



ZAVOD ZA GRADBENIŠTVO SLOVENIJE
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ARIS

javna agencija za znanstvenoraziskovalno
in inovacijsko dejavnost Republike Slovenije



Javno naročilo je sofinancirano s strani Javne agencije znanstvenoraziskovalno in inovacijsko dejavnost Republike Slovenije (ARIS) / *Public Procurement is co-financed by the Public agency for scientific research and innovation activity of the Republic of Slovenia*

Javno naročilo je sofinancirano s strani E-RHIS (European research infrastructure for heritage science) / *Public Procurement is co-financed by the European research infrastructure for heritage science (E-RHIS)*

Št. / No.: ZAG-1/2023

Datum / Date: 2. 11. 2023

Na podlagi 90. člena Zakona o javnem naročanju (Uradni list RS, št. 91/15, 14/18, 121/21, 10/22, 74/22 – odl. US, 100/22 – ZNUZSZS, 28/23 in 88/23 – ZOPNN-F; odslej: ZJN-3) naročnik Zavod za gradbeništvo Slovenije, Dimičeva ulica 12, 1000 Ljubljana (odslej: naročnik) izdaja naslednjo

Pursuant to Article 90 of the Public Procurement Act (Official Gazette of the Republic of Slovenia, No. 91/15, 14/18, 121/21, 10/22, 74/22 – odl. US, 100/22 – ZNUZSZS, 28/23 and 88/23 – ZOPNN-F; hereinafter: ZJN-3), the Contracting Authority Slovenian national building and civil engineering institut, Dimičeva ulica 12, 1000 Ljubljana (hereinafter: Contracting Authority) issues the following

ODLOČITEV O ODDAJI JAVNEGA NAROČILA / DECISION ON AWARDING A PUBLIC PROCUREMENT

Predmet naročila / *Subject of public procurement:*

Visokoločljivi rentgenski računalniški mikrotomograf (za statične, časovne in dinamične meritve) / *High-resolution X-ray Computed microTomography instrument (for static, time-lapse and dynamic measurements)*

Objava / *Publication:*

- **Portal javnih naročil / Public Procurement portal: JN005404/2023-B01 z dne 18. 8. 2023**
- **Portal EU (TED) / EU Portal (TED): 2023/S 159-505210 z dne 21. 8. 2023**

Vrsta postopka / *Type of public procurement procedure:*

- **odprti postopek skladno s 40. členom ZJN-3** / *open procedure in accordance with Article 40 of the Public Procurement Act (hereinafter: ZJN-3)*

V zvezi z oddajo predmetnega javnega naročila naročnik sprejme sledečo odločitev:

Javno naročilo se odda ponudniku Culmium, razvoj naprednih tehnologij d.o.o., Ljubljanska cesta 24G, 4000 Kranj za ponudbeno ceno 699.000,00 EUR brez DDV oziroma 852.780,00 EUR z DDV

With regard to the award of the public procurement in question, the Contracting Authority makes the following decision:

The public procurement is awarded to tenderer Culmium, razvoj naprednih tehnologij d.o.o., Ljubljanska cesta 24G, 4000 Kranj for the offered price 699.000,00 EUR excluding VAT or 852.780,00 EUR including VAT



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FOR HERITAGE SCIENCE

OBRAZLOŽITEV / EXPLANATION:

Do roka za oddajo ponudb so na naslov naročnika opredeljen v informacijskem sistemu eJN prispele naslednje ponudbe:

By the deadline for submitting tenders, the following tenders arrived at the Contracting Authority's address specified in the eJN information system::

Naziv in naslov ponudnika / Name and address of the tenderer
Mikrolux d.o.o., Ljudevita Gaja 35, 10290 Zaprešić, Hrvaška
Aparatura d.o.o., Sokolska ulica 42, 2000 Maribor
Culmium, razvoj naprednih tehnologij d.o.o., Ljubljanska cesta 24G, 4000 Kranj

Skladno z določbami razpisne dokumentacije je naročnik uvodoma opravil pregled tehničnega dela ponudbe (pregled ustreznosti ponujene opreme) ter nadalje razvrstitev ponudb glede na merilo. Ob vpogledu v tehnični del dokumentacije posameznega ponudnika je naročnik ugotovil:

