**Invitation to tender**

**2,350mm x 4,500mm Autoclave Suitable for Composite Manufacture**

**Ref: Piran SPF1**

# 1. Background

Having worked on world leading projects in a variety of industries as a manufacturer and direct consultant to major projects Piran Advanced Composites (PAC) Limited have now established ourselves offering a complete service from design, engineering and manufacture of one off, R&D, low volume and high volume structures and components. We have developed novel technologies to be able to offer high quality services to a variety of industries such as Aerospace, Defence, Medical, Automotive and Marine. Our experience ranges from ultra-lightweight novel Aerospace R&D aerostructures through to low/high volume propulsion and flight critical Components

# 2. General Requirement

# To support our ongoing growth and capacity ambitions, PAC are seeking to purchase a new or refurbished autoclave that is suitable for composite production.

# The purchase of this system is part of grant funded PAC has secured from the Shared Prosperity Fund. We will assess tenders received on a lowest compliant response.

# 3. Tender requirements

The supplier is invited to tender for the following:

**3.1 General Specification**

1. Working diameter/length – Minimum of 2,300mm x 4,500mm
2. Working pressure 8barG
3. Working Temperature 200degC
4. Control System, comparable with the existing LBBC autoclave Piran already have
5. Electric heating to suit 1000kgs load at 3°C per minute average
6. Pressure inlet and exhaust valves are proportional controlled
7. 19” panel mount screen display for control system interface (PC and IO rack mounted inside control panel suite)
8. 12 zone vacuum bag burst system with integrated pump
9. 24 off type K product thermocouples
10. Autoclave to have connections/ports installed for cooling system plus radiator inside autoclave
11. Heat exchanger installed
12. Autoclave pressure tested and witnessed by British Engineering Services
13. Vessel certified to PD5500-2021
14. Autoclave safety systems to meet HSE’s PM73 Guidelines on pressure vessels
15. Painted to our chosen RAL reference
16. Internally insulated/cladded with 100mm mineral slab wool and Aluzinc sheet
17. Full IO and function testing prior to dispatch
18. Delivered and offload at our facility Southern Hangar 1, Space port Cornwall, Newquay, Cornwall TR84HP
19. On site testing following installation to be included
20. 12 months warranty from delivery

**3.2 Autoclave**

1. Autoclave to come with jacking points and lifting eyes
2. to be internally insulated and clad in Aluzinc cladding
3. Autoclave floor to be painted in a high temperature silver paint
4. Man-inside autoclave alarm pull cord to be fitted
5. To be fitted with rear baffle plates, mesh grill and inlet duct to impeller
6. Supplied with 1 no. door seal (fitted) and 1 no. spare
7. Power estimate within the following: 400A (320A per phase full load current) 3phase + earth (no neutral)

**3.3 Heating, Cooling & Circulation**

1. Your autoclave will be electrically heated via individual heating elements inside the autoclave
2. 2 off RTD temperature probes for air temperature control
3. Rear mounted air-cooled fan motor with impeller to circulate air under the autoclave floor to the door where it travels back through the main body of the autoclave to the rear grill/impeller inlet
4. The autoclave will be supplied with a cooling radiator installed but no further cooling hardware
	1. **Valves**

3.4.1 Proportional pressure inlet valve complete with spring return actuator and position switches air fail closed

1. Proportional pressure exhaust valve complete with spring return actuator and position switches – air fail OPEN
2. Open/Close Test valve complete with spring return actuator and position switches – air fail closed
3. Safety Relief valve - right angle safety relief valve set to vessel design pressure – to comes with test certificate for our insurer

**3.5 Pressure and Pneumatics**

1. Pressure control via 2 off 0 – 10 bar 4-20mA pressure transducers
2. Manifold block and solenoids mounted inside vacuum/pneumatics panel
3. Control air receiver tank for pneumatics (comes with pressure regulator/filter and non- return valve)
4. Vessel pressure gauge to indicate live pressure
5. Supplied with silencer mounted to autoclave included connection from exhaust valve to inlet

**3.6 Vacuum System**

1. 12 zone bag burst system - hardware mounted inside vacuum/pneumatics cabinet
	1. 24 no. vacuum valves (1 draw and 1 vent valve per line)
	2. 12 no. vacuum transducers (1 per zone)
	3. 1 no. vacuum manifold transducer
2. 1 vacuum filter on each vacuum draw line mounted between autoclave and vacuum valves
3. 40m³/hr Busch vacuum pump
4. Small vacuum buffer tank on pump inlet
5. Fully serviceable system using tried and tested components
6. Vacuum draw and monitor points terminated in ¼” brass vacuum plugs and legend plates
	1. **Thermocouples**

3.7.1 24 no. Type K thermocouples terminated inside autoclave in panel mounted sockets with fascia

**3.8 Safety System**

1. Autoclave compliant to HSE PM73
2. Door interlock shoot bolt cylinder with 2 reed switches
3. Door closed and door locked coded position switches
4. Over pressure and over temperature interlocks
5. E-stop
6. Safety relief valve
7. Man inside autoclave alarm
8. Low pressure interlock
9. Air fail closed air in and air fail OPEN exhaust pressure control valves
10. Automated test valve
11. ABB Safety Controller

**3.9 Control System**

1. Control panel suite mounted on autoclave ancillary frame
2. Panel suite housing Power // Control // Vacuum & Pneumatics
3. E-stop, indicator lamps mounted in control panel beneath 19” monitor
4. Prodigy control system running via Windows 10/11 PC

# 3.10 Exclusions:

1. Mains electrical connections
2. Assume delivery and offload will be unobstructed and straight through roller shutter door on flat / even surface
3. Assume factory floor is in good level condition
4. Civil / building works
5. Pipework on site

4**. Budget**

The total maximum budget available for this commission is £280,000 (exc VAT) but inclusive of all expenses.

