Public Works and Government Services Canada

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1550, Avenue d'Estimauville
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Title - Sujet 100 kN Tensile Testing System	
Solicitation No. - N° de l'invitation W7701-197019/A	**Amendment No. - N° modif.** 003
Client Reference No. - N° de référence du client W7701-197019	**Date** 2019-04-17
GETS Reference No. - N° de référence de SEAG PW-$QCN-034-17629	
File No. - N° de dossier QCN-8-41209 (037)	**CCC No./N° CCC - FMS No./N° VME**

SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Solicitation Closes - L'invitation prend fin at - à **02:00 PM** on - le **2019-04-30**		**Time Zone** **Fuseau horaire** Heure Avancée de l'Est HAE
F.O.B. - F.A.B. Plant-Usine: ☐ Destination: ☑ Other-Autre: ☐		
Address Enquiries to: - Adresser toutes questions à: Roy, Alain		**Buyer Id - Id de l'acheteur** qcn037
Telephone No. - N° de téléphone (418) 649-2845 ( )		**FAX No. - N° de FAX** ( ) -

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:

Defence R & D Canada - Valcartier /
R et D Défense Canada - Valcartier
2459 route de la Bravoure
Québec (Québec) G3J 1X5

Comments - Commentaires

CE DOCUMENT CONTIENT DES EXIGENCES RELATIVES À LA SÉCURITÉ. /
THIS DOCUMENT CONTAINS A SECURITY REQUIREMENT.

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
Vendor/Firm Name and Address **Raison sociale et adresse du fournisseur/de l'entrepreneur**	
Telephone No. - N° de téléphone **Facsimile No. - N° de télécopieur**	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) **Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)**	
Signature	**Date**

Issuing Office - Bureau de distribution
TPSGC/PWGSC
601-1550, Avenue d'Estimauville
Québec
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Canada

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Amendment 003 to our Solicitation to answer questions from the industry.

Enquiries – Bid solicitation – Clause #2.3

To ensure consistency and quality of information provided to bidders, significant enquiries received and the replies to such enquiries will be provided simultaneously to bidders to which the bid solicitation has been sent, without revealing the sources of enquiries.

Here is the questions we have received:

At Annex E – Mandatory Criteria – Table E.1.1 – Criterion no. 1

Question 2: You are asking for testing speed range from 0.000002 in / min to 40 in / min. Would a testing speed range of 0.005 to 1000 mm / min be acceptable?

Answer 2: Yes, we accept a testing speed range of 0.005 to 1000 mm / min.

At ANNEX E – Mandatory Criteria – Table E.1.1 – Criterion no. 6

Question 3: You are requesting a load frame that must include at least two (2) 80mm diameter smooth ground guidance for the moving crosshead. Would you accept 50mm guide post?

Answer 3: Yes, we accept a load frame that must include at least two (2) 50mm diameter minimum smooth ground guidance for the moving crosshead.

At ANNEX E – Mandatory Criteria – Table E.1.1 – Criterion no. 8

Question 4: You ask for a very specific design. Can you revise this criterion?

Answer 4: The revised description of this criterion is as follows: The frame must include adjustable mechanical limit switches that prevent the crosshead from travelling too high or too low.

At ANNEX E – Mandatory Criteria – Table E.1.1 – Criterion no. 11

Question 5: You ask for a very specific design regarding shortcut keys. Can you revise this criterion?

Answer 5: The revised description of this criterion is as follows: The frame must include an operator panel which can be used to run and stop tests at the frame as opposed to through the PC and software. The operator panel must have at least two (2) live display read outs that are in synchronize with the testing software live displays. The operator panel must also have a fine position wheel that can be used to move the frame crosshead in small increments to aid in the installation and removal of fixtures.

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At ANNEX E – Mandatory Criteria – Table E.1.2 – Criterion no. 9

Question 6: Can you remove the requirement on auto-balance?

Answer 6: The revised description of this criterion is as follows: The software must allow the user (when configuring a test method) the option to manually zero load, displacement auto-zeros, before the start of test.

At ANNEX E – Mandatory Criteria – Table E.1.2 – Criterion no. 13

Question 7: Can you change this criteria so that the software alarm sounds when a predefined force is reached?

Answer 7: Here is the revised description of this criterion: The software alarm sounds when a predefined force is reached.

At ANNEX E – Mandatory Criteria – Table E.1.2 – Criterion no.14

Question 8: Can you afford higher acquisition rates?

Answer 8: The revised description of this criterion is as follows: The control software must be able to acquire data at 1000 Hz or better across load, displacement, and up to two (2) additional strain channels that can be utilized on an optional basis. Data rates must not be affected by the number of strain channels collected

At ANNEX E – Mandatory Criteria – Table E.1.1 – Criteria no. 17.8, 17.9 and 17.10

Question 9: (17.8) Will the user be performing Creep test? Will creep tests be limited to 10hrs or less? **(17.9)** If this test is required would the use of a software custom formula be acceptable? **(17.10)** If this test is required would the use of a software custom formula be acceptable?

