



Pakistan State Oil Company Limited

PSO House, Khayaban-e-Iqbal, Clifton, Karachi-75600, Pakistan
Telephone (021) 9203866-85 Fax (021) 9203796

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RFQ No	GF-19853YP	
DATE	29.07.2026	

REQUEST FOR QUOTATION

(THIS IS PRICE ENQUIRY-NOT AN ORDER)

SAP No.6100017603

Company PSO Dummy Vendor
PAKISTAN

QUOTATION REQUIRED

ON
(Date)

13.08.2026

BY
(Time)

Please quote your best price for all items of following specifications. Please read the instructions attached herewith Rs. _____ EARNEST MONEY %
PO/DD NO. _____

Title: Supply of LPG Composite Cylinders Capacity 10kg at PSO LPG Plant Korangi, Lahore, <(>&<)> Dhurnal.

S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
1	<u>LPG Composite Cylinder (10 KG)</u> Supply of locally Manufactured LPG Composite Cylinders from OGRA approved manufactured at LPG Plant Korangi 1. Purpose: Composite LPG Cylinders are used for storing Liquefied Petroleum Gas (Main constituent Propane and Butane) to be used in residential sector for the purpose of LPG usage in gaseous form as a fuel in burners, heaters etc. 2. Composition (Parts of Equipment) A single piece cylinder comprising of (a) Outer Casing (b) Pressure Vessel (c) bung/boss (d) Valve (e) Valve protection Shroud/Handle 3. General Description Composite LPG cylinder capacity: water capacity: 24 Litter 4. Outer body: High-Density Polyethylene (HDPE) outer jacket built based on a 3-part injection molding. (a) Bottom casing (b) Top casing (c) Ring 5. Material: LPG Composite cylinder shall be a three-layer cylinder made up of a blow-molded HDPE inner liner, covered/wrapped with fiber glass and epoxy resin to create a pressure vessel fitted with a HDPE outer jacket. Composite wrap material required for fiber and the matrix shall be specified by the manufacturer ideally in the cylinder drawing. Winding <(>&<)> curing procedure should be defined as per Clauses 4.3.2 <(>&<)> 4.3.3 BS EN 14427 for cylinders with liners <(>&<)> without liners respectively. Filament material must be commercial Type E Fiberglass. Filaments must	<u>Korangi</u> <u>(LPG)</u>	<u>EA</u>	800		



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	be tested in accordance to ASTM D 2343-79 <(>&<)> have minimum strand strength of 200,000 psi. Clause 4 (i) DOT SP 12706, 12 Revision or equivalent. Resin system must be thermoset, vinyl-ester bases resin. Resin must be tested on sample coupons representative of the composite overwrap in accordance with ASTM D 2344-67 for water boil test <(>&<)> have minimum shear strength of 13.8 MPa (2029 psi) Clause 4 (ii)DOT SP 12706, 12 Revision or equivalent. Threaded boss insert shall conform to BS EN 12165 or equivalent ISO standard, Clause 4 (iii) DOT SP 12706, 12 Revision or equivalent. All polymer base material must be of uniform <(>&<)> homogeneous in quality. All other material, components like SC valves, safety caps, etc. shall be procured from PSO approved sources only. A record of all material received along with batch Nos., test certificates, TPAI certificates for SC valves, etc. should be presented by the manufacturer 6. Size: Diameter: 306 mm, Length: 580mm, Weight: 5.5kg OR equivalent to the water liter capacity 7. Technical Data: A) Composite LPG cylinders should be designed, manufactured <(>&<)> tested as per following: a) ISO 11119-3, 2013, 2nd Edition, 'Gas Cylinders - Refillable Composite Gas Cylinders <(>&<)> Tubes Part 3: Fully Wrapped. Fibre Reinforced Composite Gas Cylinders <(>&<)> Tubes up to 450 L with Non-Load-Sharing Metallic or Non-metallic Liners' b) BS EN 14427, 2014, 'LPG Equipment <(>&<)> Accessories - Transportable Refillable Fully Wrapped Composite Cylinders for LPG Design <(>&<)>					



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	Construction' c) DOT SP 12706, 12th Revision or equivalent, 'Pipeline <(>&<)> Hazardous Material Safety administration' B) Drawings a) The manufacturer shall prepare detailed dimensional design drawing of the cylinder fit for filling LPG having maximum service pressure of 294 psi (20 bars) with burst ratio of 2.25 (Clauses 4.4.1.4 BS EN 14427) for approval of PSO. b) The design drawing shall have dimensional tolerances including out of roundness <(>&<)> straightness, material specification <(>&<)> reinforcement patters, details of exterior coating and permanently fixed parts, hydro test pressure, minimum burst pressure, burst ratio and special limitations like boss thread checking method, used max torque for relief valve etc. (Clauses 4.4.1.1 to 4.4.1.5 BS EN 14427). c) Composite wrap material required for fiber, the matrix, winding <(>&<)> curing technical specification should be mentioned in the drawing or in a separate technical specification but referred in the Clauses BS EN 14427. d)Detailed dimensional drawing of the cylinder liner including specification for material, <(>&<)> material properties (min yield strength, min tensile strength <(>&<)> min elongation). Details of any exterior coating <(>&<)> other permanently fixed parts shall also be specified, Clause 4.4.1 BS EN 14427. More details on material are specified in Sub Section 'A3' below. e) All design calculations <(>&<)> drawings shall be presented/submitted to PSO for approval before execution of manufacturing process. C) Material Identification: a) For all required material, testing should be from accredited laboratories. Material Test Certificate (MTC) of supplier is acceptable if supplier is the manufacturer of the product <(>&<)> has got approval for the product marketing i.e. 'certificate of conformance' from the 'material manufacturer' will be considered acceptable for the purpose of verification.					



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	b) MTCs should have "clear identification" as to which part of the cylinder the raw material tested mentioned in MTC is to be used for. However, PSO reserves the right to get the material tested independently at vendors' cost. c) Composite wrap material required for fiber and the matrix shall be specified by the manufacturer ideally in the cylinder drawing. Winding <(>&<)> curing procedure should be defined as per Clauses 4.3.2 <(>&<)> 4.3.3 BS EN 14427 for cylinders with liners <(>&<)> without liners respectively. d) Filament material must be commercial Type E Fiberglass. Filaments must be tested in accordance to ATM D 2343-79 <(>&<)> have minimum strand strength of 200,000 psi. Clause 4 (1) DOT SP 12706, 12 Revision or equivalent. Resin system must be thermoset, epoxy resin bases resin. Resin must be tested on sample coupons representative of the composite overwrap in accordance with ASTM D 2344-67 for water boil test <(>&<)> have minimum shear strength of 13.8 MPa (2029 psi) Clause 4 (ii) DOT SP 12706, 12 Revision or equivalent. e) Threaded boss insert shall conform to BS EN 12165 or equivalent ISO standard, Clause 4 (iv) DOT SP 12706, 12 Revision or equivalent. f) All polymer base material must be of uniform <(>&<)> homogeneous in quality. g) All other material, components like SC valves, safety caps, etc. shall be procured from PSO approved sources only. A record of all material received along with batch Nos., test certificates, TPAI certificates for SC valves, etc. should be presented by the manufacturer. D) Lot Size: a) A lot size means a group of cylinders successively produced from qualified lines having same size and configuration and the same process of manufacturing to the same cylinder specification Clause 6, DOT SP 12706, 12 Revision or equivalent. E) Cylinder Manufacturing:					



