Leistungsverzeichnis

PREISBLATT & LEISTUNGSVERZEICHNIS

VORBEMERKUNG:
Das Helmholtz Zentrum München verfolgt als Deutsches Forschungszentrum für Gesundheit und Umwelt das Ziel, personalisierte Medizin für die Diagnose, Therapie und Prävention weit verbreiteter Volkskrankheiten zu entwickeln. Dafür untersucht es das Zusammenwirken von Genetik, Umweltfaktoren und Lebensstil. Der Hauptsitz des Zentrums liegt in Neuherberg im Norden Münchens. Das Helmholtz Zentrum München ist eine Forschungseinrichtung des Bundes und des Freistaats Bayern und ist Mitglied der Helmholtz-Gemeinschaft.

Die in den Vergabeunterlagen enthaltenen Angaben beziehen sich grundsätzlich auf Personen jeder Geschlechtsidentität. Lediglich der leichteren Lesbarkeit halber wird im Folgenden bei allen Bezeichnungen nur noch die grammatikalisch männliche Form verwendet.
Soweit in den Vergabeunterlagen nichts anderes angegeben ist, sind
- mit Auftraggeber des Helmholtz Zentrum München - Deutsches Forschungszentrum für Gesundheit und Umwelt (GmbH) gemeint. Zur besseren Lesbarkeit im Folgenden kurz Auftraggeber/Helmholtz Munich bezeichnet.
- mit Bieter alle Unternehmen, die im Rahmen der Ausschreibung ein Angebot abgeben gemeint.
- mit Auftragnehmer alle Bewerber, denen der Auftraggeber den Zuschlag erteilt, gemeint.
- mit Hersteller der Hersteller der Geräte, bei Geräten, die aus mehreren Komponenten zusammengesetzt sind, alle Hersteller gemeint.

VERFAHREN:
Diese Ausschreibung wird als "offenes Verfahren" durchgeführt. Die im Leistungsverzeichnis genannten Mindestanforderungen (Ausschlusskriterien) sind zu erfüllen. Mit der Unterzeichnung des Angebotes erklärt sich der Bieter mit den Vergabeunterlagen einverstanden.

AUFTRAGGEBER:
Helmholtz Zentrum München
Deutsches Forschungszentrum für Gesundheit und Umwelt (GmbH)
vertreten durch die Geschäftsführung
Ingolstädter Landstr. 1
85764 Neuherberg - Deutschland

BIETERFRAGEN - HINWEISPFLICHT BEI UNKLARHEITEN ODER FEHLERN IN DEN VERGABEUNTERLAGEN:
Ergeben sich für den Bieter Fragen oder enthalten die Vergabeunterlagen Unklarheiten oder Fehler, so obliegt es dem Bieter, die Fragen gegenüber dem Auftraggeber unverzüglich und vor Ablauf der jeweiligen Frist ausschließlich über die Vergabeplattform zu stellen und auf die Unklarheiten bzw. Fehler hinzuweisen. Telefonische, per E-Mail, direkt mündlich oder schriftlich gestellte Fragen, die nicht über die Vergabeplattform an den Auftraggeber adressiert werden, sind nicht zulässig und werden inhaltlich nicht beantwortet. Der Auftraggeber behält sich vor, nach der genannten Frist eingehende Fragen auch noch zu einem späteren Zeitpunkt zu beantworten.

GEGENSTAND DER AUSSCHREIBUNG:

At the German Mouse Clinic (GMC), Helmholtz Zentrum München, the existing micro-CT system is to be modernized with the latest imaging technology in order to be able to continue implementing the demanding research projects of the GMC and to realize projects within Helmholtz Munich as well as collaborations with external research partners. The projects cover a range of different research topics that require the acquisition of high-resolution three-dimensional (3D) image data of rodents, both ex-vivo and in-vivo, as well as biological samples. In addition to phenotyping as part of the International Mouse Phenotyping Consortium (IMPC), research focuses on the effect of genetic changes on metabolism (e.g. body composition), on the morphology of the skeleton, on the trabecular microstructure of the bones, as well as on organ functions (e.g. determining the

