भारत सरकार
अंतरिक्ष विभाग
सतीश धवन अंतरिक्ष केंद्र शार
श्रीहरिकोटा रेंज डा.घ. 524 124
श्री पोट्टि श्रीरामुलु नेल्लूर जिला, आं.प्र., भारत
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सत्यमेव जयते

Goverment of India
Department of Space
Satish Dhawan Space Centre SHAR
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सतीश धवन अंतरिक्ष केंद्र शार SATISH DHAWAN SPACE CENTER SHAR
श्रीहरिकोटा SRIHARIKOTA :: तिरुपति जिला (आ.प्र.) TIRUPATI DISTRICT (A.P)– 524 124
निविदा सूचना सं. TENDER NOTICE NO. SDSC SHAR/Sr.HPS/PT/RO-LSSF/22/2025-2026

भारत के राष्ट्रपति की ओर से वरि. प्रधान क्रय एवं भंडार, सतीश धवन अंतरिक्ष केंद्र श्रीहरिकोटा निम्नलिखित वस्तुओं के लिए ऑनलाइन निविदाएं आमंत्रित करते हैं:- On behalf of President of India, Sr. Head Purchase and Stores, SDSC SHAR, SRIHARIKOTA invites on line quotations for the following.

क्र.सं. Sl No	संदर्भ सं. Ref. No.	विवरण Description	मात्रा Qty.
01.	**SDSC SHAR /LSSF PURCHASE /LSSF/ 2025000257 [Global Tender - Two Part]**	**Supply of 2000 Liters(400 Bar Seamless Gas Cylinders), Neck/vent valves and spare kits.**	**Cylinders – 58 Nos Valves – 34 Nos Spare Kits – 35 Nos**

निविदा दस्तावेजों को डाउनलोड करने की अंतिम तिथि Last Date for downloading of tender documents : 25.09.2025 at 14:00 hrs.
ऑनलाइन निविदा जमा करने की अंतिम तिथि Due Date for submission of bids online : 25.09.2025 at 14:00 hrs.
निविदाएं खोलने की नियत तिथि Due Date for opening of tenders : 26.09.2025 at 14:05 hrs.

निविदाकार के लिए निर्देश Instructions to Tenderers:

निविदाएं ईजीपीएस के माध्यम से ही भेजी जाएं तथा कोई निविदा शुल्क लागू नहीं होगा।
Bids shall be submitted on line through EGPS only and No tender fee shall be applicable.

01. कार्य के सम्पूर्ण विवरण/जानकारी तथा नियम व शर्तों इत्यादि के लिए संलग्न अनुलग्नक को देखें। / For full details/scope of work and terms and conditions etc., please see the enclosed annexures.

02. इच्छुक निविदाकार इसरो की ई-खरीद वेबसाइट इसरो न्यू ई-प्रोकुरमेंट www.eproc.isro.gov.in से ई-निविदा डाउनलोड और अपनी निविदा ई-खरीद पोर्टल पर ऑनलाइन जमा कर सकते हैं। डाक / वाहक / स्वयं द्वारा प्राप्त निविदाओं पर विचार नहीं किया जाएगा। / Interested tenderers can download the e-tender from ISRO NEW E-PROCUREMENT website www.eproc.isro.gov.in and submit the offer online in the e-procurement portal. Offers sent physically by post/courier/in person will not be considered.

03. निविदा दस्तावेज इसरो की वेबसाइट www.isro.gov.in इसरो न्यू ई-प्रोकुरमेंट वेबसाइट www.eproc.isro.gov.in तथा सतीश धवन अंतरिक्ष केंद्र शार की वेबसाइट www.shar.gov.in पर भी उपलब्ध हैं। इन्हें केवल ई-खरीद पोर्टल से डाउनलोड और निविदा ऑनलाइन जमा कर सकते हैं। / Tender documents are also available on ISRO website www.isro.gov.in , ISRO New e-procurement website www.eproc.isro.gov.in and SDSC SHAR, Sriharikota website www.shar.gov.in. The same can be downloaded and offer can be submitted online in the new e-procurement portal only.

04. निर्धारित तिथि/समय के पश्चात प्राप्त बोलियों पर विचार नहीं किया जाएगा। / Quotations received after the due date/time will not be considered.

06. वरि. प्रधान क्रय एवं भंडार, सतीश धवन अंतरिक्ष केंद्र श्रीहरिकोटा के पास किसी भी या सभी निविदाओं को स्वीकार / अस्वीकार करने का अधिकार है। / Sr. Head, Purchase and Stores, SDSC-SHAR, Sriharikota reserves the right to accept or reject any/or all the quotations.

07. GeM GARPTS Report ID: GEM/GARPTS /16052025/47THISN0MMS6

दिनांक DT: 03.09.2025

वरि. प्रधान क्रय एवं भंडार
Sr. HEAD PURCHASE AND STORES

भारतीय अंतरिक्ष अनुसंधान संगठन

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Indian Space Research Organisation

Annexure-I

TECHNICAL SPECIFICATIONS FOR SUPPLY OF SEAMLESS HIGH PRESSURE GAS CYLINDERS (Water Capacity:2000 liters and Operating Pressure:400 bar)

1. Scope:

Design, manufacturing, assembly, inspection, testing, painting, packing and delivery of hot rolled seamless gas cylinders (Transportable) with cylinder neck valves and other accessories.

2. Technical details:

Table-1

Sl. No	Description	Specification
1.	Medium to be stored	Gaseous Helium/ Gaseous Nitrogen
2.	Design, construction, testing	**ISO 11120:2015 / DOT-3T**
3.	Material	**Group III as per ISO 11120:2015**
4.	Quantity of cylinders along with necessary adopters and flow components. (For details refer Table-3)	**Total: 58 Nos** ✓ GHe Medium- 16 Nos (Charging side bore: Min- 6.4mm & Delivery side bore: Min 12.0mm) ✓ GN2 Medium-34 Nos (Charging side bore: Min- 6.4mm & Delivery side bore: Min 12.0mm) ✓ GN2 Medium- 8 Nos (Charging side bore: Min- 26.0 mm & Delivery side bore: Min 26.0mm)
5.	Source details of tubes (raw material) for manufacturing cylinders	The tubes to be used for gas cylinders manufacturing shall be procured from the suppliers like M/s Tenaris, Italy/ M/s Vallourec Deutschland GmbH/ M/s TubosReuniods, Spain. If the bidder proposes sourcing the raw material (tubes) from sources other than that mentioned above, such details may be submitted in the bid. The decision of the department shall be final in regard to acceptance/rejection of the bidder based on such alternative manufacturers.
6.	Configuration	Horizontal
7.	Service operation	Transportable
8.	Outside diameter	**Dia 559 mm ±1%**
9.	Operating pressure	400 bar
10.	Operating temperature	-50°C to +65°C
11.	Hydro Test pressure	As per design code.
12.	External corrosion allowance	≥3 mm
13.	Heat Treatment	As per Design Code.
14.	Minimum Wall thickness	As per design code + external corrosion allowance
15.	Maximum Length of cylinder including assembly of neck valves	12100mm
16.	Construction of cylinder	Cylinders shall be of seamless type
17.	Water Volume	2000 Liters minimum per Cylinder

Sl. No	Description	Specification
18.	Shape of Ends	Both ends shall be hemi spherical (without threads). Manufacturing Process shall be hot forging/hot spinning.
19.	End fittings (Rapid Closure)	**a)** Rapid Closure with required porting for valves and gauges. **Refer Dwg No: LSSF-CGS-Cylinder-01.** b) Both ends shall be suitable for fixing Rapid Closure and shall encompass sealing with 'O' rings and back up ring for easy dismantling and assembling of Rapid Closure for periodic inspection and testing. **Refer Dwg No: LSSF-CGS-Cylinder-01** c) Rapid Closure shall be held with split ring internally and with hexagonal nut externally. d) **Charging (Inlet) Side:** Rapid Closure shall have provision for mounting Charging valve, Pressure monitoring gauge and gauge shut off valve. e) **Delivery (Outlet)Side:** Rapid Closure shall have provision for mounting delivery valve, drain/vent valve.
20.	Steel work	a) All the individual cylinders (58 Nos) shall be mounted on Mounting Clamp frame on both sides. The Mounting Clamp frame section shall be suitably designed to withstand the load of 5 cylinders when they are arranged on the fixed concrete pedestal covered under the RCC roof. **Refer Dwg No: LSSF-CGS-Cylinder-02.**Cylinder Mounting Clamp frame section dimensions are given in**Dwg No: LSSF-CGS-Cylinder-04.** b) Total 30 Nos of cylinder supporting structure blocks shall be supplied along with the cylinders. Cylinder supporting structure block drawing is enclosed**. Refer Dwg No: LSSF-CGS-Cylinder-03. Material of the cylinder support structure and Mounting Clamp frame section shall be carbon steel with Hot dip Galvanized finish.** c) Each cylinder supporting structure block and shall be designed to withstand the combined load of 10 cylinders including fluid medium (GN2) and also related structural elements. d) For shipping and installation purposes, the cylinders shall be fitted with 4 temporary bolted lifting lugs. e) The Mounting clamp frame shall be shot blasted and then painted with same paint finish as that of cylinders after assembly

Sl. No	Description	Specification
		of cylinders or galvanized finish as per the standard.
21.	Surface Preparation	The surface preparation of cylinders shall be in accordance with ISO 8501-1:2007 (or) latest. **<u>On Internal surfaces:</u>** a) To be done at two stages of manufacturing. First stage surface preparation to be carried out on the received raw material (jumbo tubes) with shot blasting followed by air cleaning. This is to remove the rust, grinding marks, oxide deposits and scales adhering to the inner surfaces. The internal surface shall conform to Grade B Sa 2 having surface finish of 20 µm Ra. b) Second stage surface preparation to be carried out post- Volumetric expansion testing with shot blasting followed by air cleaning. This is to remove oxide deposits and scales adhering to the inner surfaces formed during heat treatment. c) Cleaning with compressed air shall be done in both stages and shall ensure the complete removal of loose particles and shots used for blasting from inside the cylinder. **<u>On External surfaces:</u>** Surface preparation to be carried out post-Volumetric expansion testing with shot blasting followed by cleaning. This is to remove oxide deposits and scales adhering to the external surfaces formed during heat treatment. The external surface shall conform to Grade B Sa 2½ having surface finish of 15 µm Ra.
	Painting	a) The external surface preparation shall be followed by painting with 2 coats of Zinc primer and 2 coats of Polyurethane paint of 150µm layer thickness. b) Colour - French Grey with black shoulder for nitrogen (42 Nos), mid brown for helium (16Nos). c) Dry film thickness to be measured using a suitable coating thickness gauge (Calibrated).
22.	Design accordance	The Cylinders shall be designed in accordance with design code, relevant documents shall be submitted to Chief Controller of Explosives, PESO, Nagpur, India by the supplier and approval shall be obtained by the supplier.
23.	**Arrangement of Flow components and its specifications**	

