

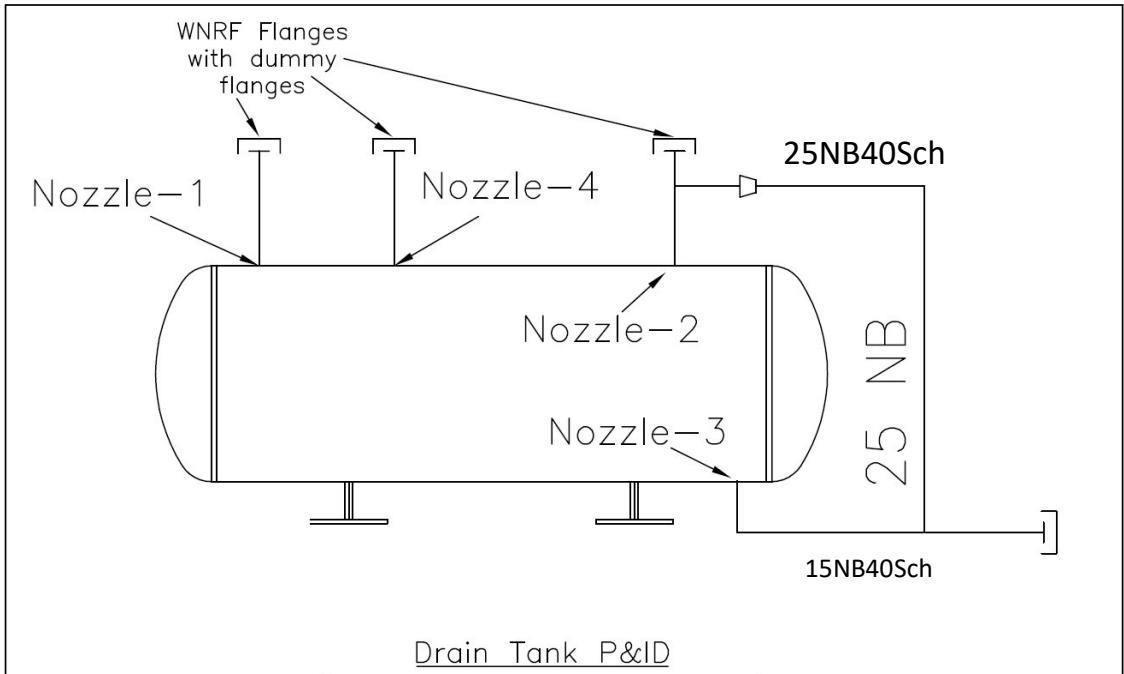
**SPECIFICATIONS FOR SUPPLY OF STATIONARY HORIZONTAL 8m<sup>3</sup> DRAIN TANK:  
(CYLINDRICAL WITH DISHED ENDS) WITH STRUCTURAL SUPPORTS**

S.No.	Item Description	
1.0	<b>Scope:</b> Design, engineering, analysis, fabrication, testing and supply of a 8m <sup>3</sup> bare (non-insulated) stationary horizontal drain tank (here onwards to be called as <b>Drain Tank</b> )	
2.0	<b>Technical specifications:</b>	
a)	Drain Tanks Configuration	Stationary Horizontal ( <b>Cylindrical with dished ends</b> ) <b>bare drain tanks</b> with structural supports as per Scheme
b)	Fluid Medium	Liquid Oxygen (LOX)
c)	Gross (geometrical) volume of tanks (Water capacity), m3	8.0 m <sup>3</sup> - 01No.
d)	Operation life	20 years
e)	Cleanliness Standard	ASTM G93 or equivalent
f)	Quantity	1 No.
3.0	<b>Design parameters</b>	
	<b>Parameters</b>	<b>Specification</b>
a)	Maximum Allowable Working Pressure (MAWP)	5bar (g) maximum
b)	Design Pressure	a) 1.25XMAWP
c)	Hydro/Pneumatic test pressure	Hydro: 1.3 x Design Pressure Pneumatic: 1.1 x Design Pressure
d)	Design temperature, K	77 to 343
e)	Overall dimensions including Outer Jacket and Piping terminations	Préférable dimensions : Outer Diameter: ~2000mm Length: Less than 5000 mm
f)	Corrosion allowance on thickness, mm	2.0
g)	Design Code	ASME SEC VIII, Div 1
h)	Radiography	100 % of all butt welds
4.0	<b>Materials of construction</b>	
a)	Drain Tank	ASTM A 240 - SS 304 L <ul style="list-style-type: none"> <li>Plates which are selected for the fabrication shall be of 100% UT tested for detecting defects like laminations, surface / internal cavities etc., prior to its use.</li> <li>Cold impact strength tests shall be carried out on all wetted parts.</li> <li>Plate size shall be selected to minimize no of weld.</li> </ul>
b)	Piping	Stainless Steel SA312 Seamless Grade SS304L
c)	Supporting Structure	ASTM A 240 - SS 304 L saddle structure to mount on a concrete foundation, shall be provided.
d)	Protection of Material	All the materials shall be degreased before chemical passivation. All surfaces shall be chemically pickled and passivated (Shall be as per ASTM380). All exposed support materials shall be shot blasted and painted. One coat of primer and two coats of polyurethane finish paint (Color: Binaca white) shall be applied. Total DFT:150+ 20micron