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	a) Liner <(>&<)> metal bosses where incorporated, shall be manufactured in accordance with the cylinder manufacturer's design as per Clause 7.2.2 ISO 11119-3 b) Composite cylinder shall be fabricated from a non-load sharing liner or fabricated on a disposable mandrel, fully wrapped with layers of continuous fiber in a matrix applied under controlled tension to develop the design composite thickness, Clause 7.2.3 ISO 11119-3. c) Composite Overwrap: Material required for fibre <(>&<)> the matrix (binder to hold fibres in place) shall be specified by the cylinder manufacturer d) Where a matrix system is used following additional parameters should be defined <(>&<)> monitored Clause 4.3.2.3 BS EN 14427: (i) Percentage of composite matrix; (ii) Resin bath temperature range; (iii) Procedure used to get correct impregnation; (iv) Polymerization cycle; (v) Polymerization process e) A Type 4, fully wrapped composite cylinder with non-load sharing metallic or non-metallic liner shall comprise of following (Clause 7.1.1 ISO 11119-3): (i) An internal metal or non-metal liner; (ii) Metallic boss or bosses for thread connections where these are part of the design; (iii) A composite overwrap formed by layers of continuous fibers in a matrix; (iv) External protection system (optional) f) Winding: Procedure shall be defined by the cylinder manufacturer. g) For all cylinders following parameters shall be defined <(>&<)> monitored during manufacturing: (i) Batch no of fibers used; (ii) No of strands used; (iii) Winding tension per strand (if applicable); (iv) Winding speed; (v) Winding angle and/or pitch for each layer; (vi) No					



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	<(>&<)> order of layers h) Cylinders shall be designed with one or two openings along the central axis only. Threads shall extend completely through the neck or have sufficient threads to allow full engagement of the cylinder valve. i) Thickness of the cylinders including the liner shall be determined by satisfactory completion of Performance Tests described in Section 'C' below <(>&<)> as per Clause 5 <(>&<)> Clause 4.1.1 BS EN 14427. h) Cylinders may also include an external coating and/or additional parts such as valve shroud / handles, bases <(>&<)> cages. Whereas these are an integral part of the design, they shall be permanently fixed to the cylinder such that they cannot be removed during service without destroying them or by special tools, Clause 4.1.1, BS EN 14427. j) Locations of all service opening / connections shall be restricted to one end of the cylinder. The center line of the openings must coincide with longitudinal axis of the cylinder. k) For QA/QC batch inspection of liners, each batch shall be dimensionally checked during fabrication to ensure compliance with the design specification (<(>&<)> approved drawing) Clause 9.1.1 ISO 11119-3, in accordance with manufacturer's QA procedure for: (i) Visual inspection for external <(>&<)> internal surface finish; (ii)Dimensions; (iii) Minimum wall thickness; (iv) Water capacity; (v) Weight; (vi) Thread conformity l) Internal pressurization to 'autofrettage' (pressure application which strains the metallic liner past its yield point sufficiently to cause permanent plastic deformation results in liner having compressive stress <(>&<)> the fibres having tensile stress when at zero internal gauge pressure) to form liner a part of cylinder shall be done after polymerization or consolidation of process for thermoplastics, Clause 4.4.3 BS EN 14427. m) Internal <(>&<)> external surfaces of the cylinder shall be clean and free of defects which could adversely affect safe working. In addition, there shall be no visible foreign matter present inside the cylinder e.g. resin, swarf or other debris. n) Where necking ring is provided it shall be compatible to the cylinder					



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	material <(>&<)> securely attached by method appropriate to cylinder or boss material as per Clause 5.2.18 BS EN 14427. o) Stability: Cylinder allowed vertical variation is less than 1% of the height. While outer diameter of the surface in contact with ground shall be greater than 75% of the nominal outside diameter, Clause 4.4.6 BS EN 14427. p) Total height of the cylinder should be maintained as per dimensions given in the drawing. q) Self-Closing (SC) Valves confirming to specifications of BS EN 14245-2010 (or latest) accompanied by test certificates shall be procured by the Manufacturers r) At the time of SC valve procurement, 3rd Party Inspection Company's (nominated by or approved by PSO) certificates for the valve shall be arranged <(>&<)> copies of same to be produced to PSO soon upon procurement <(>&<)> made part of QA/QC records. s) Fully wrapped composite LPG cylinders may also be manufactured without metallic liners, with cylinder bodies manufactured from two parts joined together with adhesive, Clause 4.3.3 BS EN 14427. CYLINDER VALVE: Make: As recommended by OGRA Body Material: Brass or non-sparking Outlet connection: 22 mm Working pressure: 260 psi Safety relief pressure: 375 psi Torque: 150 -170 NM Flow rate: 5 m3/min Threads: M 26X1.5 Compliance certificate: To be provided by bidder Bidder qualification: OGRA approved manufacturer Approvals/ Certifications/ Compliance: Third Party Inspection Agency (TPIA) Responsibility: (i) To be hired by					



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	PSO. shall determine <(>&<)> verify that all material conforms to the provisions of this document; (ii) For each raw material batch verify liner material to be within the specifications by analysis OR by obtaining the manufacturer's certificate. Manufacturer's certificate is acceptable when verified by check analyze in a sample from every raw material batch. TPIA shall also verify conformance filament <(>&<)> resin system components, refer Clause 3 (iii)DOT SP 12706; (iv) Verify winding process to assure that composite material is uniform, of required thickness and pattern and in accordance with the composite structure present in cylinders subjected to the design qualification tests; (v) Verify conformance of the complete cylinder with all requirements including markings, minimum liner thickness, condition inside liner, threads <(>&<)> other manufacturing process parameters mentioned above; (v) Witness all the tests <(>&<)> pressurizations, obtain copies of all test results <(>&<)> certifications, report volumetric capacity permanent expansion <(>&<)> completed cylinder weights; (vi) Record <(>&<)> report all checks, measurements, tests etc. as mentioned in this document; (vii) Furnish complete TPIA's report to the cylinder manufacturer <(>&<)> the client /Company. A) Testing a) For Production Tests the manufacturer shall provide following (Clause A4.2.1 BS EN 14427): (i) Testing certificates (ii) Material certificates stating the analyses of liner <(>&<)> composite materials; (iii) Certificate of compliance stating that the composite overwrap material meet the supply specification; (iv) Heat treatment document, as applicable; (v) Certificate covering NDT of liner, if applicable; (vi) Unique Serial Nos of the cylinders; (vii) Statement of the thread checking method used <(>&<)> results thereof. b) Hydrostatic Pressure (Proof) Test (Clause 5.2.4 BS EN 14427): (i)When cylinders are subjected to autofrettage, the hydraulic (proof)pressure test may immediately					



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	follow or be a part of autofrettage operation (ii) The test fluid shall be non-corrosive; (iii) The test should be carried out at ambient temperature; (iv) The pressure in the cylinder should be increased in a controlled rate until at least 435 psi (30 bar) is reached; (v) The cylinder shall remain at this pressure for at least 30 seconds; (vi) The tolerance of the applied test pressure shall be 0 to +3%; (vii) Criterion: The pressure shall remain steady. There shall be no leaks. After test, the cylinder shall show no visible signs of permanent deformation; (viii) Adequate <(>&<)> calibrated recording instruments must be used. c) Burst Test (Clause 5.2.5 BS EN 14427): (i) One cylinder taken at random out of each lot of 200 units must be subjected to cyclic pressurization test by hydrostatically pressurizing the composite cylinder. (ii) Burst test to be conducted on a test rig; (iii) Test to be conducted at ambient temperature <(>&<)> the temperature on the external surface shall be maintained at less than 50 Deg C; (iv) Rate of pressurization shall not exceed 145 psi (10 bar) per second; (v) Test duration shall at least be 40 seconds; (vi) Cylinder shall be pressurized at a controlled rate until failure i.e. leakage through pressure envelope or burst; (vii) Pressure against time curve or pressure against volume curve shall be plotted; (viii) Burst pressure shall be greater than or equal to the manufacturer's minimum specified designed burst pressure <(>&<)> not less than 980 psi (67.5 bars); (ix) The cylinder shall not leak below the design burst pressure. There shall be no fragmentation of the cylinder; (x) On failure to. Note: burst pressure, number of pieces, description of failure (brittle, ductile, etc.) <(>&<)> pressure/time curve or pressure/volume curve; (xi) Adequate <(>&<)> calibrated recording instruments must be used.					