Sl. No	Description	Specification
a)	Each cylinder shall be provided with a drain valve (vent valve) with dip tube arrangement at delivery side and cylinder neck valve on both sides. Pressure gauge with gauge shut-off valve shall be mounted on charging side of the cylinder. (**Refer Dwg No: LSSF-CGS-Cylinder-01)**	
b)	**Charging side Cylinder Neck valve – Angle Valve – (Helium: 16 Nos of Cylinders and Nitrogen: 34 Nos of Cylinders)(Charging side bore: Min- 6.4 mm)**	
	Charging Side neck valve	½" NPT (M) on cylinder side and ½" NPT (F) on the other side.
	Cv of the neck valve	1.1
	Type	Globe – Angle Valve
	Working Pressure	400 bar
	Material	SS316Ti/Equivalent material
	Minimum bore	Ø 6.4 mm
	Make	M/s Haage Anagramm/Estanit, Haskell, Hale Hamilton
c)	**Delivery side Cylinder Neck valve – Angle Valve – (Helium: 16 Nos of Cylinders and Nitrogen: 34 Nos of Cylinders)(Delivery side bore: Min- 12.0 mm)**	
	Delivery Side neck valve	3/4" NPT (M) on cylinder side and 1" BSPP (F) on the other side.
	Cv of the neck valve	2.4
	Type	Globe – Angle Valve
	Working Pressure	400 bar
	Material	SS316Ti/Equivalent material
	Minimum bore	Ø 12 mm
	Make	M/s Haage Anagramm/Estanit, Haskell, Hale Hamilton
d)	**Charging and Delivery side Cylinder Neck valve – Straight Valve- (Nitrogen: - 08 Nos of Cylinders) (Charging and delivery side bore: Min- 26.0 mm)**	
	Charging and Delivery Side neck valve	$1\frac{1}{2}$" NPT (M) on cylinder side and $1\frac{1}{2}$" BSPP (F)/$1\frac{1}{2}$" NPT (F) on the other side.
	Type	Globe – Straight Way Valve
	Working Pressure	400 bar
	Material	SS316Ti/Equivalent material
	Minimum bore	Ø 26.0 mm
	Make	M/s Orseal, UK or M/s Bonney Forge, USA
Total No of Gas Cylinders – 58 Nos. Delivery side drain/vent valve, Gauge Shut off valve and Pressure Gauges for all 58 Nos of gas cylinders are given below		
e)	**Delivery Side Drain/Vent valve – Straight way valve for all total 58 cylinders**	
	Delivery Side Drain/Vent valve - Straight way valve	½" NPT (M) on cylinder side and ½" NPT (F) on the other side.
	Cv of the neck valve	1.1
	Type	Globe – Straight way valve
	Working Pressure	400 bar
	Material	SS316Ti/Equivalent material

Sl. No	Description	Specification
	Minimum bore	Ø 6.4 mm
	Make	M/s Haage Anagramm/Estanit, Germany, Haskell, Hale Hamilton
f)	**Gauge Shut off valve: for all total 58 cylinders**	
	Type	Single valve with vent provision
	Material	SS304/SS304L/SS316/SS316L
	End Connections	Inlet: ½" NPT (Male) Outlet: ½" NPT/½" BSPP/Metric (female)
	Bore	Ø 1.0-4.0mm
	Make	Kenmac/ Thompson/ Haage Anagramm/ DB Armatura/Colsen X-cel/ Swagelok/Parker
	Working Pressure	400 bar
g)	**Pressure gauge: for all 58 cylinders**	
	Type	Bourdon
	Range	0-600 bar
	Dial Size	4" Dial
	End Connection	M20 x 1.5 (M)/ ½" BSP (M)/½" NPT(M)
	Material of construction	SS304/SS304L/SS316L/SS316
	Accuracy	+/- 1.0 %
	Make	Wika

Note:

1. End Connections of the valves are tentative. Based on the selection of valves end connection will be finalized. However, the supplier has to maintain minimum PN rating and bore. Based on the selection of valves applicable seals shall be supplied as part of spare kits for indent Sl.No:6,7,8 and 10.

2. If the bidder proposes new make of valves other than that mentioned above, such details may be submitted in the bid. The decision of the department shall be final in regard for acceptance/rejection of the bidder proposal on cylinder neck valves.

3. Inspection Details:

i. Mode of Inspection - TPI

ii. Approved Third Party Inspection (TPI) agencies -Lloyds, B.I.E, TUV, BV,DNV

iii. Inspection details (TPI SCOPE from Point a to x)

a. Review and approval of design calculation as per ISO11120 and General Arrangement (GA) drawings of cylinders.

b. Approval of drawings for manufacturing.

c. Heat treatment as per ISO11120 clause 6.3

d. Review of raw material test (Material used for making seamless tubes) certificates of seamless tubes for chemical and mechanical properties.

e. Identification of seamless tubes at cylinder manufacturer premises and sample testing (taken from each heat/lot of seamless tubes) for chemical and mechanical properties confirming to ISO 11120 at approved labs.

Review and approval of the design calculations of structural elements in accordance with standard codes.

f. Review of Material Test certificates/performance reports for bought out items like valves, fittings, gauges, etc.

g. **Visual Inspection:** Visual Inspection is to be performed in two stages during cylinder manufacturing.

   i. *First stage* of visual inspection to be performed after internal surface preparation done on the received raw material.

   ii. *Second stage* of visual inspection to be performed after internal and external surface preparation done on the Inner & outer surfaces of finished cylinders.

   iii. Visual inspection in accordance with design code.

   iv. Visual inspection of internal surfaces during various stages of inspection shall be carried out using Boroscopic imaging system. The same shall be recorded as photographic evidence for obtaining clearances from purchaser.

h. The water capacity and tare mass of cylinders shall be checked in accordance with clause 11.5.3 of ISO 11120.

i. Wall thickness check to be carried out, confirming to clause 11.5.1 of ISO11120.

j. Magnetic Particle test to be carried out on the hemi-spherical ends after heat treatment in accordance with ISO 11120:2015(E) clause 8.2.

k. Dye Penetration Test shall be in accordance with ISO 11120:2015(E) clause.8.2.

l. Surface imperfections: The internal and external surfaces of the finished tube shall be free from imperfections. Surface imperfections shall be checked as per ISO 11120.

m. Ultrasonic examination as per ISO11120.

n. Hardness check is to be carried out for confirming the homogeneity of heat treatment in accordance with clause 11.3 of ISO 11120.

o. Volumetric expansion test shall be conducted as per clause 11.2.2 of ISO 11120and the results calculated during the test as ratio of Permanent expansion to total expansion shall be less than 5%.

p. Cylinder drying post volumetric expansion test shall be done with dry hot air. Dry air shall be blown for duration of minimum 45 minutes each from both the ends of the cylinder and shall be continued till the surface is deemed to be dried. Activity report is to be generated that shall include parameters like temperature of dry air, moisture level, duration of operation and final observations.

q. Inside and External surface shot blasting.

r. Dimensional inspection shall be carried out for thickness, diameter, length etc. according to clause 11.5 and conforming to the tolerance limits of out of roundness, straightness, eccentricity, etc. as per clause 8.5 of ISO 11120.

s. Pneumatic leak check with associated flow components at 350…400 Bar with dry air (Dew Point of Air is better than -55^{0}C). Dew Point/Moisture measurement after pneumatic leak check.

t. Any other standard Inspection as per the ISO11120.

u. Certification of cylinders as per ISO 11120.

v. Issuance of Pre-Delivery Inspection (PDI) certificate and stamping on the cylinders.

w. Dispatch clearance report (After ensuring positive pressure– Minimum 2 Bar Dry Nitrogen Gas in the cylinders and closing of all openings of the cylinders).

x. Inspection at any stage of production of cylinder to ensure that the methodology employed for manufacturing is in compliance with the requirements of standard codes and practices and the approved documents.

Note: Engaging and coordinating with TPI agency for inspection is the responsibility of supplier.

4. Timeline for execution of activities after release of purchase order.

Table-2

Sl.No	Submission/ Approval Time line	Description
1.	**T0**	Date of Release of purchase order
2.	T1 = T0+2 Weeks	Receipt and acceptance of the purchase order.
3.	T2 = T1+3 Weeks	Design calculations of gas cylinder, cylinder supporting block, cylinder mounting clamp, Standard end adaptors of charging and delivery sides shall be approved by TPI.
4.		Fabrication drawings of cylinders showing cylinder neck valves, pressure gauges, etc. approved by TPI.
5.		Catalogues of flow components for the purpose of operation / maintenance.
6.		General Assembly drawing of each flow component.
7.		All bought out items drawings shall be submitted to department for approval before purchase. Supplier has to procure all bought out items after department approval.
8.	T3= T2+3 Weeks	Approval of fabrication drawings by department. The comments if any, offered by Department have to be incorporated and the documents shall be sent to TPI agency for review and approval.

Sl.No	Submission/ Approval Time line	Description
9.		All the relevant documents approved by the TPI agency, have to be sent to PESO, Nagpur, Government of India for review and approval. Only after obtaining approval from PESO, the manufacturer shall proceed with fabrication activities.
10.		PESO clearance papers for manufacturing of the cylinders shall be submitted to SDSC SHAR.
11.		For obtaining manufacturing clearance: After completion of activities listed under Sl. Nos 1 to 9 of QAP attached (Annexure-II), test certificates, photographic records of visual inspection, activity reports and other relevant documents are to be provided to SDSC SHAR for review and obtaining approval to proceed with further manufacturing operations.
12.	T4= T3+10 Months	After completion of full fabrication and before delivery: After completion of full fabrication and pre-delivery inspection by TPI agency but before dispatch of consignment, the following documents shall be sent to Purchaser. The same will be reviewed for compliance with the purchase order & approved drawings. On acceptance, dispatch clearance will be issued by Purchaser and only after which the cylinder units have to be dispatched **Following documentation, duly endorsed by TPI agency**: 1. Heat treatment activity report 2. Hardness inspection report 3. Report on Mechanical properties on test samples extracted from sample drums 4. Magnetic particle inspection report 5. Liquid penetrant test report 6. Post heat treatment UT inspection report 7. Water capacity & Mass test 8. Hydraulic/volumetric expansion test 9. Cylinder drying activity report 10. Internal and External shot blasting activity reports 11. Surface roughness measurement report 12. Photographic records of Visual inspection of internal surfaces.

Sl.No	Submission/ Approval Time line	Description
		13.Dimensional inspection report. 14.Neck cap fittings assembly report. 15.Painting DFT measurement report. Calibration records of the measurement sensors, equipment used for manufacturing and inspection such as load cells for weighing water during hydrostatic stretch tests, thermocouples used in heat treatment, probes for ultrasonic testing etc.

Note: All the above events and approval from PESO, Nagpur shall be completed and the full quantity shall be supplied to SDSC SHAR within 12 months from the date of release of purchase order.

5. Supply Quantity:

Table-3

Sl.No	Description	Quantity (Nos)	Operating Pressure (Bar)
1.	2000 Liters, 400 Bar seamless gas cylinders (Transportable) for storage of Gaseous Helium/ Gaseous Nitrogen. Water Volume of each cylinder 2000 Liters **with charging side 6.4mm bore and delivery side 12.0mm bore neck valves (As per Drawing: LSSF-CGS-Cylinder-01)**	50Nos	400
2.	2000 Liters, 400 Bar seamless gas cylinders (Transportable) for storage of Gaseous Helium/ Gaseous Nitrogen. Water Volume of each cylinder 2000 Liters with **minimum neck valve bore of 26.0 mm on both charging and delivery side(As per Drawing: LSSF-CGS-Cylinder-01)**	8 Nos	400
3.	Spare Valve: Charging side Cylinder Neck valve-Angle Valve (½" NPT (M) on cylinder side and ½" NPT (F) on the other side). (Cv 1.1 with DN6.4)	11Nos	400
4.	Spare Valve: Delivery side Cylinder Neck valve – Angle Valve (3/4" NPT (M) on cylinder side and 1" BSPP (F)on the other side.)(Cv 2.4 with DN 12)	11Nos	400

Sl.No	Description	Quantity (Nos)	Operating Pressure (Bar)
5.	Spare Valve: Delivery Side Vent valve – Straight way valve(½" NPT (M) on cylinder side and ½" NPT (F)on the other side.)(Cv 1.1 with DN6.4)	12Nos	400
6.	Spare kits for Charging side Cylinder Neck valve-Angle Valve (for Sl.No. 3 of Table-3) (one spare kit: Stem, Gland, 3 packings, packing ring	11kits	400
7.	Spare kits for Delivery side Cylinder Neck valve – Angle Valve (for Sl.No 4 of Table-3) (one spare kit: Stem, Gland, 3 packings, packing ring	11kits	400
8.	Spare kits for Delivery Side Vent valve – Straight way valve (for Sl.No. 5 of Table-3) (one spare kit: Stem, Gland, 3 packings, packing ring)	11kits	400
9.	Spare Valve: Charging and Delivery side Cylinder Neck valve – Straight Valve (1$\frac{1}{2}$" NPT (M) on cylinder side and 1$\frac{1}{2}$" BSPP (F)/ 1$\frac{1}{2}$" NPT (F) on the other side.) **(Minimum bore:26.0 mm)**	2Nos	400
10.	Spare kits **26.0mm bore valves** (one spare kit: Stem, Gland, packings, packing ring and any other applicable seals based on the selection of valves) (for Sl.No. 9 of Table-3)	2kits	400

Note: Specification for Cylinder neck valves and their spares for Sl.No 3,4,5,6,7 and 8 of Table-3 are typically extracted from M/s Haage Anagram/Estanit make. If the supplier proposes any other make valve, the specification shall be provided along with the offer.