- da je ponujena oprema ponudnika Mikrolux d.o.o., Ljudevita Gaja 35, 10290 Zaprešić, Hrvaška skladna z zahtevami naročnika, kot izhajajo iz razpisne dokumentacije,
- da je ponudnik Culmium, razvoj naprednih tehnologij d.o.o., Ljubljanska cesta 24G, 4000 Kranj v ponudbi sicer predložil vso zahtevano dokumentacijo v zvezi s ponujenim predmetom v ponudbi, vendar so v zvezi s ponujeno opremo potrebna dodatna pojasnila ponudnika ter
- da ponudnik Aparatura d.o.o., Sokolska ulica 42, 2000 Maribor v ponudbi ni predložil zahtevane tehnične dokumentacije, iz katere bi izhajale tehnične specifikacije ponujenega predmeta, zato naročnik ustreznosti ponujene opreme zaradi odsotnosti dokumentacije, bi izkazovala izpolnjevanje minimalnih tehničnih specifikacij, ni mogel ugotoviti. V ponudbeni dokumentaciji tako ni vsebovanega podatka o največji prostornini skeniranega objekta in najvišji hitrosti rotacijske mize (RPM). Oba podatka sta bistvena ugotovitev izpolnjevanja obveznih minimalnih tehničnih specifikacij. Ker je naročnik v razpisni dokumentaciji jasno navedel, da se bodo pri ocenjevanju glede na merila upoštevale zgolj ponudbe, ki bodo izpolnjevale minimalne tehnične specifikacije in ker skladno s šestim odstavkom 89. člena ZJN-3 ponudbe ni dopustno dopolnjevati v delu, ki se veže na tehnične specifikacije predmeta javnega naročila je zato v zvezi s ponudbo ponudnika Aparatura d.o.o., Sokolska ulica 42, 2000 Maribor naročnik zaključil, da je ta nedopustna, zato mora naročnik tako ponudbo kot nedopustno izključiti iz postopka oddaje javnega naročila.

Ob upoštevanju navedenega je tako naročnika nadalje opravil razvrstitev ponudb glede na merilo, pri čemer kot že ugotovljeno predhodno, pri ocenjevanju ni upošteval ponudbe ponudnika Aparatura d.o.o., Sokolska ulica 42, 2000 Maribor, ki v ponudbi ni izkazal izpolnjevanja minimalnih tehničnih zahtev.

Kot izhaja iz razpisne dokumentacije je bilo kot merilo določeno merilo ekonomsko najugodnejše ponudbe, pri čemer je bilo merilo sestavljeno iz sledečih ponderjev:

- Ekonomična ponudba (A),
- Tehnične izboljšave (B) in
- Prodajni pogoji (C).



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In accordance with the provisions of the tender documentation, the Contracting Authority initially reviewed the technical part of the tender (review of the adequacy of the offered equipment) and further assess the tenders according to the criteria. Upon inspection of the technical part of the individual tenderer's documentation, the Contracting Authority found:

- that the equipment offered by the tenderer Mikrolux d.o.o., Ljudevita Gaja 35, 10290 Zaprešić, Croatia complies with the Contracting Authority's requirements, as derived from the tender documentation,
- that the tenderer Culmium, development of advanced technologies d.o.o., Ljubljanska cesta 24G, 4000 Kranj, has submitted all the required documentation in relation to the offered object in the tender, but additional explanations from the tenderer are required in relation to the offered equipment and
- that the tenderer Aparatura d.o.o., Sokolska ulica 42, 2000 Maribor did not submit the required technical documentation in the tender, from which the technical specifications of the offered object would be derived, therefore the Contracting Authority could not determine the suitability of the offered equipment due to the absence of documentation, which would demonstrate compliance with the minimum technical specifications. The tender documentation does not contain information about the maximum scanned sample volume size and RPM of the rotation stage. Both informations are an essential and are needed to determine minimum technical specifications. Because the Contracting Authority clearly stated in the tender documentation that only tenders that meet the minimum technical specifications will be taken into account in the evaluation based on the criteria, and because in accordance with the sixth paragraph of Article 89 of the ZJN-3, it is not permissible to supplement the tender in the part that relates to technical specifications of the subject of the public contract, therefore, in relation to the tender of the tenderer Aparatura d.o.o., Sokolska ulica 42, 2000 Maribor, the Contracting Authority concluded that it was inadmissible, therefore the Contracting Authority must exclude the tender as the inadmissible from the public procurement process.

Taking into account the above, the Contracting Authority further performed the assessment of the tenders according to the criteria, whereby, as already established previously, the assessment did not take into account the tender of the tenderer Aparatura d.o.o., Sokolska ulica 42, 2000 Maribor, which did not demonstrate compliance with the minimum technical requirements in the tender.

As can be seen from the tender documentation, the most economically advantageous tender was determined as the criterion, and the criterion consisted of the following weightings:

- Economic offer (A),
- Technical improvements (B) and
- Sales conditions (C).

RAZVRSTITEV PONUDB GLEDE NA MERILO / ASSESSMENT OF TENDERS ACCORDING TO CRITERIA¹:

Naziv in naslov ponudnika / Name and address of the tenderer	Ekonomična ponudba (ponudbena cena v EUR brez DDV) / Economic offer (price excl. VAT)	Tehnične izboljšave / Technical improvements	Prodajni pogoji / Sales conditions	Razvrstitev / classification
Mikrolux d.o.o., Ljudevita Gaja 35, 10290 Zaprešić, Hrvaška	900.000,00 EUR 311 točk / points	445 točk / points	100 točk / points	2 856 točk / points
Culmium, razvoj naprednih tehnologij d.o.o., Ljubljanska cesta	699.000,00 EUR 400 točk / points	385 točk / points	100 točk / points	1 885 točk /

¹ Natančna izvedba ocenjevanja izhaja iz dokumenta Tender assessment, ki je priloga te Odločitve o oddaji javnega naročila / The exact performance of the assessment comes from the Tender assessment document, which is attached to this Decision on awarding Public Procurement..