Answer 9: The criteria no. **17.8**, **17.9** and **17.10** are deleted.

AT ANNEX B

DELETE ANNEX B

INSERT ANNEX B, AS FOLLOWS:

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ANNEX B - MINIMUM PERFORMANCE CHARACTERISTICS OF EQUIPMENT

The minimum performance characteristics of equipment listed in this annex are, first and foremost, the minimum requirements and do not constitute an exhaustive list.

Any characteristics of equipment required for operation of the equipment and not described in this annex are an integral part of the equipment and their cost is included in the contract value.

B.1 100 kN Tensile Test System

The 100 kN Tensile Test System must be a table-mounted, double column, electromechanical test system. The apparatus must be capable of being used for tensile, compression, compression, bending, shear and reverse stress tests by means of numerical control and data acquisition electronics, including the extension of the crosshead and load measurement channels. In addition, the device must meet the minimum performance characteristics of equipment listed in this annex.

B.1.1 Frame of the Tensile Test System

The minimum performance characteristics of the frame:

1	Testing speed range: 0.005 to 1000 mm / min (0.0001969 in/min to 39,37 in/min);
2	Crosshead return speed: 1016 mm/min (40 in/min);
3	The travel distance of the load crosshead must be sufficient to perform a tensile test on a 500mm long part;
4	Frame that is rated to a minimum of 100 kN;
5	l00 kN load cell (minimum acceptable);
6	The load frame must include at least two (2) 50 mm diameter min. smooth ground guidance rods for the moving crosshead;
7	The load frame must include a CSA (or equivalent) approved emergency stop switch. The system must not restart the crosshead moving when the emergency stop button is released. The emergency stop switch will remain active when covers are removed for service;
8	The frame must include adjustable mechanical limit switches that prevent the crosshead from travelling too high or too low;
9	The frame must include an attachment mechanism (such as integrated T-slots) on the front and back of both column covers for easy mounting of accessories;

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B.1.1 Frame of the Tensile Test System

The minimum performance characteristics of the frame:

10	The frame must have a clearly labeled buttons to jog the crosshead UP or DOWN. When released, the crosshead must stop ;
11	The frame must include an operator panel which can be used to run and stop tests at the frame as opposed to through the PC and software. The operator panel must have at least two (2) live display read outs that are in synchronize with the testing software live displays. The operator panel must also have a fine position wheel that can be used to move the frame crosshead in small increments to aid in the installation and removal of fixtures.

B.1.2 Software of the Tensile Test System

The minimum performance characteristics of the software:

1	The control software must be a true graphical user interface compatible with Microsoft Windows 7;
2	The software must allow the user to assign at least two (2) soft keys displayed on the monitor to provide quick access to functionality such as balance load, balance strain, reset gauge length and exclude specimen at a minimum;
3	The testing software must be able to perform tensile, compression, flexure, peel, tear, friction, stress relaxation, creep and simple cyclic tests and include an appropriate calculation list for each type of test at a minimum;
4	The testing software must be able to perform cyclic testing defined by blocks that can be customized by the user and include relative ramps, absolute ramps, triangle waveforms and hold patterns at a minimum;
5	The software must allow for load and strain control of the test system;
6	The control software must include set-up of the following, test speed, limits on all channels, calibration and balance of transducers, specimen dimensions, and results tables at a minimum;
7	The software must allow the user to specify the test control area above or below the moving crosshead;

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B.1.2 Software of the Tensile Test System

The minimum performance characteristics of the software:

8	The software must allow the user to enable a specimen protection safety feature and set a load threshold to prevent damage during gripping and specimen preload;
9	The software must allow the user (when configuring a test method) the option to manually zero load, displacement auto-zeros, before the start of test;
10	The software must allow the user (when configuring a test method) the option to select pre-load or pre-cycle a specimen before the start of a test;
11	The software must allow the user to configure a test method to automatically detect a specimen break by a change in rate of load or a percentage drop of the maximum load;
12	The software must have the option available to allow for automatic return of the crosshead to the test start position after specimen break is detected and also to be able to select a specimen protect feature;
13	The software alarm sounds when a predefined force is reached;
14	The control software must be able to acquire data at 1000 Hz or better across load, displacement, and up to two (2) additional strain channels that can be utilized on an optional basis. Data rates must not be affected by the number of strain channels collected;
15	Test control software must be able to automatically store raw data or calculated results in an ASCII file;
16	The software must have the option to integrate any USB camera device (such as a Webcam) for video capture of the tested specimen and allow for playback of the test with data point selection matching with video frames for analysis;
17	The software must offer the following calculations;
	17.1 Maximum Peak (all available channels);
	17.2 Minimum Peak (all available channels);
	17.3 Specimen Break Point (all available channels);
	17.4 Yield (Zero slope, Offset and Energy at Yield);
	17.5 Modulus (Secant, Tangent, ,Automatic Young's, User-defined Young's, Chord);