		shall be maintained.
5.0	Thermal Treatment of Materials	For all pressed/formed items like dished ends, solution treatment shall be carried-out.
6.0	<b>PIPING AND INSTRUMENTATION SCHEME:</b>	
a)	The Piping and Instrumentation scheme shall be as per enclosed P&I diagram which includes: <ul style="list-style-type: none"> <li>• Nozzle-1 (System vent/Pump priming)</li> <li>• Nozzle-2 (Drain Tank vent)</li> <li>• Nozzle-3 (Liquid Drain)</li> <li>• Nozzle-4 (System vent/Evaporator vent)</li> </ul>	
b)	Nozzle-1 (System vent/Pump priming) For draining/venting LOX/GOX, <ul style="list-style-type: none"> <li>• A nozzle of 50NBSch40 need to be provided with WNRF flange of same size</li> <li>• Location of this nozzle shall be at the top of tank as shown in P&amp;I</li> </ul>	
c)	Nozzle-2 (Drain Tank vent)80 For venting LOX/GOX, <ul style="list-style-type: none"> <li>• A nozzle of 80NB Sch40 need to be provided with WNRF flange of same size</li> <li>• Location of this nozzle shall be at the top of tank as shown in P&amp;I</li> </ul>	
d)	Nozzle-3 (Liquid Drain) For draining residual LOX, <ul style="list-style-type: none"> <li>• A nozzle of 15NB Sch40 need to be provided with WNRF flange of same size</li> <li>• Location of this nozzle shall be at the bottom of tank as shown in P&amp;I</li> </ul>	
e)	Nozzle-4 (System vent/Evaporator vent) <ul style="list-style-type: none"> <li>• A nozzle of 50NB Sch40 need to be provided with WNRF flange of same size</li> <li>• Location of this nozzle shall be at the top of tank as shown in P&amp;I</li> </ul>	
f)	Note: Pipe ends shall be as per ASTM B36.19 dimensional standards. The dimensions shown in P&I scheme are tentative in nature. Exact dimensions will be firmed up during detailed engineering phase.	
6.0	<b>Welding and weld qualification requirements:</b>	
6.2	<b>Welding requirements:</b> <ol style="list-style-type: none"> <li>Welding of following butt joints shall be performed by GTAW/Plasma TIG process as per ASME SEC IX or equivalent: <ul style="list-style-type: none"> <li>• Longitudinal and circumferential joints of tank</li> <li>• Joints of shell to end plates (dished ends)</li> </ul> </li> <li>Butt weld joints involving stainless steel pipelines, fittings, tank shell plates and shell to dish end joints shall be performed by GTAW/Plasma TIG process with argon purging.</li> </ol>	
6.3	<b>Radiography requirements</b> <ol style="list-style-type: none"> <li>100% radiography on all butt welded joints of tanks and pipelines to each other shall be carried out in accordance with standard documents in force in ASME code or equivalent norms with the documents approval by the third party acceptance.</li> <li>Those joints which are not subjected to radiography (x-ray), gamma-ray may be considered by getting the approval from the third party inspection agency.</li> </ol>	
6.4	<b>DP test:</b> <b>All joints shall be DP tested as per ASTM E175.</b>	
7.0	<b>Testing and qualification</b>	
7.1	<b>Hydro Strength Test:</b> The following tests shall be carried out in presence of third party inspection agency. <ul style="list-style-type: none"> <li>• Hydro test with demineralized water (Chlorides shall be &lt;50PPM) or suitable liquid at a test pressure of 1.3 times the design pressure.</li> </ul>	

	<p><b>Pneumatic leak Test:</b> The following tests shall also be carried out in presence of third party inspection agency.</p> <ul style="list-style-type: none"> <li>• Pneumatic test with GN2/dry air (dew point -55 Deg.C [min]) medium at a test pressure of 1.1 times the design pressure.</li> </ul>
<b>8.0</b>	<p><b>Identification and sealing</b></p> <ol style="list-style-type: none"> <li>a) The Drain Tank should have a name plate permanently fixed to the dish end of the tank, with brief specifications duly marked as per ASME Rules.</li> <li>b) The tank and the piping/ tubing shall be sealed so that ambient moisture never enters inside. The tank and piping/tubing volumes are to be pressurised to 0.5 bar(g) with dry Nitrogen gas with dew point less than - 55 Deg.C.</li> <li>c) All the piping/ tubing outlets/flanges shall be provided with SS dummies. The dummies shall be made from same materials as that of parent metal.</li> </ol>
<b>9.0</b>	<p><b>Inspection:</b> The Drain Tank shall be inspected and certified by Department's representative &amp; third party inspection agency as applicable. Arranging third party inspection agency and inspection at supplier's works shall be the responsibility of supplier. The third party inspection agency shall be any one of the following</p> <ul style="list-style-type: none"> <li>• M/s. Lloyds</li> <li>• M/s. Det Norske Veritas</li> <li>• M/s. TUV</li> <li>• M/s Bureau Veritas</li> </ul> <p>TPI agency other than the above mentioned one shall be subject to approval of the department.</p>
<b>9.1</b>	<p><b>The scope of inspection is as given below:</b></p> <ol style="list-style-type: none"> <li>a) Approval of the design calculations (tank, piping/tubing &amp; supporting structure etc.) and fabrication drawings prepared by the supplier are in compliance to the codes and standards specified by the department.</li> <li>b) Inspection of plates at fabricators shop, cuts of plates and samples taken from each plate, witness of tests carried out. Plates shall be chemical, mechanical, UT, cold impact and IGC tested (ASTM A262 Practice E or equivalent), irrespective of availability of Mill Test Certificates. The inspection should be carried out in accordance with the requirements of ASME.</li> <li>c) Since the drain tanks are envisaged for cryogenic temperature service conditions, <b>cold impact strength tests</b> shall be carried out on all associated wetted parts.</li> <li>d) Welding procedure qualification and welder's performance qualification tests as per ASME Code regulations.</li> <li>e) Marking of the shell plates and dished end plates.</li> <li>f) Long seam-fit up inspection of tack welds.</li> <li>g) Back grinding of seam welds, inspection of welds.</li> <li>h) Circularity of shells after rolling.</li> <li>i) Evaluation of radiography films of all Butt welds.</li> <li>j) Forming of dished ends, stress relieving and radiography of welds.</li> <li>k) Cir seam fit up.</li> <li>l) Back chip of cir seam welds.</li> <li>m) Marking of nozzle orientation.</li> <li>n) Nozzle fit up.</li> <li>o) Saddle and saddle support fit up.</li> <li>p) Dye penetrant test on all fillet welds.</li> <li>q) Hydro/Pneumatic strength test at test pressure.</li> <li>r) Dimensional check and verification of Test certificates related to Standard components as per P&amp;I scheme.</li> </ol>