organ function of the beating heart or the vital capacity of the lungs). Another main focus is on the field of "virtual histology", for carrying out non-destructive, high-resolution (spatial resolution < 10 micrometer), pathological analyses of biological samples. A modern, state-of-the-art in-vivo preclinical micro-CT system is to be procured. A turnkey micro-CT system from a single manufacturer is therefore required, so that components are matched and calibrated and regular maintenance can be guaranteed by a single point of contact. The micro-CT system must provide a high spatial resolution required for detailed analysis of fine anatomical structures in mice (e.g. trabecular bone). In addition, the micro-CT system must also be able to acquire these data with a radiation dose that is acceptable for longitudinal studies with small rodents. Such a modern micro-CT system is required to provide improved image quality (low noise, high contrast, wide dynamic range), which increases information content and generates image data with reduced image interference and increased signal-to-noise ratio. As a result of the improved image data, the variance within the acquired data should be reduced, leading to a lower variance in the derived results, a necessity to continuously increase the high quality standards of the GMC. In addition, the modernization of the X-ray system also meets the requirements of the 3R principle, as a reduction in the number of animals is to be expected.
The technical details of the system requirements are listed in the specifications for tenders (Leistungsverzeichnis).

PREISBLATT:

HINWEIS ZUM PREISBLATT:
ES SIND NUR DIE GEFORDERTEN PREISPOSITIONEN, WIE DIESE DEFINIERT SIND, ZU BEFÜLLEN. ES DÜRFEN KEINE SEPRATEN PREISBLÄTTER MIT ANDERN KONDITIONEN ABGEGEBEN WERDEN! SOLLTE EINE PREISPOSITION IN EINER ANDEREN PREISPOSITION INKLUDIERT SEIN, IST BEI DER INKLUDIERTEN PREISPOSITION 0,00 EURO EINZUTRAGEN! DAS FEHLEN EINER ZAHL IN EINER PREISPOSITION FÜHRT ZUM AUSSCHLUSS DES ANGEBOTS!

Weiterer Hinweis: die optionale Preisposition ist nur für den AG eine Option. Für den Bieter ist diese zu erbringen. Das Fehlen einer Zahl in einer Preisposition führt zum Ausschluss des Angebots.

Ausfüllhinweise: Sie müssen alle farblich unterlegten, unterstrichenen Felder ausfüllen. Optional können Sie Angaben in Feldern machen, die nur unterstrichen, aber nicht farblich unterlegt sind. Tragen Sie in der Spalte "Mengen- und Preisangaben" alle notwendigen, geforderten Angaben ein (Preise und Kosten jeweils ohne gesetzliche USt.). Ist eine Preiseinheit ungleich 1 vorgegeben (z.B. 1.000), so geben Sie bitte den Preis netto pro Einheit bezogen auf die Preiseinheit an (z.B. 10,00 EUR pro 1.000 Mengeneinheiten). Beziehen Sie in Rahmenvertragspositionen Ihren angebotenen Preis auf die angegebene geschätzte Menge. Geben Sie in der Spalte "Gesamtbetrag netto (EUR)" für jede Position den Betrag an, der für die Position aus den Einzelangaben zu kalkulieren ist. Beispiel für eine Position mit angegebener Menge und gefordertem Preis: Die Menge ist mit dem Preis netto pro Einheit in Euro zu multiplizieren.

Nr.	Bezeichnung	Mengen- und Preisangaben	Gesamtbetrag netto (EUR)
1	Micro-computed tomography One complete Micro-computed tomography (micro-CT) in-vivo device incl. delivery, commissioning, system acceptance and 24 months warranty.	**Menge:** 1 Stück **Preiseinheit:** 1 Stück **Nettopreis in Euro** _____ **USt.:** 19 %, falls abweichend _____ %	_____

Nr.	Bezeichnung	Mengen- und Preisangaben	Gesamtbetrag netto (EUR)
2	Optionale Position - **relevant für Angebotssumme** Bank guarantee Delivery must take place before the end of this year 2025. In the event that delivery, service and invoicing cannot take place in 2025, following provisions shall apply: (1) An invoice stating the order number shall be issued for 100 per cent of the total price of the order. (2) If the payment date is before the delivery date/performance date, the supplier shall provide a directly enforceable advance payment bank guarantee with unlimited validity (Formblatt Bürgschaftsurkunde) for the amount of the advance payment and hand it over to the principal/buyer by 30th of November 2025. This guarantee shall be returned after acceptance of the delivery and/or service. (3) In the event that the final delivery takes place after a later point in time than the payment, the warranty claims of the principal/buyer for defects shall only commence at the time of acceptance after final delivery. Hinweis: Bei der zu erbringenden Leistung handelt es sich um eine optionale Position.	**Menge:** 1 Stück **Preiseinheit:** 1 Stück **Nettopreis in Euro** _____ **USt.:** 19 %, falls abweichend _____ %	_____

