FUJI make  
of VVVF Drives are  
acceptable. Other makes are liable for rejection.

## General Note:

1.POINT-BY-POINT CONFIRMATION TO BHEL'S SPECIFICATIONS, COMMERCIAL TERMS  
& CONDITIONS ARE TO BE PROVIDED BY THE VENDORS IN "ANNEXURE A  
&B.

2. FILL UP ANNEXURE A. PLEASE ENSURE THAT ALL TERMS & CONDITIONS SHOULD  
BE INDICATED IN THE UN-PRICED BID TO BE ATTACHED WITH THE  
TECHNO-COMMERCIAL BID POSITIVELY.

The offers should reach us 30 minutes before the time of opening of tenders.  
The offers will be opened at 14.30 hrs on the due date of tender in the presence of  
tenderers who have submitted their offer and who may like to be present for the tender  
opening.Late and delayed offers are liable to be rejected.

Yours faithfully,  
For **BHARAT HEAVY ELECTRICALS LIMITED**

MANAGER / PURCHASE  
(FOSSIL BOILERS)  
Yours faithfully,



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3. VALIDITY OF THE OFFER SHOULD NOT BE LESS THAN 120 DAYS.
4. THE ORDER WILL BE PLACED ON INDIVIDUAL ITEMWISE L1 BASIS
5. THE BIDDER SHALL MEET PRE-QUALIFICATION CRITERIA
6. WHEREVER FOR SPLITTING OF ORDER AS PER ANNEXURE II CLAUSE 27,IF SPLITTED QUANTITY COMES OUT <1 ,THE SPLITTING OF ORDER WILL NOT BE FEASIBLE. (For MSE vendors)

7. BHEL Reserves The Right To Go For A Reverse Auction (RA) Instead Of Opening The Submitted Sealed Price Bid, Which Will Be Decided After Technical Evaluation.

All bidders to give their acceptance for participation in RA.  
Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA. Information And General Terms And Conditions Governing RA Are Given In Annexure-I (Also refer Annexure-II)

#### LIST OF ATTACHMENTS:

1. ANNEXURE-I- GENERAL TERMS & CONDITIONS OF RA
2. ANNEXURE-II TERMS AND CONDITIONS OF THE ENQUIRY. (TWO PART-BID)
3. ANNEXURE-V- CA certificate format(as per MSMED act 2006) to be furnished , if applicable -Refer ANNEXURE II CLAUSE 27 (For MSE vendors)
4. ANNEXURE-A CHECK LIST FOR TECHNICAL & COMMERCIAL TERMS CONFIRMATION-TO BE FILLED BY THE SUPPLIER.
5. ANNEXURE-B MODEL PRICE BID FORMAT.
6. ANNEXURE-VI CHECK LIST TO BE SUBMITTED ALONG WITH OFFER
7. ANNEXURE-C -CHECKLIST FOR RA CONDUCTANCE

#### B. PRE QUALIFICATION CRITERIA

#### Enclosures:

"LD clause has to be confirmed without fail."

The offers should reach us 30 minutes before the time of opening of tenders.  
The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening. Late and delayed offers are liable to be rejected.

Yours faithfully,  
For BHARAT HEAVY ELECTRICALS LIMITED

MANAGER / PURCHASE  
(FOSSIL BOILERS)  
Yours faithfully,

### PART- A : PRE- QUALIFICATION CRITERIA

The BIDDER / VENDOR has to compulsorily meet all the following requirements to get qualified for consideration of the technical offer for the SUPPLY OF VVVF DRIVES FOR HOIST APPLICATIONS. If the vendor does not qualify as per PRE- QUALIFICATION CRITERIA, the technical offer of such BIDDER(s) / VENDOR(s) offer will not be evaluated