	<ul style="list-style-type: none"> <li>s) Chemical cleaning and drying.</li> <li>t) Internal cleaning of tank &amp; piping confirming to oxygen service as per ASTM G93 or equivalent.</li> <li>u) Filling with dry GN2 at 0.5 bar(g) before final dispatch.</li> <li>v) Stamping of the tank and issue of certificate.</li> </ul>
<b>10.0</b>	<p><b>Submission of drawings and design calculations</b></p> <p>Supplier shall prepare detailed design calculations and fabrication drawings and submit to Department for verification and approval. Approval of the third party inspection agency shall be confirmed prior to the commencement of fabrication.</p>
<b>10.1</b>	<p>The following documentation is to be supplied for approval prior to manufacturing.</p> <ul style="list-style-type: none"> <li>a) Material test certificates for all wetted parts (incl. pipes, fittings, flanges, plates etc)</li> <li>b) Welding procedures and welding materials</li> <li>c) Scope and method of inspection of weld joints</li> <li>d) Scope and inspection of tanks, piping/tubing tightness</li> <li>e) Scope and method of heat treatment of parts</li> <li>f) Norms of evaluation of weld joints quality</li> <li>g) Calculations for strength and stability of tank and piping/ tubing, nozzles, support elements of the Drain Tanks, duly certified by TPIA.</li> <li>h) Approved design calculations of tank, piping/ tubing, Dome, Supports, Nozzle, RF pad plates etc.</li> <li>i) Drawings &amp; bill of Materials</li> <li>j) Tank test procedures.</li> </ul>
<b>10.2</b>	<p>Two copies of master files and test certificates/ documents shall be supplied by the fabricator along with the Drain Tank. Master file should contain the following:</p> <ul style="list-style-type: none"> <li>a) Order technical specification copy and Amendments, if any</li> <li>b) Inspection Release note by third party inspection agency</li> <li>c) Approved design calculations of tank, piping/ tubing, Dish ends, Supports, Nozzle, RF pad plates etc considering wind &amp; seismic conditions.</li> <li>d) Bill of Materials</li> <li>e) Material test certificate of all plates, pipes, fittings, components etc. used in the tank fabrication as per Bill of Materials.</li> <li>f) Radiography Reports and films pertaining to the Drain Tank, piping/ tubings.</li> <li>g) Test reports as defined in scope of inspection in mentioned in earlier sections.</li> </ul> <p>All the above reports/test results shall be bound neatly.</p>
<b>11.0</b>	<p><b>Transportation/mounting parameters</b></p> <ul style="list-style-type: none"> <li>a) Suitable lifting lugs should be provided for Drain Tanks handling by using cranes.</li> <li>b) Civil inputs for design of pedestal shall be forwarded to department.</li> </ul>
<b>12.0</b>	<p><b>Quality Assurance:</b></p> <p>The supplier shall prepare a quality assurance plan considering all the tests and compliance reviews mentioned in the technical specifications for approval to SDSC SHAR. A detailed QAP shall be submitted to department within two weeks of release of PO.</p>
<b>13.0</b>	<p><b>Delivery:</b></p> <p>Expected delivery period of the drain tank shall be 6 months from the date of release of P.O.</p>
	<p><b>Delivery Term:</b> Delivery term shall be considered as FOR Sriharikota. Unloading of the tank from the supplier's transport vehicle shall be in the scope of the Department.</p>
<b>14.0</b>	<p><b>Warranty:</b> The Supplier shall provide warranty for the drain tank for the period of 12months from the date of receipt &amp; acceptance at SDSC SHAR. Warranty certificate shall be issued by the supplier along with the supply.</p>



**Table-1: Quality Assurance Plan(QAP)**

SR NO.	DESCRIPTION	REFERENCE DOCUMENT ACCEPTANCE CRITERIA	TEST/EXAMINATION PERFORM BY			NOTE
			Supplier	TPI	SHAR	
<b>1</b>	<b>Pre-Fabrication Activities</b>					
1.1	Submission of GA drawing for info and P&ID for approval	GA Drawing of drain tank	H	R	R	
1.2	Welders' performance qualification records	WPS certificates	H	R	R	
1.3	Material incoming i.e., plates inspection and identification (pressure parts only)	Mill certificates for physical, chemical & UT tests.	H	R	R	
1.4	Bought out items like pipe, fittings & nozzles etc	Mill certificates for physical and chemical tests	H	R	R	
<b>2</b>	<b>In process inspection</b>					
2.01	Identification of test pieces from plates, pipes, fittings& nozzles for chemical, mechanical, IGC as per ASTM 262 practice E cold impact test at - 196° C (as per each heat /lot/size)	MIR/ lab TC	W	W	R	
2.01	Chemical and mechanical certification a sample identified	lab TC from Govt. approved lab	R	R	R	
2.03	Ultrasonic testing for plates	As per specification	H	W	R/W	
2.04	Cold impact & IGC E test on samples identified	MTC/lab reports	H	R	R	
2.05	Inspection of formed dish end shell for pressure vessel	As per approved drawing	H	W	R	
2.06	Heat treatment of dish (solution annealing)	As per approved drawing/lab reports	H	R	R	
2.07	Circularity of shells after rolling (the calculations for allowable circularity shall be provided for TPI& SHAR)	As per approved drawing	W	W	R	
2.08	Shell L seam & C -Seam setup of pressure vessel	As per approved drawing	H	W	R	
2.09	Dye penetrant test of all weld joints	As per standard procedure	H	R	R	
2.10	Radio-graphic test of					

	all butt joints of pressure vessel and pipe joint	As per standard procedure	H	R	R	
2.11	Nozzle marking and opening shell and fit up	As per approved drawing	H	R	R	
2.12	Degreasing of pressure vessel and piping confirming to oxygen service & inside cleaning before closing	-	H	W	R	
2.13	Pressure vessel hydrostatic test	As per approved procedure	H	W	W	
2.14	Pressure vessel pneumatic test	As per approved procedure	H	W	W	
2.15	Vessel final dimensional and visual inspection	As per approved drawing	H	W	W	
2.16	Drying of inside of vessel (up to dew point of < -55°C)		H	W	R	
2.17	Painting of complete work		H	R	R	
2.18	Preservation with GN2 at 0.5 bar(g) and sealing		H	R	R	
<b>3</b>	<b>Pre-dispatch inspection</b>					
3.01	Final documentation (Quality Dossier)	Inspection report	H	R	R	

W=100% Witness, R=100% Review, H=100% Hold

Note:

Final QAP shall be prepared by vendor with detailed scope of purchaser, vendor and TPI.