Nr.	Bezeichnung	Mengen- und Preisangaben	Gesamtbetrag netto (EUR)
3	Optionale Position - **relevant für Angebotssumme** Compensation for use Only applicable in case of proceeding the requirement "Right of withdrawal". The compensation for use is to be calculated pro rate to the months of use. Please state the amount of compensation for use in euros (€) in the offer. This compensation for use is included in the overall valuation. Hinweis: Bei der zu erbringenden Leistung handelt es sich um eine optionale Position.	**Menge:** 1 Monat **Preiseinheit:** 1 Monat **Nettopreis in Euro** _____ **USt.:** 19 %, falls abweichend _____ %	_____

Wertungsschema

LEISTUNGSVERZEICHNIS

Die Wertung erfolgt nach der reinen Preiswertung nach UfAB 2018 (abrufbar unter http://www.cio.bund.de). Für die Bestimmung des wirtschaftlichsten Angebotes wird die reine Preiswertung herangezogen. Die Mindestanforderungen werden als Ausschlusskriterien formuliert. Bewertungskriterien gibt es nicht. Anhand der definierten Ausschlusskriterien wird bei dieser Methode die Erfüllung der Leistungsanforderungen geprüft. Der Zuschlag erfolgt unter allen Angeboten, die sämtliche Ausschlusskriterien vollständig erfüllen, auf das Angebot mit dem niedrigsten Preis.

Summe der Gewichtungspunkte (GP): 0 Gewichtungspunkte (GP)

HINWEIS:
Die nachfolgenden Ausschluss-Kriterien werden an Hand der eingereichten Datenblätte überprüft. Bitte alle notwendigen technischen Unterlagen bzw. alle geforderten Konzepte (ggf. auch aussagekräftige Bilder) mit Bezug zum jeweiligen Kriterium beilegen!
Bitte legen Sie auch eine separate Übersicht bei, ob eine gesetzliche Wartung vorgeschrieben ist und wenn ja, in welchem Umfang und Zeitintervallen diese zu erfolgen hat.

NOTICE:
The following exclusion criteria will be checked on the basis of the data sheets submitted. Please enclose all necessary technical documents and all required concepts (if necessary also requested image and measurement data) with reference to the respective criterion!
Please also enclose a separate overview of whether statutory maintenance is required and to what extent and at what intervals a statutory maintenance must be carried out.

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
KHG A	**ALLGEMEINE ANFORDERUNGEN - Ausschlusskriterien (A-Kriterien)**		**0,00 GP**
A 1	**Delivery/ installation/ acceptance** (Ist Ausschlusskriterium) (Ist Ja-oder-Nein-Kriterium) (1) The delivery condition DDP (Delivered	☐ **Ja** ☐ **Nein**	

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
	Duty Paid) according to the International Commercial Terms (Incoterms) must be agreed. The client does not incur any costs for all deliveries and assemblies. (2) Partial deliveries may only be made in consultation with the client. The exact delivery date is to be agreed with the client. No assistants or auxiliary services will be made available to the contractor for the performance of these services. (3) The device must be delivered by the contractor to the room specified by the client and unpacked there, fully assembled and set up ready for operation according to the installation plan. The packaging material must be disposed by the contractor. (4) Payment after delivery, installation, commissioning and successful written acceptance after 30 days net. The verifiable invoice must be submitted immediately after acceptance. The invoice must contain the following information: Order number The invoice must be carried out in accordance with the applicable legal requirements, in particular the provisions of the E-Invoice Ordinance (E-Rech-VO). Questions about the invoice or the electronic dispatch of invoices can be sent to the following mail address: vendor-support@helmholtz-muenchen.de Helmholtz Zentrum München - Deutsches Forschungszentrum für Gesundheit und Umwelt (GmbH) Finanzabteilung Ingolstädter Landstraße 1 D-85764 Neuherberg (5) The instruction and demonstration must be in German and English. Written documents and safety data sheets must be supplied in German and English and must be up to date with current legislation.		

