



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Solicitation

NUMBER
 CME14173

PAGE
 1

ADDRESS CORRESPONDENCE TO ATTENTION OF
 BOB KILPATRICK
 304-558-0067

RFQ COPY

TYPE NAME/ADDRESS HERE

Thermo Electron North America LLC
 5225 Verona Road
 Madison, WI 53711
 FEIN: 43-1992201

HEALTH AND HUMAN RESOURCES
 BUREAU FOR PUBLIC HEALTH
 OFFICE CHIEF MEDICAL EXAMINER
 619 VIRGINIA STREET, WEST
 CHARLESTON, WV
 25302 304-558-4865

RODZIK

SHIP TO

DATE PRINTED
 05/19/2014

BID OPENING DATE: 05/28/2014 BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
ADDENDUM NO. 1						
ADDENDUM ISSUED TO:						
1. PROVIDE REVISED SPECIFICATIONS, PER ATTACHMENT A						
2. TO CHANGE BID OPENING DATE AND TIME TO 5/28/2014 AT 1:30PM EST						
3. TO PROVIDE ADDENDUM ACKNOWLEDGEMENT. THIS DOCUMENT SHOULD BE SIGNED AND RETURNED WITH YOUR BID. FAILURE TO SIGN AND RETURN MAY RESULT IN THE DISQUALIFICATION OF YOUR BID.						
***** END OF ADDENDUM NO.1 *****						
05/23/14 09:36:56AM West Virginia Purchasing Division						

SIGNATURE *Aura Howard* TELEPHONE 608-276-6174 DATE 5/21/2014
 TITLE Manager Commercial Order Management FEIN 43-1992201 ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

SOLICITATION NUMBER: CME14173

Addendum Number: 1

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

- | Modify bid opening date and time
- | Modify specifications of product or service being sought
- | Attachment of vendor questions and responses
- | Attachment of pre-bid sign-in sheet
- | Correction of error
- | Other

Description of Modification to Solicitation:

Addendum #1 issued to modify specifications (per Attachment A) and to

Postpone bid Opening Date and Time to Wednesday, May 28, 2014 at 1:30pm EST.

NO OTHER CHANGES

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

ADDENDUM #1 – CME14173

ADDENDUM #1 TO REVISE RFQ SPECIFICATIONS AND EXTEND BID OPENING TO 1:30 PM, MAY 28, 2014.

Revise language for Section 3.1.1.11 on the RFQ Specifications as follows:

Change From:

- 3.1.1.11 Quadrupole Time-of-Flight Mass Spectrometer must employ stacked ring, traveling wave ion cell after the quadrupole to help concentrate and focus ions before time of flight pusher.

Change To:

- 3.1.1.11 Quadrupole Time-of-Flight Mass Spectrometer must employ a technology method for transferring all ions rather than one ion at a time to help concentrate and focus ions that is equal to Waters' stacked ring "traveling wave" technology.

Revise language for Section 3.1.1.15 on the RFQ Specifications as follows:

Change From:

- 3.1.1.15 Quadrupole Time-of-Flight Mass Spectrometer must use a universal source architecture method to allow for source change and future upgrade.

Change To:

- 3.1.1.15 Quadrupole Time-of-Flight Mass Spectrometer must allow for source changes and future upgrades.

Revise language for Section 3.1.1.17 on the RFQ Specifications as follows:

Change From:

- 3.1.1.17 Quadrupole Time-of-Flight Mass Spectrometer must have an isolation valve to allow cleaning of cone without venting instrument.

Change To:

- 3.1.1.17 Quadrupole Time-of-Flight Mass Spectrometer must include a method to allow cleaning of cone without venting instrument.

Revise language for Section 3.1.1.30 on the RFQ Specifications as follows:

Change From:

- 3.1.1.30 Quadrupole Time-of-Flight Mass Spectrometer software must be capable of aligning elevated-energy mass spectrometry (MS^E) data according to liquid chromatography retention time and then automatically associating the precursor ion for each sample component to its fragment ion spectrum. It must be possible to automatically interrogate the processed elevated-energy mass spectrometry dataset.

Change To:

- 3.1.1.30 Quadrupole Time-of-Flight Mass Spectrometer software must be able to align parent and fragment data by retention time and allow user the ability to search one or both.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CME14173

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

- | | |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Thermo Electron North America LLC

Company

Authorized Signature

5/21/2014

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012



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BOB KILPATRICK 304-558-0067

RFQ COPY

Thermo Electron North America LLC
 5225 Verona Road
 Madison, WI 53711
 FEIN 43-1992201
 fax: 412-200-6542

S H I P T O
 HEALTH AND HUMAN RESOURCES
 BUREAU FOR PUBLIC HEALTH
 OFFICE CHIEF MEDICAL EXAMINER
 619 VIRGINIA STREET, WEST
 CHARLESTON, WV
 25302 304-558-4865

DATE PRINTED
04/28/2014

BID OPENING DATE: 05/21/2014 BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT. NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	EA	493-99	INTEGRATED LIQUID CHROMATOGRAPH QUADRUPOLE TIME OF FLIGHT MASS SPECTROMETER INSTRUMENT, WATERS SCREENING PLATFORM SOLUTION WITH UNIFI, PART #176815014 OR EQUAL		433,155.26

THE WEST VIRGINIA PURCHASING DIVISION IS SOLICITING BIDS ON BEHALF OF THE WEST VIRGINIA DEPARTMENT OF HEALTH AND HUMAN RESOURCES (DHHR), OFFICE OF THE CHIEF MEDICAL EXAMINER, TO ESTABLISH A CONTRACT FOR THE ONE-TIME PURCHASE OF A STAND-ALONE INTEGRATED LIQUID CHROMATOGRAPH QUADRUPOLE TIME-OF-FLIGHT MASS SPECTROMETER INSTRUMENT; INTEGRATED LIQUID CHROMATOGRAPH TANDEM QUADRUPOLE MASS SPECTROMETER INSTRUMENT; TOXICOLOGY SOFTWARE AND LIBRARIES; SETUP AND INSTALLATION; SUPPORT, MAINTENANCE AND WARRANTY; AND ONSITE TRAINING, PER THE ATTACHED DOCUMENTATION.

ATTACHMENTS INCLUDE:

1. INSTRUCTIONS TO VENDORS SUBMITTING BIDS
2. GENERAL TERMS AND CONDITIONS
3. CME14173 SPECIFICATIONS, INCLUDING PRICING PAGES
4. CERTIFICATION AND SIGNATURE PAGE
5. PURCHASING AFFIDAVIT
6. VENDOR PREFERENCE CERTIFICATE

SIGNATURE: <i>Jana Howard</i>	TELEPHONE: 608-276-6174	DATE: 5-20-2014
TITLE: Manager Commercial Order Mgt	FEIN: 43-1992201	ADDRESS CHANGES TO BE NOTED ABOVE

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HEALTH AND HUMAN RESOURCES
 BUREAU FOR PUBLIC HEALTH
 OFFICE CHIEF MEDICAL EXAMINER
 619 VIRGINIA STREET, WEST
 CHARLESTON, WV
 25302 304-558-4865

DATE PRINTED
04/28/2014

BID OPENING DATE: 05/21/2014

BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0002	1	YR	952-85	TELEPHONE SUPPORT, ONSITE MAINTENANCE AND WARRANTY: YEAR 1 - FOR ITEM IN 3.1.1.		no charge
0003	1	YR	952-85	TELEPHONE SUPPORT, ONSITE MAINTENANCE AND WARRANTY: YEAR 2 - FOR ITEM IN 3.1.1.		32,708.01
0004	1	YR	952-85	TELEPHONE SUPPORT, ONSITE MAINTENANCE AND WARRANTY: YEAR 3 - FOR ITEM IN 3.1.1.		32,708.01
0005	1	EA	493-99	INTEGRATED LIQUID CHROMATOGRAPH QUADRUPOLE TIME OF FLIGHT MASS SPECTROMETER INSTRUMENT SET UP AND INSTALL AT 619 VIRGINIA STREET, WEST; CHARLESTON, WEST VIRGINIA		No Charge

SIGNATURE	TELEPHONE 608-276-6174	DATE 5-20-2014
TITLE Manager-Commercial Order Mgt	FEIN 43-1992201	ADDRESS CHANGES TO BE NOTED ABOVE