Testing shall be carried out in Govt. Approved laboratories. Subjected to satisfactory test results only, clearance will be given for fabrication.

**Table-2: Minimum Qualification Criteria for Drain tank**

In case of any deviation/non-compliances/lack of supporting document, bid will be summarily rejected.

<b>S.No</b>	<b>Description</b>	<b>Vendor Compliance with Supporting Documents</b>
1.0	Vendor must undertake design, engineering, fabrication, testing and supply of drain tank as per the specifications and requirements indicated in the tender doc.	
2.0	For this tender, bids from Class-I & class-II Local Suppliers are only admissible. Hence provisions contained in Public Procurement (Preference to Make in India), Order 2017 issued by Department for Promotion of Industry and Internal Trade (DIPP), Ministry of Commerce & Industries vide letter No. P-45021/2/2017-PP(BE-II) dated 04.06.2020 and subsequent amendment & directives shall be followed.	
3.0	The bidder should be in the field of design, manufacturing, testing and supply of pressure vessels for a period of 3 years by end of 31.03.2024. Also bidder should have executed a contract involving design, manufacturing, testing and supply of pressure vessels as per ASME Sec-VIII Div-1 for a value not less than ₹20 Lakhs (in the last five years by considering last financial year ending with March-2024) as a single order (or) at least two orders of worth ₹15 lakhs each (or) at least three orders of worth ₹10 lakhs each. <i>(The relevant purchase orders and corresponding IRN/Dispatch clearance note/ certificate of confirmation/work completion certificates shall be submitted. Non submission of the same shall lead to disqualification of the offer.)</i>	
4.0	Supplier need to submit the documentary evidence that average annual turnover of the company is more than ₹30 lakhs for the last 3 financial years on an average. Bidder need to submit the documentary evidence for the same	
5.0	The bidder should be ISO Certified (ISO 9001)	
6.0	Technical compliance to the specifications shall be vetted by the bidder.	
7.0	The firm must provide a self-declaration that there is no complaint/vigilance inquiry against them in any Govt./Department /PSU and they have not been black listed by any Govt. Department/PSU.	
8.0	Technical proposal of the bidder, which is not able to substantiate/satisfy the claims made by it with respect to the technical requirements laid down in this tender doc, <i>will be summarily rejected.</i>	

**Signature of Authorised Person with Seal**



**Table-3: Evaluation Criteria:** The broad guidelines for evaluation of Bids will be as follows:

<b>S.No</b>	<b>Description</b>	<b>Vendor Compliance</b>
<b>1.0</b>	In respect of Two-Bid system, the technical Bids forwarded by the Bidders will be evaluated by the Department with reference to the technical specifications as mentioned in the tender doc. The compliance of Technical Bids would be determined on the basis of the parameters specified in the tender doc. The Price Bids of only those Bidders will be opened whose Technical Bids would clear the technical evaluation.	
<b>2.0</b>	During evaluation, SDSC SHAR may request Bidder for any additional clarification/document on the bid, if required.	
<b>3.0</b>	Bidder must provide the point by point compliance to the technical specifications along with deviations. The Bid can be rejected if the deviations are not acceptable to the Department.	
<b>4.0</b>	Performance of Bidder on similar nature of works executed/ under execution will be taken into consideration before selecting the Bidder for opening his price bid (as per qualification criteria).	
<b>5.0</b>	The time schedule for completion is given in the Proposal document. Bidder is required to confirm the completion period unconditionally.	
<b>6.0</b>	SDSC SHAR reserves the right to reject any bid if not meeting the technical/commercial requirements and terms & conditions. Such decisions by the SDSC SHAR shall bear no liability whatsoever consequent upon such decision.	
<b>7.0</b>	If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price will prevail and the total price will be corrected. If there is a discrepancy between words and figures, the amount in words will prevail for calculation of price.	
<b>8.0</b>	Department reserves the right to inspect the contractor shop floor/premises for evaluation, if required. After evaluating the contractor, decision of the Department is final.	
<b>9.0</b>	Preference will be given to MSME as per public procurement policy.	

**Signature of Authorised Person with Seal**

**Table-4: Confirmation to unpriced bid format:**

Sr. No.	Item	Quantity, Nos.	Unit cost, (including all other charges), ₹	GST(5%) ₹	Total cost, ₹	Separate cost mentioned in price bids(Yes/No)
1.	SUPPLY OF STATIONARY HORIZONTAL 8m <sup>3</sup> DRAIN TANK: (CYLINDRICAL WITH DISHED ENDS) WITH STRUCTURAL SUPPORTS	1	Un priced	Un priced	Un priced	(Yes/No)

**Signature of Authorized Person with Seal**

**Note: Submission/Display of price on this page will lead to rejection of technical bid.**

**Table-5: Price bid format**

Sr. No.	Item	Quantity, Nos.	Unit cost, (including all other charges), ₹	GST (5%) ₹	Total cost, ₹
2.	SUPPLY OF STATIONARY HORIZONTAL 8m <sup>3</sup> DRAIN TANK: (CYLINDRICAL WITH DISHED ENDS) WITH STRUCTURAL SUPPORTS	1			

**Signature of Authorized Person with Seal**

**Note : Table-5 shall be filled and submitted with price bid only. Submission of price along with technical bid will lead to rejection of bid.**

### Commercial Conditions

**Offer Validity:** The validity of the offers / tenders should be 120 days from the date of opening of the tenders. **Tenders with offer validity less than the period mentioned above, will not be considered for evaluation.**

**Taxes:**

Party shall quote with GST rates 5% for supply of drain tank. (Quoted cost shall be inclusive of basic price, testing, qualification, TPI, packing & transportation).