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
	- - - - - - - - - - - - ---------- Place of delivery Helmholtz Zentrum München Deutsches Forschungszentrum für Gesundheit und Umwelt (GmbH) German Mouse Clinic (GMC) Gebäude 35.14 Ingolstädter Landstr. 1 85764 Neuherberg Deutschland		
A 2	**Bankwarranty (optional)** (Ist Ausschlusskriterium) (Ist Ja-oder-Nein-Kriterium) Delivery must take place before the end of this year 2025. In the event that delivery, service and invoicing cannot take place in 2025, following provisions shall apply: (1) An invoice stating the order number shall be issued for 100 per cent of the total price of the order. (2) If the payment date is before the delivery date/performance date, the supplier shall provide a directly enforceable advance payment bank guarantee with unlimited validity (Formblatt Bürgschaftsurkunde) for the amount of the advance payment and hand it over to the principal/buyer by 30th of November 2025. This guarantee shall be returned after acceptance of the delivery and/or service.	☐ **Ja** ☐ **Nein**	

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
	(3) In the event that the final delivery takes place after a later point in time than the payment, the warranty claims of the principal/buyer for defects shall only commence at the time of acceptance after final delivery.		
A 3	**Customer Service and Repair Service** (Ist Ausschlusskriterium) (Ist Ja-oder-Nein-Kriterium) (1) Customer service and repair service (German or English speaking) directly at the customer's site must be made available. (2) Telephone technical support should be available on weekdays (MEZ / MESZ). (3) Guaranteed ten-year availability for major spare parts such as: control computer of the CT system, X-ray source, high voltage unit, X-ray camera, crucial mechanical parts of the gantry, essential control and data cables, consumables of the animal cradle/sensor (ECG, breath sensor). (4) Guaranteed availability to remote assistance during our standard working hours at least from 8:00 am to 5:00 pm is required. (5) A guaranteed response time within one (1) working day following a customer request. (6) On-site support by technical experts including repair service within four (4) working days to solve reported problems, unless the required spare parts are not available within the required period of four (4) working days. (7) Technical manual in the following languages: German and English.	☐ **Ja** ☐ **Nein**	
A 4	**Warranty and maintenance** (Ist Ausschlusskriterium) (Ist Ja-oder-Nein-Kriterium) The legally prescribed maintenance must be observed. A total warranty of twenty-four month (24) incl. full service / maintenance is included in the system price. During this time, there are no costs for repair and service. Necessary wear and tear material as well as free	☐ **Ja** ☐ **Nein**	

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
	software updates are included. At least one service is included during this period - unless the manufacturer prescribes further maintenance in the first twelve months or maintenance is required by law. The warranty/service/maintenance starts after successful commissioning/acceptance of the system.		
KHG B	**TECHNISCHE ANFORDERUNGEN**		**0,00 GP**
A 5	**HARDWARE REQUIREMENTS** (Ist Ausschlusskriterium) (Ist Ja-oder-Nein-Kriterium) (1) Application field: small rodents (mice, rats) and biological samples. (2) The CT system must be capable of performing in-vivo imaging in small rodents (mice, rats), in particular to study body composition (distribution of lean and fat tissue), to perform cardiac studies, to perform lung studies and to image bones of the skeleton and the skull. In addition, the capability to study in-vivo angiogenesis in regions such as the brain and high-resolution imaging of biological samples. (3) The imaging capabilities of the system must fulfill at least the requirements of mouse full body (length 80 mm, diameter 40 mm, 360 degree projection coverage, 0.65 degree step size) imaging at a spatial resolution in the range of 30-40 cubic micrometer in a measurement time of less than 5 minutes. (4) Under the condition of in-vivo mouse imaging, i.e. the total dose must be less than 500 mGy and the animal cradle must be plugged in, a spatial isotropic resolution of at least 20 cubic micrometer @10%-Modulation Transfer Function (MTF) is required. (5) To analyze the microstructure of the trabecular bone, a micro-CT device with the best possible spatial resolution is required to resolve the thickness of individual trabeculae with at least three voxels in all three orthogonal directions. A higher spatial resolution would significantly improve the accuracy of histomorphometric analysis. Therefore, under ex vivo conditions without	☐ **Ja** ☐ **Nein**	