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	NOTE: All cylinders subjected to Burst Test MUST be destroyed. d) Pressure Cycle Test (Clause 5.2.6 BS EN 14427): (i) One cylinder taken at random out of 1000 or less units for cyclic pressure test; (ii) Test to be carried out on attest rig where pressure can be increased or decreased at controlled rate <(>&<)> automatically suspend the test if/when cylinder fails; (iii) Cylinder to be subject to successive cyclic pressure reversals at upper cyclic pressure not less than 435 psi (30 bars) <(>&<)> lower not to exceed 43.5 psi (3 bars); (iv) Conditions outside the cylinder <(>&<)> surface temperature must not increase 50 Dec C during the entire test; (v) No of cycles reached in the test to failure must be recorded; (vi) The cylinder must withstand 12,000 cycles without leakage or damage; (vii) Parameters to monitor: Cylinder external surface temperature, no of cycles achieving upper cyclic pressure, minimum <(>&<)> maximum cyclic pressures, cycle frequency (cycles/min), test medium <(>&<)> mode(s) of failure; (viii) Adequate (<(>&<)> calibrated) recording instruments must be used. NOTE: The cylinder used for Cyclic Pressure Test shall be destroyed. e) Liner: shall comply with the approved design drawing of the prototype <(>&<)> the supply specifications. The inspection <(>&<)> tests for metallic <(>&<)> non-metallic liners are specified in Annexure 'A' attached at the end of this document. f) Records of all measurement / tests shall be maintained and presented by the manufacturer. g) Where the checks and tests result of a batch/lot are satisfactory, a Production Testing Certificate should be issued, typical certificate sample is attached at the end of this document Annexure 'D', B-5 Production Test Certificate. h) The test reports and inspection certificate will be provided with each consignment General Requirements					



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	MARKINGS Tare weight and other relevant data must be printed on the aluminum foil sticker and shall be pasted permanently on each cylinder Letter size for stamping of specifications: 25.4 mm. Letter size for painting of Tare weight 10 mm. a) All markings shall be done in line with specifications given in the approved drawings. Markings should be according to EN 14894. b) Manufacturer should mark their abbreviated name as approved. The markings shall be legible with uniform thickness, width and spacing. Size of marking must be at least 4 mm in height, if space permits. Same must be mentioned in the approved drawing as well. c) Serial Numbers should be unique for all cylinders ever supplied to PSO. Records of all Serial Numbers supplied to PSO must be maintained by manufacturer for all previous serial check before assigning new Serial Numbers for each Lot <(>&<)> its respective new lot(s). d) Tare Weight <(>&<)> Water Capacity shall only be marked after physical measurement. e) Each cylinder must be permanently marked (other than stamping in the filament wrap) in the epoxy coating on the side near the end of the cylinder containing the valve outlet f) Valve Serial No. <(>&<)> Identification Symbol (letters) DOT FRP 1 Standard, 1987, 'Basic Requirements for FRP Type 3FC Composite Cylinders': (i) Location of serial number to be just below or immediately following the DOT marking; (ii) Location of symbol to be just below or immediately following the serial no.; (iii) The symbol <(>&<)> the serial no must be those of the cylinder manufacturer; (iv) TPIA's official mark (if any) must be placed near the serial no.; (v) Date of Test (month <(>&<)> year) so placed that subsequent re-test dates can be easily added. SC VALVE FIXING (i) The internal surface of the cylinder must be thoroughly cleaned and dried before valve fitment. Internal cleaning of cylinders shall be done					



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2	using air, light. Magnet etc. so as to clean the Internal surface of the cylinders and remove all the foreign material, rust, water traces etc. (ii) SC valve boss thread shall be cleaned using matching tap <(>&<)> with soft wire brush before fixing the valve on the cylinder; (iii) The valve tightening torque must be within the range as mentioned in the approved drawing using properly calibrated torque wrench; (iv) Finished cylinder should be stacked vertically with safety cap fitted on valve; (v) Valve fitment area flooring should be free from dust, laid with concrete and rubber mats should be laid on concrete area for protection 3rd Party Inspection Stage inspection and Pre-delivery Inspection from a 3rd party inspector appointed by PSO, of the material, workmanship will be performed as per standard. PSO reserves the right to arrange Inspection and test of the goods or manufacturing processes at any stage at any of the premises of the supplier or its subcontractor(s) or at the point of delivery of the goods of final destination. Where conducted on the premises of the supplier or its sub-contractor(s), all reasonable facilities and assistance including access to drawings and production data shall be furnished to the inspectors at no charge to the Company. Such Inspection, however, shall not relieve the Supplier to fulfill the obligations under the purchase order/contract. If goods fail to meet the specification, the Company may reject them. The 3rd Party Inspector will furnish an Inspection reports for PSO, as per 3rd Party Inspection scope of work before delivery of cylinders. <u>LPG Composite Cylinder (10 KG)</u> Supply of locally Manufactured LPG Composite	<u>Lahore (LPG)</u>	<u>EA</u>	900		



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REQUEST FOR QUOTATION

(THIS IS PRICE ENQUIRY-NOT AN ORDER)

SAP No.6100017603

Company PSO Dummy Vendor
PAKISTAN

QUOTATION REQUIRED

ON
(Date)

13.08.2026

BY
(Time)

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Title: Supply of LPG Composite Cylinders Capacity 10kg at PSO LPG Plant Korangi, Lahore, <(>&<)> Dhurnal.