SDSC SHAR is eligible for GST@5% as per the notification no. 6/2018-Central Tax (Rate) dt:25.01.2018A (ix) S.No.243A as amended by Notification No 25/2018-Integrated Tax (Rate) Dt: 31.12.2018(viii) S.No.243B issued by Ministry of Finance (Dept. of Revenue).

**Payment Terms:** Our payment term is 100% payment within 30days after receipt and acceptance of drain tank at our site. No advance payment is envisaged.

**Make in India Clause**

General Terms & conditions for Bidders: For this procurement, bids from Class-I & class-II Local Suppliers are admissible. hence provisions contained in Public Procurement (Preference to Make in India), Order 2017 issued by Department for Promotion of Industry and Internal Trade (DIPP), Ministry of Commerce & Industries vide letter No. P-45021/2/2017-PP(BE-II) dated 04.06.2020 and subsequent amendment & directives shall be followed. Accordingly, offer will be evaluated & processed in conformation with above referred GOI order (Specially mentioned below). The bidder shall provide compliance and undertaking as per order and hereafter amendments:

(a) Order no: F.No.6/18/2019 PPD dated 23.07.2020 of Department of Expenditure), Ministry of Finance Under Public procurement division for the General Financial rule (GFRs).

(b) Class-I local supplier means a supplier or service provider, whose goods, service or works offered for procurement, has local content equal to or more than 50%, as defined under order.

(c) Class-II local supplier means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%, as defined under this Order

(d) Verification of local content:

(i) The Class I local supplier/ Class- II local supplier at the time to tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for Class-I local supplier / Class II local supplier as the case may be. They shall also give details of

the location(s) at which the local value addition is made.

(ii) In case bid value is in excess of Rs. 10 Cr., Class-I local supplier / Class-II local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

(iii) False declarations will be in breach of the code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules (GFR) for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the general Financial Rules along with such other actions as may be permissible under Law.

(iv) A supplier who has been debarred by any procuring entry for violation of this order shall not be eligible for preference under this order for procurement by any other procuring entity for the duration of the debarment.

(e) The percentage of local content should be specifically mentioned in the offer, without which it will be summarily rejected.

(f) Preference will be given to Class-I Local supplier and in their absence, Class-II Local supplier will be considered.

**Liquidated Damages:** In all cases, delivery schedule indicated in the Purchase Order/Contract is the essence of the contract and if the party fails to deliver the material within the delivery schedule, Liquidated Damages will be levied @ 0.5% per week or part thereof subject to a maximum of 10% of total order value.

**Security deposit cum performance bank guarantee:** Security Deposit cum PBG for 3% of the order value is mandatory, Party shall furnish the Security Deposit cum PBG in the form of Bank Guarantee from nationalized/scheduled bank or by way of Demand Draft valid till completion of the contract period plus sixty days towards claim period for faithful execution of the contract.

**Arbitration: The Purchase Order shall be interpreted, construed and governed by the Laws in India.** In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Contract, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre –Bengaluru (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be “English” only.

**Purchase Order shall be continued by Party** during the pendency of arbitration

<p>proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the DEPARTMENT or unless the matter is such that the works cannot be possibly continued until the decision (whether final or interim) of the Arbitrator is obtained.</p>
<p><b>Applicable law and jurisdiction</b></p> <p>The laws of India shall govern this contract for the time being in force. The Courts of Andhra Pradesh, India only shall have jurisdiction to be with and decide any legal matters or disputes what so ever arising out of the contract.</p>
<p><b>Special conditions</b></p>
<p>The delivery period mentioned in the tender enquiry, <b>IF ANY</b>, is with the stipulation that no credit will be given for earlier deliveries and offers with delivery beyond the period will be treated as unresponsive.</p>
<p>The bidders should note that conditional discounts would not have edge in the evaluation process of tenders.</p>
<p>Non-acceptance of any conditions wherever called for related to Warranty, Performance Bank Guarantee, Liquidated damages are liable for disqualification.</p>
<p>The specifications given by the department along with the tender enquiry are confidential and shall not be disclosed to any third party.</p>
<p><b>Exclusion of tenders:</b></p> <p>The following tenders shall be summarily rejected from the procurement process:</p> <ul style="list-style-type: none"> <li>(a) Unsolicited tenders from vendors.</li> <li>(b) The tenders which materially depart from the requirements specified in the tender document or which contain false information.</li> <li>(c) The tenders of vendors who have not agreed to furnish Bank Guarantees.</li> <li>(d) The validity of the tenders is shorter than the period specified in the tender enquiry.</li> <li>(e) The tenders received from vendors or their agents or anyone acting on their behalf, who have promised or given to any official of the Centre/Unit/Department, a gratification in any form, or anything of value, so as to unduly influence the procurement process.</li> <li>(f) The tenders received from vendors, who, in the opinion of the Centre/Unit, have a conflict of interest materially affecting fair competition.</li> <li>(g) The tenders received from Indian agents on behalf of their foreign Principals/OEMs (in cases where the Principals/OEMs also submit their tenders simultaneously for the same item/product in the same tender).</li> <li>(h) If a firm quotes 'NIL' charges / consideration, the bid shall be treated as unresponsive and will not be considered.</li> </ul>