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 BUREAU FOR PUBLIC HEALTH
 OFFICE CHIEF MEDICAL EXAMINER
 619 VIRGINIA STREET, WEST
 CHARLESTON, WV
 25302 304-558-4865

DATE PRINTED
04/28/2014

BID OPENING DATE: 05/21/2014

BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0006	1	EA	493-99	ONE, TWO (2) DAY ONSITE INTEGRATED LIQUID CHROMATOGRAPH QUADRUPOLE TIME OF FLIGHT MASS SPECTROMETER INSTRUMENT TRAINING SESSION.		7,910.00
0007	1	EA	493-99	INTEGRATED LIQUID CHROMATOGRAPH TANDEM QUADRUPOLE MASS SPECTROMETER INSTRUMENT, WATERS XEVO TQ-S SYSTEM, PART #176850041 OR EQUAL.		239,385.16
0008	1	YR	952-85	TELEPHONE SUPPORT, ONSITE MAINTENANCE AND WARRANTY: YEAR 1 - FOR ITEM 3.1.5 ABOVE.		No Charge
0009	1	YR	952-85	TELEPHONE SUPPORT, ONSITE MAINTENANCE AND WARRANTY: YEAR 2 - FOR ITEM 3.1.5 ABOVE.		40,128.81

SIGNATURE	TELEPHONE 608-276-6174	DATE 05-20-2014
TITLE Manager-Commercial Order Mgt	FEIN 43-1992201	ADDRESS CHANGES TO BE NOTED ABOVE

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BOB KILPATRICK 304-558-0067

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TYPE NAME/ADDRESS HERE

VENDOR

SHIP TO

HEALTH AND HUMAN RESOURCES
 BUREAU FOR PUBLIC HEALTH
 OFFICE CHIEF MEDICAL EXAMINER
 619 VIRGINIA STREET, WEST
 CHARLESTON, WV
 25302 304-558-4865

DATE PRINTED
04/28/2014

BID OPENING DATE: 05/21/2014

BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0010	1	YR	952-85	TELEPHONE SUPPORT, ONSITE MAINTENANCE AND WARRANTY: YEAR 3 - FOR ITEM 3.1.5 ABOVE.		23,888.81
0011	1	EA	493-99	INTEGRATED LIQUID CHROMATOGRAPH TANDEM QUADRUPOLE MASS SPECTROMETER INSTRUMENT SET UP AND INSTALLATION		No Charge
0012	1	EA	493-99	ONE, TWO (2) DAY ONSITE INTEGRATED LIQUID CHROMATOGRAPH TANDEM QUADRUPOLE MASS SPECTROMETER INSTRUMENT TRAINING SESSION.		6,810.00
***** THIS IS THE END OF RFQ CME14173 ***** TOTAL:						816,694.06

SIGNATURE	TELEPHONE 608-276-6174	DATE 5-20-2014
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TITLE Manager-Commercial Order Mgt	FEIN 43-1992201	ADDRESS CHANGES TO BE NOTED ABOVE
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WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in, but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

4. **VENDOR QUESTION DEADLINE:** Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below in order to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are non-binding.

Question Submission Deadline: Tuesday, May 13, 2014 by 5:00pm EST

Submit Questions to: Robert P Kilpatrick, Senior Buyer
 2019 Washington Street, East
 Charleston, WV 25305
 Fax: (304) 558-4115
(Vendors should not use this fax number for bid submission)
 Email: robert.p.kilpatrick@wv.gov

5. **VERBAL COMMUNICATION:** Any verbal communication between the Vendor and any State personnel is not binding, including that made at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.
6. **BID SUBMISSION:** All bids must be signed and delivered by the Vendor to the Purchasing Division at the address listed below on or before the date and time of the bid opening. Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason. The Purchasing Division will not accept bids, modification of bids, or addendum acknowledgment forms via e-mail. Acceptable delivery methods include hand delivery, delivery by courier, or facsimile. The bid delivery address is:

Department of Administration, Purchasing Division
 2019 Washington Street East
 Charleston, WV 25305-0130

The bid should contain the information listed below on the face of the envelope or the bid may not be considered:

SEALED BID: COST PROPOSAL
 BUYER: Robert P Kilpatrick, File 22
 SOLICITATION NO.: CME14173
 BID OPENING DATE: May 21, 2014
 BID OPENING TIME: 1:30pm EST
 FAX NUMBER: 304-558-4115

In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal plus NA convenience copies of each to the Purchasing Division at the address shown above. Additionally, the Vendor should identify the bid type as either a technical or cost proposal on the face of each bid envelope submitted in response to a request for proposal as follows:

BID TYPE: Technical
 Cost

7. **BID OPENING:** Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when time stamped by the official Purchasing Division time clock.

Bid Opening Date and Time: Wednesday, May 21, 2014 at 1:30pm EST

Bid Opening Location: Department of Administration, Purchasing Division
 2019 Washington Street East
 Charleston, WV 25305-0130

8. **ADDENDUM ACKNOWLEDGEMENT:** Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.
9. **BID FORMATTING:** Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

GENERAL TERMS AND CONDITIONS:

1. **CONTRACTUAL AGREEMENT:** Issuance of a Purchase Order signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. **DEFINITIONS:** As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.
 - 2.1 **"Agency" or "Agencies"** means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.
 - 2.2 **"Contract"** means the binding agreement that is entered into between the State and the Vendor to provide the goods and services requested in the Solicitation.
 - 2.3 **"Director"** means the Director of the West Virginia Department of Administration, Purchasing Division.
 - 2.4 **"Purchasing Division"** means the West Virginia Department of Administration, Purchasing Division.
 - 2.5 **"Purchase Order"** means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the successful bidder and Contract holder.
 - 2.6 **"Solicitation"** means the official solicitation published by the Purchasing Division and identified by number on the first page thereof.
 - 2.7 **"State"** means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.
 - 2.8 **"Vendor" or "Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. **CONTRACT TERM; RENEWAL; EXTENSION:** The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

Term Contract

Initial Contract Term: This Contract becomes effective on Upon Award
and extends for a period of One (1) year(s).

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal must be submitted to the Purchasing Division Director thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Renewal of this Contract is limited to Two (2) successive one (1) year periods. Automatic renewal of this Contract is prohibited. Notwithstanding the foregoing, Purchasing Division approval is not required on agency delegated or exempt purchases. Attorney General approval may be required for vendor terms and conditions.

Reasonable Time Extension: At the sole discretion of the Purchasing Division Director, and with approval from the Attorney General's office (Attorney General approval is as to form only), this Contract may be extended for a reasonable time after the initial Contract term or after any renewal term as may be necessary to obtain a new contract or renew this Contract. Any reasonable time extension shall not exceed twelve (12) months. Vendor may avoid a reasonable time extension by providing the Purchasing Division Director with written notice of Vendor's desire to terminate this Contract 30 days prior to the expiration of the then current term. During any reasonable time extension period, the Vendor may terminate this Contract for any reason upon giving the Purchasing Division Director 30 days written notice. Automatic extension of this Contract is prohibited. Notwithstanding the foregoing, Purchasing Division approval is not required on agency delegated or exempt purchases, but Attorney General approval may be required.

Release Order Limitations: In the event that this contract permits release orders, a release order may only be issued during the time this Contract is in effect. Any release order issued within one year of the expiration of this Contract shall be effective for one year from the date the release order is issued. No release order may be extended beyond one year after this Contract has expired.

Fixed Period Contract: This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within _____ days.

- One Time Purchase:** The term of this Contract shall run from the issuance of the Purchase Order until all of the goods contracted for have been delivered, but in no event shall this Contract extend for more than one fiscal year.
- Other:** See attached.
4. **NOTICE TO PROCEED:** Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Purchase Order will be considered notice to proceed
5. **QUANTITIES:** The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.
- Open End Contract:** Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.
- Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.
- Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.
- One Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.
6. **PRICING:** The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification.
7. **EMERGENCY PURCHASES:** The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute of breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One Time Purchase contract.
8. **REQUIRED DOCUMENTS:** All of the items checked below must be provided to the Purchasing Division by the Vendor as specified below.