6. Bid/Offer Submission details:

a) Supplier shall present the bids on <u>two-part basis as highlighted below</u>:

- ✓ **Part-I: Techno-Commercial bid.**
- ✓ **Part-II: Price bid indicating the price.**

6.1 Part-I: Techno-Commercial bid:

The tenderer shall necessarily present the following in the techno-commercial bid:

- The tenderer shall furnish **point-wise confirmation (Technical Compliance attached in Annexure-IV)** for the technical specifications given in the enquiry. However, change of specifications/ deviations (if any) shall be brought out in the offer with detailed justification. Suppliers are expected to furnish quotations with best match to design standards, materials of construction and other technical conditions.
- Supplier shall submit the technical details like drawings of cylinder & data sheets of associated flow components along with the offer **without which the offer will not be considered.** **Documents to be submitted along with the offer**:
    i. Basic cross-sectional drawing of the cylinder with associated flow components indicating the bill of materials (Material of construction of each item)
    ii. General arrangement drawing with cylinder , mounting clamp frame and cylinder supporting structure block on both sides with suitable bolting.
    iii. Design code considered, thickness calculation and test pressures.
    iv. Mechanical properties and chemical composition of the material of construction of cylinders.
- The tenderer shall necessarily furnish the details of previously executed orders confirming the design, fabrication and delivery of 2 Cu.M & 400 Bar high pressure gas cylinders. **Non-compliance of this requirement shall lead to rejection of the offer.**
- Tenderer need to furnish the details related to commercial terms indicating payment terms, name of Third Party Inspection Agency proposed etc.
- Place of manufacturing shall be clearly indicated in the offer.
- Bidder need to submit Un-priced price bid copy (as highlighted below) indicating the description of all the cost elements considered, without indicating the price. Tenderer shall note that indication of price in the techno-commercial bid shall lead to dis-qualification of bid.
- The price bids will be opened only after evaluation and acceptance of the technical bid of the respective tenderer.

6.1.1 Format of Un-Priced Price Bid:

✓ **Confirmation of item wise cost break up by the supplier**

Table-4

Sl. No	Description	Qty	Basic Cost/ Unit	Total Cost	Separate Cost mentioned in price bid (YES/NO)
1.	2000 Liters, 400 Bar seamless gas cylinders (Transportable) for storage of Gaseous Helium/ Gaseous Nitrogen. Water Volume of each cylinder 2000 Liters **with charging side 6.4mm bore and delivery side 12.0mm bore neck valves (As per Drawing:LSSF-CGS-Cylinder-01)**	50Nos	Unpriced	Unpriced	
2.	2000 Liters, 400 Bar seamless gas cylinders (Transportable) for storage of Gaseous Helium/ Gaseous Nitrogen. Water Volume of each cylinder 2000 Liters with **minimum neck valve bore of 26.0 mm on both charging and delivery side(As per Drawing: LSSF-CGS-Cylinder-01)**	8 Nos	Unpriced	Unpriced	
3.	**Spare Valve:** Charging side Cylinder Neck valve-Angle Valve (½" NPT (M) on cylinder side and ½" NPT (F) on the other side). (Cv 1.1 with DN6.4)	11Nos	Unpriced	Unpriced	
4.	**Spare Valve:** Delivery side Cylinder Neck valve – Angle Valve (3/4" NPT (M) on cylinder side and 1" BSPP (F)on the other side.)(Cv 2.4 with DN 12)	11Nos	Unpriced	Unpriced	
5.	**Spare Valve:** Delivery Side Vent valve – Straight way valve(½" NPT (M) on cylinder side and ½" NPT (F)on the other side.)(Cv 1.1 with DN6.4)	12Nos	Unpriced	Unpriced	
6.	**Spare kits** for Charging side Cylinder Neck valve-Angle Valve (for Sl.No. 3 of Table-4)	11kits	Unpriced	Unpriced	

Sl. No	Description	Qty	Basic Cost/ Unit	Total Cost	Separate Cost mentioned in price bid (YES/NO)
	(one spare kit: Stem, Gland, 3 packings, packing ring				
7.	**Spare kits** for Delivery side Cylinder Neck valve – Angle Valve (for Sl.No 4 of Table-4) (one spare kit: Stem, Gland, 3 packings, packing ring	11kits	Unpriced	Unpriced	
8.	**Spare kits** for Delivery Side Vent valve – Straight way valve (for Sl.No. 5 of Table-4) (one spare kit: Stem, Gland, 3 packings, packing ring)	11kits	Unpriced	Unpriced	
9.	**Spare Valve:** Charging and Delivery side Cylinder Neck valve – Straight Valve (11/2" NPT (M) on cylinder side and 11/2" BSPP (F)/ 11/2" NPT (F) on the other side.) **(Minimum bore: 26.0 mm)**	2 Nos	Unpriced	Unpriced	
10.	**Spare kits26.0mm bore valves** (one spare kit: Stem, Gland, packings, packing ring and any other applicable seals based on the selection of valves) (for Sl.No. 9 of Table-4)	2 kits	Unpriced	Unpriced	
11.	**Cost of TPI Charges**			Unpriced	
12.	**Packing Charges**			Unpriced	
13.	**Applicable Taxes if any**			Unpriced	
14.	**Transportation Charges**			Unpriced	

6.2 Part-II: Price bid indicating the price:

- ✓ The quotation submitted shall be CFR Chennai Sea Port basis incase of foreign suppliers. For Indian Suppliers delivery terms shall be supply of cylinders to SDSC SHAR. It may be noted that unloading at SDSC-SHAR, Sriharikota will be carried out by SDSC SHAR with necessary equipment.
- ✓ **Bid Evaluation Criteria: Total landed Cost at SDSC SHAR(Basic cost + TPI charges +Packing charges + Applicable taxes +Transportation charges to SDSC-SHAR) will be the basis for finalization of the Purchase order**

- ✓ **Due to interconnected nature of work scope, over all L1 will be selected towards awarding the order. Party shall submit the acceptance for the same.**

Price bid shall be submitted by the tenderer in the following format and shall be uploaded.

Table-5

Sl. No	Description	Quantity	Basic Cost/ Unit	Total Cost
1.	2000 Liters, 400 Bar seamless gas cylinders (Transportable) for storage of Gaseous Helium/ Gaseous Nitrogen. Water Volume of each cylinder 2000 Liters **with charging side 6.4mm bore and delivery side 12.0mm bore neck valves (As per Drawing:LSSF-CGS-Cylinder-01)**	50Nos		
2.	2000 Liters, 400 Bar seamless gas cylinders (Transportable) for storage of Gaseous Helium/ Gaseous Nitrogen. Water Volume of each cylinder 2000 Liters with **minimum neck valve bore of 26.0 mm on both charging and delivery side(As per Drawing: LSSF-CGS-Cylinder-01)**	8 Nos		
3.	Spare Valve: Charging side Cylinder Neck valve-Angle Valve (½" NPT (M) on cylinder side and ½" NPT (F) on the other side). (Cv 1.1 with DN6.4)	11Nos		
4.	Spare Valve: Delivery side Cylinder Neck valve – Angle Valve (3/4" NPT (M) on cylinder side and 1" BSPP (F)on the other side.)(Cv 2.4 with DN 12)	11Nos		
5.	Spare Valve: Delivery Side Vent valve – Straight way valve(½" NPT (M) on cylinder side and ½" NPT (F)on the other side.)(Cv 1.1 with DN6.4)	12Nos		
6.	Spare kits for Charging side Cylinder Neck valve-Angle Valve (for Sl.No. 3 of Table-5)	11kits		

Sl. No	Description	Quantity	Basic Cost/ Unit	Total Cost
	(one spare kit: Stem, Gland, 3 packings, packing ring			
7.	Spare kits for Delivery side Cylinder Neck valve – Angle Valve (for Sl.No 4 of Table-5) (one spare kit: Stem, Gland, 3 packings, packing ring	11kits		
8.	Spare kits for Delivery Side Vent valve – Straight way valve (for Sl.No. 5 of Table-5) (one spare kit: Stem, Gland, 3 packings, packing ring)	11kits		
9.	Spare Valve: Charging and Delivery side Cylinder Neck valve – Straight Valve (1 1/2" NPT (M) on cylinder side and 1 1/2" BSPP (F)/ 1 1/2" NPT (F) on the other side.) **(Minimum bore: 26.0 mm)**	2Nos		
10.	Spare kits **26.0mm bore valves** (one spare kit: Stem, Gland, packings, packing ring and any other applicable seals based on the selection of valves) (for Sl.No. 9 of Table-5)	2 kits		
11.	**Cost of TPI Charges**			
12.	**Packing Charges**			
13.	**Applicable Taxes if any**			
14.	**Transportation Charges**			

7. 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**.

8. Payment Terms:

Option-1:

100% payment within 30 days after receipt and acceptance of items at purchaser's (SDSC-SHAR, Sriharikota) site.

Option-2:

a. 20% of order value as advance against submission of Advance Bank Guarantee.
b. 10% of order value as advance upon submission of proof of proto type testing certificate and against submission of Advance Bank Guarantee
c. 60% of order value against receipt and acceptance of items at SDSC SHAR against Irrevocable Letter of Credit.
d. Balance 10% of order value after supplying of all the items at SDSC-SHAR and against submission of Performance Bank Guarantee.

Note: Supplier shall clearly indicate the quoted payment term (i.e. Option-1 or Option-2) in the techno-commercial bid.

i. Wherever advance payment is requested, Bank Guarantee from any commercial bank on Rs.200 non-judicial stamp paper should be furnished for the equivalent amount valid till completion of total scope of work plus 60 days.
ii. After drawl of advance payments, if the vendor/supplier is not supplying the material within the delivery schedule, the advance amount will be recovered and interest will be levied as per the MCLR of SBI plus 2% penal interest.
iii. In case of any delay attributable to the contractor/supplier in effecting the supply after the prescribed delivery date. Interest at MCLR of SBI will be charged for the period beyond the specified delivery date, on the amount of balance advance payment in addition to LD.
iv. Interest will be loaded for advance payments/stage payments as per the Base rate of RBI and will be added to the landed cost for comparison purpose.

9. Mode of Payment:

Bidders can submit the banker details and payments can be made through NEFT/RTGS/ECS through PFMS.

10. Mode of dispatch:

Mode of dispatch by Sea/Rail/Road.

11. 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.

12. Performance Bank Guarantee:

Performance Bank Guarantee for 3% of the order value should be furnished in the form of Bank Guarantee from nationalized/scheduled bank till warranty period (12 months) plus sixty days.

13. Security Deposit:

Security Deposit for 3% of the order value is mandatory. Party shall furnish the Security Deposit in the form of Bank Guarantee from nationalized/scheduled bank or by Demand Draft valid till completion of the contract period plus sixty days for faithful execution of the contract.

14. Combined Bank Guarantee:

Combined Bank Guarantee for performance bank guarantee & security deposit of 3% of the order valve should be furnished in the form of Bank Guarantee from nationalized/scheduled bank till warranty period plus sixty days **within 10 days from the receipt of PO**

15. Arbitration:

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.

Work under the Contract shall be continued by the CONTRACTOR 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.