**Table-6 Confirmation on Technical specification**

S.No.	Item Description		Confirmation Accepted/ Not accepted
1.0	<b>Scope:</b> Design, engineering, analysis, fabrication, testing and supply of a 8m <sup>3</sup> bare (non-insulated) stationary horizontal drain tank (here onwards to be called as <b>Drain Tank</b> )		
2.0	<b>Technical specifications:</b>		
g)	Drain Tanks Configuration	Stationary Horizontal ( <b>Cylindrical with dished ends</b> ) bare drain tanks with structural supports as per Scheme	
h)	Fluid Medium	Liquid Oxygen (LOX)	
i)	Gross (geometrical) volume of tanks (Water capacity), m <sup>3</sup>	8.0 m <sup>3</sup> - 01No.	
j)	Operation life	20 years	
k)	Cleanliness Standard	ASTM G93 or equivalent	
l)	Quantity	1 No.	
3.0	<b>Design parameters</b>		
	<b>Parameters</b>	<b>Specification</b>	
i)	Maximum Allowable Working Pressure (MAWP)	5bar (g) maximum	
j)	Design Pressure	a) 1.25XMAWP	
k)	Hydro/Pneumatic test pressure	Hydro: 1.3 x Design Pressure Pneumatic: 1.1 x Design Pressure	
l)	Design temperature, K	77 to 343	
m)	Overall dimensions including Outer Jacket and Piping terminations	Préférable dimensions : Outer Diameter: ~2000mm Length: Less than 5000 mm	
n)	Corrosion allowance on thickness, mm	2.0	
o)	Design Code	ASME SEC VIII, Div 1	
p)	Radiography	100 % of all butt welds	
4.0	<b>Materials of construction</b>		
e)	Drain Tank	ASTM A 240 - SS 304 L <ul style="list-style-type: none"> <li>• Plates which are selected for the fabrication shall be of 100% UT tested for detecting defects like laminations, surface / internal cavities etc., prior to its use.</li> <li>• Cold impact strength tests shall be carried out on all wetted parts.</li> <li>• Plate size shall be selected to minimize no of weld.</li> </ul>	
f)	Piping	Stainless Steel SA312 Seamless Grade SS304L	
g)	Supporting Structure	ASTM A 240 - SS 304 L saddle structure	

		to mount on a concrete foundation, shall be provided.	
h)	Protection of Material	All the materials shall be degreased before chemical passivation. All surfaces shall be chemically pickled and passivated (Shall be as per ASTM380). All exposed support materials shall be shot blasted and painted. One coat of primer and two coats of polyurethane finish paint (Color: Binaca white) shall be applied. Total DFT:150+_20micron shall be maintained.	
5.0	Thermal Treatment of Materials	For all pressed/formed items like dished ends, solution treatment shall be carried-out.	
6.0	<b>PIPING AND INSTRUMENTATION SCHEME:</b>		
g)	The Piping and Instrumentation scheme shall be as per enclosed P&I diagram which includes: <ul style="list-style-type: none"> <li>• Nozzle-1 (System vent/Pump priming)</li> <li>• Nozzle-2 (Drain Tank vent)</li> <li>• Nozzle-3 (Liquid Drain)</li> <li>• Nozzle-4 (System vent/Evaporator vent)</li> </ul>		
h)	Nozzle-1 (System vent/Pump priming)		
	For draining/venting LOX/GOX, <ul style="list-style-type: none"> <li>• A nozzle of 50NBSch40 need to be provided with WNRF flange of same size</li> <li>• Location of this nozzle shall be at the top of tank as shown in P&amp;I</li> </ul>		
i)	Nozzle-2 (Drain Tank vent)80		
	For venting LOX/GOX, <ul style="list-style-type: none"> <li>• A nozzle of 80NB Sch40 need to be provided with WNRF flange of same size</li> <li>• Location of this nozzle shall be at the top of tank as shown in P&amp;I</li> </ul>		
j)	Nozzle-3 (Liquid Drain)		
	For draining residual LOX, <ul style="list-style-type: none"> <li>• A nozzle of 15NB Sch40 need to be provided with WNRF flange of same size</li> <li>• Location of this nozzle shall be at the bottom of tank as shown in P&amp;I</li> </ul>		
k)	Nozzle-4 (System vent/Evaporator vent)		
	<ul style="list-style-type: none"> <li>• A nozzle of 50NB Sch40 need to be provided with WNRF flange of same size</li> <li>• Location of this nozzle shall be at the top of tank as shown in P&amp;I</li> </ul>		
l)	Note: Pipe ends shall be as per ASTM B36.19 dimensional standards. The dimensions shown in P&I scheme are tentative in nature. Exact dimensions will be firmed up during detailed engineering phase.		
6.0	<b>Welding and weld qualification requirements:</b>		
6.2	<b>Welding requirements:</b>		
	c. Welding of following butt joints shall be performed by		



	<p>GTAW/Plasma TIG process as per ASME SEC IX or equivalent:</p> <ul style="list-style-type: none"> <li>• Longitudinal and circumferential joints of tank</li> <li>• Joints of shell to end plates (dished ends)</li> </ul> <p>d. Butt weld joints involving stainless steel pipelines, fittings, tank shell plates and shell to dish end joints shall be performed by GTAW/Plasma TIG process with argon purging.</p>	
<b>6.3</b>	<p><b>Radiography requirements</b></p> <p>c) 100% radiography on all butt welded joints of tanks and pipelines to each other shall be carried out in accordance with standard documents in force in ASME code or equivalent norms with the documents approval by the third party acceptance.</p> <p>d) Those joints which are not subjected to radiography (x-ray), gamma-ray may be considered by getting the approval from the third party inspection agency.</p>	
<b>6.4</b>	<p><b>DP test:</b> <b>All joints shall be DP tested as per ASTM E175.</b></p>	
<b>7.0</b>	<p><b>Testing and qualification</b></p>	
<b>7.1</b>	<p><b>Hydro Strength Test:</b> The following tests shall be carried out in presence of third party inspection agency.</p> <ul style="list-style-type: none"> <li>• Hydro test with demineralized water (Chlorides shall be &lt;50PPM) or suitable liquid at a test pressure of 1.3 times the design pressure.</li> </ul>	
	<p><b>Pneumatic leak Test:</b> The following tests shall also be carried out in presence of third party inspection agency.</p> <ul style="list-style-type: none"> <li>• Pneumatic test with GN2/dry air (dew point -55 Deg.C [min]) medium at a test pressure of 1.1 times the design pressure.</li> </ul>	
<b>8.0</b>	<p><b>Identification and sealing</b></p> <p>d) The Drain Tank should have a name plate permanently fixed to the dish end of the tank, with brief specifications duly marked as per ASME Rules.</p> <p>e) The tank and the piping/ tubing shall be sealed so that ambient moisture never enters inside. The tank and piping/tubing volumes are to be pressurised to 0.5 bar(g) with dry Nitrogen gas with dew point less than - 55 Deg.C.</p> <p>f) All the piping/ tubing outlets/flanges shall be provided with SS dummies. The dummies shall be made from same materials as that of parent metal.</p>	
<b>9.0</b>	<p><b>Inspection:</b> The Drain Tank shall be inspected and certified by Department's representative &amp; third party inspection agency as applicable. Arranging third party inspection agency and inspection at supplier's works shall be the responsibility of supplier. The third party inspection agency shall be any one of the following</p> <ul style="list-style-type: none"> <li>• M/s. Lloyds</li> <li>• M/s. Det Norske Veritas</li> <li>• M/s. TUV</li> <li>• M/s Bureau Veritas</li> </ul> <p>TPI agency other than the above mentioned one shall be subject to approval of the department.</p>	