S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	Cylinders from OGRA approved manufactured at LPG Plant Lahore 1. Purpose: Composite LPG Cylinders are used for storing Liquefied Petroleum Gas (Main constituent Propane and Butane) to be used in residential sector for the purpose of LPG usage in gaseous form as a fuel in burners, heaters etc. 2. Composition (Parts of Equipment) A single piece cylinder comprising of (a) Outer Casing (b) Pressure Vessel (c) bung/boss (d) Valve (e) Valve protection Shroud/Handle 3. General Description Composite LPG cylinder capacity: water capacity: 24 Litter 4. Outer body: High-Density Polyethylene (HDPE) outer jacket built based on a 3-part injection molding. (a) Bottom casing (b) Top casing (c) Ring 5. Material: LPG Composite cylinder shall be a three-layer cylinder made up of a blow-molded HDPE inner liner, covered/wrapped with fiber glass and epoxy resin to create a pressure vessel fitted with a HDPE outer jacket. Composite wrap material required for fiber and the matrix shall be specified by the manufacturer ideally in the cylinder drawing. Winding <(>&<)> curing procedure should be defined as per Clauses 4.3.2 <(>&<)> 4.3.3 BS EN 14427 for cylinders with liners <(>&<)> without liners respectively. Filament material must be commercial Type E Fiberglass. Filaments must be tested in accordance to ASTM D 2343-79 <(>&<)> have minimum strand strength of 200,000 psi.					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	Clause 4 (i) DOT SP 12706, 12 Revision or equivalent. Resin system must be thermoset, vinyl-ester bases resin. Resin must be tested on sample coupons representative of the composite overwrap in accordance with ASTM D 2344-67 for water boil test <(>&<)> have minimum shear strength of 13.8 MPa (2029 psi) Clause 4 (ii)DOT SP 12706, 12 Revision or equivalent. Threaded boss insert shall conform to BS EN 12165 or equivalent ISO standard, Clause 4 (iii) DOT SP 12706, 12 Revision or equivalent. All polymer base material must be of uniform <(>&<)> homogeneous in quality. All other material, components like SC valves, safety caps, etc. shall be procured from PSO approved sources only. A record of all material received along with batch Nos., test certificates, TPAI certificates for SC valves, etc. should be presented by the manufacturer 6. Size: Diameter: 306 mm, Length: 580mm, Weight: 5.5kg OR equivalent to the water liter capacity 7. Technical Data: A) Composite LPG cylinders should be designed, manufactured <(>&<)> tested as per following: a) ISO 11119-3, 2013, 2nd Edition, 'Gas Cylinders - Refillable Composite Gas Cylinders <(>&<)> Tubes Part 3: Fully Wrapped. Fibre Reinforced Composite Gas Cylinders <(>&<)> Tubes up to 450 L with Non-Load-Sharing Metallic or Non-metallic Liners' b) BS EN 14427, 2014, 'LPG Equipment <(>&<)> Accessories - Transportable Refillable Fully Wrapped Composite Cylinders for LPG Design <(>&<)> Construction' c) DOT SP 12706, 12th Revision or equivalent, 'Pipeline <(>&<)> Hazardous Material Safety administration'					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	B) Drawings a) The manufacturer shall prepare detailed dimensional design drawing of the cylinder fit for filling LPG having maximum service pressure of 294 psi (20 bars) with burst ratio of 2.25 (Clauses 4.4.1.4 BS EN 14427) for approval of PSO. b) The design drawing shall have dimensional tolerances including out of roundness <(>&<)> straightness, material specification <(>&<)> reinforcement patters, details of exterior coating and permanently fixed parts, hydro test pressure, minimum burst pressure, burst ratio and special limitations like boss thread checking method, used max torque for relief valve etc. (Clauses 4.4.1.1 to 4.4.1.5 BS EN 14427). c) Composite wrap material required for fiber, the matrix, winding <(>&<)> curing technical specification should be mentioned in the drawing or in a separate technical specification but referred in the Clauses BS EN 14427. d) Detailed dimensional drawing of the cylinder liner including specification for material, <(>&<)> material properties (min yield strength, min tensile strength <(>&<)> min elongation). Details of any exterior coating <(>&<)> other permanently fixed parts shall also be specified, Clause 4.4.1 BS EN 14427. More details on material are specified in Sub Section 'A3' below. e) All design calculations <(>&<)> drawings shall be presented/submitted to PSO for approval before execution of manufacturing process. C) Material Identification: a) For all required material, testing should be from accredited laboratories. Material Test Certificate (MTC) of supplier is acceptable if supplier is the manufacturer of the product <(>&<)> has got approval for the product marketing i.e. 'certificate of conformance' from the 'material manufacturer' will be considered acceptable for the purpose of verification. b) MTCs should have "clear identification" as to which part of the cylinder the raw material tested mentioned in MTC is to be used for. However, PSO reserves the right to get the material tested independently					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	at vendors' cost. c) Composite wrap material required for fiber and the matrix shall be specified by the manufacturer ideally in the cylinder drawing. Winding <(>&<)> curing procedure should be defined as per Clauses 4.3.2 <(>&<)> 4.3.3 BS EN 14427 for cylinders with liners <(>&<)> without liners respectively. d) Filament material must be commercial Type E Fiberglass. Filaments must be tested in accordance to ATM D 2343-79 <(>&<)> have minimum strand strength of 200,000 psi. Clause 4 (1) DOT SP 12706, 12 Revision or equivalent. Resin system must be thermoset, epoxy resin bases resin. Resin must be tested on sample coupons representative of the composite overwrap in accordance with ASTM D 2344-67 for water boil test <(>&<)> have minimum shear strength of 13.8 MPa (2029 psi) Clause 4 (ii) DOT SP 12706, 12 Revision or equivalent. e) Threaded boss insert shall conform to BS EN 12165 or equivalent ISO standard, Clause 4 (iv) DOT SP 12706, 12 Revision or equivalent. f) All polymer base material must be of uniform <(>&<)> homogeneous in quality. g) All other material, components like SC valves, safety caps, etc. shall be procured from PSO approved sources only. A record of all material received along with batch Nos., test certificates, TPAI certificates for SC valves, etc. should be presented by the manufacturer. D) Lot Size: a) A lot size means a group of cylinders successively produced from qualified lines having same size and configuration and the same process of manufacturing to the same cylinder specification Clause 6, DOT SP 12706, 12 Revision or equivalent. E) Cylinder Manufacturing: a) Liner <(>&<)> metal bosses where incorporated, shall be manufactured in accordance with the cylinder manufacturer's design as per Clause 7.2.2 ISO 11119-3					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	b) Composite cylinder shall be fabricated from a non-load sharing liner or fabricated on a disposable mandrel, fully wrapped with layers of continuous fiber in a matrix applied under controlled tension to develop the design composite thickness, Clause 7.2.3 ISO 11119-3. c) Composite Overwrap: Material required for fibre <(>&<)> the matrix (binder to hold fibres in place) shall be specified by the cylinder manufacturer d) Where a matrix system is used following additional parameters should be defined <(>&<)> monitored Clause 4.3.2.3 BS EN 14427: (i) Percentage of composite matrix; (ii) Resin bath temperature range; (iii) Procedure used to get correct impregnation; (iv) Polymerization cycle; (v) Polymerization process e) A Type 4, fully wrapped composite cylinder with non-load sharing metallic or non-metallic liner shall comprise of following (Clause 7.1.1 ISO 11119-3): (i) An internal metal or non-metal liner; (ii) Metallic boss or bosses for thread connections where these are part of the design; (iii) A composite overwrap formed by layers of continuous fibers in a matrix; (iv) External protection system (optional) f) Winding: Procedure shall be defined by the cylinder manufacturer. g) For all cylinders following parameters shall be defined <(>&<)> monitored during manufacturing: (i) Batch no of fibers used; (ii) No of strands used; (iii) Winding tension per strand (if applicable); (iv) Winding speed; (v) Winding angle and/or pitch for each layer; (vi) No <(>&<)> order of layers h) Cylinders shall be designed with one or two openings along the central axis only. Threads shall extend completely through the neck or					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	have sufficient threads to allow full engagement of the cylinder valve. i) Thickness of the cylinders including the liner shall be determined by satisfactory completion of Performance Tests described in Section 'C' below <(>&<)> as per Clause 5 <(>&<)> Clause 4.1.1 BS EN 14427. h) Cylinders may also include an external coating and/or additional parts such as valve shroud / handles, bases <(>&<)> cages. Whereas these are an integral part of the design, they shall be permanently fixed to the cylinder such that they cannot be removed during service without destroying them or by special tools, Clause 4.1.1, BS EN 14427. j) Locations of all service opening / connections shall be restricted to one end of the cylinder. The center line of the openings must coincide with longitudinal axis of the cylinder. k) For QA/QC batch inspection of liners, each batch shall be dimensionally checked during fabrication to ensure compliance with the design specification (<(>&<)> approved drawing) Clause 9.1.1 ISO 11119-3, in accordance with manufacturer's QA procedure for: (i) Visual inspection for external <(>&<)> internal surface finish; (ii) Dimensions; (iii) Minimum wall thickness; (iv) Water capacity; (v) Weight; (vi) Thread conformity l) Internal pressurization to 'autofrettage' (pressure application which strains the metallic liner past its yield point sufficiently to cause permanent plastic deformation results in liner having compressive stress <(>&<)> the fibres having tensile stress when at zero internal gauge pressure) to form liner a part of cylinder shall be done after polymerization or consolidation of process for thermoplastics, Clause 4.4.3 BS EN 14427. m) Internal <(>&<)> external surfaces of the cylinder shall be clean and free of defects which could adversely affect safe working. In addition, there shall be no visible foreign matter present inside the cylinder e.g. resin, swarf or other debris. n) Where necking ring is provided it shall be compatible to the cylinder material <(>&<)> securely attached by method appropriate to cylinder or boss material as per Clause 5.2.18 BS EN 14427. o) Stability: Cylinder allowed vertical variation is less than 1% of the					



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Title: Supply of LPG Composite Cylinders Capacity 10kg at PSO LPG Plant Korangi, Lahore, <(>&<)> Dhurnal.

