



PRIFYSGOL
BANGOR
UNIVERSITY

Specification, Tender Questions and Award Criteria for:

High power high repetition rate femtosecond laser

Introduction

Bangor University is planning to purchase a high power, high repetition rate, femtosecond laser system for enhancing its laser processing and advanced manufacturing capabilities. The system must be highly reliable, having been demonstrated for 24/7 applications and rapid laser cutting and welding of glass samples.

General Note: Please note that all equipment supplied to Bangor University must be manufactured or imported and distributed via a company based within the UK or via a country which holds an applicable trade agreement with the UK, and which can demonstrate that the product to be supplied fulfils all UK safety, health and environmental protection requirements. If the latter, you will be expected to provide evidence of compliance, including Declaration of Conformity (DOC) and have the Technical File prepared ahead of any UK Customs check.

SPECIFICATIONS

Instrumentation Hardware and Software.

Minimum requirements: The points listed below are the minimum requirements. Tenders not meeting the requirements below will not be considered in the tender evaluation process.

- Laser wavelength (fundamental): 1030nm +/- 50nm
- Laser Power: minimum of 20W
- Repetition rate: tuneable from 1 to at least 2MHz
- Pulse energy: at least 10uJ
- Pulse duration: tuneable from femtosecond to picosecond range.
 - Minimum duration: less or equal to 500 fs
 - Maximum duration: more or equal to 8 ps
- Include Second harmonic module (wavelength: 515nm +/- 25nm)
- Include Third harmonic module (wavelength: 343 nm +/- 25nm)
- proven record in 24/7 applications
- proven record for rapid laser cutting and welding of glass samples
- Doesn't require strict environmental control for operation (e.g., room temperature, dust-level, etc.)
- A minimum of one year (12 months) warranty
- Planned lifetime of the system (before obsolescence) should be greater than or equal to 5 years. The system must be supported in terms of repairs and replacement parts for this duration
- Delivery time less than 10 weeks from point of order
- On-site installation and training are required

- The whole system must be fully functional without any pending parts to be purchased separately (e.g., chillers)
- The whole system cost must be \leq £123,000 before VAT and any other duties delivered.

Question 1 (Pass/Fail): Please provide details confirming how your proposed instrumentation meets all the required specifications above.

Desirable requirements: The points listed below are additional desirable requirements and will form part of the quality assessment:

- Additional warranty over the 1 year minimum.
- Wider range of tunability in pulse duration and repetition rate.
- proven for laser cutting of carbon fibre composite materials.
- proven for direct laser synthesis of graphene materials.

Question 2: Please confirm what warranty you are able to offer the required 12 months?

Question 3: Please provide details confirming if and how your proposed instrumentation meets the desirable specification for wider range of tunability in pulse duration?

Question 4: Please provide details confirming if and how your proposed instrumentation meets the desirable specification for wider range of tunability in repetition rate?

Question 5: Please provide details (including evidence that can be verified, such as publication or end customer contact) confirming if your proposed instrumentation is proven for laser cutting of carbon fibre composite materials?

Question 6: Please provide details (including evidence that can be verified, such as publication or end customer contact) confirming if your proposed instrumentation is proven for direct laser synthesis of graphene materials?

Question 7: Please specify the delivery timescale and installation procedures.

Question 8: Please specify the content of training that will be delivered.

Question 9: Please specify technical support and servicing during the warranty period.

Question 10: Please explain how you will ensure that the packaging used for the equipment and any consumables is kept to a minimum and is appropriate to the size and fragility of goods supplied. Include details of any reusable packaging, 100% biodegradable and/or recycled packing to be used.

Question 11: Please provide details of any end of equipment life solutions which you are able to provide. Your response should include as a minimum, options such as recycling or upcycling of equipment, take-back schemes etc.

Commercial.

- Vendors are asked to hold their prices for 60 days.
- We will only accept bids for new instruments that fully meet our requirements.
- Prices to be quoted on Incoterm Delivered Duty Paid (DDP) basis.

Question 12: Please include a full quotation addressing the requirements specified below.