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
	dose constraints, an isotropic resolution of at least 6 cubic micrometer @10% -MTF is required. (6) For high-resolution applications, the imaging capabilities of the X-ray detector must meet the requirement of at least 3072 x 2048 pixel. The X-ray detector must offer a dynamic range of at least 14 Bit. (7) The active area of the X-ray detector should cover a large field of view (FOV) in a single scan hence the aspect ratio of the detector should not exceed a ratio of 2: 1. (8) The CT system must be capable of offering multiple acquisition modes. The "step-and-shoot" mode and the "continuous rotation" mode. (9) The imaging capabilities of the system must meet the requirements of continuously variable magnification choices (adaptive geometry) enabling a maximum flexibility in spatial resolution. (10) To verify the requested spatial resolution capability of the CT system, 3D volume data acquired on standardized high-resolution and high-contrast phantoms (e.g. USAF test chart, MicroChart JIMA pattern, QRM phantom) must be specified in the CT system specification for a.) ex-vivo (total dose can exceed 500 mGy, animal cradle plugged in) conditions at the smallest possible voxel size and for b.) in-vivo (total dose must be below 500 mGy) conditions at the smallest possible voxel size. The data must be shared with the customer, including information on the acquisition parameter and the geometric magnification applied. For the ex-vivo acquisition conditions the spatial resolution must be at least 6 cubic micrometer @10%-MTF, for the in-vivo acquisition conditions the spatial resolution must be at least 20 cubic micrometer @10%-MTF. Higher isotropic spatial resolution is preferable. Technical documents must be attached to the offer as evidence. (11) Evaluate the CT system’s ability to distinguish objects with small differences in density by acquiring 3D volumetric data of standardized high-resolution and low-		

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
	contrast phantoms. Such a phantom, made of soft tissue equivalent resin, must consist of at least three (3) rods of varying diameter (ranging from 1 mm to 3 mm) with a known contrast difference ranging from -3% to -9% Hounsfield unit (HU) (e.g. QRM-70124 V2 µCT Low Contrast phantom). Measurements must be performed under in-vivo conditions (total dose must be below 500 mGy, animal cradle plugged in) at a spatial resolution in the range of 30 - 40 cubic micrometer, without averaging or data filtering (e.g. smoothing, denoising). The resulting images must be calibrated to be on HU scale. Resulting images must be shared with the client, including information on the measurement parameters, the geometric magnification. The contrast to noise ratio (CNR) for each of the three inserts must be at least 0.15. A higher CNR for each insert is preferable. Suggested processing steps: - Draw circular region of interest (ROIs) within the large inserts. - For background, place ROIs in the proximity of the inserts. - Read out mean CT values within the ROIs and the signal noise of the background -Calculate the CNR according to: CNR = (CT value (insert) - CT value (background)) / SD (noise) CT value (insert) ... mean CT value of ROI within the insert in HU scale; CT value (background) ... mean CT value of ROI within resin in HU scale; SD (noise) ... standard deviation of the fluctuating CT value of the ROI within the resin in HU scale. Technical documents must be attached to the offer as evidence. (12) The CT system must be qualified for performing quantitative studies on mineral density and content analysis. The system must offer to report the resulting data in units of Hounsfield, bone mineral density BMD and tissue mineral density TMD in units of g / cubic cm. (13) The CT system setup (considering setting up the anesthesia and attaching required sensors for the physiological monitoring unit) must enable high throughput workflow, acquiring in-vivo		