S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	height. While outer diameter of the surface in contact with ground shall be greater than 75% of the nominal outside diameter, Clause 4.4.6 BS EN 14427. p) Total height of the cylinder should be maintained as per dimensions given in the drawing. q) Self-Closing (SC) Valves confirming to specifications of BS EN 14245-2010 (or latest) accompanied by test certificates shall be procured by the Manufacturers r) At the time of SC valve procurement, 3rd Party Inspection Company's (nominated by or approved by PSO) certificates for the valve shall be arranged <(>&<)> copies of same to be produced to PSO soon upon procurement <(>&<)> made part of QA/QC records. s) Fully wrapped composite LPG cylinders may also be manufactured without metallic liners, with cylinder bodies manufactured from two parts joined together with adhesive, Clause 4.3.3 BS EN 14427. CYLINDER VALVE: Make: As recommended by OGRA Body Material: Brass or non-sparking Outlet connection: 22 mm Working pressure: 260 psi Safety relief pressure: 375 psi Torque: 150 -170 NM Flow rate: 5 m3/min Threads: M 26X1.5 Compliance certificate: To be provided by bidder Bidder qualification: OGRA approved manufacturer Approvals/ Certifications/ Compliance: Third Party Inspection Agency (TPIA) Responsibility: (i) To be hired by PSO. shall determine <(>&<)> verify that all material conforms to the provisions of this document; (ii) For each raw material batch verify liner material to be within the					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	specifications by analysis OR by obtaining the manufacturer's certificate. Manufacturer's certificate is acceptable when verified by check analyze in a sample from every raw material batch. TPIA shall also verify conformance filament <(>&<)> resin system components, refer Clause 3 (iii)DOT SP 12706; (iv) Verify winding process to assure that composite material is uniform, of required thickness and pattern and in accordance with the composite structure present in cylinders subjected to the design qualification tests; (v) Verify conformance of the complete cylinder with all requirements including markings, minimum liner thickness, condition inside liner, threads <(>&<)> other manufacturing process parameters mentioned above; (v) Witness all the tests <(>&<)> pressurizations, obtain copies of all test results <(>&<)> certifications, report volumetric capacity permanent expansion <(>&<)> completed cylinder weights; (vi) Record <(>&<)> report all checks, measurements, tests etc. as mentioned in this document; (vii) Furnish complete TPIA's report to the cylinder manufacturer <(>&<)> the client /Company. A) Testing a) For Production Tests the manufacturer shall provide following (Clause A4.2.1 BS EN 14427): (i) Testing certificates (ii) Material certificates stating the analyses of liner <(>&<)> composite materials; (iii) Certificate of compliance stating that the composite overwrap material meet the supply specification; (iv) Heat treatment document, as applicable; (v) Certificate covering NDT of liner, if applicable; (vi) Unique Serial Nos of the cylinders; (vii) Statement of the thread checking method used <(>&<)> results thereof. b) Hydrostatic Pressure (Proof) Test (Clause 5.2.4 BS EN 14427): (i)When cylinders are subjected to autofrettage, the hydraulic (proof)pressure test may immediately follow or be a part of autofrettage operation (ii) The test fluid shall be non-corrosive; (iii) The test should be carried out at ambient temperature; (iv) The pressure in the cylinder should be					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	increased in a controlled rate until at least 435 psi (30 bar) is reached; (v) The cylinder shall remain at this pressure for at least 30 seconds; (vi) The tolerance of the applied test pressure shall be 0 to +3%; (vii) Criterion: The pressure shall remain steady. There shall be no leaks. After test, the cylinder shall show no visible signs of permanent deformation; (viii) Adequate <(>&<)> calibrated recording instruments must be used. c) Burst Test (Clause 5.2.5 BS EN 14427): (i) One cylinder taken at random out of each lot of 200 units must be subjected to cyclic pressurization test by hydrostatically pressurizing the composite cylinder. (ii) Burst test to be conducted on a test rig; (iii) Test to be conducted at ambient temperature <(>&<)> the temperature on the external surface shall be maintained at less than 50 Deg C; (iv) Rate of pressurization shall not exceed 145 psi (10 bar) per second; (v) Test duration shall at least be 40 seconds; (vi) Cylinder shall be pressurized at a controlled rate until failure i.e. leakage through pressure envelope or burst; (vii) Pressure against time curve or pressure against volume curve shall be plotted; (viii) Burst pressure shall be greater than or equal to the manufacturer's minimum specified designed burst pressure <(>&<)> not less than 980 psi (67.5 bars); (ix) The cylinder shall not leak below the design burst pressure. There shall be no fragmentation of the cylinder; (x) On failure to. Note: burst pressure, number of pieces, description of failure (brittle, ductile, etc.) <(>&<)> pressure/time curve or pressure/volume curve; (xi) Adequate <(>&<)> calibrated recording instruments must be used. NOTE: All cylinders subjected to Burst Test MUST be destroyed. d) Pressure Cycle Test (Clause 5.2.6 BS EN 14427):					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	(i) One cylinder taken at random out of 1000 or less units for cyclic pressure test; (ii) Test to be carried out on attest rig where pressure can be increased or decreased at controlled rate <(>&<)> automatically suspend the test if/when cylinder fails; (iii) Cylinder to be subject to successive cyclic pressure reversals at upper cyclic pressure not less than 435 psi (30 bars) <(>&<)> lower not to exceed 43.5 psi (3 bars); (iv) Conditions outside the cylinder <(>&<)> surface temperature must not increase 50 Dec C during the entire test; (v) No of cycles reached in the test to failure must be recorded; (vi) The cylinder must withstand 12,000 cycles without leakage or damage; (vii) Parameters to monitor: Cylinder external surface temperature, no of cycles achieving upper cyclic pressure, minimum <(>&<)> maximum cyclic pressures, cycle frequency (cycles/min), test medium <(>&<)> mode(s) of failure; (viii) Adequate (<(>&<)> calibrated) recording instruments must be used. NOTE: The cylinder used for Cyclic Pressure Test shall be destroyed. e) Liner: shall comply with the approved design drawing of the prototype <(>&<)> the supply specifications. The inspection <(>&<)> tests for metallic <(>&<)> non-metallic liners are specified in Annexure 'A' attached at the end of this document. f) Records of all measurement / tests shall be maintained and presented by the manufacturer. g) Where the checks and tests result of a batch/lot are satisfactory, a Production Testing Certificate should be issued, typical certificate sample is attached at the end of this document Annexure 'D', B-5 Production Test Certificate. h) The test reports and inspection certificate will be provided with each consignment General Requirements MARKINGS Tare weight and other relevant data must be printed on the aluminum foil sticker and shall be pasted permanently on each cylinder Letter size for					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	stamping of specifications: 25.4 mm. Letter size for painting of Tare weight 10 mm. a) All markings shall be done in line with specifications given in the approved drawings. Markings should be according to EN 14894. b) Manufacturer should mark their abbreviated name as approved. The markings shall be legible with uniform thickness, width and spacing. Size of marking must be at least 4 mm in height, if space permits. Same must be mentioned in the approved drawing as well. c) Serial Numbers should be unique for all cylinders ever supplied to PSO. Records of all Serial Numbers supplied to PSO must be maintained by manufacturer for all previous serial check before assigning new Serial Numbers for each Lot <(>&<)> its respective new lot(s). d) Tare Weight <(>&<)> Water Capacity shall only be marked after physical measurement. e) Each cylinder must be permanently marked (other than stamping in the filament wrap) in the epoxy coating on the side near the end of the cylinder containing the valve outlet f) Valve Serial No. <(>&<)> Identification Symbol (letters) DOT FRP 1 Standard, 1987, 'Basic Requirements for FRP Type 3FC Composite Cylinders': (i) Location of serial number to be just below or immediately following the DOT marking; (ii) Location of symbol to be just below or immediately following the serial no.; (iii) The symbol <(>&<)> the serial no must be those of the cylinder manufacturer; (iv) TPIA's official mark (if any) must be placed near the serial no.; (v) Date of Test (month <(>&<)> year) so placed that subsequent re-test dates can be easily added. SC VALVE FIXING (i) The internal surface of the cylinder must be thoroughly cleaned and dried before valve fitment. Internal cleaning of cylinders shall be done using air, light. Magnet etc. so as to clean the Internal surface of the cylinders and remove all the foreign material, rust, water traces etc.					



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SAP No.6100017603

Company PSO Dummy Vendor
PAKISTAN

QUOTATION REQUIRED

ON
(Date)

13.08.2026

BY
(Time)

Please quote your best price for all items of following specifications. Please read the instructions attached herewith Rs. _____ EARNEST MONEY %
PO/DD NO. _____

Title: Supply of LPG Composite Cylinders Capacity 10kg at PSO LPG Plant Korangi, Lahore, <(>&<)> Dhurnal.