<p><b>9.1</b></p>	<p><b>The scope of inspection is as given below:</b></p> <ul style="list-style-type: none"> <li>w) Approval of the design calculations (tank, piping/tubing &amp; supporting structure etc.) and fabrication drawings prepared by the supplier are in compliance to the codes and standards specified by the department.</li> <li>x) Inspection of plates at fabricators shop, cuts of plates and samples taken from each plate, witness of tests carried out. Plates shall be chemical, mechanical, UT, cold impact and IGC tested (ASTM A262 Practice E or equivalent), irrespective of availability of Mill Test Certificates. The inspection should be carried out in accordance with the requirements of ASME.</li> <li>y) Since the drain tanks are envisaged for cryogenic temperature service conditions, <b>cold impact strength tests</b> shall be carried out on all associated wetted parts.</li> <li>z) Welding procedure qualification and welder's performance qualification tests as per ASME Code regulations.</li> <li>aa) Marking of the shell plates and dished end plates.</li> <li>bb) Long seam-fit up inspection of tack welds.</li> <li>cc) Back grinding of seam welds, inspection of welds.</li> <li>dd) Circularity of shells after rolling.</li> <li>ee) Evaluation of radiography films of all Butt welds.</li> <li>ff) Forming of dished ends, stress relieving and radiography of welds.</li> <li>gg) Cir seam fit up.</li> <li>hh) Back chip of cir seam welds.</li> <li>ii) Marking of nozzle orientation.</li> <li>jj) Nozzle fit up.</li> <li>kk) Saddle and saddle support fit up.</li> <li>ll) Dye penetrant test on all fillet welds.</li> <li>mm) Hydro/Pneumatic strength test at test pressure.</li> <li>nn) Dimensional check and verification of Test certificates related to Standard components as per P&amp;I scheme.</li> <li>oo) Chemical cleaning and drying.</li> <li>pp) Internal cleaning of tank &amp; piping confirming to oxygen service as per ASTM G93 or equivalent.</li> <li>qq) Filling with dry GN2 at 0.5 bar(g) before final dispatch.</li> <li>rr) Stamping of the tank and issue of certificate.</li> </ul>	
<p><b>10.0</b></p>	<p><b>Submission of drawings and design calculations</b></p> <p>Supplier shall prepare detailed design calculations and fabrication drawings and submit to Department for verification and approval. Approval of the third party inspection agency shall be confirmed prior to the commencement of fabrication.</p>	
<p><b>10.1</b></p>	<p>The following documentation is to be supplied for approval prior to manufacturing.</p> <ul style="list-style-type: none"> <li>k) Material test certificates for all wetted parts (incl. pipes, fittings, flanges, plates etc)</li> <li>l) Welding procedures and welding materials</li> <li>m) Scope and method of inspection of weld joints</li> <li>n) Scope and inspection of tanks, piping/tubing tightness</li> <li>o) Scope and method of heat treatment of parts</li> <li>p) Norms of evaluation of weld joints quality</li> </ul>	

	<ul style="list-style-type: none"> <li>q) Calculations for strength and stability of tank and piping/ tubing, nozzles, support elements of the Drain Tanks, duly certified by TPIA.</li> <li>r) Approved design calculations of tank, piping/ tubing, Dome, Supports, Nozzle, RF pad plates etc.</li> <li>s) Drawings &amp; bill of Materials</li> <li>t) Tank test procedures.</li> </ul>	
<b>10.2</b>	<p>Two copies of master files and test certificates/ documents shall be supplied by the fabricator along with the Drain Tank. Master file should contain the following:</p> <ul style="list-style-type: none"> <li>h) Order technical specification copy and Amendments, if any</li> <li>i) Inspection Release note by third party inspection agency</li> <li>j) Approved design calculations of tank, piping/ tubing, Dish ends, Supports, Nozzle, RF pad plates etc considering wind &amp; seismic conditions.</li> <li>k) Bill of Materials</li> <li>l) Material test certificate of all plates, pipes, fittings, components etc. used in the tank fabrication as per Bill of Materials.</li> <li>m) Radiography Reports and films pertaining to the Drain Tank, piping/ tubings.</li> <li>n) Test reports as defined in scope of inspection in mentioned in earlier sections.</li> </ul> <p>All the above reports/test results shall be bound neatly.</p>	
<b>11.0</b>	<p><b>Transportation/mounting parameters</b></p> <ul style="list-style-type: none"> <li>c) Suitable lifting lugs should be provided for Drain Tanks handling by using cranes.</li> <li>d) Civil inputs for design of pedestal shall be forwarded to department.</li> </ul>	
<b>12.0</b>	<p><b>Quality Assurance:</b></p> <p>The supplier shall prepare a quality assurance plan considering all the tests and compliance reviews mentioned in the technical specifications for approval to SDSC SHAR. A detailed QAP shall be submitted to department within two weeks of release of PO.</p>	
<b>13.0</b>	<p><b>Delivery:</b></p> <p>Expected delivery period of the drain tank shall be 6 months from the date of release of P.O.</p>	
	<p><b>Delivery Term:</b> Delivery term shall be considered as FOR Sriharikota. Unloading of the tank from the supplier's transport vehicle shall be in the scope of the Department.</p>	
<b>14.0</b>	<p><b>Warranty:</b> The Supplier shall provide warranty for the drain tank for the period of 12months from the date of receipt &amp; acceptance at SDSC SHAR. Warranty certificate shall be issued by the supplier along with the supply.</p>	