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
	imaging data of at least twenty (20) mice whole-body on a single working day (6 hrs) at a spatial resolution in the range of at least 30-40 cubic micrometer. (14) The CT system must be equipped with an animal-handling concept that includes an animal cradle for convenient placing and positioning and a video unit for visual monitoring of the animal inside the gantry. The animal cradle must include the required sensors for a physiological monitoring system, including breath sensor, body temperature sensor and ECG electrodes. (15) The CT system must be equipped with a physiological monitoring unit enabling to monitor the breath rate and the electrical activity of the heart (ECG) of the animal. This vital data recorded by the physiological monitoring unit must be able to be seamlessly integrated into the CT system's control software for gating purposes. (16) The animal cradle must be equipped with connections for a gas anesthesia system. This integrated device, including gas exhaust, must be a sealed device (closed capsule design) such that no anesthesia gas except through the supplied connection is leaving the X-ray system. The gas anesthesia must be applied by nose cone. (17) The CT system must be shipped with two (2) animal cradles dedicated for imaging of mice. A bone mineral density phantom enabling calibration of gray scale in units of g / cubic cm must be also included. (18) A heating system must be also incorporated in the CT system enabling the maintenance of the animal’s physiological body temperature of 38 degree C during the measurement under anesthesia. The temperature fluctuation range during measurement must not exceed deviations of 1 degree C inside the gantry. (19) The CT system must be equipped with the possibility to measure in-vivo time resolved 4D imaging data of the beating heart and the breathing lung which can be used to reconstruct static volumetric images		

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
	of distinct heart and lung phases. The system must support the two gating strategies: a.) extrinsic gating, utilize gating information from the physiological sensors (ECG and/or breath sensor / visual camera) and b.) intrinsic gating, utilize gating information from the inherent motion information of the acquired time resolved 4D volumetric X-ray imaging data. (20) To design longitudinal study protocols without radiotoxicity and still considering heart beating and breathing movement corrections, the applied radiation dose of such a protocol must be lower than 900 mGy. For the application of in-vivo heart and/or lung imaging, a lower radiation exposure at a spatial resolution in the range of 30 - 40 cubic micrometer is preferable. (21) The CT-system must be shipped with computers capable of performing all necessary control, imaging, data handling, reconstruction and analysis tasks. The computer system responsible for data handling, reconstruction and analysis task must meet at least the following hardware specifications: CPU must support ECC DDR4 memory, 64 GB RAM (ECC), 512 GB NVMe SSD hard disk for the OS , NVMe SSD hard disk RAID-system 4 x 1 TB, 1 x Ethernet 1 Gbit, NVIDIA-GPU with 16 GB RAM, 26" flat panel monitor (adjustable for height). CPU and GPU release date not older than 3 years at the time of system installation at the customer's premises. At least 5 years of warranty of the NVMe SSD storage devices is required. (22) Full-protection device (Vollschutzgerät): the CT-system must meet the requirements specified in the German Radiation Protection Ordinance, https://www.gesetze-im-internet.de/strlschv_2018/BJNR20360 0018.html §21, in order to be recognized as a full protection device. Therefore, less than 3 micro Sv/h at any point at a distance of 0.1 m from the surface of the device is required by law. The corresponding product certification and the X-ray leakage measurement protocol must be submitted to the client before delivery.		

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
	(23) The X-ray source must provide an energy range of at least 40 - 90 kV and a maximum tube current of at least 200 microampere or even higher. The X-ray source must have a guaranteed minimal life span of at least 2000 hrs and must be maintenance free. (24) The operation hours of the X-ray source must be accessible for the user. (25) The micro-CT system must enable the user to routinely perform geometric alignment checks and, in the event of geometric misalignment, correct the misalignment detected. If a reconstruction algorithm other than the Feldkamp cone-beam algorithm is used, this requirement does not apply. (26) The system must be capable of applying additional filters in the X-ray beam for dose reduction such as Al and low dose filter (automatic mechanical filter changer with different thickness of Al and or Cu material). (27) The system must have the possibility to estimate the accumulated X-ray dose and dose rate for each individual scan at the time of setting up / configuring each imaging experiment. Deviations between simulated values and measured values as determined by dosimetry (using TLD or LiF technology together with mouse phantom) must be less than 50 percent. (28) Due to the limited space available in the laboratory, the dimensions of the CT system must not exceed 1100 mm (W), 1800 mm (D) and 1700 mm (H).		
KHG C	**SOFTWARE ANFORDERUNGEN**		**0,00 GP**
A 6	**General** (Ist Ausschlusskriterium) (Ist Ja-oder-Nein-Kriterium) (1) The micro-CT system must be provided with an appropriate software package in order to facilitate the daily routine workflow including the necessary software licenses for at least three (3) remote work stations.	☐ **Ja** ☐ **Nein**	

