

Force-Sensing Tandem Treadmill w/ Incline and Force Plate Mounting Rails/Epoxy
Salient Characteristics
4/2017

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FORCE Planning Number:	VA-17-100270
Temporary Transaction Number:	ALDK0001

1. Contracting Officer's Technical Representative (COTR).

Name:	
Section:	Research and Development
Address:	Rm 516, Building 1, VA Puget Sound Healthcare, 1660 S Columbian Way, Seattle, WA 98108
Phone Number:	
E-Mail Address:	

2. Contract Title

Force-Sensing Tandem Treadmill w/ Incline and Force Plate Mounting Rails/Epoxy

3. Background

One of the primary research priorities at the RR&D Center for Limb Loss and Mobility is to study walking function and treatment efficacy in patients with mobility impairments and healthy individuals. A force-sensing tandem treadmill with incline is required to complete work related to multiple funded research projects supported by the Center that study ambulation to improve the health of our Veterans. This treadmill will replace an existing non-tandem treadmill without incline (VAPSHC Inventory#: EE89716) that is Beyond Economical Repair located in Building 100, Room 1D-118 of VA Seattle-663.

The force plate mounting rails and epoxy will be used to relocate the existing AMTI force plates (see below) to accommodate the new treadmill.

4. Salient Characteristics

The force-sensing tandem treadmill with incline must satisfy the following requirements:

- **Tandem belt design** with 1 mm clearance between front and rear belts is required to allow the foot to naturally translate between belts while isolating a single load path on each belt, leading to a higher rate of successful foot strikes for analysis.

This design is required to facilitate natural ambulation that is more like walking over-ground as compared to a side-by-side, split-belt (non-tandem) treadmill.

- **Treadmill Speed:** up to 12 mph in 0.1 mph increments.
- **Treadmill Outputs:** front speed, rear speed (voltage range: 0-5 V) and pitch (2.5-3.5 V).
- **Walking surface dimension of each belt:** Length: > 73 cm, Width: 65 cm, to allow for natural ambulation.
- **Strain-gauge based, 6-axis force plates** beneath each treadmill belt for accurate measurement of ground reaction forces (average Fz error < 0.5% of applied load) and center of pressure (COP) position (average COP error across 25 points < 2.5 mm). Strain gauges are required to isolate the signals caused by individual lower limb forces and moments during continuous ambulation, which allows them to be accurately and separately quantified (linearity and hysteresis: $\pm 0.2\%$ full scale output).
- **Load capacity:** Fz = 8800 N (2000 lbs); Fx, Fy = 4500 N (1000 lbs).
- **Six analog (or digital) outputs** from each force plate: Fx, Fy, Fz, Mx, My, Mz. (voltage range: ± 5 V)
- **Amplifiers:** medical-grade standard signal conditioners with 1 kHz anti-aliasing filters, oversampling (up to 2000 Hz) and digital signal processing. Integration with analog systems (i.e., VICON optical motion capture system) and third-party software required.
- **Incline up to 25% grade in 1% increments with reversible belt direction**, to study both uphill and downhill gait.

The force plate modular rails hardware must satisfy the following requirements:

- **Compatible with the existing force plates** (AMTI, Model: BP400600, 8 total: VAPSHC Inventory#: EE70539, EE112745, EE112572, EE116611, EE112586, EE112746, EE116610, EE116609) in Building 100, Room 1D-118 of VA Seattle-663 to accommodate the new treadmill.

Maintenance plan must satisfy the following requirements:

- **Membership for 3 years:** Includes the initial access fee and membership fees for two additional years.
- **Remote support training and consultation:** Allow for remote support and training with technicians and engineers.

5. Other Pertinent Information or Special Considerations

- a.) This equipment will be used for VA research studies approved through the VAPSHCS Research and Development Committee on many protocols, including IRB Approval# 00234, 00687, 00743, 01374, 00046, 00931, 00725, 00539, and 00949.
- b.) The AMTI force-sensing tandem treadmill with incline will replace the existing Bertec side-by-side, split-belt (non-tandem) treadmill (VAPSHC Inventory#: EE89716) that is Beyond Economical Repair.

