

European Market consultation “Dilution Refrigerator”

**Information for the European Market consultation
Universiteit Twente**

“Dilution Refrigerator”

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1. Book mark

Market consultation explanation

A market consultation is the process of exchanging information with interested parties about a proposed invitation to tender, organized by the contracting authority, based on which the latter can determine the feasibility and the preconditions of the contract to be awarded. A market consultation could also be about obtaining information on - or insight into - possible solutions to a problem. Market parties may also actually be asked for ideas. For the contracting authority, the consultation could also provide insight into how best to design the tender procedure.

Market consultation can take one of a variety of forms: closed or open consultation, written or verbal, interactive or non-interactive or a combination of both. In view of its targeted terms of reference, the University of Twente has opted for a short, single-round, closed written consultation. By putting targeted questions to a representative section of the market, the University of Twente believes it will obtain the best replies to questions that the University of Twente regards as crucial. This market consultation is about exchanging ideas free of any obligation. The University of Twente would like to retain the possibility of obtaining more information about your response in a possible follow-up discussion.

The idea behind this consultation is to obtain feedback on our preconceived ideas for the Schedule of Requirements, so as to fine-tune the contract specifications and our strategy *vis-à-vis* the contract/procurement. This market consultation is aimed at discussing not just the content and the process, but also the procurement decision-making process.

1.1 Objective & Scope

This market consultation is a preparation for a possible European invitation to tender for the purchase of a Dilution Refrigerator. With this market consultation University Twente wants to find out:

- The number of possible suppliers in the market
- If the possible suppliers can deliver the described equipment, meeting the demanded technical specifications and requirements.
- If samples and sample holders can be exchanged between dilution refrigerators from different manufacturers
- an indication of the price for a Dilution Refrigerator

University of Twente stresses that this is not part of any market consultation for a European invitation to tender.

Annex 1 contains a list with the mandatory requirements for the Dilution Refrigerator in a separate document. These requirements may be used for any contract and procedure to be followed.

In addition the University of Twente wishes to deepen her understanding of the current market for the purpose of any tender.

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1.2 Procurement department

The provision of professional procurement support for the processes and projects of the University of Twente's faculties, schools and services is the province of the Procurement Department of the University of Twente. The Procurement Department implements project-based procurement processes and (European) tenders, which means it is involved in this process - and in this market consultation - right from the start.

1.3 Market consultation procedures

The market consultation document was published on Tendered on 5 March 2014. We expect you to submit your response before Friday 21 March, 14.00 pm CET, to r.gerritsen@utwente.nl

Market consultation contact:
Procurement Department
R. Gerritsen
Email: r.gerritsen@utwente.nl

1.4 Preconditions

The following preconditions apply to this market consultation:

- This document is intended solely for market consultation purposes; the market consultation is not part of a European tender or procurement process;
- The market consultation is not an invitation to submit a tender for a possible European contract nor a request for a quotation. This market consultation is a form of preparation;
- Participation in the market consultation is entirely voluntary and free of obligation and has no consequences whatsoever on participation in a possible European tender or procurement process. This means that market parties who do not participate in the market consultation are not excluded from participating in a possible European tender. Nor will market parties who participate in the market consultation be in any way excluded from - or receive preferential treatment in - any European tender or procurement process;
- The parties have no right to reimbursement of any costs that may be incurred within the framework of this market consultation;
- Claims relating to the use of information, confidentiality, or requests for reimbursement in connection therewith, will not be honoured. Documents submitted by participating market parties will be regarded as public documents and thus as free of copyright;
- No rights whatsoever may be derived from information supplied within the context of the market consultation;
- Information supplied during the market consultation may differ from information supplied during a later stage within the context of a possible European tender or procurement process;
- Responses to - and the global results of - the market consultation will be recorded in a market consultation report in a fully anonymized form. The market consultation report will be included in the tender documents for a possible European tender, thereby respecting the fundamental principles of transparency, objectivity and equality;
- The University of Twente retains the right to terminate, either entirely or partially, the process of market consultation;
- The University of Twente retains the right to adjust its plans, as recorded in this document, as it sees fit;
- Communication during this market consultation will be in the English language;
- Questions can be asked only via e-mail;
- By participating in this market consultation, participating market parties indicate their unconditional agreement with the conditions as stipulated in this market consultation document.

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2. Introduction

2.1 Purpose future assignment/problem statement

The idea behind this market consultation is to make use of the knowledge in the field to define a tender that fits well in the market. Also, the University of Twente would like to determine which procedure it might follow to call for tenders.

The purpose of this document is therefore:

- receiving additional information and insight concerning the market that will be approached.
- using the knowledge and experience from possible suppliers in order to improve the quality of the purchasing documents.
- to become acquainted with expected developments in the field of dilution refrigerators.