- BID BOND:** All Vendors shall furnish a bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.
- PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of . The performance bond must be issued and received by the Purchasing Division prior to Contract award. On construction contracts, the performance bond must be 100% of the Contract value.
- LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be issued and delivered to the Purchasing Division prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under \$100,000. Personal or business checks are not acceptable.

- MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.
- WORKERS' COMPENSATION INSURANCE:** The apparent successful Vendor shall have appropriate workers' compensation insurance and shall provide proof thereof upon request.
- INSURANCE:** The apparent successful Vendor shall furnish proof of the following insurance prior to Contract award and shall list the state as a certificate holder:

- Commercial General Liability Insurance:**
\$1,000,000.00 or more.
- Builders Risk Insurance:** builders risk – all risk insurance in an amount equal to 100% of the amount of the Contract.
-
-
-
-
-
-

The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed above.

LICENSE(S) / CERTIFICATIONS / PERMITS: In addition to anything required under the Section entitled Licensing, of the General Terms and Conditions, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the Purchasing Division.

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications prior to Contract award regardless of whether or not that requirement is listed above.

9. LITIGATION BOND: The Director reserves the right to require any Vendor that files a protest of an award to submit a litigation bond in the amount equal to one percent of the lowest bid submitted or \$5,000, whichever is greater. The entire amount of the bond shall be forfeited if the hearing officer determines that the protest was filed for frivolous or improper purpose, including but not limited to, the purpose of harassing, causing unnecessary delay, or needless expense for the Agency. All litigation bonds shall be made payable to the Purchasing Division. In lieu of a bond, the protester may submit a cashier's check or certified check payable to the Purchasing Division. Cashier's or certified checks will be deposited with and held by the State Treasurer's office. If it is determined that the protest has not been filed for frivolous or improper purpose, the bond or deposit shall be returned in its entirety.

10. ALTERNATES: Any model, brand, or specification listed herein establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

11. EXCEPTIONS AND CLARIFICATIONS: The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or

other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

- 12. LIQUIDATED DAMAGES:** Vendor shall pay liquidated damages in the amount
NA for NA

This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy.

- 13. ACCEPTANCE/REJECTION:** The State may accept or reject any bid in whole, or in part. Vendor's signature on its bid signifies acceptance of the terms and conditions contained in the Solicitation and Vendor agrees to be bound by the terms of the Contract, as reflected in the Purchase Order, upon receipt.
- 14. REGISTRATION:** Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the \$125 fee if applicable.
- 15. COMMUNICATION LIMITATIONS:** In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.
- 16. FUNDING:** This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.
- 17. PAYMENT:** Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears, to the Agency at the address on the face of the purchase order labeled "Invoice To."
- 18. UNIT PRICE:** Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.
- 19. DELIVERY:** All quotations are considered freight on board destination ("F.O.B. destination") unless alternate shipping terms are clearly identified in the bid. Vendor's listing of shipping terms that contradict the shipping terms expressly required by this Solicitation may result in bid disqualification.
- 20. INTEREST:** Interest attributable to late payment will only be permitted if authorized by the West Virginia Code. Presently, there is no provision in the law for interest on late payments.
- 21. PREFERENCE:** Vendor Preference may only be granted upon written request and only in accordance with the West Virginia Code § 5A-3-37 and the West Virginia Code of State Rules. A Resident Vendor Certification form has been attached hereto to allow Vendor to apply for the preference. Vendor's

failure to submit the Resident Vendor Certification form with its bid will result in denial of Vendor Preference. Vendor Preference does not apply to construction projects.

- 22. SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES:** For any solicitations publicly advertised for bid on or after July 1, 2012, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to submission of its bid to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority-owned business shall be applied in accordance with W. Va. CSR § 148-22-9.
- 23. TAXES:** The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
- 24. CANCELLATION:** The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-7.16.2.
- 25. WAIVER OF MINOR IRREGULARITIES:** The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.
- 26. TIME:** Time is of the essence with regard to all matters of time and performance in this Contract.
- 27. APPLICABLE LAW:** This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.
- 28. COMPLIANCE:** Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendors acknowledge that they have reviewed, understand, and will comply with all applicable law.
- 29. PREVAILING WAGE:** On any contract for the construction of a public improvement, Vendor and any subcontractors utilized by Vendor shall pay a rate or rates of wages which shall not be less than the fair minimum rate or rates of wages (prevailing wage), as established by the West Virginia Division of Labor under West Virginia Code §§ 21-5A-1 et seq. and available at <http://www.sos.wv.gov/administrative-law/wagerates/Pages/default.aspx>. Vendor shall be responsible for ensuring compliance with prevailing wage requirements and determining when prevailing wage

requirements are applicable. The required contract provisions contained in West Virginia Code of State Rules § 42-7-3 are specifically incorporated herein by reference.

- 30. ARBITRATION:** Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.
- 31. MODIFICATIONS:** This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary, no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). **No Change shall be implemented by the Vendor until such time as the Vendor receives an approved written change order from the Purchasing Division.**
- 32. WAIVER:** The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.
- 33. SUBSEQUENT FORMS:** The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.
- 34. ASSIGNMENT:** Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments. Notwithstanding the foregoing, Purchasing Division approval may or may not be required on certain agency delegated or exempt purchases.
- 35. WARRANTY:** The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency, (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.
- 36. STATE EMPLOYEES:** State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.
- 37. BANKRUPTCY:** In the event the Vendor files for bankruptcy protection, the State of West Virginia may deem this Contract null and void, and terminate this Contract without notice.

38. [RESERVED]

39. CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/default.html>.

40. DISCLOSURE: Vendor's response to the Solicitation and the resulting Contract are considered public documents and will be disclosed to the public in accordance with the laws, rules, and policies governing the West Virginia Purchasing Division. Those laws include, but are not limited to, the Freedom of Information Act found in West Virginia Code § 29B-1-1 et seq.

If a Vendor considers any part of its bid to be exempt from public disclosure, Vendor must so indicate by specifically identifying the exempt information, identifying the exemption that applies, providing a detailed justification for the exemption, segregating the exempt information from the general bid information, and submitting the exempt information as part of its bid but in a segregated and clearly identifiable format. Failure to comply with the foregoing requirements will result in public disclosure of the Vendor's bid without further notice. A Vendor's act of marking all or nearly all of its bid as exempt is not sufficient to avoid disclosure and WILL NOT BE HONORED. Vendor's act of marking a bid or any part thereof as "confidential" or "proprietary" is not sufficient to avoid disclosure and WILL NOT BE HONORED. In addition, a legend or other statement indicating that all or substantially all of the bid is exempt from disclosure is not sufficient to avoid disclosure and WILL NOT BE HONORED. Vendor will be required to defend any claimed exemption for nondisclosure in the event of an administrative or judicial challenge to the State's nondisclosure. Vendor must indemnify the State for any costs incurred related to any exemptions claimed by Vendor. Any questions regarding the applicability of the various public records laws should be addressed to your own legal counsel prior to bid submission.

41. LICENSING: In accordance with West Virginia Code of State Rules §148-1-6.1.7, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

42. ANTITRUST: In submitting a bid to, signing a contract with, or accepting a Purchase Order from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired

by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

- 43. VENDOR CERTIFICATIONS:** By signing its bid or entering into this Contract, Vendor certifies (1) that its bid was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid for the same material, supplies, equipment or services; (2) that its bid is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this RFQ in its entirety, understands the requirements, terms and conditions, and other information contained herein. Vendor's signature on its bid also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency.

The individual signing this bid on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

- 44. PURCHASING CARD ACCEPTANCE:** The State of West Virginia currently utilizes a Purchasing Card program, administered under contract by a banking institution, to process payment for goods and services. The Vendor must accept the State of West Virginia's Purchasing Card for payment of all orders under this Contract unless the box below is checked.

Vendor is not required to accept the State of West Virginia's Purchasing Card as payment for all goods and services.