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24G, 4000 Kranj				points
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Skladno z zgornjo razvrstitvijo ponudb glede na merilo je naročnik uvodoma vpogledal v ponudbo ponudnika Culmium, razvoj naprednih tehnologij d.o.o., Ljubljanska cesta 24G, 4000 Kranj, ki je bila glede na merilo najugodnejša. Kot že izhaja iz predhodno ugotovljenega, je naročnik v zvezi s ponujeno opremo potreboval dodatna pojasnila, zato je naročnik dne 5. 10. 2023 ponudnika pozval k podaji dodatnih pojasnil. Ponudnik je v zahtevanem roku podal svojo dopolnitev, za katero naročnik po pregledu in obravnavi ugotavlja, da je ustrezna. Vsled navedenemu je naročnik nadaljeval s pregledom in ocenjevanjem ponudbe ponudnika Culmium, razvoj naprednih tehnologij d.o.o., Ljubljanska cesta 24G, 4000 Kranj.

Naročnik je pri pregledu ponudbe ponudnika Culmium, razvoj naprednih tehnologij d.o.o., Ljubljanska cesta 24G, 4000 Kranj ugotovil, da je ponudba dopustna, saj:

- za ponudnika ne obstajajo razlogi za izključitev in ponudnik izpolnjuje pogoje za sodelovanje,
- je ponudba prispela pravočasno,
- njegova ponudba ustreza potrebam in zahtevam naročnika, določenim v tehničnih specifikacijah in v dokumentaciji v zvezi z oddajo javnega naročila,
- pri ponudbi ni dokazano nedovoljeno dogovarjanje ali korupcija,
- naročnik ponudbe ni ocenil za neobičajno nizko in
- ponudbena cena ne presega zagotovljenih sredstev naročnika.

Ob upoštevanju dejstva, da je ponudba ponudnika Culmium, razvoj naprednih tehnologij d.o.o., Ljubljanska cesta 24G, 4000 Kranj glede na merilo tudi najugodnejša dopustna ponudba, se javno naročilo odda ponudniku Culmium, razvoj naprednih tehnologij d.o.o., Ljubljanska cesta 24G, 4000 Kranj.

Razlog za ne izbiro ponudbe ponudnika Mikrolux d.o.o., Ljudevita Gaja 35, 10290 Zaprešič, Hrvaška je tako dejstvo, da je ponudba glede na merilo manj ugodna od ponudbe ponudnika.

Razlog za ne izbiro ponudbe ponudnika Aparatura d.o.o., Sokolska ulica 42, 2000 Maribor pa je dejstvo, da ponudnik v ponudbi ni predložil zahtevane tehnične dokumentacije, iz katere bi izhajale tehnične specifikacije ponujenega predmeta. Zato mora naročnik ponudbo ponudnika Aparatura d.o.o., Sokolska ulica 42, 2000 Maribor skladno z določbami lastne razpisne dokumentacije in ZJN-3 izključiti iz postopka oddaje javnega naročila.

S tem se šteje odločitev naročnika v zvezi z izrekom te odločitve za utemeljeno.

In accordance with the above assessment of tenders according to the criterion, the Contracting Authority initially looked at the tender of the tenderer Culmium, development of advanced technologies d.o.o., Ljubljanska cesta 24G, 4000 Kranj, which was the most favorable according to the criterion. As can already be seen from the previous findings, the Contracting Authority needed additional clarifications regarding the equipment offered, so on 5 October 2023 the Contracting Authority asked the tenderer to provide additional explanations. The tenderer submitted his supplement within the required deadline, which the Contracting Authority finds to be adequate after examination and consideration. As a result of the above, the Contracting Authority continued with the review and evaluation of the tender of the tenderer Culmium, development of advanced technologies d.o.o., Ljubljanska cesta 24G, 4000 Kranj.

When reviewing the tender of the tenderer Culmium, development of advanced technologies d.o.o., Ljubljanska cesta 24G, 4000 Kranj, the Contracting Authority found that the tender is admissible, since:

- *there are no grounds for exclusion of the tenderer and the tender meets the conditions for participation,*
- *the tender was received on time,*
- *its tender meets the needs and requirements of the Contracting Authority set out in the technical specifications and in the documentation related to the award of the public procurement,*
- *there is no evidence of collusion or corruption in the tender,*
- *the Contracting Authority did not assess the tender as unusually low and*
- *the offered price does not exceed the guaranteed funds of the Contracting Authority.*



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Taking into account the fact that the tender of the tenderer Culmum, development of advanced technologies d.o.o., Ljubljanska cesta 24G, 4000 Kranj is also the most favorable admissible tender according to the criteria, the public contract is awarded to the tenderer Culmum, development of advanced technologies d.o.o., Ljubljanska cesta 24G, 4000 Kranj.