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
	(2) The software package must cover: a.) scanner operation software, b.) image reconstruction, c.) image visualization, d.) image analysis.		
A 7	**Image reconstruction** (Ist Ausschlusskriterium) (Ist Ja-oder-Nein-Kriterium) - image reconstruction: The image reconstruction must be carried out on the graphicat processing unit (GPU). - state of the art image reconstruction algorithm - artifact reduction (physiological motion, thermal motion, metal strikes, defect pixel, ring artifacts) capabilities - reconstruction must offer time-resolved 4D microtomography: reconstruction of distinct heart cycles and lung breathing phases - reconstruction software must support batch reconstruction mode in order to automatize the reconstruction of several measured data - storing the resulting reconstructed images: option to store/save images as "DICOM" format, common formats such as "TIFF" / "JPG" / "BMP"	☐ **Ja** ☐ **Nein**	
A 8	**Image visualization** (Ist Ausschlusskriterium) (Ist Ja-oder-Nein-Kriterium) - state of the art image visualization / rendering algorithm - visualization algorithm must be supported by modern graphic cards - capability for 2D / 3D visualization along arbitrarily orientated planes - 3D visualization and surface/volume rendering capabilities must be supported	☐ **Ja** ☐ **Nein**	
A 9	**Image analysis** (Ist Ausschlusskriterium) (Ist Ja-oder-Nein-Kriterium) - state of the art image analysis algorithm - batch processing capabilities to automatize the analysis - capability for script processing mode to customize and automatize the analysis - capability for exporting surface/volume renders in formats such as "PLY", "STL" - semi-automatized analysis of trabecular bone (histomorphometry according ASBMR standard) - semi-automatized analysis of body composition (fat/lean mass)	☐ **Ja** ☐ **Nein**	

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
	- semi-automatized analysis of lung functions (e.g. tidal volume, etc.) - semi-automatized analysis of heart functions (e.g. stroke volume, EDV/ESV, etc.) Whereby semi-automatized workload is defined as: 20 percent manual interaction by the user, 80 percent automatic processing by the software - capability for image registration along longitudinal studies		
A 10	**Continuous software updates** (Ist Ausschlusskriterium) (Ist Ja-oder-Nein-Kriterium) - scanner operating software (firmware updates, etc.) - image visualization software - image analysis The requested complete software package as described above must run on the operating system Microsoft Windows 11 Enterprise, that has not yet reached its "end-of-life" at the time of system installation at the customer's premises and is still supported by continuous software updates.	☐ **Ja** ☐ **Nein**	
KHG D	**RÜCKTRITTSRECHT**		**0,00 GP**
A 11	**Right of withdrawal** (Ist Ausschlusskriterium) (Ist Ja-oder-Nein-Kriterium) The procurement described is a purchase with a right of withdrawal. The purchaser has the opportunity to test the device for one year (12 months) after delivery, installation and acceptance. During this time, the required exclusion criteria are tested in detail. If a required exclusion criterion is not fulfilled after a test has been carried out three times under the same conditions, the buyer may withdraw from the contract. During the test phase, the purchaser has the one-time option of initially requesting a replacement device instead of immediate withdrawal. The test phase of one year runs again for this replacement device. If the tests are also unsuccessful for the replacement device, the purchaser can withdraw from the contract and the contract will be rescinded. In the event of withdrawal, the seller must remove and collect the device from the purchaser at his own expense within 7	☐ **Ja** ☐ **Nein**	

Nr.	Bezeichnung	Antwort	Kriteriengewichtung
	days. In the event of withdrawal from the contract, compensation for use per year of max. 10 percent of the purchase price is granted for the test phase. The compensation for use is to be calculated pro rate to the months of use. Please state the amount of compensation for use in euros (€) in the offer. This compensation for use is included in the overall valuation.		

Angebot

Mit Unterzeichnung des Angebotes erkennt der Bieter die Forderungen und Angaben des Leistungsverzeichnisses an und bestätigt die Richtigkeit der von ihm gemachten Angaben.	Beschreibung	Betrag
	Gesamtangebotssumme ohne USt. (EUR):	
	Gesamtangebotssumme inkl. USt. (EUR):	