S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
3	(ii) SC valve boss thread shall be cleaned using matching tap <(>&<)> with soft wire brush before fixing the valve on the cylinder; (iii) The valve tightening torque must be within the range as mentioned in the approved drawing using properly calibrated torque wrench; (iv) Finished cylinder should be stacked vertically with safety cap fitted on valve; (v) Valve fitment area flooring should be free from dust, laid with concrete and rubber mats should be laid on concrete area for protection 3rd Party Inspection Stage inspection and Pre-delivery Inspection from a 3rd party inspector appointed by PSO, of the material, workmanship will be performed as per standard. PSO reserves the right to arrange Inspection and test of the goods or manufacturing processes at any stage at any of the premises of the supplier or its subcontractor(s) or at the point of delivery of the goods of final destination. Where conducted on the premises of the supplier or its sub-contractor(s), all reasonable facilities and assistance including access to drawings and production data shall be furnished to the inspectors at no charge to the Company. Such Inspection, however, shall not relieve the Supplier to fulfill the obligations under the purchase order/contract. If goods fail to meet the specification, the Company may reject them. The 3rd Party Inspector will furnish an Inspection reports for PSO, as per 3rd Party Inspection scope of work before delivery of cylinders. <u>LPG Composite Cylinder (10 KG)</u> Supply of locally Manufactured LPG Composite Cylinders from OGRA approved manufactured at LPG Plant Dhurnal	<u>Dhurnal</u> <u>(LPG)</u>	<u>EA</u>	1,300		



Pakistan State Oil Company Limited

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SAP No.6100017603

RFQ No GF-19853YP

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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	1. Purpose: Composite LPG Cylinders are used for storing Liquefied Petroleum Gas (Main constituent Propane and Butane) to be used in residential sector for the purpose of LPG usage in gaseous form as a fuel in burners, heaters etc. 2. Composition (Parts of Equipment) A single piece cylinder comprising of (a) Outer Casing (b) Pressure Vessel (c) bung/boss (d) Valve (e) Valve protection Shroud/Handle 3. General Description Composite LPG cylinder capacity: water capacity: 24 Litter 4. Outer body: High-Density Polyethylene (HDPE) outer jacket built based on a 3-part injection molding. (a) Bottom casing (b) Top casing (c) Ring 5. Material: LPG Composite cylinder shall be a three-layer cylinder made up of a blow-molded HDPE inner liner, covered/wrapped with fiber glass and epoxy resin to create a pressure vessel fitted with a HDPE outer jacket. Composite wrap material required for fiber and the matrix shall be specified by the manufacturer ideally in the cylinder drawing. Winding & curing procedure should be defined as per Clauses 4.3.2 & 4.3.3 BS EN 14427 for cylinders with liners & without liners respectively. Filament material must be commercial Type E Fiberglass. Filaments must be tested in accordance to ASTM D 2343-79 & have minimum strand strength of 200,000 psi. Clause 4 (i) DOT SP 12706, 12 Revision or equivalent. Resin system must be thermoset, vinyl-ester bases resin.					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	Resin must be tested on sample coupons representative of the composite overwrap in accordance with ASTM D 2344-67 for water boil test & have minimum shear strength of 13.8 MPa (2029 psi) Clause 4 (ii) DOT SP 12706, 12 Revision or equivalent. Threaded boss insert shall conform to BS EN 12165 or equivalent ISO standard<(>&<)> Clause 4 (iii) DOT SP 12706, 12 Revision or equivalent. All polymer base material must be of uniform & homogeneous in quality. All other material, components like SC valves, safety caps, etc. shall be procured from PSO approved sources only. A record of all material received along with batch Nos.<(>&<)> test certificates, TPAI certificates for SC valves, etc. should be presented by the manufacturer 6. Size: Diameter: 306 mm, Length: 580mm, Weight: 5.5kg OR equivalent to the water liter capacity 7. Technical Data: A) Composite LPG cylinders should be designed, manufactured <(>&<)> tested as per following: a) ISO 11119-3, 2013, 2nd Edition, 'Gas Cylinders - Refillable Composite Gas Cylinders & Tubes Part 3: Fully Wrapped. Fibre Reinforced Composite Gas Cylinders & Tubes up to 450 L with Non-Load-Sharing Metallic or Non-metallic Liners' b) BS EN 14427, 2014, 'LPG Equipment & Accessories - Transportable Refillable Fully Wrapped Composite Cylinders for LPG Design & Construction' c) DOT SP 12706, 12th Revision or equivalent, 'Pipeline <(>&<)> Hazardous Material Safety administration' B) Drawings					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	a) The manufacturer shall prepare detailed dimensional design drawing of the cylinder fit for filling LPG having maximum service pressure of 294 psi (20 bars) with burst ratio of 2.25 (Clauses 4.4.1.4 BS EN 14427) for approval of PSO. b) The design drawing shall have dimensional tolerances including out of roundness & straightness, material specification & reinforcement patterns, details of exterior coating and permanently fixed parts, hydro test pressure, minimum burst pressure, burst ratio and special limitations like boss thread checking method, used max torque for relief valve etc. (Clauses 4.4.1.1 to 4.4.1.5 BS EN 14427). c) Composite wrap material required for fiber, the matrix, winding & curing technical specification should be mentioned in the drawing or in a separate technical specification but referred in the Clauses BS EN 14427. d) Detailed dimensional drawing of the cylinder liner including specification for material, & material properties (min yield strength, min tensile strength & min elongation). Details of any exterior coating & other permanently fixed parts shall also be specified, Clause 4.4.1 BS EN 14427. More details on material are specified in Sub Section 'A3' below. e) All design calculations & drawings shall be presented/submitted to PSO for approval before execution of manufacturing process. C) Material Identification: a) For all required material, testing should be from accredited laboratories. Material Test Certificate (MTC) of supplier is acceptable if supplier is the manufacturer of the product & has got approval for the product marketing i.e. 'certificate of conformance' from the 'material manufacturer' will be considered acceptable for the purpose of verification. b) MTCs should have "clear identification" as to which part of the cylinder the raw material tested mentioned in MTC is to be used for. However, PSO reserves the right to get the material tested independently at vendors' cost. c) Composite wrap material required for fiber and the matrix shall be					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	specified by the manufacturer ideally in the cylinder drawing. Winding & curing procedure should be defined as per Clauses 4.3.2 & 4.3.3 BS EN 14427 for cylinders with liners & without liners respectively. d) Filament material must be commercial Type E Fiberglass. Filaments must be tested in accordance to ATM D 2343-79 & have minimum strand strength of 200,000 psi. Clause 4 (1) DOT SP 12706, 12 Revision or equivalent. Resin system must be thermoset, epoxy resin bases resin. Resin must be tested on sample coupons representative of the composite overwrap in accordance with ASTM D 2344-67 for water boil test & have minimum shear strength of 13.8 MPa (2029 psi) Clause 4 (ii) DOT SP 12706, 12 Revision or equivalent. e) Threaded boss insert shall conform to BS EN 12165 or equivalent ISO standard, Clause 4 (iv) DOT SP 12706, 12 Revision or equivalent. f) All polymer base material must be of uniform & homogeneous in quality. g) All other material, components like SC valves, safety caps, etc. shall be procured from PSO approved sources only. A record of all material received along with batch Nos., test certificates, TPAI certificates for SC valves, etc. should be presented by the manufacturer. D) Lot Size: a) A lot size means a group of cylinders successively produced from qualified lines having same size and configuration and the same process of manufacturing to the same cylinder specification Clause 6, DOT SP 12706, 12 Revision or equivalent. E) Cylinder Manufacturing: a) Liner & metal bosses where incorporated, shall be manufactured in accordance with the cylinder manufacturer's design as per Clause 7.2.2 ISO 11119-3 b) Composite cylinder shall be fabricated from a non-load sharing liner or fabricated on a disposable mandrel, fully wrapped with layers of continuous fiber in a matrix applied under controlled tension to develop					