- 45. VENDOR RELATIONSHIP:** The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, *etc.* and the filing of all necessary documents, forms and returns pertinent to all of the foregoing. Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

- 46. INDEMNIFICATION:** The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered

by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

- 47. PURCHASING AFFIDAVIT:** In accordance with West Virginia Code § 5A-3-10a, all Vendors are required to sign, notarize, and submit the Purchasing Affidavit stating that neither the Vendor nor a related party owe a debt to the State in excess of \$1,000. The affidavit must be submitted prior to award, but should be submitted with the Vendor's bid. A copy of the Purchasing Affidavit is included herewith.
- 48. ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE:** This Contract may be utilized by and extends to other agencies, spending units, and political subdivisions of the State of West Virginia; county, municipal, and other local government bodies; and school districts ("Other Government Entities"). This Contract shall be extended to the aforementioned Other Government Entities on the same prices, terms, and conditions as those offered and agreed to in this Contract. If the Vendor does not wish to extend the prices, terms, and conditions of its bid and subsequent contract to the Other Government Entities, the Vendor must clearly indicate such refusal in its bid. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.
- 49. CONFLICT OF INTEREST:** Vendor, its officers or members or employees, shall not presently have or acquire any interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.
- 50. REPORTS:** Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:
- Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.
 - Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at purchasing.requisitions@wv.gov.
- 51. BACKGROUND CHECK:** In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information

to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry.

After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision.

The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

Service providers should contact the West Virginia Division of Protective Services by phone at (304)558-9911 for more information.

52. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS: Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

- a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.
- b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open heath, basic oxygen, electric furnace, Bessemer or other steel making process.

The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:

- a. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars (\$2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or
- b. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

53. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL: In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars (\$50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a "substantial labor surplus area", as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products.

This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

REQUEST FOR QUOTATION
CME14173 – Integrated Liquid Chromatographs/Mass Spectrometers

SPECIFICATIONS

1. **PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of the West Virginia Department of Health and Human Resources, Bureau for Public Health, Office of Chief Medical Examiner (Agency), to establish a contract for the one-time purchase of an integrated liquid chromatograph quadrupole time-of-flight mass spectrometer instrument; integrated liquid chromatograph tandem quadrupole mass spectrometer instrument; toxicology software and libraries; setup and installation; support; maintenance; and onsite training.
2. **DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions.
 - 2.1 **“Contract Item”** means the integrated liquid chromatograph quadrupole time-of-flight mass spectrometer instrument; integrated liquid chromatograph tandem quadrupole mass spectrometer instrument; toxicology software and libraries; setup and installation; support; maintenance; and onsite training described in Sections 3.1.1 through 3.1.8 herein.
 - 2.2 **“Pricing Page”** means the pages upon which Vendor should list its proposed price for the Contract Items in the manner requested. The Pricing Page is included in this RFQ and attached hereto as Exhibit A.
 - 2.3 **“RFQ”** means the official request for quotation published by the Purchasing Division and identified as CME14173.
3. **GENERAL REQUIREMENTS:**
 - 3.1 **Mandatory Contract Item Requirements:** Contract Item must meet or exceed the mandatory requirements listed below.
 - 3.1.1 **Contract Item #1 – Quantity: 1 (each) – Integrated Liquid Chromatograph Quadrupole Time-of-Flight Mass Spectrometer Instrument, Waters Screening Platform Solution with UNIFI, Part Number 176815014, or Equal.** If alternate Integrated Liquid Chromatograph Quadrupole Time-of-Flight Mass Spectrometer Instrument is bid, Vendor must provide equipment specifications or literature to confirm item meets the following mandatory requirements.

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- 3.1.1.1 Integrated Liquid Chromatograph Quadrupole Time-of-Flight Mass Spectrometer Instrument must include a single integrated software platform that allows liquid chromatograph and quadrupole time-of-flight mass spectrometer to process independently yet correspond and share data with each other.
- 3.1.1.2 Integrated Liquid Chromatograph Quadrupole Time-of-Flight Mass Spectrometer Instrument must include a single integrated toxicology library that is compatible to the liquid chromatograph and mass spectrometer.
- 3.1.1.3 Liquid Chromatograph must have a minimum pressure capability of 18,000 pounds per square inch.
- 3.1.1.4 Liquid Chromatograph must include a sample manager that:
 - 3.1.1.4.1 must hold a minimum of two, 48-place sample trays
 - 3.1.1.4.2 must include a rotary tray mechanism that rotates samples into position reducing the distance to the injection port and hence dispersion
 - 3.1.1.4.3 must support a minimum of three injection modes; full loop, partial loop, and partial loop using needle overfill
- 3.1.1.5 Liquid Chromatograph must include a vacuum degasser.
- 3.1.1.6 Liquid Chromatograph must include a column heater that holds a minimum of two columns.
- 3.1.1.7 Liquid Chromatograph must include a pump that can start the gradient at any of the following:
 - 3.1.1.7.1 injection (default)
 - 3.1.1.7.2 before the injection (pre-volume)
 - 3.1.1.7.3 after injection (gradient delay)
- 3.1.1.8 Liquid Chromatograph must include a binary solvent manager that automatically synchronizes injection start between the pump and

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sample manager fixed loop to enhance retention time reproducibility.

- 3.1.1.9 Quadrupole Time-of-Flight Mass Spectrometer must obtain both exact mass parent ion and exact mass fragments in the same run.
- 3.1.1.10 Quadrupole Time-of-Flight Mass Spectrometer must employ technology to reduce neutral compounds and solvent entering the mass spectrometer resulting in lower limits of detection.
- 3.1.1.11 Quadrupole Time-of-Flight Mass Spectrometer must employ stacked ring, traveling wave ion cell after the quadrupole to help concentrate and focus ions before time of flight pusher.
- 3.1.1.12 Quadrupole Time-of-Flight Mass Spectrometer must use data dependent acquisition to determine ions to be subjected to tandem mass spectrometry analysis and collision energy for each compound based on parent charge state and mass-to-charge ratio.
- 3.1.1.13 Quadrupole Time-of-Flight Mass Spectrometer data analysis must display parent ion, fragment ions, total ion current, and match data on a single screen.
- 3.1.1.14 Quadrupole Time-of-Flight Mass Spectrometer must use an elevated-energy mass spectrometry (MS^E) strategy to obtain parent and fragment data for all compounds in a single run.
- 3.1.1.15 Quadrupole Time-of-Flight Mass Spectrometer must use a universal source architecture method to allow for source change and future upgrade.
- 3.1.1.16 Quadrupole Time-of-Flight Mass Spectrometer must include a searchable compound database and all data processing utilities applicable to forensic toxicology.
- 3.1.1.17 Quadrupole Time-of-Flight Mass Spectrometer must have an isolation valve to allow cleaning of cone without venting instrument.

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- 3.1.1.18** Quadrupole Time-of-Flight Mass Spectrometer cone must be capable of being removed from the instrument by hand without any tools required.
- 3.1.1.19** Quadrupole Time-of-Flight Mass Spectrometer must include dual electrospray to facilitate automated exact mass measurements.
- 3.1.1.20** Quadrupole Time-of-Flight Mass Spectrometer ionization source must incorporate a primary electrospray ionization probe, a secondary electrospray ionization probe to introduce a reference mass, and a motor driven baffle that is positioned between the two sprayers to allow indexed sampling of the two sprayers and avoid interference between analyte and reference spectra.
- 3.1.1.21** Quadrupole Time-of-Flight Mass Spectrometer dual electrospray facility must be accessible under the data system control and allow for flexible timing of the proportion of reference to standard sprayer and input to the system.
- 3.1.1.22** Quadrupole Time-of-Flight Mass Spectrometer data system must store and handle the reference sprayer data channel separately from the analyte data.
- 3.1.1.23** Quadrupole Time-of-Flight Mass Spectrometer electrospray ionization/atmosphere pressure chemical ionization source must be standard with the electrospray ionization source. Electrospray ionization and atmosphere pressure chemical ionization must be achievable using a single probe. Voltage supplies must be alternated between the electrospray ionization probe and the atmosphere pressure chemical ionization corona pin. The facility of combined electrospray ionization/atmosphere pressure chemical ionization must permit switching between the two ionization types during a single liquid chromatograph/mass spectrometer analysis.
- 3.1.1.24** Quadrupole Time-of-Flight Mass Spectrometer must be configured with a quadrupole mass filter for the efficient transmission of ions

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in the radio frequency only mass spectrometry mode and selection of precursor ions for tandem mass spectrometry analysis.