S. No.	REQUIREMENTS	VENDOR's COMMENTS
1	The BIDDER(s) / VENDOR(s) shall be a Manufacturer or an Authorised dealer of VVVF DRIVES. In case of dealers, valid authorisation certificate should to be submitted along with offer, failing which the offer will not be considered.	
2	The BIDDER(s) / VENDOR(s) shall have a minimum of Three Years of Continuous Experience in the field of VVVF Drives for Crane hoist Applications. The BIDDER / VENDOR should necessarily attached Certificate of Incorporation/ Deed of partnership/Certification of registration or any other documents supporting the above experience.	
3	The BIDDER(s) / VENDOR(s) shall have supplied same Make/model of VVVF Drive quoted in this tender at least Two industries using Crane hoist applications for the past Two years. The BIDDER / VENDOR should necessarily attached Purchase order copy/ Performance certificate or any other documents supporting the above supply.	
4	Any Deviations in technical specification may lead to rejection of the offer.	
5	The reference List of Customers shall be accompanied with the details (Phone Number /E-Mail ID) of the CONTACT PERSON for cross reference by BHEL,	

**Terms & Conditions of Reverse Auction**

Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit „online sealed bid" in the Reverse Auction. Non-submission of "online sealed bid" by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
6. Bidders have to fax the Compliance form before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
8. Reverse auction will be conducted on scheduled date & time.
9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.

10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, as provided on case-to-case basis to Service provider within two working days of Auction without fail.
11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.
12. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the „Business Rules of Reverse Auction“, which will be communicated before the Reverse Auction.
13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action *as per extant BHEL guidelines*, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
15. In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

## ANNEXURE –C

### CHECK LIST FOR RA CONDUCTANCE

<p>General terms and conditions, Commercial terms and conditions acceptance for participation in Reverse auction (RA) <b>on individual item wise L1 basis</b></p> <p><b>Yes/No to be indicated</b></p>	<p><b>Vendor's confirmation- Yes/No</b></p> <p>.....</p>
Name of the person for participating in reverse auction.	
Land Line Number	
Fax Number	
Mobile Number	
E-mail ID	

**TERMS AND CONDITIONS OF THE ENQUIRY (TWO PART BID)**

1. The tender will be operated on two part bid basis i.e. (I).Techno-Commercial Bid & (II).Price Bid.
2. Techno-Commercial Bid: Containing Technical details, specifications, commercial terms and conditions like percentage of Freight & Insurance, ED WITH CESS, Taxes ,delivery terms, delivery schedule, validity of offer, payment terms (except price details), acceptance for LD clause, RP clause etc. as per ANNEXURE-A shall be put in a cover (1) and super scribed as “Techno-Commercial Bid” for Enquiry No: .....Dt: .....Due Dt.: .....
3. Price Bid: Containing the price details shall be put in a separate cover (2) and superscribed as “Price Bid” for Enquiry No: .....Dt: .....Due Dt.: ..... as per ANNEXURE –B (submitted in your company letter head)
4. You are requested to put the above two envelopes (Techno-Commercial Bid & Price Bid) inside a separate larger sealed envelope and this envelope shall be super scribed as “Techno-Commercial Bid and Price Bid“ for Enquiry No: .....Dt: .....Due Dt.: .....  
Your Quotations should be sent to:  
The Manager,  
Purchase Department // CP&SP /266/75  
Section- Materials Management / Raw Materials,  
24 Building (4th Floor),  
Bharat Heavy Electricals Limited,  
Tiruchirappalli - 620 014.
5. Tender should not be addressed to any individual's name but only by designation.
6. Tenders should be free from CORRECTION AND ERASURES. Corrections if any must be attested; all amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall only be considered.
7. Please submit point wise compliance to our specifications, terms and conditions. Otherwise it will be presumed that you are accepting BHEL's terms and conditions. Fill Up Annexure A. Please Ensure That All Terms & Conditions Should Be Indicated in The Un-Priced Bid To Be Attached With The Techno-Commercial Bid Positively(ANNEXURE-A)
8. Offer/s received after due date and time: **02:00 pm** will not be considered under any circumstances.
9. **Validity** of quoted rates should be maintained minimum for **120 days** from the date of Tender opening for ordering ( Technical Bid). The quoted/Finalized rates shall be Firm till completion of the supplies.
10. The rates are to be quoted on **F.O.R. destpatching station basis (Inclusive of Packing, Forwarding) and separately Freight & Transit Insurance charges which are payable to supplier**. All the items should be supplied at our stores, BHEL / TRICHY-14 at your own cost. Offers with any other delivery conditions is not acceptable .