The reason for not choosing the tender of the tenderer Mikrolux d.o.o., Ljudevita Gaja 35, 10290 Zaprešić, Croatia is the fact that the tender is less favorable than the tender of tenderer Culmum, development of advanced technologies d.o.o., Ljubljanska cesta 24G, 4000 Kranj.

The reason for not choosing the tender of the tenderer Aparatura d.o.o., Sokolska ulica 42, 2000 Maribor is the fact that the tenderer did not submit the required technical documentation in the tender, from which the technical specifications of the offered item would be derived. Therefore, the Contracting Authority must exclude the tender of the tenderer Aparatura d.o.o., Sokolska ulica 42, 2000 Maribor in accordance with the provisions of its own tender documentation and ZJN-3 from the public procurement procedure.

Thus the decision of the Contracting Authority regarding the pronouncement of this decision is considered justified.

PRAVNI POUK:

Po odločitvi o oddaji javnega naročila je rok za vložitev zahtevka za revizijo osem (8) delovnih dni od objave odločitve. Zahtevek za revizijo se vloži neposredno prek aplikacije eRevizija.

Zahtevek za revizijo mora vsebovati vse obvezne sestavine, kot jih določa 15. člen Zakona o pravnem varstvu v postopkih javnega naročanja (ZPVPJN; Uradni list RS, št. 43/11, 60/11 – ZTP-D, 63/13, 90/14 – ZDU-1I, 60/17 in 72/19).

Vlagatelj mora zahtevku za revizijo priložiti potrdilo o plačilu takse iz 71. člena ZPVPJN. Taksa za revizijski postopek znaša: 17.055,60 EUR.

Taksa se plača na ustrezen podračun, ki je v skladu s predpisom, ki ureja podračune ter način plačevanja obveznih dajatev in drugih javnofinančnih prihodkov, odprt pri Banki Slovenije za namen plačila taks za predrevizijski in revizijski postopek. Natančne informacije o načinu plačila takse so dostopne na spletni strani Direktorata za javno naročanje: <https://ejn.gov.si/sistem/pravno-varstvo.html>.

LEGAL PRECEPT:

Following the decision to award the contract, the deadline for submitting a request for review is eight (8) working days from the publication of the decision. The request for revision is submitted directly through the eRevision application.

The request for revision must contain all mandatory components, as determined by Article 15 of the Legal Protection in Public Procurement Procedures Act (ZPVPJN; Uradni list RS, no. 43/11, 60/11 – ZTP-D, 63/13, 90/14 – ZDU-1I, 60/17 in 72/19).

The applicant must enclose a certificate of payment of the fee from Article 71 of the ZPVPJN with the request for revision. Fee for the audit procedure is: 17.055,60 EUR

The fee is paid to the appropriate sub-account, which is in accordance with the regulation governing sub-accounts and the method of payment of mandatory duties and other general government revenues, opened with the Bank of Slovenia for the purpose of paying fees for pre-audit and audit procedures. Detailed information on how to pay the fee is available on the website of the Public Procurement Directorate: <https://ejn.gov.si/sistem/pravno-varstvo.html>

**ZAVOD ZA GRADBENIŠTVO SLOVENIJE /
SLOVENIAN NATIONAL BUILDING AND CIVIL ENGINEERING INSTITUTE**

 Direktor / Director:
doc. dr. Aleš Žnidarič
PO POBLASTILU:
dr. Aljoša Šajna



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Objava / Publication:

- na portalu javnih naročil / on Public Procurement portal

Tender evaluation for the purchase of a high-resolution X-ray Computed microTomography instrument (for static, time-lapse and dynamic measurements)