- 3.1.1.25** Quadrupole Time-of-Flight Mass Spectrometer ion arrival times must be recorded using an analogue to digital converter with an acquisition rate of six (6) GSamples per second to provide high peak definition and mass accuracy.
- 3.1.1.26** Quadrupole Time-of-Flight Mass Spectrometer time of flight must be capable of acquiring full spectral data at minimum rates of 30 spectra per second.
- 3.1.1.27** Quadrupole Time-of-Flight Mass Spectrometer analyzer must be capable of acquiring data with linearity of response at a minimum of five (5) orders of magnitude while maintaining resolution greater than 32,500 full width at half maximum.
- 3.1.1.28** Quadrupole Time-of-Flight Mass Spectrometer automated, integral fluidics must be present that facilitates seamless instrument calibration, lockmass introduction, and sample introduction into the source.
- 3.1.1.29** Quadrupole Time-of-Flight Mass Spectrometer software must include features for exact parent ion discovery and exact neutral loss.
- 3.1.1.30** Quadrupole Time-of-Flight Mass Spectrometer software must be capable of aligning elevated-energy mass spectrometry (MS^E) data according to liquid chromatography retention time and then automatically associating the precursor ion for each sample component to its fragment ion spectrum. It must be possible to automatically interrogate the processed elevated-energy mass spectrometry dataset.
- 3.1.2** **Contract item #2 – Quantity: 3(years: initial plus two renewal years)– Integrated Liquid Chromatograph Quadrupole Time-of-Flight Mass Spectrometer Instrument Telephone Support, Onsite Maintenance, and Warranty**

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- 3.1.2.1** Vendor shall provide telephone support during Vendor's normal business hours; onsite maintenance that includes one onsite preventive maintenance per year; and hardware and software warranty for three years from date of installation for entire Integrated Liquid Chromatograph Quadrupole Time of Flight Mass Spectrometer Instrument including all accessories, software, and libraries described in Section 3.1.1 herein.
- 3.1.3 Contract Item #3 – Quantity: 1 (lump sum) – Integrated Liquid Chromatograph Quadrupole Time-of-Flight Mass Spectrometer Instrument Set Up and Installation**
- 3.1.3.1** Vendor shall set up and install Integrated Integrated Liquid Chromatograph Quadrupole Time of Flight Mass Spectrometer Instrument, including all accessories, software, and libraries described in Section 3.1.1 herein at Agency location at 619 Virginia Street, West, Charleston, West Virginia.
- 3.1.4 Contract Item #4 – Quantity: 1 (lump sum) – 2-Day Onsite Integrated Liquid Chromatograph Quadrupole Time-of-Flight Mass Spectrometer Instrument Training Session**
- 3.1.4.1** Vendor must provide one(1) 2-day onsite training session to Agency staff on the operation and maintenance requirements of the Integrated Liquid Chromatograph Quadrupole Time-of-Flight Mass Spectrometer Instrument at the Office of Chief Medical Examiner, 619 Virginia Street, West, Charleston, West Virginia following installation. Vendor will be responsible for all costs incurred for its staff to attend the training session; including travel expenses, lodging, and meals.
- 3.1.5 Contract Item #5 – Quantity: 1 (each) - Integrated Liquid Chromatograph Tandem Quadrupole Mass Spectrometer Instrument, Waters Xevo TQ-S System, Part Number 176850041, or Equal. If alternate Integrated Liquid Chromatograph Tandem Quadrupole Instrument is bid, Vendor must provide equipment specifications or literature to confirm item meets the following mandatory requirements.**

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- 3.1.5.1 Integrated Liquid Chromatograph Tandem Quadrupole Mass Spectrometer Instrument must include an integrated software platform that allows liquid chromatograph and tandem quadrupole to process independently yet correspond and share data with each other.
- 3.1.5.2 Liquid Chromatograph must have a minimum pressure capability of 18,000 pounds per square inch.
- 3.1.5.3 Liquid Chromatograph must include a sample manager that:
 - 3.1.5.3.1 must hold a minimum of six, 48 place sample trays
 - 3.1.5.3.2 must include a rotary tray mechanism that rotates samples into position reducing the distance to the injection port and hence dispersion
 - 3.1.5.3.3 must support a minimum of three injection modes; full loop, partial loop, and partial loop using needle overflow
- 3.1.5.4 Liquid Chromatograph must include a vacuum degasser.
- 3.1.5.5 Liquid Chromatograph must include a column heater that holds a minimum of two columns.
- 3.1.5.6 Liquid Chromatograph must include a pump that can start the gradient at any of the following:
 - 3.1.5.6.1 injection (default)
 - 3.1.5.6.2 before the injection (pre-volume)
 - 3.1.5.6.3 after injection (gradient delay)
- 3.1.5.7 Liquid Chromatograph must include a binary solvent manager that automatically synchronizes injection start between the pump and sample manager fixed loop to enhance retention time reproducibility.
- 3.1.5.8 Tandem Quadrupole Mass Spectrometer must include technology to reduce neutral compounds, solvent, gas load entering the mass spectrometer to reduce noise resulting in lower limits of detection.

REQUEST FOR QUOTATION
CME14173 – Integrated Liquid Chromatographs/Mass Spectrometers

- 3.1.5.9** Tandem Quadrupole Mass Spectrometer architecture must allow source changes and future upgrades.
- 3.1.5.10** Tandem Quadrupole Mass Spectrometer must include electrospray ionization.
- 3.1.5.11** Tandem Quadrupole Mass Spectrometer electrospray ionization must incorporate a heated gas flow separate from the probe nebulizer for efficient desolvation.
- 3.1.5.12** Tandem Quadrupole Mass Spectrometer probe nebulizer must incorporate the facility to adjust the sprayer tip length in position to allow optimization of ionization.
- 3.1.5.13** Tandem Quadrupole Mass Spectrometer must include a combined electrospray ionization/atmosphere pressure chemical ionization source. Electrospray ionization and atmosphere pressure chemical ionization must be achievable using a single probe. Voltage supplies must be alternated between the electrospray ionization probe and the atmosphere pressure chemical ionization corona pin. The facility of combined electrospray ionization/atmosphere pressure chemical ionization must permit switching between the two ionization types during a single liquid chromatograph/mass spectrometer analysis.
- 3.1.5.14** Tandem Quadrupole Mass Spectrometer scanwave collision cell must be capable of accumulating ions and synchronize their transmission with the scan rate of the final quadrupole to increase sensitivity.
- 3.1.5.15** Tandem Quadrupole Mass Spectrometer must allow collection of data in multiple reaction monitoring and full scan modes to allow the monitoring of matrix influences in a single run.
- 3.1.5.16** Tandem Quadrupole Mass Spectrometer multiple reaction monitoring mode detection of target must allow the triggering of a product ion confirmation scan.

REQUEST FOR QUOTATION
CME14173 – Integrated Liquid Chromatographs/Mass Spectrometers

- 3.1.5.17** Tandem Quadrupole Mass Spectrometer must be capable of matching the product ion confirmation scan spectrum against a reference database to enable a routine method of checking compound identity.
- 3.1.5.18** Tandem Quadrupole Mass Spectrometer must be capable of switching between mass spectrometry (full scan and/or selected ion recording) and multiple mass spectrometry (multiple reaction monitoring, product ion scanning, and parent ion scanning, or neutral loss scanning) acquisition modes in no more than 5 minutes and without changing the pressure of collision gas within the collision cell and without compromising either mass spectrometry or multiple mass spectrometry data quality.
- 3.1.5.19** Tandem Quadrupole Mass Spectrometer must include an automated tuning algorithm to obtain optimal electrospray voltages, cone voltages, and collision energy.
- 3.1.5.20** Tandem Quadrupole Mass Spectrometer must include an automated calibration facility for hardware setup.
- 3.1.5.21** Tandem Quadrupole Mass Spectrometer mass spectrometry acquisition method editor must allow automatic multiple reaction monitoring dwell time and inter-channel delay and inter-scan delay times based on expected chromatographic peak width to ensure optimal data acquisition parameters are used.
- 3.1.5.22** Tandem Quadrupole Mass Spectrometer must include a searchable forensic toxicology compound database.
- 3.1.5.23** Tandem Quadrupole Mass Spectrometer data analysis must display parent ion, fragment ions, total ion current, and match data on a single screen.
- 3.1.5.24** Tandem Quadrupole Mass Spectrometer must have an isolation valve to allow cleaning of cone without venting instrument.