IMPORTANT NOTE: (I) Delivery condition like Ex-works / Ex-godown / Transportation of materials through transport carriers from your works up to the transport carrier's office at Tiruchy and taking delivery of goods by BHEL from such office of transport carriers is not acceptable to us)

**11. Payment Terms (Indigenous)**

Payment term is 100% direct payment after 45 days from the date of receipt and acceptance of materials.

Any deviation in the above payment term will attract loading as mentioned below.

“Base rate of SBI (as applicable on the date of bid opening. Techno-commercial bid opening in case of two part bids) + 6% shall be considered for loading for the period of relaxation sought by bidders.

Payment through Bank is not preferred. In case of Payment through Bank is opted by Supplier, BHEL prefers documents submission through bank with copy of LR and door delivery of Goods to Site/Stores with Consignee copy attached. In this case Loading will be 3% on the offered value.

Offers of indigenous Suppliers with payment terms as LC/Advance Payment are liable for rejection.

**Payment term for supply portion( For import supplies)**

BHEL Payment term is 100% payment on CAD basis after 45 days from the date of receipt of documents, specified in PO, at BHEL bank. Respective bank charges to respective account.

Any deviation in the above payment term will attract loading as mentioned below.

“Base rate of SBI (as applicable on the date of bid opening. Techno-commercial bid opening in case of two part bids) + 6% shall be considered for loading for the period of relaxation sought by bidders.

In the case of Usance LCs the loading will be considered @ 1.5% on the offered Value.

For LC at sight the loading will be considered @ 3.5% on the offered Value.

Normally CAD at sight and Confirmed LCs are liable for rejection.

**Payment terms for Indian agent:**

Indian Agency Commission ,if any, shall be clearly specified in the offer and the same will be paid in Indian Rupees against acceptance of the materials

**12. Liquidated Damages / Penalty:-**

Liquidated damages shall be 0.5% of the total order value per week or part thereof subject to a maximum of 10% of the total order value.

For staggered delivery schedule, LD shall be 0.5% of the undelivered portion per week of the delay or part there of subject to a maximum of 10% of the total order value.

Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value).

13. If Guarantee / Warranty period is applicable as per tender specification, No deviation permitted and deviated offers are liable for rejection.

**14. IMPORTANT NOTE: BHEL WILL CONSIDER THE RANKING AFTER THE LOADING IS APPLIED AS REFERRED ABOVE WHEREVER DEVIATIONS ARE OBSERVED.**

15. No revision of prices will be entertained at any circumstances after tenders are opened.

16. If any sales tax is payable as extra to the quoted price it should be specifically stated in quotations along with CST & VAT Number failing which the purchaser will not be liable for payment of sales tax. Our TIN 33243560005 dt.01.01.2007 & CST no 239383 DT, 11.06.1991

17. On the due date of tender opening, only the technical bids will be opened. Technical bids will be evaluated by us and clarifications required, if any, will be called for from the bidders on technical and commercial points. The price bids of techno-commercially suitable bidders will be opened at a later date with prior intimation to respective suitable bidders.

18. Ranking L-1, L-2 etc. shall be done generally on each individual items for the techno-commercially acceptable offers on landed cost to BHEL, Trichy basis and BHEL reserves the right to place order for individual items with different vendors. At special circumstance ranking shall be done on compatible basis which will be indicated through Enquiry special instruction General Notes.

19. BHEL reserves the right to increase or decrease the tender quantity and split up the tender quantity among more than one vendor at the lowest acceptable price to BHEL and place order accordingly in any proportion at our own discretion.

20. Lowest price received against BHEL tenders need not be the technically acceptable one and in that case BHEL reserves the right not to consider the same. The purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any tender in part or full without assigning any reason whatsoever.

21. BHEL reserves the right to negotiate or refloat the tender opened, if L1 price is not the lowest acceptable price to BHEL due to inter-alia other reasons.