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B.1.2   Software of the Tensile Test System

The minimum performance characteristics of the software:

	17.6	Slope (Secant, Tangent, Automatic Y01mg's, User-defined Young's, Chord);
	17.7	Average Load Between two (2) Points based on average load, number of peaks, number of troughs, number of peaks and troughs;
	17.8	~~Total creep & delta creep;~~
	17.9	~~Total relaxation & delta relaxation ;~~
	17.10	~~Seam slippage;~~
	17.11	Area reduction;
	17.12	Coefficient of friction (static & dynamic);
	17.13	Local peak;
	17.14	Poisson's ratio ;
	17.15	n-value, r-value & YPE & non-proportional elongation;
	17.16	The software must include the capability to define correction factors such as machine compliance, slack, pretension, load and gauge length at a minimum;
	17.17	The software must provide CSV raw data output;
	17.18	The software must provide the option of storing test reports in one of three (3) formats, MS Word, HTML or PDF and must provide a mechanism for editing of the report template including the header, footer and body. The body of the report must be completely customizable with pictures and text and allow for import of test results and graphs. The report editor must be integrated with the software to allow for instant update of the report content when each test is run.

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B.1.3   Performance of the Tensile Test System

The minimum performance characteristics of the system:

1	Load cell and extensometer transducers available for the system must include self-identification (recognition) electronics in the connector directly attached to these transducers which automates the calibration of these devices. For safety and data integrity issues, operators must not have to select the capacity of a load cell from a list or type in a value in order to calibrate different load cells (or extensometers). Manually calibrated load cells or extensometers requiring calibration weights or calibration micrometer fixture are not acceptable. In addition to the above, the system must allow for manual calibration of third party transducers;
2	The load weighing system accuracy must be within +/-0.5% of reading down to 1/1000th of the load cell capacity;
3	Any load cell provided must have 105% over range protection that will stop the frame automatically. For safety purposes, the maximum load for a test should be set by identification electronics located in the connector directly attached to the load cell. Operators must not have to select the capacity of a load cell from a list or type in a value in order to calibrate different load cells. Because this identification connector automatically sets the maximum load for a test, this connector must not be detachable from the load cell to prevent it to be used with a different capacity load cells;
4	The tension/compression load cell must have an overload capacity without permanent zero shift of 150% of capacity;
5	The system must include an integrated context sensitive help and reference system. The help screen must demonstrate both how a function works and why it is used. The search capability must allow the user to find a specific topic from the help index or by cross-referencing information from another help topic. The system will not be connected to the Internet so all help functions, topics, definition, etc must be contained within the software and not rely on Internet access;
6	Digital displays on the computer monitor should show live load, displacement, and optional strain values in engineering units that can be selected to be Metric, S.I., U.S. customary. For safety purposes, these live displays should not be allowed to be covered up or hidden during a test or while jogging the crosshead. Up to four (4) live display windows must be available for display simultaneously;
7	An unlimited number of test methods must be available for storage and retrieval;
8	Run time screen must be capable of displaying both the real time graph and the calculated results of multiple specimens simultaneously;

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B.1.3   Performance of the Tensile Test System

The minimum performance characteristics of the system:

9	Data must be acquired at a user selectable, continuous rate without gaps;
10	Specimen geometry's for each specimen must include rectangular, irregular (area), cube, cylindrical, 3-and 4-point bend specimens, 90°, 180° and T-peel test geometries and geometries for tear specimens and coefficient of friction tests at a minimum;
11	A real time X-Y plot of two (2) selected variables will be displayed. The variables available for selection for each axis will be load, stress, extension, and either of the two (2) strain channels as selected by the user. The available system of units for each axis will be US Customary, Metric, or SI and will be independently set by the user. Other graph features will include manual and automatic scaling, legend symbols, to distinguish individual test curves, horizontal and vertical offset between test curves, double-Y axis, multi-channel, and selectable number of test curves per display at a minimum;
12	The ability to re-analyze past test data using different calculations (as stated in characteristic # 17 of subsection B.1.2) must be provided;
13	USB camera device (such as a webcam) as described in characteristic # 16 of subsection B.1.2, must come with an attachment to mount to the frame;
14	The load measurement accuracy must at least 0.5% of the reading down to 1/1 000° of a load the cell's capacity.

All other terms and conditions remain the same.