In the event of any dispute(s) or difference(s) relating to the interpretation and application of the provisions of the commercial contracts between ISRO/SDSC SHAR & Central Public Sector Enterprises (CPSEs)/Port Trusts inter se and also between ISRO/SDSC SHAR & CPSEs and Government Departments/Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), such dispute(s) or difference(s) shall be taken by either party for resolution through the "Administrative Mechanism for Resolution of CPSEs Disputes (AMRCD)", as mentioned in the Office Memorandum F No. 4(1)/2013-DPE(GM)/FTS-1835 dated 22nd May, 2018 issued by the Director of the Department of Public Enterprises (DPE) under the Ministry of Heavy Industries and Public Enterprises, Government of India

16. GST

As per the Notification No. 6/2018-Central Tax (Rate) dt:25.01.2018 A(ix) S.No.243A as amended by Notification No.24/2018-Central Tax (Rate) Dt: 31.12.2018 b(viii) S.No.243B issued by Ministry of Finance (Dept. of Revenue) & Government of Andhra Pradesh, Revenue (Commercial Taxes-II) Department, G.O.MS.No. 93 Dated: 19-02-2018 A(ix) S.No.243A and as per the Notification No. 7/2018-Integrated Tax (Rate) dt:25.01.2018 A(ix) S.No.243A as amended by Notification No.25/2018-Integrated Tax (Rate) Dt: 31.12.2018 b(viii) S.No.243B issued by Ministry of Finance (Dept. of Revenue), SDSC SHAR is eligible to avail GST/IGST @5% for the procurements related to Scientific and technical instruments, apparatus, equipment, accessories, parts, components, spares, tools, mock ups and modules, raw material and consumables required for launch vehicles and satellites and payload. we will issue only End Use Certificate for availing GST/IGST @5%.

17. Customs duty

For imported items, as per Notification No. 50/2017Customs Dtd. 30/06/2017, Sl.No.539(A) as amended vide Notification No.05/2018 dt.25.01.2018 and vide Notification No.05/2025 dt.01.02.2025, Customs duty is "Nil" and IGST @ 5% is applicable at the time of import. Customs Duty Concession Certificate is required for claiming "Nil" Customs duty which will be issued by us(The Buyer) against submission of FE Invoice, Airway Bill/Bill of Lading etc.

18. Minimum Qualification criteria:

a. Tenderers should have satisfactorily executed the order for supply of gas cylinders involving complete manufacturing and supply during the last Five years ending with 31-03-2025 at least.

- Single order value not less than Rs. 15 Crores (or)
- Two orders of value not less than Rs. 10 Crores each. (or)
- Three orders of value not less than Rs. 6 Crores each.
- Details of the last five years purchase orders shall be submitted along with the offer for proof of above.

b. Tenderers should have average annual turnover for the last three years (FY:2022-23,2023-24 & 2024-25) of Rs.20 Crores.

c. The Bidders shall submit Profit & Loss Accounts, Balance Sheets duly certified by the auditor and IT returns for the last three financial years with

acknowledgement from IT Department up to last 3 years (ending with 31-03-2024). Necessary documents shall be submitted.

d. Purchaser reserves the right for evaluation of any bidder by visiting his manufacturing premises towards acceptance of the techno-commercial bid. The decision of the purchaser is final in this regard.

e. Solvency certificate for the current financial year from a scheduled bank for a value not less than Rs.1.0 crores.

f. **Party shall have previous manufacturing experience in supply of 2000 liters, 400 bar seamless gas cylinders with the proposed Rapid Closure with split ring and captive nut. Party shall produce the proof of previous executed orders as per the rapid closure with split ring and captive nut design**.

g. **Supplier should have PESO approved drawings for Rapid fit design for 400 bar.**

h. **Manufacturers of High pressure gas cylinders only shall submit the quote. Offers from dealers and traders are not acceptable. Party shall produce a proof that they are only manufacturers.**

i. **Manufacturing through sub vendors is not acceptable.**

19. General Technical Specifications:

1. Mechanical, Chemical test certificates for each heat/lot of the mother tube shall be submitted to SDSC SHAR for review and clearance
2. After receipt of the raw material (tubes) to the site, mechanical, chemical testing at approved lab, 100% UT and dimensional inspection shall be carried out as part of raw material acceptance for each heat/lot. Reports shall be sent to department for review.
3. Source details of tubes used for cylinder manufacturing shall be submitted prior to the commencement of manufacturing cylinder for approval.
4. All openings shall be suitably plugged to avoid damage/ contamination during transportation. Preservation pressure of 2 Bar with dry nitrogen gas shall be maintained during shipment in order to avoid entry of moisture/foreign particles during shipment.
5. The gas cylinders are proposed to be positioned horizontally. Vertical cylinders are not acceptable.
6. After the assembly of inlet, outlet, drain/vent valves, gauge shut off valve and pressure gauges to the Rapid Closure leak check of all threaded joints shall be carried out with 350…400 bar dry nitrogen gas.
7. Tentative QAP to be followed for the supply is enclosed as part of technical specifications in **Annexure**-II. However final QAP shall be mutually agreed and finalized. Party shall submit the QAP along with the Techno commercial bid.

8. Design standard, cylinder identification/serial no, year of manufacture, date of hydro test, hydro test pressure, water capacity, working pressure, material of construction, date of inspection and inspector's stamp, etc. shall be punched on the cylinder on either side of cylinder hemi sphere as per standard.
9. Schematic drawing of Gas cylinder with Rapid Closure (Refer Dwg No: LSSF-CGS-Cylinder-01) is enclosed. Party shall specify the material of construction of each item given in the drawing (Refer Dwg No: LSSF-CGS-Cylinder-01)
10. **WARRANTY**: The Equipment with accessories supplied shall be warranted for trouble free service of 12 months period from the date of receipt and acceptance. In case any defects noticed during the above period due to faulty design, poor workmanship, use of substandard materials etc., the same shall be rectified / replaced by party with free of cost within a reasonable period.

Annexure-II

20. Tentative Quality Assurance Plan (QAP)

S. No	CONTROL SUBJECT	ACCEPTANCE DOC./ STD.	RESPONSIBILITY			REMARKS
			MFR	TPI	SDSC	
1.	Raw material for making of Seamless tube – Chemical & Mechanical (Impact and Tensile tests) (1 No per Heat/Lot)	ISO 11120:2015(E)	R 100%	R 100%	R 100%	Raw Material test certificates from the tube manufacturer shall be provided to SDSC SHAR.
2.	Chemical composition and mechanical properties of seamless tubes at cylinder manufacturer premises (1 No per Heat/Lot)	ISO 11120:2015 (E)	P 100%	R 100%	R 100%	A specimen from each heat/lot of seamless tubes shall be lab tested by the cylinder manufacturer and report submitted to SDSC SHAR.
3.	Material Test certificates/performance reports for bought out items like valves, fittings, gauges, etc.	Test Certificates review	H 100%	R 100%	R 100%	
4.	Review and approval of design calculation as per design code and General Arrangement (GA) drawings of cylinders.	Design verification as per standard	H 100%	H 100%	H 100%	
5.	Approval of Fabrication drawings	Fabrication drawings review.	H 100%	H 100%	H 100%	
6.	Internal shot blasting	ISO 8501 – 1 Gr. B Sa 2	P 100%	W (100%)	R 100%	Activity report shall include parameters like air pressure, lance speed, cylinder rpm, details of the shots used and other relevant parameters.
7.	Compressed air cleaning	-	P 100%	W (100%)	R 100%	Removal of all loose particles and shot blasting remnants. Activity report shall include parameters like air pressure,

S. No	CONTROL SUBJECT	ACCEPTANCE DOC./ STD.	RESPONSIBILITY			REMARKS
			MFR	TPI	SDSC	
						duration of purging, post cleaning observations.
8.	Internal Surface roughness measurement	As per surface preparation of **Table-1**	P 100%	W (100%)	R 100%	
9.	Visual Inspection of Raw material Tubes	Surface to be free from rust, mill scales and any foreign particles	P 100%	W (100%)	R 100%	Refer note S.No.2
10.	Ultrasonic testing of raw material for defects	Annex B of ISO 11120:2015 (E)	P 100%	R (100%)	R 100%	UT reports to be provided to SDSC SHAR
11.	Tube cutting	As per cutting plan	P 100%	R 100%	R 100%	-
12.	One end neck forming	As per Drg	P 100%	R 100%	R 100%	-
13.	Other end neck forming	As per Drg	P 100%	R 100%	R 100%	-
14.	Heat treatment	ISO 11120 :2015 (E)	P 100%	W (100%)	R 100%	Heat treatment time-temperature chart along with calibration records of thermocouples to be provided to TPI for review
15.	Hardness check	ISO 11120:2015(E) CI.12.5.2	P 100%	W (100%)	R 100%	Report shall include values at all measured points on the cylinder along with diagram indicating grid and location. Refer note S.No.3 for procedure.
16.	Neck machining on both ends	As per Drg	P 100%	R 100%	R 100%	-
17.	Magnetic particle inspection on both domes/neck after heat treatment	ISO 11120:2015(E)	P 100%	W (100%)	R 100%	-
18.	Liquid penetrant examination on both domes/neck after heat treatment	ISO 11120:2015(E)	P 100%	W (100%)	R 100%	-

S. No	CONTROL SUBJECT	ACCEPTANCE DOC./ STD.	RESPONSIBILITY			REMARKS
			MFR	TPI	SDSC	
19.	Internal cleaning	ISO 8501-1 Grade B Sa2	P 100%	W (100%)	R 100%	For removal of chips and burrs and internal thread cleaning
20.	External cleaning	ISO 8501-1 Grade B Sa 2 1/2	P 100%	W (100%)	R 100%	For removal of chips and burrs
21.	Ultrasonic testing of cylinder for defect and wall thickness	ISO 11120:2015 (E)	P 100%	W (100%)	R (100%)	
22.	Water capacity & Mass	As per approved dwg. ISO 11120:2015 (E)	P 100%	W (100%)	R 100%	DM water(pH: 6-8, chloride content < 5ppm) to be used.
23.	Hydraulic/volumetric expansion test	ISO 11120:2015 (E) Permanent stretch/Total Expansion ratio, <5%	P 100%	W (100%)	W/R (100%)	DM water(pH: 6-8, chloride content < 5ppm) to be used. Calculations of permanent stretch to be provided to SDSC SHAR for review
24.	Cylinder drying	-	P 100%	W (100%)	R 100%	Refer note S.No.4
25.	Internal shot blasting	ISO 8501-1 Grade B Sa2	P 100%	R 100%	R 100%	Two runs of shot blasting through either ends of the cylinder. Activity report shall include parameters like air pressure, lance speed, cylinder rpm, details of the shots used and other relevant parameters.
26.	Compressed air cleaning	ISO 8501-1 Grade B Sa2	P 100%	R 100%	R 100%	Removal of all loose particles and shot blasting remnants. Activity report shall include parameters like air pressure, duration of purging, post cleaning observations.

S. No	CONTROL SUBJECT	ACCEPTANCE DOC./ STD.	RESPONSIBILITY			REMARKS
			MFR	TPI	SDSC	
27.	External shot blasting	ISO 8501-1 Grade B Sa 2 1/2	P 100%	R 100%	R 100%	-
28.	Surface roughness measurement	As per standard/Specification	P 100%	R 100%	R 100%	On both Internal and external surfaces.
29.	Visual inspection before rapid closure assembly	Surface to be free from rust, mill scales and any foreign particles	P 100%	W (100%)	R 100%	Refer note S.No.2
30.	Dimensional inspection (including thickness measurement)	-	P 100%	W (100%)	R 100%	
31.	Data stamping	As per applicable standard	P 100%	W (100%)	R 100%	
32.	Tare weight (Mass check)	As per applicable standard	P 100%	W (100%)	R 100%	
33.	Thread cleaning	As per Specification	P 100%	W (100%)	R 100%	Threads shall be free from burrs and other deposits. Threads shall be cleaned with solvents before mating the neck cap fittings.
34.	Assembly of rapid closure	As per Specification	P 100%	W (100%)	R 100%	O-rings, retainers used shall be dimensionally and visually inspected prior to assembly. Ensure anti-galling compound is applied on threads during assembly.
35.	Painting	As per Specification	P 100%	W (100%)	R 100%	
36.	Pneumatic leak check and Dew point Measurement	As per Specification	P 100%	W (100%)	W/R (100%)	Pneumatic leak check with associated flow components at 350…400 Bar with dry air (Dew Point of Air is better than -

S. No	CONTROL SUBJECT	ACCEPTANCE DOC./ STD.	RESPONSIBILITY			REMARKS
			MFR	TPI	SDSC	
						55°C). Dew Point/Moisture measurement after pneumatic leak check.
37.	Pre-shipment inspection	As per Specification	P 100%	W (100%)	R 100%	Refer note S.No.6
38.	Nitrogen Filling & packing	Cylinders to be filled to >2 bar. Moisture level < 20 ppm. (Dew Point of Air is better than -55°C)	P 100%	W (100%)	R 100%	Moisture level and Leak rate assessed over 24 hrs min. at filled pressure to be recorded. Leak rate to be managed considering pressure drop during transit and ensuring min. pr of 2bar inside cylinders at the time of delivery at purchaser's site.