Delivery Information

a.) Delivery Address:

VAPSHCS
Center for Limb Loss and Mobility
Building 100, Room 1D-118
1660 S. Columbian Way, MS 151
Seattle, WA 98108

b.) Delivery Contacts:

[REDACTED]

[REDACTED]

Privacy Officer Language for Statement of Work (SOW)

- ☐ Information made available to the contractor or subcontractor by VA for the performance or administration of this contract or information developed by the contractor/subcontractor in performance or administration of the contract shall be used only for those purposes and shall not be used in any other way without the prior written agreement of the VA. This clause expressly limits the contractor/subcontractor's rights to use data as described in Rights in Data- General, FAR 52.227-14(d) (1).
- ☐ VA information should not be co-mingled, if possible, with any other data on the contractors/subcontractor's information systems or media storage systems in order to ensure VA requirements related to data protection and media sanitization can be met. If co-mingling must be allowed to meet the requirements of the business need, the contractor must ensure that VA's information is returned to the VA or destroyed in accordance with VA's sanitization requirements. VA reserves the right to conduct on-site inspections of contractor and subcontractor IT resources to ensure data security controls, separation of data and job duties, and destruction/media sanitization procedures are in compliance with VA directive requirements.
- ☐ Prior to termination or completion of this contract, contractor/subcontractor must not destroy information received from VA, or gathered/created by the contractor in the course of performing this contract without prior written approval by the VA. Any data destruction done on behalf of VA by a contractor/subcontractor must be done in accordance with National Archives and Records Administration (NARA) requirements as outlined in VA Directive 6300, Records and Information Management and its Handbook 6300.1 Records Management Procedures, applicable VA Records Control Schedules, and VA Handbook 6500.1, Electronic Media Sanitization. Self-certification by the contractor that the data destruction requirements above have been met must be sent to the VA Contracting Officer within 30 days of termination of the contract.
- ☐ The contractor/subcontractor must receive, gather, store, back up, maintain, use, disclose and dispose of VA information only in compliance with the terms of the contract and applicable Federal and VA information confidentiality and security laws, regulations and policies. If Federal or VA information confidentiality and security laws, regulations and policies become applicable to the VA information or information systems after execution of the contract, or if NIST issues or updates applicable FIPS or Special

Publications (SP) after execution of this contract, the parties agree to negotiate in good faith to implement the information confidentiality and security laws, regulations and policies in this contract.

☐ The contractor/subcontractor shall not make copies of VA information except as authorized and necessary to perform the terms of the agreement or to preserve electronic information stored on contractor/subcontractor electronic storage media for restoration in case any electronic equipment or data used by the contractor/subcontractor needs to be restored to an operating state. If copies are made for restoration purposes, after the restoration is complete, the copies must be appropriately destroyed.

Records Management Language for Contracts Required

The following standard items relate to records generated in executing the contract and should be included in a typical Electronic Information Systems (EIS) procurement contract:

1. Citations to pertinent laws, codes and regulations such as 44 U.S.C chapters 21, 29, 31 and 33; Freedom of Information Act (5 U.S.C. 552); Privacy Act (5 U.S.C. 552a); 36 CFR Part 1222 and Part 1228.
2. Contractor shall treat all deliverables under the contract as the property of the U.S. Government for which the Government Agency shall have unlimited rights to use, dispose of, or disclose such data contained therein as it determines to be in the public interest.
3. Contractor shall not create or maintain any records that are not specifically tied to or authorized by the contract using Government IT equipment and/or Government records.
4. Contractor shall not retain, use, sell, or disseminate copies of any deliverable that contains information covered by the Privacy Act of 1974 or that which is generally protected by the Freedom of Information Act.
5. Contractor shall not create or maintain any records containing any Government Agency records that are not specifically tied to or authorized by the contract.
6. The Government Agency owns the rights to all data/records produced as part of this contract.
7. The Government Agency owns the rights to all electronic information (electronic data, electronic information systems, electronic databases, etc.) and all supporting documentation created as part of this contract. Contractor must deliver sufficient technical documentation with all data deliverables to permit the agency to use the data.
8. Contractor agrees to comply with Federal and Agency records management policies, including those policies associated with the safeguarding of records covered by the Privacy Act of 1974. These policies include the preservation of all records created or received regardless of format [paper, electronic, etc.] or mode of transmission [e-mail, fax, etc.] or state of completion [draft, final, etc.].
9. No disposition of documents will be allowed without the prior written consent of the Contracting Officer. The Agency and its contractors are responsible for preventing the alienation or unauthorized destruction of records, including all forms of mutilation. Willful and unlawful destruction, damage or alienation of Federal records is subject to the fines and penalties imposed by 18 U.S.C. 2701. Records may not be removed from the legal custody of the Agency or destroyed without regard to the provisions of the agency records schedules.
10. Contractor is required to obtain the Contracting Officer's approval prior to engaging in any contractual relationship (sub-contractor) in support of this contract requiring the disclosure of information, documentary material and/or records generated under, or relating to, this contract.

The Contractor (and any sub-contractor) is required to abide by Government and Agency guidance for protecting sensitive and proprietary information.