B1 Sample range		
1 Size of accommodated sample	a) Ø: 300 mm, height < 400 mm b) Ø: 300 to 400 mm, height < 400 to 500 mm c) Ø: 500 mm, height < 500 mm	0 6 10
2 Size of scanned sample volume	a) Ø: 140 mm, height < 130 mm b) Ø: 140 to 200 mm, height < 130 to 200 mm c) Ø: 200 mm, height > 200 mm	0 10 12
B2 X-ray source		
1 Primary source: type	a) Sealed anode/ reflection b) Open and Transmissive, with exchangeable filament	0 25
2 Primary source: system to guarantee long-term stability	a) Yes b) Yes	0 10
3 Primary source: power adjustment	a) Not adjustable within the entire range or with increment < 1 W b) Fully adjustable, within the entire range, with increment < 1 W	0 5
4 Primary source: maximum power	a) < 14 W b) 14 to 34 W c) > 34 W	10 10 25
5 Primary source: best spatial resolution achievable within the voltage range from minimum value	a) up to 200 kV b) > 200 kV to 220 kV c) > 220 kV	0 10 20
6 Secondary source: max V 240 V, power > 100 W	a) Not provided b) Provided at the first delivery	0 20
B3 Detector system		
1 Active area and pixel matrix	a) Active area up to 340 x 340 mm ² and matrix up to 2000 x 1000 pixels b) Active area > 340 x 340 mm ² and matrix > 2000 x 1000 pixels	0 14
2 Maximum frame rate of full-panel detector at full resolution	a) up to 5 fps b) > 5 and up to 10 fps c) > 10 fps	0 10 20
3 At least one (1) detector with a pixel size < 75x75 µm ²	a) No b) Yes	0 10
4 Binning capability greater than 2x2	a) No b) Yes	0 10
5 Dynamic range greater than 65 dB	a) No b) Yes	0 5
6 At least two (2) detectors integrated in the system with complementary technical features included in price	a) No b) Yes	0 10
7 Motorized switching between multiple detectors without additional alignment and calibration steps	a) No b) Yes	0 20
8 At least two (2) detectors with a pixel size < 75x75 µm ² can be installed in the future	a) No b) Yes	0 5
9 At least 3 detectors integrated and with complementary technical features can be installed in the future	a) No b) Yes	0 5
10 At least 3 detectors integrated, with motorized switching and complementary technical features can be installed in the future	a) No b) Yes	0 10
B4 Granite-based manipulator and rotation stage		
1 Focus-to-detector distance	a) Up to 400 mm b) > 400 and up to 600 mm c) > 600 mm up to 700 mm d) > 700 mm	0 10 15 20
2 Automatic procedure for focal spot tuning and geometry calibration	a) No b) Yes	0 5
3 Better mechanical performances	a) No additional solutions proposed b) Granite support for all axes, stages and X-ray sources c) Increased stiffness and anti-vibration solutions	0 5 5
4 High flexibility of the adjustment and optimization of source-to-object and object-to-detector positioning < 1 mm step	a) No b) Yes	0 5
5 Software- and hardware-based anti-collision systems	a) No b) Yes	0 5
6 At least 2 inputs in the granite elements for future expandability	a) No b) Yes	0 2
7 Possibility to alternatively control the main motorized axis through an electronic hander system	a) No b) Yes	0 2
8 Rack-mount chassis outside the radiation-shielded cabinet containing all instrumentation controllers and IT hardware	a) No b) Yes	0 5
9 Maximum carrying capacity of rotation stage	a) < 10 kg b) > 10 and up to 20 kg c) > 20 and up to 30 kg d) > 30 kg	0 5 5 5
10 Maximum speed of rotation stage	a) Up to 50 RPM b) > 50 RPM and up to 90 RPM c) > 90 RPM	0 5 5
11 Maximum and run-out of rotation stage	a) < 1000 µm b) > 1000 µm	0 5
12 Integrated and removable micro-positioning X-Y stage > 10 mm travel with at least 60 mm total travel range	a) No b) Yes	0 5
13 Continuous, end-to-end rotation over the stage	a) No b) Yes	0 5