Note:	
1.	After completion of activities listed under sl. nos 1 to 9, test certificates, photographic records of visual inspection, activity reports and other relevant documents are to be provided to purchaser for review and obtaining approval to proceed with further manufacturing operations.
2.	Visual examination of internal surfaces during various stages of inspection shall be carried out using Boroscopic imaging system. The photographic record of the inspections shall be provided to purchaser for obtaining dispatch clearance.
3.	Hardness shall be measured and recorded at four diametrically opposed points in at least three circular cross-sections distributed over the whole length of each tube at intervals not greater than 3m. The results on each circular cross-section shall be within the minimum–maximum tensile strength range guaranteed by the manufacturer. The values may be plotted on a diagram to identify their position. The hardness value on a single location can be the result of the average of a maximum of three tests.
4.	Cylinder drying post hydrostatic/ Volumetric expansion test shall be done with dry hot air. Dry air shall be blown for duration of minimum 45 minutes each from both the ends of the cylinder and shall be continued till the surface is deemed to be dried. Activity report is to be

	generated that shall include parameters like temperature of dry air, moisture level, duration of operation and final observations
5.	Measurement sensors and any other equipment used in the manufacturing and inspection process such as load cells for weighing water during hydrostatic stretch tests, thermocouples during heat treatment, probes for ultrasonic testing should have the latest calibration done not more than 90 days from the date of process. The same shall be reviewed by TPI.
6.	Following documents/samples/records are to be provided to purchaser for obtaining dispatch clearance. 1. Heat treatment activity report 2. Hardness inspection report 3. Report on Mechanical properties on test samples extracted from sample drums 4. Duplicate test samples extracted from sample drums for verification by purchaser. 5. Magnetic particle inspection report 6. Liquid penetrant test report 7. Post heat treatment UT inspection report 8. Water capacity & Mass test 9. Hydraulic/volumetric expansion test 10. Cylinder drying activity report 11. Internal and External shot blasting activity reports 12. Surface roughness measurement report 13. Photographic records of Visual inspection of internal surfaces. 14. Dimensional inspection report. 15. Neck cap fittings assembly report. 16. Painting DFT measurement report. 17. Calibration records of the measurement sensors, equipment used for manufacturing and inspection such as load cells for weighing water during hydrostatic stretch tests, thermocouples used in heat treatment, probes for ultrasonic testing etc.
7.	SDSC SHAR reserves the right to have its representatives to participate at any stage of manufacturing & inspection process at the supplier's site.

Note:

1. Any other test as per ISO 11120 shall be specified by the supplier in the Techno Commercial bid. The same shall be incorporated in the QAP.

2. In case of cylinders manufactured outside India, all test certificates reviewed by TPI shall be submitted to the department at all stages for further processing. Department will give clearance at each stage for further processing.

Annexure-IV

Technical Compliance
(To be submitted by the bidder along with Technical Bid)

Tenderer shall furnish point-wise confirmation for the following. Change of specifications/ deviations (if any) shall be brought out in the offer with detailed justification.