REQUEST FOR QUOTATION
CME14173 – Integrated Liquid Chromatographs/Mass Spectrometers

- 3.1.5.25 Tandem Quadrupole Mass Spectrometer cone must be capable of being removed from the instrument by hand without any tools required.
- 3.1.5.26 Tandem Quadrupole Mass Spectrometer ion source must allow maximum temperature of 650 degrees Celsius.
- 3.1.5.27 Tandem Quadrupole Mass Spectrometer must include a photomultiplier detector that is offset 90 degrees from the analyzer to reduce noise.
- 3.1.5.28 Tandem Quadrupole Mass Spectrometer must include a three-position vial infusion device that is software controlled and allows tuning and calibration solutions to be infused into probe.
- 3.1.6 Contract item #6 – Quantity: 3 (years: initial plus two renewal years) – Integrated Liquid Chromatograph Tandem Quadrupole Mass Spectrometer Instrument Telephone Support, Onsite Maintenance, and Warranty**
- 3.1.6.1 Vendor shall provide telephone support during Vendor's normal business hours; onsite maintenance that includes one onsite preventive maintenance per year; and hardware and software warranty for three years from date of installation for entire Integrated Liquid Chromatograph Tandem Quadrupole Mass Spectrometer Instrument including all accessories, software, and libraries described in Section 3.1.5 herein.
- 3.1.7 Contract Item #7 – Quantity: 1 (lump sum)– Integrated Liquid Chromatograph Tandem Quadrupole Mass Spectrometer Instrument Set Up and Installation**
- 3.1.7.1 Vendor shall set up and install Integrated Liquid Chromatograph Tandem Quadrupole Mass Spectrometer Instrument, including all accessories and forensic database described in Section 3.1.5 herein at Agency location at 619 Virginia Street, West, Charleston, West Virginia.

REQUEST FOR QUOTATION
CME14173 – Integrated Liquid Chromatographs/Mass Spectrometers

3.1.8 Contract Item #8 – Quantity: 1 (lump sum) - 2-Day Onsite Integrated Liquid Chromatograph Tandem Quadrupole Mass Spectrometer Instrument Training Session

3.1.8.1 Vendor must provide one, 2-day onsite training session to Agency staff on the operation and maintenance requirements of the Integrated Liquid Chromatograph Tandem Quadrupole Mass Spectrometer Instrument at the Office of Chief Medical Examiner, 619 Virginia Street, West, Charleston, West Virginia following installation. Vendor will be responsible for all costs incurred for its staff to attend the training session; including travel expenses, lodging, and meals.

4. CONTRACT AWARD:

4.1 Contract Award: The Contract is intended to provide Agencies with a purchase price for the Contract Items. The Contract shall be awarded to the Vendor that provides all of the Contract Items meeting the required specifications for the lowest overall Grand Total cost as shown on the Pricing Pages.

Initial Contract Award will be only for the equipment as described under Contract Items 3.1.1 and 3.1.5; setup and installation as described under Contract Items 3.1.3 and 3.1.7; the training sessions described under Contract Items 3.1.4 and 3.1.8; and ONLY Year 1 of the Support, Onsite Maintenance and Warranty described under Contract Items 3.1.2 and 3.1.6. Year 2 Support, Onsite Maintenance, and Warranty will be added to the purchase order upon a mutually agreed upon renewal change order for the first renewal year and Year 3 added upon a mutually agreed upon renewal change order for the second renewal year.

4.2 Pricing Page: Vendor should complete the Pricing Page by completing the Unit Price, Extended Price, and Grand Total fields. The Extended Price should be calculated by multiplying the Quantity by the Unit Price. The Grand Total should be calculated by adding the Extended Price Column. Vendor should complete the Pricing Page in full as failure to complete the Pricing Page in its entirety may result in Vendor's bid being disqualified.

Vendor should type or electronically enter the information into the Pricing Page to prevent errors in the evaluation.

REQUEST FOR QUOTATION
CME14173 – Integrated Liquid Chromatographs/Mass Spectrometers

5. PAYMENT:

5.1 Payment: Vendor shall accept payment in accordance with the payment procedures of the State of West Virginia. Payment to Vendor will be made in arrears after delivery; setup and installation; and training are complete and 100% acceptance of Contract by Agency.

6. DELIVERY AND RETURN:

6.1 Shipment and Delivery: Vendor shall ship equipment as described under Contract Items 3.1.1 and 3.1.5; provide setup and installation as described under Contract Items 3.1.3 and 3.1.7; provide training sessions as described under Contract Items 3.1.4 and 3.1.8; and provide the initial Year 1 Support, Onsite Maintenance, and Warranty as described under Contract Items 3.1.2 and 3.1.6 immediately after being awarded this Contract and receiving a purchase order to achieve delivery by June 30, 2014. Year 2 Support, Onsite Maintenance, and Warranty will be added to the purchase order upon a mutually agreed upon renewal change order for the first renewal year, and Year 3 added upon a mutually agreed upon renewal change order for the second renewal year.

Contract Items must be delivered to Agency at Office of Chief Medical Examiner, 619 Virginia Street, West, Charleston, West Virginia 25302. Contract Items must be shipped INSIDE DELIVERY, F.O.B. DESTINATION.

6.2 Late Delivery: The Agency placing the order under this Contract must be notified in writing if the shipment of the Contract Items will be delayed for any reason. Any delay in delivery that could cause harm to an Agency will be grounds for cancellation of the Contract, and/or obtaining the Contract Items from a third party.

Any Agency seeking to obtain the Contract Items from a third party under this provision must first obtain approval of the Purchasing Division.

6.3 Delivery Payment/Risk of Loss: Vendor shall deliver the Contract Items F.O.B. destination to the Agency's location.

6.4 Return of Unacceptable Items: If the Agency deems the Contract Items to be unacceptable, the Contract Items shall be returned to Vendor at Vendor's expense and with no restocking charge. Vendor shall either make arrangements for the return within five (5) days of being notified that items are unacceptable, or permit the Agency to arrange for the return and reimburse Agency for delivery expenses. If the original packaging cannot be utilized for the return, Vendor will supply the

REQUEST FOR QUOTATION
CME14173 – Integrated Liquid Chromatographs/Mass Spectrometers

Agency with appropriate return packaging upon request. All returns of unacceptable items shall be F.O.B. the Agency's location. The returned product shall either be replaced, or the Agency shall receive a full credit or refund for the purchase price, at the Agency's discretion.

- 6.5 Return Due to Agency Error:** Items ordered in error by the Agency will be returned for credit within 30 days of receipt, F.O.B. Vendor's location. Vendor shall not charge a restocking fee if returned products are in a resalable condition. Items shall be deemed to be in a resalable condition if they are unused and in the original packaging. Any restocking fee for items not in a resalable condition shall be the lower of the Vendor's customary restocking fee or 5% of the total invoiced value of the returned items.
- 7. TRAVEL:** Vendor shall be responsible for all mileage and travel costs, including travel time, associated with performance of this Contract. Any anticipated mileage or travel costs must be included in the flat fee listed on Vendor's bid, but such costs will not be paid by the Agency separately.
- 8. FACILITIES ACCESS:** Performance of Contract Services may require access cards and/or keys to gain entrance to Agency's facilities. In the event that access cards and/or keys are required:
- 8.1** Vendor must identify principal service personnel which will be issued access cards and/or keys to perform service.
 - 8.2** Vendor will be responsible for controlling cards and keys and will pay replacement fee, if the cards or keys become lost or stolen.
 - 8.3** Vendor shall notify Agency immediately of any lost, stolen, or missing card or key.
 - 8.4** Anyone performing under this Contract will be subject to Agency's security protocol and procedures.
 - 8.5** Vendor shall inform all staff of Agency's security protocol and procedures.
- 9. VENDOR DEFAULT:**
- 9.1** The following shall be considered a vendor default under this Contract.
 - 9.1.1** Failure to perform Contract Services in accordance with the requirements contained herein.