2.2 Description Universiteit Twente

The University Of Twente (UT) is an entrepreneurial research university founded in 1961. The UT provides teaching and research in scientific fields ranging from public administration, science and applied physics to biomedical technology. The UT is the only Dutch university to possess a campus: study, work, accommodation, entrepreneurship and relaxation are for the most part concentrated in one place, on the Drienerlo estate. This campus also acts as a tool for the academic and personal development of students, and for promoting a sense of entrepreneurship. The site is owned by the UT and covers around 150 ha, the buildings occupying some 200,000 m². The UT currently has around 8,500 students and around 3,000 staff, with an average of two thousand students living on the campus. The UT aims to grow to 10,000 students within 5 years.

The UT comprises the following six faculties and nine services:

Faculties

- CTW Engineering Technology
- TNW Applied Physics
- GW Behavioural Sciences
- EWI Electrical Engineering, Mathematics and Computer Science
- MB Management & Governance
- ITC International Institute of Geo-Information Sciences and Earth Observation

Services

- ICTS ICT Service Centre
- MC Directorate for Marketing & Communication
- SB Directorate for Strategy & Policy
- AZ General Affairs
- HR Human Resources Directorate
- FEZ Directorate for Financial and Economic Affairs
- FB Facility Department
- OSC Student and Education Service Centre
- BA Library and Archive Service Centre

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3. Questionnaire

3.1 Purpose of the questionnaire

The University of Twente emphatically asks that you, when replying to the questions, bear in mind the points of departure detailed in Chapters 1 and 2 and the information supplied.

Many choices have to be made in preparing for a possible future tender procedure. Making these choices involves a consideration of, *inter alia*, the questions referred to in Section 3.2. The University of Twente would like to put these questions to the market by means of this market consultation. We ask that market parties reply to the questions briefly and constructively.

3.2 Questionnaire and response

The questionnaire, containing a total of twelve subjects and their related questions, will be supplied as a separate document and is mentioned as Annex 1:

The document also indicates how you should submit your replies. The maximum size of your reply is specifically indicated, per subject.

3.3 Planning

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| 1. Publication of the public market consultation | 12 March 2014 |
| 2. Closing date for submitting questions | 18 March 2014 10.00 hours am CET |
| 3. Final date for responding to questions | 21 March 2014 |
| 4. Final date for submitting a response on the Market consultation | 27 March 2014 14.00 hours pm CET |

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Annex 1:

Mandatory requirements for a Dilution Refrigerator

All the following requirements **must** be fulfilled:

Question 1

The system should have only mechanical cooling. Cooling of the system with cryogenic liquids will not be accepted. Nevertheless Liquid Nitrogen can be used in a cold trap.

Question 2

We possess a solenoid superconducting 8 Tesla magnet and the matching power supply, both from Oxford Instruments. The set also consists of a persistent mode switch, quench protection and HTS current leads. This magnet, with all the parts mentioned above, must be fitted in the dilution refrigerator. The magnet must obtain its original specifications as there are: the maximum magnetic field of 8 Tesla and magnetic field stability in persistent mode of 1.0×10^{-4} relative/hour measured at 8 Tesla.

Question 3

System for quick sample exchange (loadlock).

A system to exchange a sample without warming up the complete dilution refrigerator, to reduce the turnaround time. The dilution refrigerator system itself and the 8Tesla magnet stay at a low temperature while a sample holder with the sample can be exchanged from room temperature to low temperatures (<10mK) and back to room temperature again. The sample holder has to make multiple electrical contacts inside the dilution refrigerator. The sample exchange system should load from the bottom of the refrigerator.

*Cool down of a sample via a “quick sample exchange system” should be possible in not more than 10 hours from room temperature to 100mK.

*The “quick sample exchange system” should handle samples of at least 25 mm diameter in size.

When not using a quick sample exchange system the dilution refrigerator should be a Bottom loading system.

Question 4

The Sample holders and the internal electrical connections for this dilution refrigerator system must be interchangeable with an existing dilution refrigerator at the University of Twente, a Triton 200 from Oxford Instruments.

Question 5

The temperature at the Sample Position should reach 10 mK or lower.

*Temperature range at the Sample Position: from 30 Kelvin down to 10 mK

*Temperature stability:

* at least +/- 1 mK for temperatures below 100 mK

* at least +/- 1 % for temperatures above 100 mK

Question 6

The Cooling Power of the system should be:

* at least 200 uWatt at 100 mK

* at least 3 uWatt at 20 mK

Question 7

The Cooldown time of the system

*The Cooldown time with a 8 Tesla magnet fitted, from room temperature to 10 mK, should be less than 36 hours.

*The Cooldown time with a 8 Tesla magnet and a quick sample exchange system fitted, from room temperature to 10 mK, should be less than 48 hours

Question 8

The dilution refrigerator system should not contain any Indium seals. The system should not use any exchange gas. The system should have only one single common vacuum.

Question 9

The system should be fully automated. The system should be easy to operate, without knowledge of the dilution refrigerating process.

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Question 10

The delivery time should not exceed 6 month from the moment the order is placed, preferably 3- 4 month.

Question 11

The free usable experimental space at the Sample Position should be at least 200 x 200 mm.

Question 12

An estimation of the price of a Dilution Refrigerator. Please indicate separately the costs for DDP delivery, VAT and all other taxes and all other possible costs.