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
1.	**Scope:** Design, manufacturing, assembly, inspection, testing, painting, packing and delivery of hot rolled seamless gas cylinders (Transportable) with cylinder neck valves and other accessories.	
2.	Medium to be stored(Gaseous Helium/ Gaseous Nitrogen)	
3.	**Design, construction, testing as per ISO 11120:2015 / DOT-3T**	
4.	**Material:** **Group III as per ISO 11120:2015** Party shall mention the material considered, chemical composition and mechanical properties.	
5.	Quantity of cylinders along with necessary adopters and flow components. **Total: 58 Nos** ✓ GHe Medium- 16 Nos (Charging side bore: Min- 6.4mm & Delivery side bore: Min 12.0mm) ✓ GN2 Medium- 34 Nos (Charging side bore: Min- 6.4mm & Delivery side bore: Min 12.0mm) ✓ GN2 Medium- 8 Nos (Charging side bore: Min- 26.0 mm & Delivery side bore: Min 26.0mm)	
6.	Source details of tubes (raw material) for manufacturing cylinders. The tubes to be used for gas cylinders manufacturing shall be procured from the suppliers like M/s Tenaris, Italy/ M/s Vallourec Deutschland GmbH/ M/s TubosReuniods, Spain. - **Party shall mention the exact source of the tube (raw material) for manufacturing cylinders.** If the bidder proposes sourcing the raw material (tubes) from sources other than that mentioned above, such details may be submitted in the bid. The decision of the department shall be final in regard to acceptance/rejection of the bidder based on such alternative manufacturers.	
7.	Configuration – Horizontal.	
8.	Service Operation - Transportable	
9.	Outside Diameter – **Dia 559 mm ±1%**	
10.	Operating Pressure - 400 bar	
11.	Operating temperature: -50 °C to +65 °C	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
12.	Hydro test Pressure – As per design code.	
13.	External Corrosion allowance –≥3 mm	
14.	Heat Treatment - As per Design Code. Thermocouples used for the process are to be periodically calibrated and TPI agency shall review the calibration records.	
15.	Minimum Wall thickness - As per design code + external corrosion allowance	
16.	Maximum Length of cylinder including assembly of neck valves – 12100mm - **To be specified by the party.**	
17.	Construction of cylinder- Cylinders shall be of seamless type	
18.	Water Volume - 2000 Liters minimum per Cylinder	
19.	Shape of Ends: Both ends shall be hemi spherical (without threads). Manufacturing Process shall be hot forging/hot spinning.	
End fittings		
20.	Rapid Closure with required porting for valves and gauges. **Refer Dwg No: LSSF-CGS-Cylinder-01.**	
21.	Both ends shall be suitable for fixing Rapid Closure and shall encompass sealing with 'O' rings and back up ring for easy dismantling and assembling of Rapid Closure for periodic inspection and testing. **Refer Dwg No: LSSF-CGS-Cylinder-01**	
22.	Rapid Closure shall be held with split ring internally and with hexagonal nut externally.	
23.	**Charging (Inlet) Side:** Rapid Closure shall have provision for mounting Charging valve, Pressure monitoring gauge and gauge shut off valve.	
24.	**Delivery (Outlet) Side:** Rapid Closure shall have provision for mounting delivery valve, drain/vent valve.	
Steel Work		
25.	All the individual cylinders (58 Nos) shall be mounted on Mounting Clamp frame on both sides. The Mounting Clamp frame section shall be suitably designed to withstand the load of 5 cylinders when they are arranged on the fixed concrete pedestal covered under the RCC roof. **Refer Dwg No: LSSF-CGS-Cylinder-02.**Cylinder Mounting Clamp frame section dimensions are given in **Dwg No: LSSF-CGS-Cylinder-04.**	
26.	Total 30 Nos of cylinder supporting structure blocks shall be supplied along with the cylinders. Cylinder supporting structure block drawing is enclosed**. Refer Dwg No: LSSF-CGS-Cylinder-03. Material of the cylinder support structure and Mounting Clamp frame section shall be carbon steel with Hot dip Galvanized finish.**	
27.	Each cylinder supporting structure block and shall be	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
	designed to withstand the combined load of 10 cylinders including fluid medium (GN2) and also related structural elements.	
28.	For shipping and installation purposes, the cylinders shall be fitted with 4 temporary bolted lifting lugs.	
29.	The Mounting clamp frame shall be shot blasted and then painted with same paint finish as that of cylinders after assembly of cylinders or galvanized finish as per the standard.	
	Surface Preparation:	
30.	The surface preparation of cylinders shall be in accordance with ISO 8501-1:2007 (or) latest.	
	On Internal surface	
31.	To be done at two stages of manufacturing. First stage surface preparation to be carried out on the received raw material (jumbo tubes) with shot blasting followed by air cleaning. This is to remove the rust, grinding marks, oxide deposits and scales adhering to the inner surfaces. The internal surface shall conform to Grade B Sa 2 having surface finish of 20 µm Ra.	
32.	Second stage surface preparation to be carried out post-Volumetric expansion testing with shot blasting followed by air cleaning. This is to remove oxide deposits and scales adhering to the inner surfaces formed during heat treatment.	
33.	Cleaning with compressed air shall be done in both stages and shall ensure the complete removal of loose particles and shots used for blasting from inside the cylinder.	
	On External surface	
34.	Surface preparation to be carried out post-Volumetric expansion testing with shot blasting followed by cleaning. This is to remove oxide deposits and scales adhering to the external surfaces formed during heat treatment. The external surface shall conform to Grade B Sa 2½ having surface finish of 15 µm Ra	
35.	The external surface preparation shall be followed by painting with 2 coats of Zinc primer and 2 coats of Polyurethane paint of 150µm layer thickness.	
	Colour - French Grey with black shoulder for nitrogen (42 Nos), mid brown for helium (16Nos).	
	Dry film thickness to be measured using a suitable coating thickness gauge (Calibrated).	
36.	The Cylinders shall be designed in accordance with design code, relevant documents shall be submitted to Chief Controller of Explosives, PESO, Nagpur, India by the supplier and approval shall be obtained by the supplier.	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
37.	Each cylinder shall be provided with a drain valve (vent valve) with dip tube arrangement at delivery side and cylinder neck valve on both sides. Pressure gauge with gauge shut-off valve shall be mounted on charging side of the cylinder. (**Refer Dwg No: LSSF-CGS-Cylinder-01)**	
38.	**Charging side Cylinder Neck valve – Angle Valve – (Helium: 16 Nos of Cylinders and Nitrogen: 34 Nos of Cylinders)(Charging side bore: Min- 6.4 mm).** ½" NPT (M) on cylinder side and ½" NPT (F) on the other side. Type - Angle Globe Valve. Cv 1.1 Bore – Ø 6.4mm Material: SS316Ti/Equivalent material Working Pressure : 400 Bar Make: M/s Haage Anagramm/Estanit, Haskell, Hale Hamilton – Party shall indicate the make of the valve.	
39.	**Delivery side Cylinder Neck valve – Angle Valve – (Helium: 16 Nos of Cylinders and Nitrogen: 34 Nos of Cylinders)(Delivery side bore: Min- 12.0 mm)** 3/4" NPT (M) on cylinder side and 1" BSPP (F) on other side. Type - Angle Globe Valve. Cv 2.4 Bore – Ø 12 mm Material: SS316Ti/Equivalent material Working Pressure : 400 Bar Make: M/s Haage Anagramm/Estanit, Haskell, Hale Hamilton – Party shall indicate the make of the valve..	
40.	**Charging and Delivery side Cylinder Neck valve – Straight Valve- (GN2 Medium- 08 Nos (Charging and delivery side bore: Min- 26.0 mm).** $1\frac{1}{2}$" NPT (M) on cylinder side and $1\frac{1}{2}$" BSPP (F)/ $1\frac{1}{2}$" NPT (F) on the other side. Type: Globe - straight way valve Cv 1.1 Bore – Ø26.0mm Make – M/s Orseal, UK or M/s Bonney Forge, USA - – Party shall indicate the make of the valve.	
41.	**Total No of Gas Cylinders – 58 Nos. Delivery side drain/vent valve, Gauge Shut off valve and Pressure Gauges for all 58 Nos of gas cylinders are given below.** ½" NPT (M) on cylinder side and ½" NPT (F) on the other side. CV : 1.1 Type: Globe- Straight way valve	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
	Pressure:400 Bar Material: SS316Ti/Equivalent material Min.Bore: Ø 6.4 mm Make: M/s Haage Anagramm/Estanit, Haskell, Hale Hamilton – Party shall indicate the make of the valve.	
42.	Gauge Shut off valve – Single Valve with Vent provision. Bore – Ø1.0mm – 4.0 mm Make – Kenmac/ Thompson/ Haage Anagramm/ DB Armatura/ Colsen X-cel/ Swagelok/parker - - Party shall indicate the make of the valve. Material: SS304/SS304L/SS316/SS316L End Connection- Inlet: ½" NPT (M) Outlet: ½" NPT/ ½" BSPP/ Metric (F) Working Pressure : 400 Bar	
43.	Pressure gauges for all 58 Cylinders 1. Bourdon type 2. Range:0-600 Bar 3. Dial Size – 4" Dial. 4. End Connection- M20 x 1.5 (M)/ ½" BSP (M)/ ½" NPT (M) 5. Material of construction- SS304/ SS304L/ SS316L/ SS316. 6. Accuracy- ±1.0% 7. Make- Wika	
44.	End Connections of the valves are tentative. Based on the selection of valves end connection will be finalized. However, the supplier has to maintain minimum PN rating and bore. Based on the selection of valves applicable seals shall be supplied as part of spare kits for indent sl.no:6, 7, 8 and 10.	
45.	If the bidder proposes new make of valves other than that mentioned above, such details may be submitted in the bid. The decision of the department shall be final in regard to acceptance/rejection of the bidder proposal on cylinder neck valves.	
46.	**TPI agency to be mentioned (Lloyds, B.I.E, TUV, BV,DNV).**	
47.	Review and approval of design calculation as per ISO 11120 and General Arrangement (GA) drawings of cylinders	
48.	Approval of drawings for fabrication	
49.	Heat treatment as per ISO11120 clause 6.3	
50.	Review of raw material test (Material used for making seamless tubes) certificates of seamless tubes for chemical and mechanical properties.	
51.	Identification of seamless tubes at cylinder	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
	manufacturer premises and sample testing (taken from each heat/lot of seamless tubes) for chemical and mechanical properties confirming to ISO 11120 at approved labs. Review and approval of the design calculations of structural elements in accordance with standard codes	
52.	Review of Material Test certificates/performance reports for bought out items like valves, fittings, gauges, etc.	
53.	**Visual Inspection:** Visual Inspection is to be performed in two stages during cylinder manufacturing. i. *First stage* of visual inspection to be performed after internal surface preparation done on the received raw material. ii. *Second stage* of visual inspection to be performed after internal and external surface preparation done on the Inner & outer surfaces of finished cylinders iii. Visual inspection in accordance with design code. iv. Visual inspection of internal surfaces during various stages of inspection shall be carried out using Boroscopic imaging system. The same shall be recorded as photographic evidence for obtaining clearances from purchaser.	
54.	The water capacity and tare mass of cylinders shall be checked in accordance with clause 11.5.3 of ISO 11120.	
55.	Wall thickness check to be carried out, confirming to clause 11.5.1 of ISO11120.	
56.	Magnetic Particle test to be carried out on the hemi-spherical ends after heat treatment in accordance with ISO 11120:2015(E) clause 8.2.	
57.	Dye Penetration Test shall be in accordance with ISO 11120:2015(E) CI.8.2.	
58.	Surface imperfections: The internal and external surfaces of the finished tube shall be free from imperfections. Surface imperfections shall be checked as per ISO 11120.	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
59.	Ultrasonic examination as per ISO 11120.	
60.	Hardness check is to be carried out for confirming the homogeneity of heat treatment in accordance with clause 11.3 of ISO 11120.	
61.	Volumetric expansion test shall be conducted as per clause 11.2.2 of ISO 11120 and the results calculated during the test as ratio of Permanent expansion to total expansion shall be less than 5%.	
62.	Cylinder drying post volumetric expansion test shall be done with dry hotair. Dry air shall be blown for duration of minimum 45 minutes each from both the ends of the cylinder and shall be continued till the surface is deemed to be dried. Activity report is to be generated that shall include parameters like temperature of dry air, moisture level, duration of operation and final observations.	
63.	Inside and External surface shot blasting	
64.	Dimensional inspection shall be carried out for thickness, diameter, length etc. according to clause 11.5 and conforming to the tolerance limits of out of roundness, straightness, eccentricity, etc. as per clause 8.5 of ISO 11120.	
65.	Pneumatic leak check with associated flow components at 350…400 Bar with dry air (Dew Point of Air is better than -55^0C). Dew Point/Moisture measurement after pneumatic leak check.	
66.	Any Other Standard Inspection as per the ISO 11120.	
67.	Certification of cylinders as per ISO 11120.	
68.	Issuance of Pre-Delivery Inspection (PDI) certificate and stamping on the cylinders.	
69.	Dispatch clearance report (After ensuring positive pressure – Minimum 2 Bar Dry Nitrogen Gas in the cylinders and closing of all openings of the cylinders).	
70.	Inspection at any stage of production of cylinder to ensure that the methodology employed for manufacturing is in compliance with the requirements of standard codes and practices and the approved	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
	documents.	
71.	Engaging and coordinating with TPI agency for inspection is the responsibility of supplier	
72.	Compliance for the Timeline for execution of activities after release of purchase order as given in table-2 of clause.no:4 of specifications in Annexure-I All the events as given in table -2 along with the approval from PESO, Nagpur shall be completed and the full quantity shall be supplied to SDSC SHAR within 12 months from the date of release of purchase order.	
73.	Specification for Cylinder neck valves and their spares for sl.no 3,4,5,6,7 and 8 of Table-3 (of Specification in Annexure-I) are typically extracted from M/s Haage Anagram/Estanit make. If the supplier proposes any other make valve, the specification shall be provided along with the offer.	
74.	Supplier shall submit the technical details like drawings of cylinder & data sheets of associated flow components along with the offer **without which the offer will not be considered.** **Documents to be submitted along with the offer**: • Basic cross-sectional drawing of the cylinder with associated flow components indicating the bill of materials (Material of construction of each item) • General arrangement drawing with cylinder , mounting clamp frame and cylinder supporting structure block on both sides with suitable bolting. • Design code considered, thickness calculation and test pressures. • Mechanical properties and chemical composition of the material of construction of cylinders.	
75.	The tenderer shall necessarily furnish the details of previously executed orders confirming the design, fabrication and delivery of 2 Cu.M & 400 Bar high pressure gas cylinders. **Non-compliance of this requirement shall lead to rejection of the offer.**	
76.	Tenderer need to furnish the details related to	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
	commercial terms indicating payment terms, name of Third Party Inspection Agency proposed etc.	
77.	Place of manufacturing shall be clearly indicated in the offer.	
78.	Bidder need to submit Un-priced price bid copy indicating the description of all the cost elements considered, without indicating the price. Tenderer shall note that indication of price in the techno-commercial bid shall lead to dis-qualification of bid.	
79.	The price bids will be opened only after evaluation and acceptance of the technical bid of the respective tenderer.	
80.	The quotation submitted shall be CFR Chennai Sea Port basis in case of foreign suppliers. For Indian Suppliers delivery terms shall be supply of cylinders to SDSC SHAR. It may be noted that unloading at SDSC-SHAR, Sriharikota will be carried out by SDSC SHAR with necessary equipment.	
81.	**Bid Evaluation Criteria: Total landed Cost at SDSC SHAR (Basic cost + TPI charges + Packing charges + Applicable taxes + Transportation charges to SDSC-SHAR) will be the basis for finalization of the Purchase order.**	
82.	**Due to interconnected nature of work scope, over all L1 will be selected towards awarding the order. Party shall submit the acceptance for the same.**	
83.	**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**.	
84.	**Payment Terms:** **Option-1:** 100% payment within 30 days after receipt	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
	and acceptance of items at purchaser's (SDSC-SHAR, Sriharikota) site. **Option-2:** a. 20% of order value as advance against submission of Advance Bank Guarantee. b. 10% of order value as advance upon submission of proof of proto type testing certificate and against submission of Advance Bank Guarantee c. 60% of order value against receipt and acceptance of items at SDSC SHAR against Irrevocable Letter of Credit. d. Balance 10% of order value after supplying of all the items at SDSC-SHAR and against submission of Performance Bank Guarantee. **Note:** Supplier shall clearly indicate the quoted payment term (i.e. Option-1 or Option-2) in the techno-commercial bid. i. Wherever advance payment is requested, Bank Guarantee from any commercial bank on Rs.200 non-judicial stamp paper should be furnished for the equivalent amount valid till completion of total scope of work plus 60 days. ii. After drawl of advance payments, if the vendor/supplier is not supplying the material within the delivery schedule, the advance amount will be recovered and interest will be levied as per the MCLR of SBI plus 2% penal interest. iii. In case of any delay attributable to the contractor/supplier in effecting the supply after the prescribed delivery date. Interest at MCLR of SBI will be charged for the period beyond the specified delivery date, on the amount of balance advance payment in addition to LD. iv. Interest will be loaded for advance payments/stage payments as per the Base rate of RBI and will be added to the landed cost for comparison purpose.	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
85.	**Mode of Payment:** Bidders can submit the banker details and payments can be made through NEFT/RTGS/ECS through PFMS.	
86.	**Mode of dispatch:** Mode of dispatch by Sea/Rail/Road.	
87.	**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.	
88.	**Performance Bank Guarantee:** Performance Bank Guarantee for 3% of the order value should be furnished in the form of Bank Guarantee from nationalized/scheduled bank till warranty period (12 months) plus sixty days.	
89.	**Security Deposit:** Security Deposit for 3% of the order value is mandatory. Party shall furnish the Security Deposit in the form of Bank Guarantee from nationalized/scheduled bank or by Demand Draft valid till completion of the contract period plus sixty days for faithful execution of the contract.	
90.	**Combined Bank Guarantee:** Combined Bank Guarantee for performance bank guarantee & security deposit of 3% of the order valve should be furnished in the form of Bank Guarantee from nationalized/scheduled bank till warranty period plus sixty days **within 10 days from the receipt of PO**	
91.	**Arbitration:** 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,	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
	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. Work under the Contract shall be continued by the CONTRACTOR 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. In the event of any dispute(s) or difference(s) relating to the interpretation and application of the provisions of the commercial contracts between ISRO/SDSC SHAR & Central Public Sector Enterprises (CPSEs)/Port Trusts inter se and also between ISRO/SDSC SHAR & CPSEs and Government Departments/Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), such dispute(s) or difference(s) shall be taken by either party for resolution through the "Administrative Mechanism for Resolution of CPSEs Disputes (AMRCD)", as mentioned in the Office Memorandum F No. 4(1)/2013-DPE(GM)/FTS-1835 dated 22nd May, 2018 issued by the Director of the Department of Public Enterprises (DPE) under the Ministry of Heavy Industries and Public Enterprises, Government of India	
92.	**GST** As per the Notification No. 6/2018-Central Tax (Rate) dt:25.01.2018 A(ix) S.No.243A as amended by	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
	Notification No.24/2018-Central Tax (Rate) Dt: 31.12.2018 b(viii) S.No.243B issued by Ministry of Finance (Dept. of Revenue) & Government of Andhra Pradesh, Revenue (Commercial Taxes-II) Department, G.O.MS.No. 93 Dated: 19-02-2018 A(ix) S.No.243A and as per the Notification No. 7/2018-Integrated Tax (Rate) dt:25.01.2018 A(ix) S.No.243A as amended by Notification No.25/2018-Integrated Tax (Rate) Dt: 31.12.2018 b(viii) S.No.243B issued by Ministry of Finance (Dept. of Revenue), SDSC SHAR is eligible to avail GST/IGST @5% for the procurements related to Scientific and technical instruments, apparatus, equipment, accessories, parts, components, spares, tools, mock ups and modules, raw material and consumables required for launch vehicles and satellites and payload. we will issue only End Use Certificate for availing GST/IGST @5%.	
93.	**Customs duty** For imported items, as per Notification No. 50/2017Customs Dtd. 30/06/2017, Sl.No.539(A) as amended vide Notification No.05/2018 dt.25.01.2018 and vide Notification No.05/2025 dt.01.02.2025, Customs duty is "Nil" and IGST @ 5% is applicable at the time of import. Customs Duty Concession Certificate is required for claiming "Nil" Customs duty which will be issued by us(The Buyer) against submission of FE Invoice, Airway Bill/Bill of Lading etc.	
General Technical Specifications:		
94.	Mechanical, Chemical test certificates for each heat/lot of the mother tube shall be submitted to SDSC SHAR for review and clearance	
95.	After receipt of the raw material (tubes) to the site, mechanical, chemical testing at approved lab, 100% UT and dimensional inspection shall be carried out as part of raw material acceptance for each heat/lot. Reports shall be sent to department for review.	
96.	Source details of tubes used for cylinder manufacturing shall be submitted prior to the commencement of manufacturing cylinder for approval.	
97.	All openings shall be suitably plugged to avoid damage/ contamination during transportation. Preservation pressure of 2 Bar with dry nitrogen gas shall be	