REQUEST FOR QUOTATION
CME14173 – Integrated Liquid Chromatographs/Mass Spectrometers

- 9.1.2 Failure to comply with other specifications and requirements contained herein.
- 9.1.3 Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.
- 9.1.4 Failure to remedy deficient performance upon request.
- 9.2 The following remedies shall be available to Agency upon default.
 - 9.2.1 Cancellation of the Contract.
 - 9.2.2 Any other remedies available in law or equity.

10. MISCELLANEOUS:

- 10.1 Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

Contract Manager: SEAN BENNETT
Telephone Number: (585) 394-0749
Fax Number: 412-200-6542
Email Address: SEAN.BENNETT@THERMOFISHER.COM

**EXHIBIT A
CME14173 - PRICING PAGE**

CONTRACT ITEM #	DESCRIPTION	QUANTITY	UNIT PRICE	EXTENDED PRICE
3.1.1	Integrated Liquid Chromatograph Quadrupole Time-of-Flight Mass Spectrometer Instrument, Waters Screening Platform Solution with UNIFI, Part Number 176815014, or Equal	1 Each	433,155.26	433,155.26
3.1.2	Integrated Liquid Chromatograph Quadrupole Time-of-Flight Mass Spectrometer Instrument Telephone Support, Onsite Maintenance, and Warranty			
	Year 1	1 Year	No Charge	No Charge
	Year 2	1 Year	32,708.01	32,708.01
	Year 3	1 Year	32,708.01	32,708.01
3.1.3	Integrated Liquid Chromatograph Quadrupole Time-of-Flight Mass Spectrometer Instrument Set Up and Installation	1 Each	No Charge	No Charge
3.1.4	One, 2-Day Onsite Integrated Liquid Chromatograph Quadrupole Time-of-Flight Mass Spectrometer Instrument Training Session	1 Each	7,910.00	7,910.00
3.1.5	Integrated Liquid Chromatograph Tandem Quadrupole Mass Spectrometer Instrument, Waters Xevo TQ-S System, Part Number 176850041, or Equal	1 Each	239,385.16	239,385.16
3.1.6	Integrated Liquid Chromatograph Tandem Quadrupole Mass Spectrometer Instrument Telephone Support, Onsite Maintenance, and Warranty			
	Year 1	1 Year	No Charge	No Charge
	Year 2	1 Year	40,128.81	40,128.81
	Year 3	1 Year	23,888.81	23,888.81
	Integrated Liquid Chromatograph Tandem Quadrupole Mass	1 Each	No Charge	No Charge

3.1.7	Spectrometer Instrument Set Up and Installation			
3.1.8	One, 2-Day Onsite Integrated Liquid Chromatograph Tandem Quadrupole Mass Spectrometer Instrument Training Session	1 Each	6,810.00	6,810.00
GRAND TOTAL:				816,694.06


Contract shall be awarded to the Vendor that provides all of the Contract Items meeting the required specifications for the lowest overall Grand Total.

Vendor shall ship equipment as described under Contract Items 3.1.1 and 3.1.5; provide setup and installation as described under Contract Items 3.1.3 and 3.1.7; provide training sessions as described under Contract Items 3.1.4 and 3.1.8; and provide the initial Year 1 Support, Onsite Maintenance, and Warranty as described under Contract Items 3.1.2 and 3.1.6 immediately after being awarded this Contract and receiving a purchase order to achieve delivery by JUNE 30, 2014. Year 2 Support, Onsite Maintenance, and Warranty will be added to the purchase order upon a mutually agreed upon renewal change order for the first renewal year, and Year 3 added upon a mutually agreed upon renewal change order for the second renewal year.

Contract Items shall be delivered to Agency at 619 Virginia Street, West, Charleston, West Virginia 25302.

VENDOR SECTION:

Vendor Name:	THERMO ELECTRON NORTH AMERICA LLC
Physical Address:	5225 VERONA ROAD MADISON, WI 53711
Remit to Address:	PO BOX 742775 ATLANTA, GA 30374-2775
Telephone:	800-532-4752
Fax:	412-200-6542
Email:	USMADORDERPROCESSING@THERMOFISHER.COM
Vendor Representative (print name):	LAURA STEWARD - MANAGER COMMERCIAL ORDER MANAGEMENT

Signature: 	Date: 5-20-2014
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CERTIFICATION AND SIGNATURE PAGE

By signing below, I certify that I have reviewed this Solicitation in its entirety, understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid or proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

THERMO ELECTRON NORTH AMERICA LLC

(Company)



(Authorized Signature)

LAURA STEWARD - MANAGER COMMERCIAL ORDER MANAGEMENT

(Representative Name, Title)

608-276-6174

412-200-6542

(Phone Number)

(Fax Number)

5/20/2014

(Date)

RFQ No. CME14173

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: LAURA STEWARD

Authorized Signature: *Laura Steward* Date: 5/20/2014

State of WISCONSIN

County of DANE, to-wit:

Taken, subscribed, and sworn to before me this 20 day of MAY, 2014.

My Commission expires July 21, 2017.

AFFIX SEAL HERE

NOTARY PUBLIC

Lisa M. Mertins



Rev. 04/14

State of West Virginia VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with *West Virginia Code*, §5A-3-37. (Does not apply to construction contracts). *West Virginia Code*, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

1. Application is made for 2.5% vendor preference for the reason checked:

Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. Application is made for 2.5% vendor preference for the reason checked:

Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. Application is made for 2.5% vendor preference for the reason checked:

Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

4. Application is made for 5% vendor preference for the reason checked:

Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. Application is made for 3.5% vendor preference who is a veteran for the reason checked:

Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. Application is made for 3.5% vendor preference who is a veteran for the reason checked:

Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules*.

Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (*West Virginia Code*, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: THERMO ELECTRON NORTH AMERICA LLC

Signed: 

Date: 5/20/2014

Title: MANAGER COMMERCIAL ORDER MANAGEMENT

PREFERENCE NOT CLAIMED

Sales Quotation

Thermo Electron North America LLC

Quote No.	Create Date	Exp. Delivery Time	Page
20463762	05/15/2014	60-90 Days ARO	1 / 7
Contact Info		Phone No.	Payment Terms
SEAN BENNETT		585-394-0749	NET 30 DAYS UPON INVOICE DATE
Inco 1		Inco 2	Shipping Method
Destination			Exped Def 5 Day

1400 Northpoint Pkwy Ste 50,
West Palm Beach, FL 33407-1976

Please issue your purchase order to:
Thermo Electron North America LLC
5225 Verona Road, Madison, WI 53711
-- OR --
1400 Northpoint Parkway, West Palm Beach, FL 33407
FEIN: 43-1992201
DUNS: 138388090

Submitted To: 1041939

BOB KILPATRICK
STATE OF WEST VIRGINIA
DEPT OF ADMINISTRATION
PURCHASING DIVISION
SOLICITATION #CME14173
2019 WASHINGTON STREET, EAST
CHARLESTON WV 25311

RESPONSE TO SOLICITATION #CME14173
DUE: 5/21/2014
OPENING: 1:30 PM

To place an order	
Contact Info	Christopher Howland
Call:	608-273-6869
Fax:	412-200-6542
eMail:	christopher.howland@thermofisher.com
This order is subject to instructions and Thermo Fisher's terms & conditions on the last page	

Item	Material No.	Description	Qty	Unit Price	Total Price
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10	0726020	<p>Q Exactive Basic MS System</p> <p>Q Exactive Mass Spectrometer</p> <p>The Q Exactive is a high performance benchtop quadrupole Orbitrap system based on the combination of the most advanced quadrupole technology combined with Orbitrap analyzer technique. Implementation of a quadrupole mass filter in front of the curved ion trap (C-Trap) allows for precursor ion selection and hence for MS/MS and SIM scan modes besides the ability of full MS mode. In addition to the high sensitivity S-lens ion source, with the implementation of enhanced FT transient processing, further increase of scan speed and resolving power can be achieved. Together with the new and unique scan type of spectra multiplexing, where multiple preselected precursors are collected in the C-Trap for simultaneous high resolution detection in the Orbitrap further reduction of cycle time can be accomplished.</p> <p>Q Exactive is the most sensitive bench-top quadrupole high resolution mass spectrometer perfectly combining precise quantification and high performance qualitative work in one instrument.</p> <p>This instrument is an Orbitrap-based FT-MS system providing high resolution, high mass accuracy and high sensitivity without compromises.</p> <p>Mass range: 50 < m/z < 4000</p> <p>Resolution at m/z 200 (scan rate): 17,500 (12 Hz) 35,000 (7 Hz) 70,000 (3 Hz) 140,000 (1.5 Hz)</p> <p>Mass accuracy (Using defined conditions) < 5 ppm RMS error with external calibration < 1 ppm RMS error with internal calibration</p> <p>Quadrupole Isolation: Stepless precursor isolation from 0.4 amu to full mass range</p> <p>Scan modes: Polarity switching: One full positive/negative cycle in < 1 sec at a resolution setting of 17,500 (@ m/z 200)</p> <p>Spectra multiplexing: analyzing up to 10 different selected precursors in one orbitrap scan</p> <p>Top N with predictive AGC: Up to 10 Hz high resolution accurate mass MS/MS</p> <p>The basic Q Exactive system consists of a quadrupole mass filter fully integrated with an Orbitrap Mass Spectrometer. Additionally included items:</p> <ul style="list-style-type: none"> • HESI II probe • Chemyx Fusion 100 Syringe pump with full data system control 	1	EA	
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Sales Quotation