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	the design composite thickness, Clause 7.2.3 ISO 11119-3. c) Composite Overwrap: Material required for fibre & the matrix (binder to hold fibres in place) shall be specified by the cylinder manufacturer d) Where a matrix system is used following additional parameters should be defined & monitored Clause 4.3.2.3 BS EN 14427: (i) Percentage of composite matrix; (ii) Resin bath temperature range; (iii) Procedure used to get correct impregnation; (iv) Polymerization cycle; (v) Polymerization process e) A Type 4, fully wrapped composite cylinder with non-load sharing metallic or non-metallic liner shall comprise of following (Clause 7.1.1 ISO 11119-3): (i) An internal metal or non-metal liner; (ii) Metallic boss or bosses for thread connections where these are part of the design; (iii) A composite overwrap formed by layers of continuous fibers in a matrix; (iv) External protection system (optional) f) Winding: Procedure shall be defined by the cylinder manufacturer. g) For all cylinders following parameters shall be defined <(>&<)> monitored during manufacturing: (i) Batch no of fibers used; (ii) No of strands used; (iii) Winding tension per strand (if applicable); (iv) Winding speed; (v) Winding angle and/or pitch for each layer; (vi) No & order of layers h) Cylinders shall be designed with one or two openings along the central axis only. Threads shall extend completely through the neck or have sufficient threads to allow full engagement of the cylinder valve. i) Thickness of the cylinders including the liner shall be determined by satisfactory completion of Performance Tests described in Section 'C'					



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S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	below & as per Clause 5 & Clause 4.1.1 BS EN 14427. h) Cylinders may also include an external coating and/or additional parts such as valve shroud / handles, bases & cages. Whereas these are an integral part of the design, they shall be permanently fixed to the cylinder such that they cannot be removed during service without destroying them or by special tools, Clause 4.1.1, BS EN 14427. j) Locations of all service opening / connections shall be restricted to one end of the cylinder. The center line of the openings must coincide with longitudinal axis of the cylinder. k) For QA/QC batch inspection of liners, each batch shall be dimensionally checked during fabrication to ensure compliance with the design specification (& approved drawing) Clause 9.1.1 ISO 11119-3, in accordance with manufacturer's QA procedure for: (i) Visual inspection for external & internal surface finish; (ii) Dimensions; (iii) Minimum wall thickness; (iv) Water capacity; (v) Weight; (vi) Thread conformity l) Internal pressurization to 'autofrettage' (pressure application which strains the metallic liner past its yield point sufficiently to cause permanent plastic deformation results in liner having compressive stress & the fibres having tensile stress when at zero internal gauge pressure) to form liner a part of cylinder shall be done after polymerization or consolidation of process for thermoplastics, Clause 4.4.3 BS EN 14427. m) Internal & external surfaces of the cylinder shall be clean and free of defects which could adversely affect safe working. In addition, there shall be no visible foreign matter present inside the cylinder e.g. resin, swarf or other debris. n) Where necking ring is provided it shall be compatible to the cylinder material & securely attached by method appropriate to cylinder or boss material as per Clause 5.2.18 BS EN 14427. o) Stability: Cylinder allowed vertical variation is less than 1% of the height. While outer diameter of the surface in contact with ground shall be greater than 75% of the nominal outside diameter, Clause 4.4.6 BS EN 14427.					



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	p) Total height of the cylinder should be maintained as per dimensions given in the drawing. q) Self-Closing (SC) Valves confirming to specifications of BS EN 14245-2010 (or latest) accompanied by test certificates shall be procured by the Manufacturers r) At the time of SC valve procurement, 3rd Party Inspection Company's (nominated by or approved by PSO) certificates for the valve shall be arranged & copies of same to be produced to PSO soon upon procurement & made part of QA/QC records. s) Fully wrapped composite LPG cylinders may also be manufactured without metallic liners, with cylinder bodies manufactured from two parts joined together with adhesive, Clause 4.3.3 BS EN 14427. CYLINDER VALVE: Make: As recommended by OGRA Body Material: Brass or non-sparking Outlet connection: 22 mm Working pressure: 260 psi Safety relief pressure: 375 psi Torque: 150 -170 NM Flow rate: 5 m3/min Threads: M 26X1.5 Compliance certificate: To be provided by bidder Bidder qualification: OGRA approved manufacturer Approvals/ Certifications/ Compliance: Third Party Inspection Agency (TPIA) Responsibility: (i) To be hired by PSO. shall determine & verify that all material conforms to the provisions of this document; (ii) For each raw material batch verify liner material to be within the specifications by analysis OR by obtaining the manufacturer's certificate. Manufacturer's certificate is acceptable when verified by check analyze					



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	in a sample from every raw material batch. TPIA shall also verify conformance filament & resin system components, refer Clause 3 (iii)DOT SP 12706; (iv) Verify winding process to assure that composite material is uniform, of required thickness and pattern and in accordance with the composite structure present in cylinders subjected to the design qualification tests; (v) Verify conformance of the complete cylinder with all requirements including markings, minimum liner thickness, condition inside liner, threads & other manufacturing process parameters mentioned above; (v) Witness all the tests & pressurizations, obtain copies of all test results <(>&<)> certifications, report volumetric capacity permanent expansion & completed cylinder weights; (vi) Record & report all checks<(>&<)> measurements, tests etc. as mentioned in this document; (vii) Furnish complete TPIA's report to the cylinder manufacturer & the client /Company. A) Testing a) For Production Tests the manufacturer shall provide following (Clause A4.2.1 BS EN 14427): (i) Testing certificates (ii) Material certificates stating the analyses of liner & composite materials; (iii) Certificate of compliance stating that the composite overwrap material meet the supply specification; (iv) Heat treatment document, as applicable; (v) Certificate covering NDT of liner, if applicable; (vi) Unique Serial Nos of the cylinders; (vii) Statement of the thread checking method used & results thereof. b) Hydrostatic Pressure (Proof) Test (Clause 5.2.4 BS EN 14427): (i)When cylinders are subjected to autofrettage, the hydraulic (proof)pressure test may immediately follow or be a part of autofrettage operation (ii) The test fluid shall be non-corrosive; (iii) The test should be carried out at ambient temperature; (iv) The pressure in the cylinder should be increased in a controlled rate until at least 435 psi (30 bar) is reached; (v) The cylinder shall remain at this pressure for at least 30 seconds; (vi) The tolerance of the applied test pressure shall be 0 to					



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	+3%; (vii) Criterion: The pressure shall remain steady. There shall be no leaks. After test, the cylinder shall show no visible signs of permanent deformation; (viii) Adequate (& calibrated) recording instruments must be used. c) Burst Test (Clause 5.2.5 BS EN 14427): (i) One cylinder taken at random out of each lot of 200 units must be subjected to cyclic pressurization test by hydrostatically pressurizing the composite cylinder. (ii) Burst test to be conducted on a test rig; (iii) Test to be conducted at ambient temperature & the temperature on the external surface shall be maintained at less than 50 Deg C; (iv) Rate of pressurization shall not exceed 145 psi (10 bar) per second; (v) Test duration shall at least be 40 seconds; (vi) Cylinder shall be pressurized at a controlled rate until failure i.e. leakage through pressure envelope or burst; (vii) Pressure against time curve or pressure against volume curve shall be plotted; (viii) Burst pressure shall be greater than or equal to the manufacturer's minimum specified designed burst pressure & not less than 980 psi (67.5 bars); (ix) The cylinder shall not leak below the design burst pressure. There shall be no fragmentation of the cylinder; (x) On failure to. Note: burst pressure, number of pieces, description of failure (brittle, ductile, etc.) & pressure/time curve or pressure/volume curve; (xi) Adequate (& calibrated) recording instruments must be used. NOTE: All cylinders subjected to Burst Test MUST be destroyed. d) Pressure Cycle Test (Clause 5.2.6 BS EN 14427): (i) One cylinder taken at random out of 1000 or less units for cyclic pressure test; (ii) Test to be carried out on attest rig where pressure can be increased or decreased at controlled rate & automatically suspend the test if/when cylinder fails; (iii) Cylinder to be subject to					