**Tenders that exceed the total budget will not be considered.**

The budget will be reviewed as part of the tender evaluation detailed in Section 10 and will reflect the degree to which there is a saving on the maximum budget

# 5. Tender and commission timetable

The timescale of the programme is from the date of signing the contract until acceptance by PAC. The timetable for submission of the Tender, completion of the programme are set out below:

|  |  |
| --- | --- |
| **Milestone** | **Date** |
| Date ITT available on Contracts Finder | 8 March 2025 |
| Last date for raising queries | 1700: 13 March 2025 |
| Last date for clarifications to queries | 1700: 14 March 2025 |
| Deadline to return ITT | **1200: 21 March 2025** |
| Evaluation of ITT | 21 March 2025 |
| Award of Contract  | 21 March 2025 |

# 6. Tender submission requirements

Please include the following information in your Tender submission.

6.1 Please provide your proposal and any necessary technical or specification sheets. This should demonstrate how you meet or exceed the requirement in section 3

6.2 Conflict of Interest statement as per section 8

6.3 Copy of your company’s Terms and Conditions and Payment Plan

**7. Sub-contracting**

Tenderers should note that a consortia can submit a tender but the sub-contracting of aspects of this commission after appointment will only be allowed by prior agreement with PAC Limited

**8. Conflicts of Interest**

Tenderers must provide a clear statement with regard to potential conflicts of interests. Therefore, **please confirm within your tender submission** whether, to the best of your knowledge, there is any conflict of interest between your organisation and PAC Limited or its programme team that is likely to influence the outcome of this procurement either directly or indirectly through financial, economic or other personal interest which might be perceived to compromise the impartiality and independence of any party in the context of this procurement procedure.

Receipt of this statement will permit PAC Limited to ensure that, in the event of a conflict of interest being notified or noticed, appropriate steps are taken to ensure that the evaluation of any submission will be undertaken by an independent and impartial panel.

# 9. Tender clarifications

Any clarification queries arising from this Invitation to Tender which may have a bearing on the offer should be raised by email to:

procurement@pirancomposites.co.uk

in accordance with the Tender and Commission Timetable in section 5.

Responses to clarifications will be anonymised and uploaded by PAC Limited to Contracts Finder and will be viewable to all tenderers.

No representation by way of explanation or otherwise to persons or corporations tendering or desirous of tendering as to the meaning of the tender, contract or other tender documents or as to any other matter or thing to be done under the proposed contract shall bind PAC Limited unless such representation is in writing and duly signed by a Director/Partner of the tenderer. All such correspondence shall be returned with the Tender Documents and shall form part of the contract.

# 10. Tender evaluation methodology

The tender will be assessed on its compliance to the requirement detailed in section 3.

11**. Tender Award**

The contract will be awarded to the lowest compliant bid.

Any contract awarded as a result of this tender process will be in accordance with terms and conditions agreed between the two contracting enterprises.

# 12. Tender returns

Tenders are to be returned by email.

Tenders are to be returned in accordance with Section 5

Latest date to be returned: As per Section 5

Latest time to be returned: 17:00

Emailed tenders should be sent electronically to

procurement@pirancomposites.co.uk

with the following message clearly noted in the Subject box;

**‘PAC Autoclave ITT Response’**

**Tenderers are advised to request an acknowledgement of receipt of their email.**

# 13. Disclaimer

The issue of this documentation does not commit PAC Limited to award any contract pursuant to the tender process or enter into a contractual relationship with any provider of the service. Nothing in the documentation or in any other communications made between PAC Limited or its agents and any other party, or any part thereof, shall be taken as constituting a contract, agreement or representation between PAC Limited and any other party (save for a formal award of contract made in writing by PAC Limited or on behalf of PAC Limited).

Tenderers must obtain for themselves, at their own responsibility and expense, all information necessary for the preparation of their tender responses. Information supplied to the tenderers by PAC Limited or any information contained in PAC Limited’s publications is supplied only for general guidance in the preparation of the tender response. Tenderers must satisfy themselves by their own investigations as to the accuracy of any such information and no responsibility is accepted by PAC Limited for any loss or damage of whatever kind and howsoever caused arising from the use by tenderers of such information.

PAC Limited reserves the right to vary or change all or any part of the basis of the procedures for the procurement process at any time or not to proceed with the proposed procurement at all.

Cancellation of the procurement process (at any time) under any circumstances will not render PAC Limited liable for any costs or expenses incurred by tenderers during the procurement process.