

TECHNICAL PQR

MINIMUM EXPERIENCE / CAPABILITIES FOR SUB-VENDORS

The main contractor shall ensure that the proposed sub-vendor (if not in suggested vendor list for M2-S4-2) shall meet the following minimum requirements for manufacture and supply of Fuel Transfer Equipment along with additional subassemblies/components:

1. The sub-vendor shall have past experience of completing at least one job in last 10 years as on date of evaluation, in fabrication, machining & inspection of stainless steel weldment, having minimum overall dimensions of 2000 mm x 2000 mm x 1000 mm or Ø2000 mm x 1000 mm. The thickness of at least, one of the base metal of the weldment shall be 8 mm and above.

Documents to be submitted by the sub-vendor in support of the above claim:

- i) Purchase Order (PO) /Work Order copy
- ii) Drawing
- iii) Inspection Reports
- iv) Shipping Release/Release Note /Dispatch Clearance/Acceptance Report.

2. The sub-vendor shall have executed in last 10 years as on date of evaluation at least one job of precision machining and assembly work of equipment involving at least 25 Nos. of different precision machined components, having dimensional tolerance of minimum 10 microns for at least 10 components.

Documents to be submitted by the sub-vendor in support of the above claim:

- i) Purchase Order (PO) /Work Order copy
- ii) Drawings
- iii) Inspection Reports
- iv) Assembly Reports
- v) Shipping Release/Release Note/Dispatch Clearance/Acceptance Report.

3. The sub-vendor shall have following in-house machining facilities:

Sr. No.	Machine Type	Quantity Required (Minimum)	Specification requirements for at least one machine
a.	Horizontal Boring machine	4 Nos.	Min Axis Travel X-6000 mm Y-2000 mm Z-1000 mm Spindle run out: ≤ 10 microns Accuracy in X, Y & Z directions : ≤ 20 microns
b.	Jig Boring machine	1 No.	Min Axis Travel X-600mm Y-500mm Z-600mm Spindle run out: ≤ 5 microns Accuracy in X & Y directions: ≤ 5 microns

Sr. No.	Machine Type	Quantity Required (Minimum)	Specification requirements for at least one machine
c.	CNC Wire Cut EDM	1 No.	X Axis - 250 mm Y axis - 250mm Least command input: ≤ 5 micron Accuracy in X & Y directions: : ≤ 10 microns
d.	CNC Turning Centre / CNC Lathe	1 No.	Swing over Bed: Dia. 600 mm x 3200 mm Spindle run out : ≤ 5 microns
e.	Conventional Lathe machine	3 Nos.	Swing over bed: Dia. 300 mm x 2000 mm Spindle run out: ≤ 10 microns
f.	Cylindrical Grinding machine	1 No.	Swing over bed: Dia. 300 mm x 2000 mm Spindle run out ≤ 5 microns
g.	Surface Grinder	1 No.	Table size: 1500 mm x 400 mm, Micro feed least count: ≤ 10 microns

Documents to be submitted by the sub-vendor in support of the above claim:

Self-certified copy of the sub-vendor along with calibration certificates/ proof of accuracies.

4. The sub-vendor shall have following minimum in- house measuring instruments:

Sr. No.	Instrument Type	Quantity Required (Minimum)	Minimum Specification requirements for at least one Instrument
a.	Surface Plate 2 x 2 meter size	2 Nos.	Flatness : ≤ 20 microns
b.	3 D coordinate Measuring machine (CMM)	1 No.	X-1000 mm, Y-600 mm., Z-300mm
c.	Digital Height Gauge to measure up to 300 mm	2 Nos.	Least count of 5 microns
d.	Bore Gauges to measure up to 450 mm	1 No.	Least count of 2 microns
e.	Bore Gauges to measure up to 300 mm	2 Nos.	Least count of 2 microns

Documents to be submitted by the sub-vendor in support of the above claim:

Self-certified copy of the sub-vendor along with calibration certificates/ proof of accuracies.

5. The sub-vendor shall have in-house NDT inspection facilities for Liquid Penetrant Testing, Magnetic Particle Testing, Ultrasonic Testing and availability of dark room for viewing Radiographs.

Documents to be submitted by the sub-vendor in support of the above claim:
Self-certified copy of the sub-vendor.

6. The sub-vendor shall have an in-house fabrication shop of total area at least 1000 m² with separate area for SS and CS, with facility for welding

Documents to be submitted by the sub-vendor in support of the above claim:
Self-certified copy of the sub-vendor

7. The sub-vendor shall have an in-house temperature controlled, closed room of at least 50 m² area for inspection of components.

Documents to be submitted by the sub-vendor in support of the above claim:
Self-certified copy of the sub-vendor

8. The sub-vendor shall have an in-house temperature controlled, closed room of at least 200 m² area for assembly of precision components with minimum 2 Tonne material handling provision.

Documents to be submitted by the sub-vendor in support of the above claim:
Self-certified copy of the sub-vendor

9. The sub-vendor shall have well defined organizational structure consisting of the following minimum manpower who are on Company rolls:

S. No	Description	No. of personnel
a.	Graduate/Diploma Engineers in mechanical with minimum 3 years' experience	10
b.	QA persons for inspection & testing	5
c.	ISNT / ASNT Level II/III NDT Qualified Inspectors in UT	2*
d.	ISNT / ASNT Level II/III NDT Qualified Inspectors in RT	1*
e.	ISNT / ASNT Level II/III NDT Qualified Inspectors in MPI	1*
f.	ISNT / ASNT Level II/III NDT Qualified Inspectors in LPE	2*
g.	Welders	10
h.	Machine Operators	25
i.	Fitters	10
j.	Assembly persons	10
k.	Procurement personnel with minimum 3 years' experience	3

* One person can have qualification in more than one technique and can be counted for them accordingly.

Documents to be submitted by the sub-vendor in support of the above claim:

Self-certified copy of their present Organization Structure, in-house man power strength, their experience and valid qualification certificates for NDT.

Bidder to submit all supporting documents in English. If documents submitted by bidder are in language other than English, a self-attested English translated document should also be submitted. Notwithstanding anything stated above, BHEL/End customer/Owner reserves the right for physical assessment of the capabilities and capacity of the bidder/[its supplier](#) to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL/ End customer Owner. Consideration of offer shall be subject to End customer/Owner's approval of bidder.

After satisfactory fulfilment of all the above criteria/ requirement, offer shall be considered for further evaluation as per NIT and all other terms of the tender.

The bidder shall meet PQR based on its own credentials. Bid from joint venture (JV) company / Consortium bid is not acceptable