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Table-7: Confirmation on Commercial Conditions	Confirmation Accepted/ Not accepted
<p><b>Offer Validity:</b> The validity of the offers / tenders should be 120 days from the date of opening of the tenders. <b>Tenders with offer validity less than the period mentioned above, will not be considered for evaluation.</b></p>	
<p><b>Taxes:</b></p> <p>Party shall quote with GST rates 5% for supply of drain tank. (Quoted cost shall be inclusive of basic price, testing, qualification, TPI, packing &amp; transportation).</p> <p>SDSC SHAR is eligible for GST@5% as per the notification no. 6/2018-Central Tax (Rate) dt:25.01.2018A (ix) S.No.243A as amended by Notification No 25/2018-Integrated Tax (Rate) Dt: 31.12.2018(viii) S.No.243B issued by Ministry of Finance (Dept. of Revenue).</p>	
<p><b>Payment Terms:</b> Our payment term is 100% payment within 30days after receipt and acceptance of drain tank at our site. No advance payment is envisaged.</p>	
<p><b>Make in India Clause</b></p> <p>General Terms &amp; conditions for Bidders: For this procurement, bids from Class-I &amp; class-II Local Suppliers are admissible. hence provisions contained in Public Procurement (Preference to Make in India), Order 2017 issued by Department for Promotion of Industry and Internal Trade (DIPP), Ministry of Commerce &amp; Industries vide letter No. P-45021/2/2017-PP(BE-II) dated 04.06.2020 and subsequent amendment &amp; directives shall be followed. Accordingly, offer will be evaluated &amp; processed in conformation with above referred GOI order (Specially mentioned below). The bidder shall provide compliance and undertaking as per order and hereafter amendments:</p> <p>(a) Order no: F.No.6/18/2019 PPD dated 23.07.2020 of Department of Expenditure), Ministry of Finance Under Public procurement division for the General Financial rule (GFRs).</p> <p>(b) Class-I local supplier means a supplier or service provider, whose goods, service or works offered for procurement, has local content equal to or more than 50%, as defined under order.</p> <p>(c) Class-II local supplier means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than</p>	

<p>20% but less than 50%, as defined under this Order</p> <p>(d) Verification of local content:</p> <p>(i) The Class I local supplier/ Class- II local supplier at the time to tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for Class-I local supplier / Class II local supplier as the case may be. They shall also give details of the location(s) at which the local value addition is made.</p> <p>(ii) In case bid value is in excess of Rs. 10 Cr., Class-I local supplier / Class-II local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.</p> <p>(iii) False declarations will be in breach of the code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules (GFR) for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the general Financial Rules along with such other actions as may be permissible under Law.</p> <p>(iv) A supplier who has been debarred by any procuring entity for violation of this order shall not be eligible for preference under this order for procurement by any other procuring entity for the duration of the debarment.</p> <p>(e) The percentage of local content should be specifically mentioned in the offer, without which it will be summarily rejected.</p> <p>(f) Preference will be given to Class-I Local supplier and in their absence, Class-II Local supplier will be considered.</p>	
<p><b>Liquidated Damages:</b> In all cases, delivery schedule indicated in the Purchase Order/Contract is the essence of the contract and if the party fails to deliver the material within the delivery schedule, Liquidated Damages will be levied @ 0.5% per week or part thereof subject to a maximum of 10% of total order value.</p>	
<p><b>Security deposit cum performance bank guarantee:</b> Security Deposit cum PBG for 3% of the order value is mandatory, Party shall furnish the Security Deposit cum PBG in the form of Bank Guarantee from nationalized/scheduled bank or by way of Demand Draft valid till completion of the contract period plus sixty days towards claim period for faithful execution of the contract.</p>	
<p><b>Arbitration: The Purchase Order shall be interpreted, construed and</b></p>	

<p><b>governed by the Laws in India.</b> In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Contract, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre –Bengaluru (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be “English” only.</p> <p><b>Purchase Order shall be continued by Party</b> during the pendency of arbitration proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the DEPARTMENT or unless the matter is such that the works cannot be possibly continued until the decision (whether final or interim) of the Arbitrator is obtained.</p>	
<p><b>Applicable law and jurisdiction</b></p> <p>The laws of India shall govern this contract for the time being in force. The Courts of Andhra Pradesh, India only shall have jurisdiction to be with and decide any legal matters or disputes what so ever arising out of the contract.</p>	
<p><b>Special conditions</b></p>	
<p>The delivery period mentioned in the tender enquiry, <b>IF ANY</b>, is with the stipulation that no credit will be given for earlier deliveries and offers with delivery beyond the period will be treated as unresponsive.</p>	
<p>The bidders should note that conditional discounts would not have edge in the evaluation process of tenders.</p>	
<p>Non-acceptance of any conditions wherever called for related to Warranty, Performance Bank Guarantee, Liquidated damages are liable for disqualification.</p>	
<p>The specifications given by the department along with the tender enquiry are confidential and shall not be disclosed to any third party.</p>	
<p><b>Exclusion of tenders:</b></p> <p>The following tenders shall be summarily rejected from the procurement</p>	

<p>process:</p> <ul style="list-style-type: none"><li>(a) Unsolicited tenders from vendors.</li><li>(b) The tenders which materially depart from the requirements specified in the tender document or which contain false information.</li><li>(c) The tenders of vendors who have not agreed to furnish Bank Guarantees.</li><li>(d) The validity of the tenders is shorter than the period specified in the tender enquiry.</li><li>(e) The tenders received from vendors or their agents or anyone acting on their behalf, who have promised or given to any official of the Centre/Unit/Department, a gratification in any form, or anything of value, so as to unduly influence the procurement process.</li><li>(f) The tenders received from vendors, who, in the opinion of the Centre/Unit, have a conflict of interest materially affecting fair competition.</li><li>(g) The tenders received from Indian agents on behalf of their foreign Principals/OEMs (in cases where the Principals/OEMs also submit their tenders simultaneously for the same item/product in the same tender).</li><li>(h) If a firm quotes 'NIL' charges / consideration, the bid shall be treated as un-responsive and will not be considered.</li></ul>	
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