Sl. No	ISRO Description	Technical Compliance (To be filled by the party)
	maintained during shipment in order to avoid entry of moisture/foreign particles during shipment.	
98.	The gas cylinders are proposed to be positioned horizontally. Vertical cylinders are not acceptable.	
99.	After the assembly of inlet, outlet, drain/vent valves, gauge shut off valve and pressure gauges to the Rapid Closure leak check of all threaded joints shall be carried out with 350…400 bar dry nitrogen gas.	
100.	Tentative QAP to be followed for the supply is enclosed as part of technical specifications in Annexure-II. However final QAP shall be mutually agreed and finalized. Party shall submit the QAP along with the Techno commercial bid.	
101.	Design standard, cylinder identification/serial no, year of manufacture, date of hydro test, hydro test pressure, water capacity, working pressure, material of construction, date of inspection and inspector's stamp, etc. shall be punched on the cylinder on either side of cylinder hemi sphere as per standard.	
102.	Schematic drawing of Gas cylinder with Rapid Closure (Refer Dwg No: LSSF-CGS-Cylinder-01) is enclosed. Party shall specify the material of construction of each item given in the drawing (Refer Dwg No: LSSF-CGS-Cylinder-01).	
103.	WARRANTY: The Equipment with accessories supplied shall be warranted for trouble free service of 12 months period from the date of receipt and acceptance. In case any defects noticed during the above period due to faulty design, poor workmanship, use of substandard materials etc., the same shall be rectified / replaced by party with free of cost within a reasonable period.	

Annexure-V

Minimum Qualification Criteria
(To be submitted by the bidder along with Technical Bid)

The following are the minimum essential criteria to further validate/accept the bid. Vendor is requested to provide all the necessary support documents. In case of any deviation/non-compliances/ lack of supporting document, bid shall be summarily rejected.

Sl.No	Description	Vendor Compliance with supporting documents
1.	Tenderers should have satisfactorily executed the order for supply of gas cylinders involving complete manufacturing and supply during the last Five years ending with 31-03-2025 at least. i. Single order value not less than Rs. 15 Crores (or) ii. Two orders of value not less than Rs. 10 Crores each. (or) iii. Three orders of value not less than Rs. 6 Crores each. iv. Details of the last five years purchase orders shall be submitted along with the offer for proof of above.	
2.	Tenderers should have average annual turnover for the last three years (FY:2022-23,2023-24 & 2024-25) of Rs.20 Crores.	
3.	The Bidders shall submit Profit & Loss Accounts, Balance Sheets duly certified by the auditor and IT returns for the last three financial years with acknowledgement from IT Department up to last 3 years (ending with 31-03-2024). Necessary documents shall be submitted.	
4.	Purchaser reserves the right for evaluation of any bidder by visiting his manufacturing premises towards acceptance of the techno-commercial bid. The decision of the purchaser is final in this regard.	
5.	Solvency certificate for the current financial year from a scheduled bank for a value not less than Rs.1.0 crores.	
6.	**Party shall have previous manufacturing experience in supply of 2000 liters, 400 bar seamless gas cylinders with the proposed Rapid Closure with split ring and captive nut. Party shall produce the proof**	

Sl.No	Description	Vendor Compliance with supporting documents
	of previous executed orders as per the rapid closure with split ring and captive nut design.	
7.	**Supplier should have PESO approved drawings for Rapid fit design for 400 bar.**	
8.	**Manufacturers of High pressure gas cylinders only shall submit the quote. Offers from dealers and traders are not acceptable. Party shall produce a proof that they are only manufacturers.**	
9.	**Manufacturing through sub vendors is not acceptable.**	
10.	Technical compliance to the specifications shall be wetted by the bidder.	
11.	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	
12.	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 document, will be summarily rejected	
13.	Offers of those bidders taking full scope of the work as per the requirements indicated in the document only will be considered.	
14.	**Due to interconnected nature of work scope, over all L1 will be selected towards awarding the order. Party shall submit the acceptance for the same.**	

	SIGNATURE	:	
	NAME	:	
	DESIGNATION	:	
SEAL OF THE COMPANY	DATE	:	

Annexure-VI

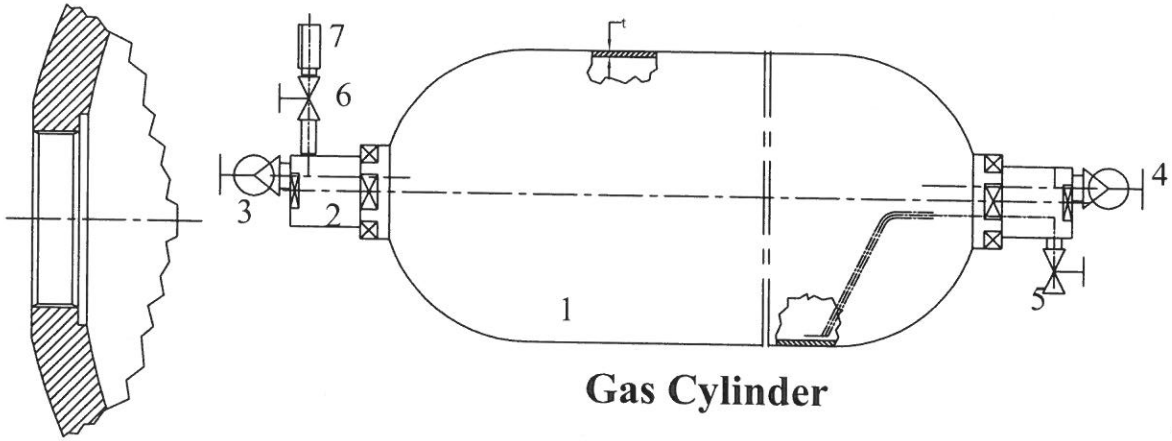
Bid Evaluation Criteria

(To be submitted by the bidder along with Technical Bid)

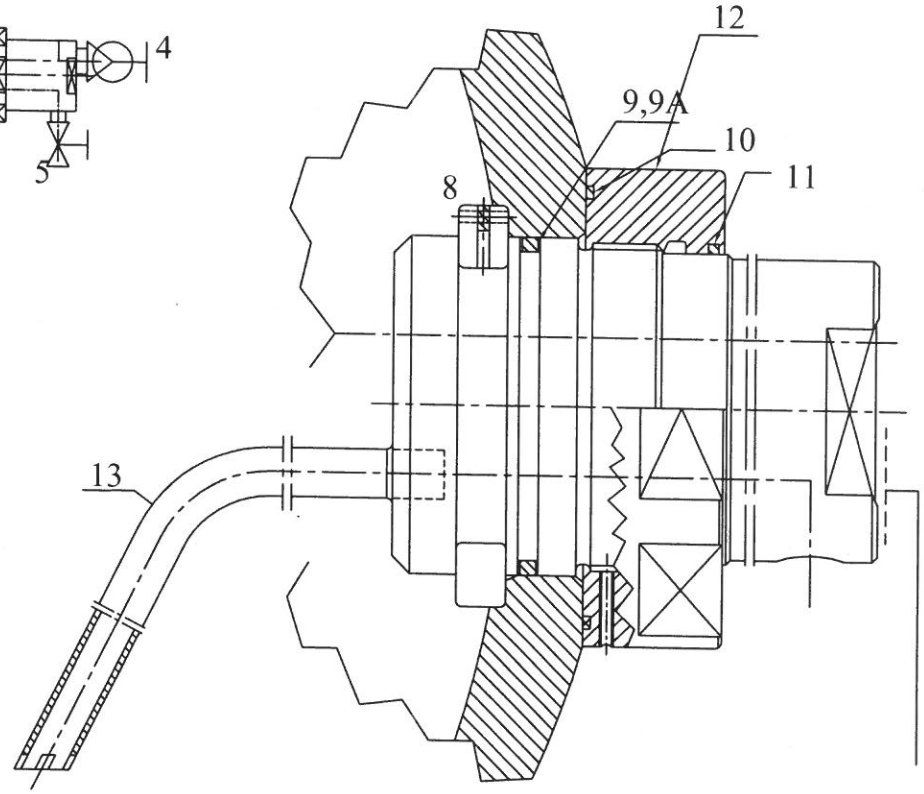
Sl. No	Description	Vendor Compliance with supporting documents
1.	In respect of Two-Bid system, the technical Bids forwarded by the Bidders will be evaluated by the Department with reference to the technical specifications as mentioned in the Annexure-I. The compliance of Technical Bids would be determined on the basis of the parameters specified in the Annexure-I. The Price Bids of only those Bidders will be opened whose Technical Bids would clear the technical evaluation	
2.	During evaluation, SDSC SHAR may request Bidder for any additional clarification/document on the bid, if required	
3.	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)	
4.	The time schedule for completion is given in the Proposal document. Bidder is required to confirm the completion period unconditionally	
5.	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	
6.	Considering the nature of work scope, Overall L1 will be considered towards awarding the contract, split order is not envisaged.	
7.	Purchaser reserves the right for evaluation of any bidder by visiting his manufacturing premises towards acceptance of the techno-commercial bid. The decision of the purchaser is final in this regard	

	SIGNATURE	:	
	NAME	:	
	DESIGNATION	:	
SEAL OF THE COMPANY	DATE	:	

Annexure-III



Gas Cylinder



End closure and its arrangeent in the cylinder

S.N	Description	Qty	Material of Construction to be specified by party
13.	Dip Tube	1	
12.	Captive Nut on End closure	2	
11.	Seal ring-O-ring	2	
10.	Seal ring-O-ring	2	
9A.	Back up Ring	2	
9.	Seal ring-O-ring	2	
8.	Split Ring/ Standard Design by Manufacturer	2	
7.	Pressure Gauge	1	
6.	Gauge shut off Valve	1	
5.	Drain/Vent Valve(1/2"Straight way globe valve)	1	
4.	Delivery Valve (3/4" angle globe Valve)	1	
3.	Charging Valve(1/2" Angle globeValve)	1	
2.	End Closure	2	
1.	Cylinder (2000Ltr WC)	1	