22. **PACKING AND MARKING:** The supplier shall arrange for securely protecting and packing the stores to avoid loss or damages during transit.

23. **RISK PURCHASE:** Alternatively the purchaser at his option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the previous supplier has failed to deliver or dispatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitutes therefore. The new supplier shall be liable for any loss, which the purchaser may sustain by reason of such risk purchases in addition to penalty at the rate mentioned in our LD clause.

24. **PREFERENTIAL DELIVERY:**(Applicable in the case of BHEL's Enquiry specifies Preferential Delivery in the Special Instructions) It should be noted if a contract is placed on a higher tendered as a result of this invitation to tender in preference to the lowest acceptable offer in consideration of the earlier delivery, the seller will be liable to pay to the purchaser the difference between the contract rate and that of the lowest acceptable tender on the basis of final price F.O.R destination, including all elements of freights, Sales tax, duties and other incidents, incidental in case of failure to complete supplies in terms of such contract within the date of delivery specified in the tender and incorporated in the contract, such difference amount in addition to penalty at the rate mentioned in our LD clause.

25. CENVAT CREDIT: If any Excise Duty is payable, the Chapter Head / Sub-head reference and the rate of the duty should be quoted. If the Tenderer is availing CENVAT credit for this input material, the effect of Performa credit should be passed on to the purchaser. Tenderer under "CENVAT" shall be preferred.

26. Any other conditions which might have been quoted by the seller and are in contravention to the terms prescribed in the order and which have not been specifically accepted by purchaser in written will not be applicable to the contract.

27. The bidder may also be a Micro and Small Enterprises (MSE) vendor registered as per MSE act. As per the public procurement policy notified by the Central government,

20% of the tendered quantity is earmarked for MSE suppliers in this tender.

Out of the 20% tendered quantity reserved for MSE suppliers, 4% shall be earmarked for procurement from MSE owned by SC / ST entrepreneurs.

In case MSE vendor participating in the tender quotes within the price band of L1 + 15%, they will be allowed to supply the portion of the requirement subject to acceptance of L1 price by MSE vendor. In case of more than one such MSE, the supply shall be shared proportionately.

"MSE suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either EM II certificate having deemed validity (five years from the date of issue of acknowledgement in EM, II) or valid NSIC certificate or EM II certificate along with attested copy of a CA certificate (Format enclosed at Annexure -V where deemed validity of EM II certificate of five years has expired) applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the date of bid opening (Part I in case of two part bid). Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for this enquiry if any deficiency in the above required documents are not submitted before price bid opening. Documents should be notarized or attested by a Gazetted officer. "

28. For verification of data submitted towards evaluation of bidder's capability, BHEL may decide to visit the bidder(s) works. Any fact found deviating from submitted data shall make the bidder liable to be disqualified.

29. In the event of more than one vendor becoming L1 for any of the item / items, the enquiry quantity for those item / items will be shared equally among all the L1 vendors.

30. The correspondence between the bidder and BHEL through email is considered as valid document Legally though not signed. It is treated as valid confirmations made on behalf of the respective company and comes under the legal ambit of the business transaction and hence binding on both the parties.

31. Equipment will be inspected and proved at vendor's works prior to dispatch, if applicable as per tender condition. However final inspection and acceptance of equipment will be after installation at BHEL, Trichy.

32. Erection / commissioning charges , if applicable as per tender condition will be clearly mentioned in the offer or else confirmation that Erection / commissioning shall be done at free of cost is available in the offer.

33. Price shall be quoted item wise.

34. Any warranty replacement during warranty period shall be supplied free of charge on FOR BHEL, TIRUCHIRAPALLI basis

35. The vendor shall provide necessary drawings, Test Certificates and Operating Maintenance Manuals etc., as called for in the Technical Specification, in the required number of copies at no extra cost.

36. Part Shipment or Transshipment is not permissible.(For import supplies)

37. In case of any short shipment in the main equipment / spares, where separate rates are not available in the contract, the customs duty levied on such supplies, shall be borne by the supplier / Indian agent.(For import supplies)

38. Indicate Nearest airport & sea port, Country of Origin .(For import supplies)

39. Vendors Meeting Our Pre-Qualification Criteria & Technical Specification Will Be Essential For Consideration Of Offer.