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	successive cyclic pressure reversals at upper cyclic pressure not less than 435 psi (30 bars) & lower not to exceed 43.5 psi (3 bars); (iv) Conditions outside the cylinder & surface temperature must not increase 50 Dec C during the entire test; (v) No of cycles reached in the test to failure must be recorded; (vi) The cylinder must withstand 12,000 cycles without leakage or damage; (vii) Parameters to monitor: Cylinder external surface temperature, no of cycles achieving upper cyclic pressure, minimum & maximum cyclic pressures, cycle frequency (cycles/min), test medium & mode(s) of failure; (viii) Adequate (& calibrated) recording instruments must be used. NOTE: The cylinder used for Cyclic Pressure Test shall be destroyed. e) Liner: shall comply with the approved design drawing of the prototype & the supply specifications. The inspection & tests for metallic & non-metallic liners are specified in Annexure 'A' attached at the end of this document. f) Records of all measurement / tests shall be maintained and presented by the manufacturer. g) Where the checks and tests result of a batch/lot are satisfactory, a Production Testing Certificate should be issued, typical certificate sample is attached at the end of this document Annexure 'D', B-5 Production Test Certificate. h) The test reports and inspection certificate will be provided with each consignment General Requirements MARKINGS Tare weight and other relevant data must be printed on the aluminum foil sticker and shall be pasted permanently on each cylinder Letter size for stamping of specifications: 25.4 mm. Letter size for painting of Tare weight 10 mm. a) All markings shall be done in line with specifications given in the approved drawings. Markings should be according to EN 14894.					



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	b) Manufacturer should mark their abbreviated name as approved. The markings shall be legible with uniform thickness, width and spacing. Size of marking must be at least 4 mm in height, if space permits. Same must be mentioned in the approved drawing as well. c) Serial Numbers should be unique for all cylinders ever supplied to PSO. Records of all Serial Numbers supplied to PSO must be maintained by manufacturer for all previous serial check before assigning new Serial Numbers for each Lot & its respective new lot(s). d) Tare Weight & Water Capacity shall only be marked after physical measurement. e) Each cylinder must be permanently marked (other than stamping in the filament wrap) in the epoxy coating on the side near the end of the cylinder containing the valve outlet f) Valve Serial No. & Identification Symbol (letters) DOT FRP 1 Standard, 1987, 'Basic Requirements for FRP Type 3FC Composite Cylinders': (i) Location of serial number to be just below or immediately following the DOT marking; (ii) Location of symbol to be just below or immediately following the serial no.; (iii) The symbol & the serial no must be those of the cylinder manufacturer; (iv) TPIA's official mark (if any) must be placed near the serial no.; (v) Date of Test (month & year) so placed that subsequent re-test dates can be easily added. SC VALVE FIXING (i) The internal surface of the cylinder must be thoroughly cleaned and dried before valve fitment. Internal cleaning of cylinders shall be done using air, light. Magnet etc. so as to clean the Internal surface of the cylinders and remove all the foreign material, rust, water traces etc. (ii) SC valve boss thread shall be cleaned using matching tap <(>&<)> with soft wire brush before fixing the valve on the cylinder; (iii) The					



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Title: Supply of LPG Composite Cylinders Capacity 10kg at PSO LPG Plant Korangi, Lahore, <(>&<)> Dhurnal.

S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	valve tightening torque must be within the range as mentioned in the approved drawing using properly calibrated torque wrench; (iv) Finished cylinder should be stacked vertically with safety cap fitted on valve; (v) Valve fitment area flooring should be free from dust, laid with concrete and rubber mats should be laid on concrete area for protection 3rd Party Inspection Stage inspection and Pre-delivery Inspection from a 3rd party inspector appointed by PSO, of the material, workmanship will be performed as per standard. PSO reserves the right to arrange Inspection and test of the goods or manufacturing processes at any stage at any of the premises of the supplier or its subcontractor(s) or at the point of delivery of the goods of final destination. Where conducted on the premises of the supplier or its sub-contractor(s), all reasonable facilities and assistance including access to drawings and production data shall be furnished to the inspectors at no charge to the Company. Such Inspection, however, shall not relieve the Supplier to fulfill the obligations under the purchase order/contract. If goods fail to meet the specification, the Company may reject them. The 3rd Party Inspector will furnish an Inspection reports for PSO, as per 3rd Party Inspection scope of work before delivery of cylinders. -- ALL THE CYLINDERS MUST BE DELIVERED BEFORE OCTOBER 31,2026-- Note: 01. Part payment against part delivery will be allowed. 02. The acceptance of consignment shall be subject to meeting the specifications. 03. Cost of valve, wrapping, transportation has included in the quoted rates.					



Pakistan State Oil Company Limited

PSO House, Khayaban-e-Iqbal, Clifton, Karachi-75600, Pakistan

Telephone (021) 9203866-85 Fax (021) 9203796

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RFQ No	GF-19853YP	
DATE	29.07.2026	

REQUEST FOR QUOTATION

(THIS IS PRICE ENQUIRY-NOT AN ORDER)

SAP No.6100017603

Company PSO Dummy Vendor
PAKISTAN

QUOTATION REQUIRED

ON
(Date)

13.08.2026

BY
(Time)

Please quote your best price for all items of following specifications. Please read the instructions attached herewith Rs. _____ EARNEST MONEY %
PO/DD NO. _____

Title: Supply of LPG Composite Cylinders Capacity 10kg at PSO LPG Plant Korangi, Lahore, <(><)> Dhurnal.

S.No.	Description/Specifications	Location	Unit	Qty	Unit Price Rs.	Amount Rs.
	04. All test shall be performed as per specifications and in the presence of PSO authorized 3rd Party Inspector/PSO representative. 05. Drawing of cylinders shall be prepared for approved from PSO appointed 3rd party prior execution of works. 06. Third party Inspection will be arranged by PSO. 07. Pre-delivery Inspection may be carried-out at the premises of supplier(s) and/or post-delivery Inspection at Company's locations, by the appointed inspector/ by the company representatives. 08. No deviation to technical specifications: 09. Free delivery at any PSO LPG operation location. 10. Delivery shall be completed before 31 October 2026. 11. The supplier will be responsible for replacement of defective PARTS/cylinders at their risk & cost including transportation<(><)> duty, taxes etc. 12. Unloading and stacking at PSO Plant/ locations will be arranged by supplier. 13. Delivery is to be made strictly in accordance with the timeline mention in serial # 10 14. PSO reserved the right to change the quantities of cylinders at the time award of contract according to the prevailing market demand/requirements and supplier will be responsible for delivery of the same without any extra/additional cost. 15. The cylinders shall be delivered at PSO designated location in lots & properly warped with sheet and packed in containers in order to					



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	avoid any damage during transportation and ensuring the safe delivery. The quantity of lot shall be as per container capacity. 16. Any cylinder found leaky or substandard shall be rejected and its replacement shall be providing within one week at the Plant, if replacement of cylinder will not provide within stipulated time a penalty of Rs 5,000/per leaky /damaged cylinder shall be deducted from the supplier bill/performance Guarantee. 17. The supplier shall ensure that all above mentioned acts and other incidental and ancillary functions are conducted in accordance with sound and acceptable engineering practices. The Company shall be entitled to oppose any incorrect or inadequate practice adopted by supplier in this respect and the supplier shall take corrective action/measure forthwith to correct such omissions. If any goods are discovered to be damaged or unacceptable at the plant, the supplier shall be responsible for replacement free of all charges and costs to the Company within the stipulated timeline mention in serial # 16 18. All taxes and transportation charges shall be included in the quoted rates. 19. PSO/Pak gas logo shall be screen printed / approved stickers shall be pasted on the four panels of the cylinder, (four stickers on each cylinder) 20. Colour of cylinders should be PSO Approved (Green Colour).					