BILL OF MATERIALS

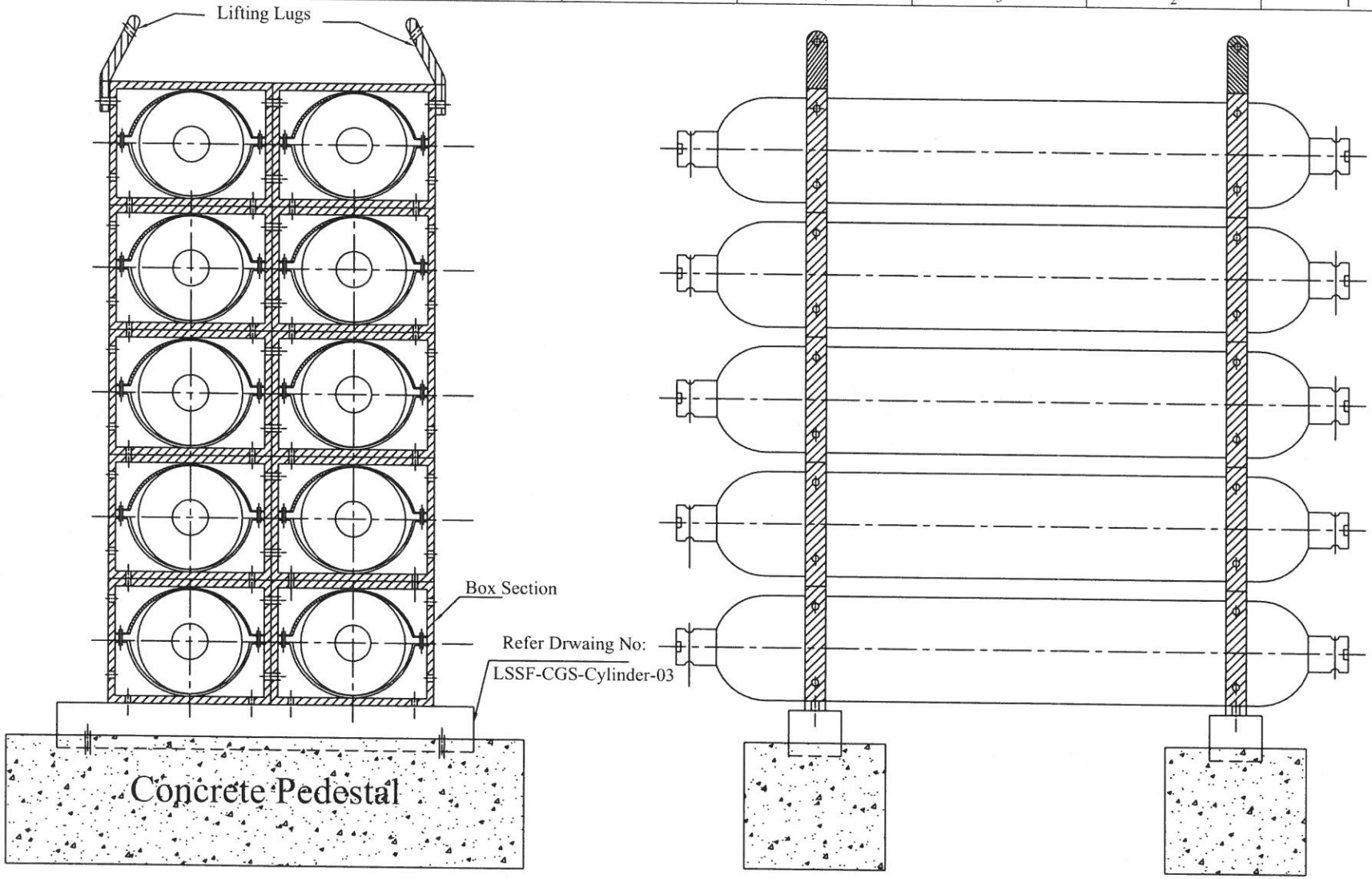
Note:

1. Overall Arrangement of Gas Cylinder with other accessories are shown.
2. Supplier shall submit all the drawings (1. Standard end adaptor charging and delivery side with dip tube arrangement and other flow components)

		NAME	DT
SATISH DHAWAN SPACE CENTRE SHAR	DESIGNED		
	DRAWN		14/06/2021
	REVIEWED		

TITLE :Gas cylinder with end closure (2000L WC)

SCALE: NTS	DIM : mm	MATERIAL:	Qty:	DRAWING NO: LSSF-CGS-Cylinder-01
	CGS/LSSF			REV 00 SHEET 1 OF 1



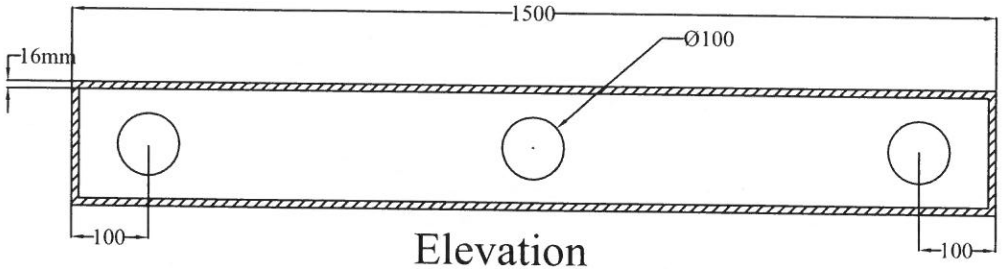
Note:

1. Box Section Refer Drwaing No: LSSF-CGS-Cylinder-04
2. Cylinder Supporting Block Refer Drwaing No: LSSF-CGS-Cylinder-03

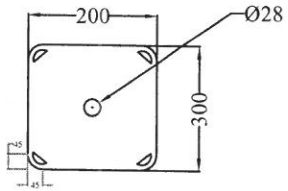
		NAME	DT
SATISH DHAWAN SPACE CENTRE SHAR	DESIGNED		
	DRAWN		23/10/2020
	REVIEWED		

TITLE :Arrangment of Gas Cylinders scheme

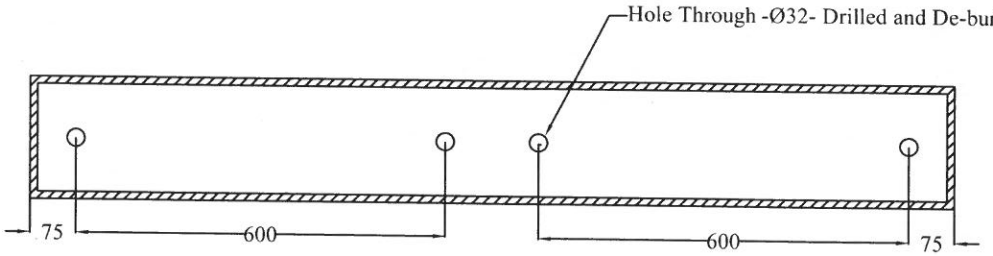
SCALE: NTS	DIM : mm	MATERIAL:	Qty:	DRAWING NO: LSSF-CGS-Cylinder-02
	CGS/LSSF			REV 00 SHEET 1 OF 1



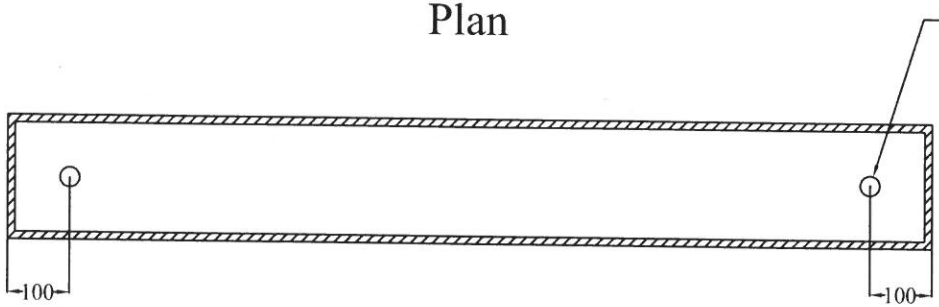
Elevation



Side View



Plan



Bottom View

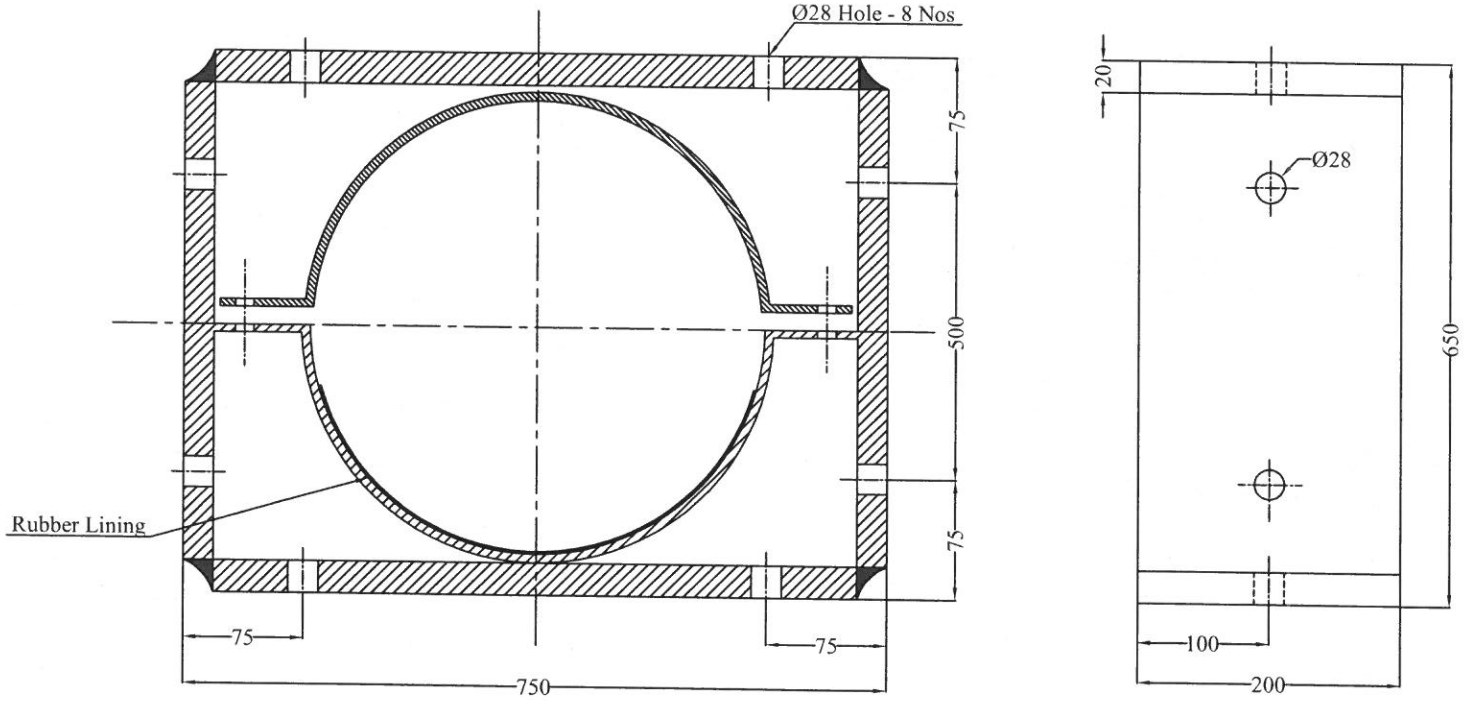
NOTE:

1. Material of the cylinder support structure and Box section material shall be Carbon steel Hot dip galvanised.
2. Party shall indicate the material in their offer.
3. Minimum Thickness of 16mm mentioned in the cylinder support structure. However supplier shall carry out the design calculations and if design calls for higher thick ness same shall be provided.

		NAME	DT
इसरो ISRO SATISH DHAWAN SPACE CENTRE SHAR	DESIGNED		
	DRAWN		16/03/20
	REVIEWED		

TITLE :Cylinders supporting structure block

SCALE: NTS	DIM : mm	MATERIAL:	Qty: 01	DRAWING NO: LSSF-CGS-Cylinder-03
	CGS/LSSF			REV 01 SHEET 1 OF 1



1. Material of the cylinder support structure and Box section material shall be Carbon steel Hot dip galvanised.
2. Party shall indicate the material in their offer.

NOTE:

1. Material of the cylinder support structure and Box section material shall be Carbon steel Hot dip galvanised.
2. Party shall indicate the material in their offer.

SATISH DHAWAN SPACE CENTRE SHAR		NAME	DT
	DESIGNED		
	DRAWN		17/03/20
	REVIEWED		

TITLE :Cylinder Box section

SCALE: NTS	DIM : mm	MATERIAL:	Qty: 01	DRAWING NO: LSSF-CGS-Cylinder-04
	CGS/LSSF			REV 00 SHEET 1 OF 1