B5 Shielded cabinet		
1 Motorized opening/closing door with a transparent lead glass, at least 1 interior surveillance camera for easier visual inspection	a) No b) Yes	0 4
2 At least 2 or more lead labyrinth for cables & connectors of customized and commercial stages	a) No b) Yes	0 5
3 Walls in type of cabinet and ceiling with threaded inserts to fix heavy components	a) No b) Yes	0 4
B6 CT acquisition procedure		
1 Helical CT	a) No b) Yes	0 5
2 Interlaced CT	a) No b) Yes	0 5
3 Limited angle CT	a) No b) Yes	0 5
4 Solutions to improve reconstructed image quality for high aspect ratio objects	a) No b) Yes	0 5
5 Solutions to improve reconstructed image quality of dense flat objects	a) No b) Yes	0 5
6 Intuitive software-based selection of VOIs through 2D projections and 3D reconstruction (rudimentary analysis)	a) No b) Yes	0 10
7 Skip, crop, merge projections during acquisition and combine vertical/lateral shift scanning for automatic volume stitching	a) No b) Yes	0 5
8 Lateral shifting of detector and automatic stitching for ring reduction	a) No b) Yes	0 5
9 Virtual rotation axis selection (centering of a sample ROI)	a) No b) Yes	0 10
10 Possibility to integrate customized external instrumentation, including user-defined automation and scripting in the software	a) No b) Yes	0 10
B7 Computer		
1 Two complete PCs: one for acquisition control and one for reconstruction/visualization	a) No b) Yes	0 5
2 Multiple CPUs for reconstruction/visualization PC	a) No b) Yes	0 2
3 GPU with higher VRAM for reconstruction/visualization PC	a) No b) Yes	0 5
4 Extra RAM storage capacity	a) No b) Yes	0 5
5 Higher quality of internal SSD disks for reconstruction/visualization PC	a) No b) Yes	0 2
6 Larger internal storage capacity or an additional external storage system	a) No b) Yes	0 2
7 Gigabit (or higher) switches and/or connections for ultrafast transfer of large volume data between PCs & storage system	a) No b) Yes	0 2
B8 Software		
1 Artifact correction: large field-of-view angle	a) No b) Yes	0 5
2 Advanced (e.g., model-based) scattering and metal artifact correction	a) No b) Yes	0 5
3 Artifact correction: sample motion	a) No b) Yes	0 5
4 Algebraic CT reconstruction algorithms	a) No b) Yes	0 5
5 AI-based tools for CT reconstruction	a) No b) Yes	0 5
6 Open image formats (raw, TIFF) for acquisition and reconstruction files	a) No b) Yes	0 5
7 Customized software solutions: workflows/algorithms	a) No b) Yes	0 5
8 System components positioning and advanced geometric calibration	a) No b) Yes	0 5
9 Multiple scan acquisition and batch reconstruction	a) No b) Yes	0 5
10 Customized user scripts	a) No b) Yes	0 5
11 Preview reconstruction	a) No b) Yes	0 5
12 Alignment and registration of 4D data	a) No b) Yes	0 5
13 Specialized processing and analysis tool to intuitively visualize time-resolved CT data	a) No b) Yes	0 5
14 Devoted reconstruction protocols for dynamic, high-speed acquisition over multiple turns	a) No b) Yes	0 5
15 Automatic generation of log files (acquisition, data processing and reconstruction) and report preparation	a) No b) Yes	0 5
16 Possibility of remote control and monitoring of CT scan, reconstruction, and visualization of stored data	a) No b) Yes	0 5
C Contract conditions		
1 Warranty	a) 1 year b) 2 years c) 3 years	10 10 10
2 Delivery time	a) < 40 weeks b) 40 to 50 weeks c) > 50 weeks	0 10 20
3 Service response time	a) < 3 working days b) 3 to 7 working days c) > 7 working days	0 10 20
4 Training	a) 4 days b) 5 days c) > 5 days	0 5 10
5 Guaranteed serviceability time	a) 10 years b) 12 years c) 15 years	0 5 20