40. For The Vendor Willing To Participate In Tender Opening, The Representative Should Have Valid Company ID Proof & Authorization Letter From The Concerned Firm Who Has Submitted The Offer.

41. After Technical Scrutinisation Of The Offers, Price Bid Of Only Technically Qualified Vendors Will Be Opened With Prior Intimation.

42. If The Due Date Of Tender Opening Happens to be a Holiday, Those Tenders Will Be Opened On Next Working Days

43. For any clarification you can contact to srchandran@bheltry.co.in, pgavictor@bheltry.co.in, rrvic@bheltry.co.in

44. This Tender Is Hosted Both In Bhel Website And In NIC, PSU Portal And Any Corrigendum May Be Viewed in BHEL's website <http://www.bhel.com> (Tender Notification page)

Govt. Tender website <http://tenders.gov.in> (Public sector units > Bharat Heavy Electricals Limited Page)

45. If we receive offer from both Manufacturer and their Agent / Dealer or any other, the offer of Manufacturer only will be considered .

**General Note For The Enq On Reverse Auction (RA) conductance :**

1. BHEL reserves the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA  
In case BHEL decides to go for Reverse auction ,only those bidders who have given their acceptance to participate in RA will be allowed to participate in RA . Those bidders who have given their acceptance to participate in RA will have to necessarily submit online sealed bid in the RA .Non submission of “online sealed bid” by the bidder will be considered as tampering of tender process & will invite action by BHEL as per extant guidelines in vogue.  
Information And General Terms And Conditions Covering RA Are Given In **Annexure-I**

2. Reverse Auction Is Done Through On Line Internet Through A Service Provider Appointed By BHEL. Hence Vendors Shall Make Themselves Equipped With Email, Fax And Internet Facilitiy Etc.

3. In Case Of Going For Reverse Auction Vendors Will Be Suitably Informed About The Working Procedures Of Reverse Auction Process And BHEL Will Provide All The Relevant Details To Enable The Vendor To Participate. Service Provider Will Also Give Demo-Training.

4. The RA Will Be Done On Individual Itemwise L1 Basis, Not On The Whole Package L1 Basis

# Annexure-V

## Certificate by Chartered Accountant on letter head

This is to Certify that M/S .....  
(hereinafter referred to as 'company') having its registered office at  
..... is registered under MSMED Act 2006, (Entrepreneur  
Memorandum No (Part—II) ..... dtd.....  
Category: .....(Micro/Small)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as per the  
latest audited financial year ..... as per MSMED Act 2006 is as follows:

- 1. For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No,S.O.1722(E) dated October 5, 2006 :  
Rs.....Lacs
- 2. For Service Enterprises:** Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:  
Rs... ..Lacs

(Strike off whichever is not applicable)

The above investment of Rs .....Lacs is within permissible limit of  
Rs. ....Lacs for .....Micro / Small (Strike off which is not applicable)  
Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro/ Small) (Strike off which is not applicable) and the date of graduation of such enterprise from its original category is .....  
(dd/mm/yyyy) which is within the period of 3 years from the date of graduation of such enterprise from its original category as notified vide S.O. No. 3322(E) dated 01.11.2013 published in the gazette notification dated 04.11.2013 by Ministry of MSME.

Date:

(Signature)

Name -

Membership number -

Seal of chartered accountant

**ANNEXURE –A (CHECK LIST FOR TECHNICAL & COMMERCIAL TERMS CONFIRMATIONS)****(a).TECHNICAL TERMS CONFIRMATION: AGAINST ALL ENQ SL NOS. (SUBMITTED IN COVER NO: 1)**

ENQ SL NO	BHEL SPECIFICATIONS	VENDOR'S SPECIFICATION	unit	Quantity	Consignment against each separetly	weight item	whether quoted/ not quoted
10							
20							
30							