- **Instrument Price- Delivered Duty Paid.**
- **Any other costs not included above or in this document.**
- **Please also quote for available options for maintenance and servicing up to 3 years after the warranty ends.**

Award Criteria

Responses from potential suppliers will be assessed to determine the most economically advantages tender using the following criteria and weightings and will be assessed entirely on your response submitted:

Criteria	Weighting	Scoring Matrix
Question 1	Pass/Fail	Any tender responses not meeting all essential criteria requirements (listed in part A) will be rejected in full at this point and will not be assessed or scored further.
Question 2	8%	8 points for tender response offering longest length of "additional warranty". 0 points for no additional warranty. Other tender responses will be awarded a mark by application of the following formula: (Additional warranty being evaluated/longest additional warranty) x 8 (rounded to two decimal places)
Question 3	5%	5 points for tender response offering longest "pulse duration tunability (PDT)".

		Other tender responses will be awarded a mark by application of the following formula: (PDT being evaluated/longest PDT) x 5 (rounded to two decimal places)
Question 4	5%	5 points for tender response offering longest “repetition rate tunability (RRT)”. Other tender responses will be awarded a mark by application of the following formula: (RRT being evaluated/longest RRT) x 5 (rounded to two decimal places)
Question 5	5%	Scored using Scoring Matrix below
Question 6	5%	Scored using Scoring Matrix below
Question 7	2%	Scored using Scoring Matrix below
Question 8	2%	Scored using Scoring Matrix below
Question 9	3%	Scored using Scoring Matrix below
Question 10	3%	Scored using Scoring Matrix below
Question 11	2%	Scored using Scoring Matrix below
Question 12	60%	A maximum offer score of 10 will be awarded to the tender response offering the lowest “Overall Price”. Other tender responses will be awarded a mark by application of the following formula: (Lowest Overall Price/Overall Price being evaluated) x 10 (rounded to two decimal places) = commercial score. A weighting of 60% will then be applied.

(Note: Price refers to overall DDP).

Evaluation process: Tender responses will be subject to an initial review at the start of the evaluation process. Any tender responses not meeting mandatory requirements or constraints (if any) will be rejected in full at this point and will not be assessed or scored further. Tender responses not so rejected will be scored by an evaluation panel appointed by the Customer Organisation using the criteria noted in the table above and the matrix below (where noted).

Points	Interpretation
8-10	Excellent – Overall the response demonstrates that the bidder meets all areas of the requirement and provides all of the areas evidence requested in the level of detail requested. This, therefore, is a detailed excellent

	response that meets all aspects of the requirement leaving no ambiguity as to whether the bidder can meet the requirement.
6-7	Good - Overall the response demonstrates that the bidder meets all areas of the requirement and provides all of the areas of evidence requested, but contains some trivial omissions in relation to the level of detail requested in terms of either the response or the evidence. This, therefore, is a good response that meets all aspects of the requirement with only a trivial level ambiguity due the bidders' failure to provide all information at the level of detail requested.
4-5	Adequate - Overall the response demonstrates that the bidder meets all areas of the requirement, but not all of the areas of evidence requested have been provided. This, therefore, is an adequate response, but with some limited ambiguity as to whether the bidder can meet the requirement due to the bidder's failure to provide all of the evidence requested.
1-3	Poor – The response does not demonstrate that the bidder meets the requirement in one or more areas. This, therefore, is a poor response with significant ambiguity as to whether the bidder can meet the requirement due to the failure by the bidder to show that it meets one or more areas of the requirement.
0	Unacceptable - The response is non-compliant with the requirements of the ITQ and/or no response has been provided.

Commercial Evaluation – Your “Overall Price” for the services will be evaluated by the evaluation panel for the purposes of the commercial evaluation. Prices must not be subject to any pricing assumptions, qualifications or indexation not provided for explicitly by the Customer Organisation as part of the pricing approach. In the event that any prices are expressed as being subject to any pricing assumptions, qualifications or indexation not provided for by the Customer Organisation as part of the pricing approach, the Customer Organisation may reject the full tender response at this point. The Customer Organisation may also reject any tender response where the Overall Price for the goods and/or services is considered by the Customer Organisation to be abnormally low following the relevant processes set out under the EU procurement rules.

Moderation and application of weightings – The evaluation panel appointed for this procurement will meet to agree and moderate scores for each award criteria. Final scores in terms of a percentage of the overall tender score will be obtained by applying the relevant weighting factors set out as part of the award criteria table above. For example if a supplier is awarded a score of 10 out of 10 for a question with 2%, the supplier will receive a score of 2. If a supplier is awarded a score of 5 out of 10 for a question with 2%, the supplier will receive a score of 1 and so on. The percentage scores for each award criteria will be amalgamated to give a percentage score out of 100.

The winning tender response – The winning tender response shall be the tender response scoring the highest percentage score out of 100 when applying the above evaluation methodology