Tender evaluation for the purchase of a high-resolution X-ray Computed microTomography instrument (for static, time-lapse and dynamic measurements)

Bidder: Culmum (Slovenia)		Price (not including VAT)= 699.000,00 EUR		
Item	Criteria	Response (select)	Points	Comment
A Price	Points based on formula in the tender document	/	400	
		A	400	
B1 Sample range	1 Size of accommodated sample	(c)	12	
	2 Size of scanned sample volume	(c)	12	
B2 X-ray source	1 Primary source: type	(b)	25	
	2 Primary source: system to guarantee long-term stability	(b)	10	
	3 Primary source: power adjustment	(b)	5	
	4 Primary source: maximum power	(b)	10	
	5 Primary source: best spatial resolution achievable within the Voltage range from minimum value	(a)	0	The maximum spatial resolution is achivable only up to including 100 kV.
	6 Secondary source: max V 240 V, power ≤150 W	(a)	0	A secondary soure is not included in price.
B3 Detector system	1 Active area and pixel matrix	(b)	14	
	2 Maximum frame rate of flat panel detector at full resolution	(c)	20	
	3 At least one [1] detector with a pixel size ≤75x75 µm2	(b)	20	
	4 Binning capability greater than 2x2	(b)	8	
	5 Dynamic range greater than 66 dB	(b)	8	
	6 At least two [2] detectors integrated in the system with complementary technical features included in price	(b)	30	
	7 Motorised switching between multiple detectors without additional alignment and calibration steps	(a)	0	The switch between detectors is manual.
	8 At least two [2] detectors with a pixel size ≤75x75 µm2 can be installed in the future	(b)	5	
	9 At least 2 detectors integrated and with complementary technical features can be installed in the future	(b)	5	
	10 At least 3 detectors integrated, with motorized switching and complementary technical features can be installed in the future	(a)	0	Yes, but the switch between the 3 detectors is manual.
B4 Granite-based manipulator and rotation stage	1 Focus-to-detector distance	(d)	15	
	2 Automatic procedure for focal spot tuning and geometry calibration	(b)	3	
	3 Better mechanical performances	(b, c)	5	
	4 High flexibility of the adjustment and optimization of source-to-object and object-to-detector positioning ≤1 mm step	(b)	5	
	5 Software- and hardware-based anti-collision systems	(b)	3	
	6 At least 2 inserts in the granite elements for future exoandability	(b)	2	
	7 Possibility to alternatively control the main motorized axes through an electronic handset system	(b)	2	
	8 Rack-mount chassis outside the radiation-shielded cabinet containine all instrumentation's controllers and IT hardware	(b)	3	
	9 Maximum carrying capacity of rotation stage	(c)	6	
	10 Maximum speed of rotation stage	(b)	1	
	11 Maximum axial run out of rotation stage	(b)	3	
	12 Integrated and removable micro-positioning X-Y stage on the top with at least 60 mm total travel range	(a)	0	Yes, it's present but only with 25 mm ot total travel range
	13 Continuous, endless rotation over the stage	(b)	5	
B5 Shielded cabinet	1 Motorised opening/closing door with a transparent lead glass, at least 1 interior surveillance camera for easier visual inspection	(b)	4	
	2 At least 2 or more lead labyrinth for cables & connectors of customized and commercial stages	(b)	3	
	3 Walk-in type of cabinet and ceiling with threaded inserts to lift heavy components	(b)	4	
B6 CT acquisition procedure	1 Helical CT	(b)	5	
	2 Interlaced CT	(b)	5	
	3 Limited angle CT	(b)	5	
	4 Solutions to improve reconstructed image quality for high aspect ratio objects	(b)	5	
	5 Solutions to improve reconstructed image quality of dense flat objects	(b)	5	
	6 Intuitive software-based selection of VOIs through 2D projections and 3D reconstruction (multiscale analysis)	(b)	15	
	7 Skip, crop, average projections during acquisition and combine vertical/lateral shift scanning for automatic volume stitching	(b)	7	
	8 Lateral shifting of detector and automatic stitching for ring reduction	(b)	3	
	9 Virtual rotation axis selection (centering of a sample ROI)	(b)	10	
	10 Possibility to integrate customized external instrumentation, including user-defined automation and scripting in the software	(b)	10	
B7 Computer	1 Two complete PCs: one for acquisition control and one for reconstruction/visualization	(b)	8	
	2 Multiple CPUs for reconstruction/visualization PC	(b)	2	
	3 GPU with higher VRAM for reconstruction/visualization PC	(b)	2	
	4 Extra RAM storage capacity	(b)	2	
	5 Higher quality of internal SSD discs for reconstruction/visualization PC	(b)	2	
	6 Larger internal storage capacity or an additional external storage system	(b)	2	
	7 Gigabit (or higher) switches and/or connections for ultrafast transfer of large volume data between PCs & storage system	(b)	2	
B8 Software	1 Artefact correction: large Feldkamp angle	(b)	3	
	2 Advanced (e.g., model-based) scattering and metal artefacts correction	(b)	4	
	3 Artefact correction: sample motion	(b)	3	
	4 Algebraic CT reconstruction algorithms	(a)	0	Proposed by an external software (Dragonfly) not requested in the tender and not directly linked to the reconstruction software offered with the instrument. Also the user training with this sw is not included in the tender price.
	5 AI-based tools for CT reconstruction	(a)	0	Proposed by an external software (Dragonfly) not requested in the tender and not directly linked to the reconstruction software offered with the instrument. Also the user training with this sw is not included in the tender price.
	6 Open image formats (Raw, Tiff) for acquisition and reconstruction files	(b)	2	
	7 Customized software solutions: workflows/algorithms	(b)	2	
	8 System components positioning and advanced geometrical correction	(b)	2	
	9 Multiple scan acquisition and batch reconstruction	(b)	2	
	10 Customized user scripts	(b)	2	
	11 Preview reconstruction	(b)	2	
	12 Alignment and registration of 4D data	(a)	0	Proposed by an external software (Dragonfly) not requested in the tender and not directly linked to the visualization software offered with the instrument. Also the user training with this sw is not included in the tender price.
	13 Specialized processing and analysis tools to intuitively visualize time-resolved CT data	(a)	0	Proposed by an external software (Dragonfly) not requested in the tender and not directly linked to the visualization software offered with the instrument. Also the user training with this sw is not included in the tender price.
	14 Devoted reconstruction protocols for dynamic, high-speed acquisition over multiple turns	(b)	15	
	15 Automatic generation of log files (acquisition, data processing and reconstruction) and report preparation	(b)	5	
	16 Possibility of remote control and monitoring of CT scans, reconstruction, and visualization of stored data	(b)	5	
		B	385	
C Contract conditions	1 Warranty	(c)	30	
	2 Delivery time	(c)	20	
	3 Service response time	(c)	20	
	4 Training	(c)	10	
	5 Guaranteed serviceability time	(c)	20	
		C	100	
		SC = A + B + C	885	

Tender evaluation for the purchase of a high-resolution X-ray Computed microTomography instrument (for static, time-lapse and dynamic measurements)