**(b).COMMERCIAL TERMS CONFIRMATION REQUIRED FROM SUPPLIERS (SUBMITTED IN COVER NO: 1)**

SL NO	DESCRIPTION	BHEL REQUIREMENTS	SUPPLIER CONFIRMATION
1	VALIDITY	MINIMUM 120 Days from Date of tender opening	
2	PRICE QUOTED	FOR BHEL TRICHY STORES INCLUSIVE OF PACKING & FORWARDING CHARGES.	
3	EXCISE DUTY WITH CESS (Whether inclusive (or) extra) Clearly mention the percentage	SUPPLIER TO QUOTE	
4	VAT % Clearly mention the percentage	SUPPLIER TO QUOTE	
5	CST % against form 'C' Clearly mention the percentage	SUPPLIER TO QUOTE	
6	FREIGHT & INSURANCE CHARGES FOR DELIVERY AT BHEL / TRICHY STORES	SUPPLIER TO QUOTE IN % ONLY	
7	DEIVERY SCHEDULE FROM THE DATE OF PURCHASE ORDER / LETTER OF INTENT	SUPPLIER TO QUOTE IN NO. OF DAYS/ WEEKS	
8	PAYMENT TERMS	As per <b>Clause 11</b> of Terms and Conditions of the Enquiry (Two Part Bid)	
9	LIQUIDATED DAMAGES CLAUSE	As per <b>Clause 12</b> of Terms and Conditions of the Enquiry (Two Part Bid)	
10	RISK PURCHASE CLAUSE	As per <b>Clause 23</b> of Terms and Conditions of the Enquiry (Two Part Bid)	
11	GUARANTEE / WARRANTY	AS PER TENDER CONDITION	
12	ERECTION / COMMISSIONING	AS PER TENDER CONDITION	
13.	Origin of dispatch	SUPPLIER TO QUOTE	
14.	Nearest airport & sea port (For import supplies)	SUPPLIER TO QUOTE	
15.	Country of Origin (For import supplies)	SUPPLIER TO QUOTE	
16	CONTACT PERSON DETAILS	NAME:	
		MOBILE NO:	
		LAND LINE NO:	
		EMAIL :	
		FAX:	

**NOTE:** a). -It is confirmed that all the terms and conditions stipulated in the Enquiry have been fully understood by us and all clarifications & details have been obtained.

b)Your specific acceptance to our Payment terms,LD & Risk Purchase Clause are essential for consideration of your offer.

c).No row shall be left blank. Please indicate NA, in case the item is "not applicable"

Full postal Address:

Signature & Office Seal of the vendor

## ANNEXURE –B (MODEL PRICE BID FORMAT)

ENQ SL NO	BHEL SPECIFICATIONS	VENDOR'S SPECIFICATION	unit	quantity	Rate in Rs.	Value in Rs.
10						
20						
30						

**PRICE BID FORMAT OF ALL QUOTED ITEMS, IF ANY ITEM YOUR ARE NOT QUOTED SIMPLY YOU SHOULD MENTION AS “NOT QUOTED” AGAINST THAT ENQ SL NO. (SUBMITTED IN SEPARATE COVER NO: 2)**

## Annexure-VI

### CHECK LIST TO BE SUBMITTED ALONG WITH OFFER

SL NO	Documents submitted	Vendor's Confirmation Yes/No
01.	Offer Submitted in 2 part bid system i.e. (I).Techno-Commercial Bid & (II).Price Bid inside a separate larger sealed envelope and this envelope shall be super scribed as "Techno-Commercial Bid and Price Bid" for Enquiry No: .....Dt.: .....Due Dt.: .....	
02.	Annexure-A part-(a).TECHNICAL TERMS CONFIRMATION & part (b).COMMERCIAL TERMS CONFIRMATION to be SUBMITTED ALONGWITH IN COVER NO: 1	
03.	Annexure-B- Price Bid to be SUBMITTED IN SEPARATE COVER NO: 2	
04.	Pre-Qualification Criteria fulfilled & documents Submitted	
05.	Documents/technical catalogues /DRAWINGS, (wherever as applicable) submitted as per tender condition	
06.	point to point confirmation provided as per tender condition	
07	In case of RA conductance ,Details submitted as per RA checklist	