Bidder: Mikrolux (Croatia)		Price (not including VAT)= 900.000,00 EUR	
Item	Criteria	Response (select)	Points
A Price	Points based on formula in the tender document	/	311
		A	311
B1 Sample range	1 Size of accommodated sample	(c)	12
	2 Size of scanned sample volume	(c)	12
B2 X-ray source	1 Primary source: type	(b)	25
	2 Primary source: system to guarantee long-term stability	(b)	10
	3 Primary source: power adjustment	(b)	5
	4 Primary source: maximum power	(c)	20
	5 Primary source: best spatial resolution achievable within the Voltage range from minimum value	(c)	20
	6 Secondary source: max V 240 V, power ≤ 150 W	(a)	0
B3 Detector system	1 Active area and pixel matrix	(b)	14
	2 Maximum frame rate of flat panel detector at full resolution	(c)	20
	3 At least one (1) detector with a pixel size ≤ 75x75 µm2	(b)	20
	4 Binning capability greater than 2x2	(b)	8
	5 Dynamic range greater than 66 dB	(b)	8
	6 At least two (2) detectors integrated in the system with complementary technical features included in price	(b)	30
	7 Motorised switching between multiple detectors without additional alignment and calibration steps	(b)	20
	8 At least two (2) detectors with a pixel size ≤ 75x75 µm2 can be installed in the future	(b)	5
	9 At least 2 detectors integrated and with complementary technical features can be installed in the future	(b)	5
	10 At least 3 detectors integrated, with motorized switching and complementary technical features can be installed in the	(b)	10
B4 Granite-based manipulator and rotation stage	1 Focus-to-detector distance	(d)	15
	2 Automatic procedure for focal spot tuning and geometry calibration	(b)	3
	3 Better mechanical performances	(b, c)	5
	4 High flexibility of the adjustment and optimization of source-to-object and object-to-detector positioning ≤ 1 mm step	(b)	5
	5 Software- and hardware-based anti-collision systems	(b)	3
	6 At least 2 inserts in the granite elements for future expandability	(b)	2
	7 Possibility to alternatively control the main motorized axes through an electronic handset system	(a)	0
	8 Rack-mount chassis outside the radiation-shielded cabinet containing all instrumentation's controllers and IT hardware	(b)	3
	9 Maximum carrying capacity of rotation stage	(c)	6
	10 Maximum speed of rotation stage	(c)	3
	11 Maximum axial run out of rotation stage	(b)	3
	12 Integrated and removable micro-positioning X-Y stage on the top with at least 60 mm total travel range	(a)	5
	13 Continuous, endless rotation over the stage	(b)	5
B5 Shielded cabinet	1 Motorised opening/closing door with a transparent lead glass, at least 1 interior surveillance camera for easier visual inspection	(b)	0
	2 At least 2 or more lead labyrinth for cables & connectors of customized and commercial stages	(a)	3
	3 Walk-in type of cabinet and ceiling with threaded inserts to lift heavy components	(a)	0
B6 CT acquisition procedure	1 Helical CT	(b)	5
	2 Interlaced CT	(b)	5
	3 Limited angle CT	(b)	5
	4 Solutions to improve reconstructed image quality for high aspect ratio objects	(b)	5
	5 Solutions to improve reconstructed image quality of dense flat objects	(b)	5
	6 Intuitive software-based selection of VOIs through 2D projections and 3D reconstruction (multiscale analysis)	(b)	15
	7 Skip, crop, average projections during acquisition and combine vertical/lateral shift scanning for automatic volume stitching	(b)	7
	8 Lateral shifting of detector and automatic stitching for ring reduction	(a)	0
	9 Virtual rotation axis selection (centering of a sample ROI)	(b)	10
	10 Possibility to integrate customized external instrumentation, including user-defined automation and scripting in the software	(b)	10
B7 Computer	1 Two complete PCs: one for acquisition control and one for reconstruction/visualization	(b)	8
	2 Multiple CPUs for reconstruction/visualization PC	(a)	0
	3 GPU with higher VRAM for reconstruction/visualization PC	(b)	2
	4 Extra RAM storage capacity	(b)	2
	5 Higher quality of internal SSD discs for reconstruction/visualization PC	(b)	2
	6 Larger internal storage capacity or an additional external storage system	(b)	2
	7 Gigabit (or higher) switches and/or connections for ultrafast transfer of large volume data between PCs & storage system	(b)	2
B8 Software	1 Artefact correction: large Feldkamp angle	(b)	3
	2 Advanced (e.g., model-based) scattering and metal artefacts correction	(b)	4
	3 Artefact correction: sample motion	(b)	3
	4 Algebraic CT reconstruction algorithms	(a)	0
	5 AI-based tools for CT reconstruction	(a)	0
	6 Open image formats (Raw, Tiff) for acquisition and reconstruction files	(b)	2
	7 Customized software solutions: workflows/algorithms	(b)	2
	8 System components positioning and advanced geometrical correction	(b)	2
	9 Multiple scan acquisition and batch reconstruction	(b)	2
	10 Customized user scripts	(b)	2
	11 Preview reconstruction	(b)	2
	12 Alignment and registration of 4D data	(b)	3
	13 Specialized processing and analysis tools to intuitively visualize time-resolved CT data	(b)	5
	14 Devoted reconstruction protocols for dynamic, high-speed acquisition over multiple turns	(b)	15
	15 Automatic generation of log files (acquisition, data processing and reconstruction) and report preparation	(b)	5
	16 Possibility of remote control and monitoring of CT scans, reconstruction, and visualization of stored data	(b)	5
C Contract conditions		B	445
	1 Warranty	(c)	30
	2 Delivery time	(c)	20
	3 Service response time	(c)	20
	4 Training	(c)	10
	5 Guaranteed serviceability time	(c)	20
		C	100
		SC = A + B + C	856