Thermo Electron North America LLC

Quote No.	Create Date	Exp. Delivery Time	Page
20463762	05/15/2014	60-90 Days ARO	2 / 7
Contact Info	Phone No.	Payment Terms	Valid To
SEAN BENNETT	585-394-0749	NET 30 DAYS UPON INVOICE DATE	05/30/2014
Inco 1	Inco 2	Shipping Method	
Destination		Exped Def 5 Day	

1400 Northpoint Pkwy Ste 50,
West Palm Beach, FL 33407-1976

To place an order
 Contact Info Christopher Howland
 Call: 608-273-6869
 Fax: 412-200-6542
 eMail: christopher.howland@thermofisher.com

Item	Material No.	Description	Qty	Unit Price	Total Price
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Part number: 1245740;
 • Switching valve 6-port from Rheodyne - Switching Valve MXT 715-00
 Part number: 1239650;
 • Windows 7 computer
 • 22" monitor

20	222-223900	POWERVER PWR COND 95208-69R-6kVA 1 PH Powervar Pwr Cond 95208-69R - 6kVA 1 Phs ~ Power Condition for Finnigan DELTA V Advantage, DELTA V Plus, DELTA plus XP, DELTA Plus Advantage, DELTA S, DELTA C, DELTA E; DELTA Adv IRMS ~ Power requirements: Single Phase 6.0 kVA, 230V L-N	1	EA	
30	1328020	EXACTIVE SERIES PREINSTALLATION KIT	1	EA	
40	1309770	Hirschmann Cable / SV65 BI FC	1	EA	
50	5200.0345	ULTIMATE 3000 BINARY RS SYSTEM W/O DET Dionex UltiMate 3000 Binary RSLC System without Detector including Mixer Kit for 35 µL mixing volume, 25 µL syringe and 25 µL sample loop for Well Plate Sampler, one Viper capillary (0.18 x 750 mm, SST) to connect to mass spectrometer and DCMSLink for Xcalibur Industry leading flow-pressure footprint with flow rates up to 8 mL/min and pressure up to 103.4 MPa (15,000 psi), ultrafast cooled autosampler, column temperature up to 110 °C, real-time modification of Dionex instrument parameters from Xcalibur	1	EA	
60	OPTON-30130	SW, TRACEFINDER 3.1 FOR FORENSIC TOX	1	EA	
70	SHIPPING/HANDLING	Shipping And Handling	1	EA	
				Q Exactive Basic MS System Sub-Total:	546,465.00 USD
				Discount:	113,309.74 - USD
				Q Exactive Basic MS System Total:	433,155.26 USD
71	869-999900	FIRST YEAR STANDARD WARRANTY QE SYS	1	EA	

Sales Quotation

Thermo Electron North America LLC

1400 Northpoint Pkwy Ste 50,
West Palm Beach, FL 33407-1976

Quote No.	Create Date	Exp. Delivery Time	Page
20463762	05/15/2014	60-90 Days ARO	3 / 7
Contact Info	Phone No.	Payment Terms	Valid To
SEAN BENNETT	585-394-0749	NET 30 DAYS UPON INVOICE DATE	05/30/2014
Inco 1	Inco 2	Shipping Method	
Destination		Exped Def 5 Day	

To place an order
 Contact Info Christopher Howland
 Call: 608-273-6869
 Fax: 412-200-6542
 eMail: christopher.howland@thermofisher.com

Item	Material No.	Description	Qty	Unit Price	Total Price
------	--------------	-------------	-----	------------	-------------

FIRST YEAR STANDARD WARRANTY QE SYSTEM Total: 0.00 USD

79 869-999900 SECOND YEAR WARRANTY QE SYSTEM 1 EA

80 701-696400 UNITY EXTENDED WARRANTY PLAN Q-EXAC 1 EA
 Extended Warranty Q-Exactive

90 701-004601 EX WAR PLAN QUATERNARY PUMP 1 EA

100 701-857900 UNITY ESSENTIAL PLAN WPS3000PL 1 EA

110 701-889900 EPP TCC-3000SD THERMOSTAT COL COMPA 1 EA

SECOND YEAR WARRANTY QE SYSTEM Sub-Total: 40,885.01 USD

Discount: 8,177.00 - USD

SECOND YEAR WARRANTY QE SYSTEM Total: 32,708.01 USD

119 869-999900 THIRD YEAR WARRANTY QE SYSTEM 1 EA

120 701-696400 UNITY EXTENDED WARRANTY PLAN Q-EXAC 1 EA
 Extended Warranty Q-Exactive

130 701-004601 EX WAR PLAN QUATERNARY PUMP 1 EA

140 701-857900 UNITY ESSENTIAL PLAN WPS3000PL 1 EA

150 701-889900 EPP TCC-3000SD THERMOSTAT COL COMPA 1 EA

THIRD YEAR WARRANTY QE SYSTEM Sub-Total: 40,885.01 USD

Discount: 8,177.00 - USD

THIRD YEAR WARRANTY QE SYSTEM Total: 32,708.01 USD

Sales Quotation

Thermo Electron North America LLC

1400 Northpoint Pkwy Ste 50,
West Palm Beach, FL 33407-1976

Quote No.	Create Date	Exp. Delivery Time	Page
20463762	05/15/2014	60-90 Days ARO	4 / 7
Contact Info	Phone No.	Payment Terms	Valid To
SEAN BENNETT	585-394-0749	NET 30 DAYS UPON INVOICE DATE	05/30/2014
Inco 1	Inco 2	Shipping Method	
Destination		Exped Def 5 Day	

To place an order
 Contact Info Christopher Howland
 Call: 608-273-6869
 Fax: 412-200-6542
 eMail: christopher.howland@thermofisher.com

Item	Material No.	Description	Qty	Unit Price	Total Price
151	869-999900	SYSTEM SET UP & INSTALLATION QE SYSTE	1 EA		
SYSTEM SET UP & INSTALLATION QE SYSTEM Total:					0.00 USD
155	702-027700	3-DAY LSMS TRNG COURSE AT CUSTOMER S Training expires 12 months from purchase. 3-day LSMS training course at customer site	1 EA		
3-DAY LSMS TRNG COURSE AT CUSTOMER SITE Sub-Total					10,000.00 USD
Discount:					2,090.00 - USD
3-DAY LSMS TRNG COURSE AT CUSTOMER SITE Total:					7,910.00 USD
160	TSQ-50003	TSQ ENDURA	1 EA		
170	OPTON-30099	KIT, TSQ PREINSTALLATION	1 EA		
180	5200.0345	ULTIMATE 3000 BINARY RS SYSTEM W/O DET Dionex UltiMate 3000 Binary RSLC System without Detector including Mixer Kit for 35 µL mixing volume, 25 µL syringe and 25 µL sample loop for Well Plate Sampler, one Viper capillary (0.18 x 750 mm, SST) to connect to mass spectrometer and DCMSLink for Xcalibur Industry leading flow-pressure footprint with flow rates up to 8 mL/min and pressure up to 103.4 MPa (15,000 psi), ultrafast cooled autosampler, column temperature up to 110 °C, real-time modification of Dionex instrument parameters from Xcalibur	1 EA		
190	OPTON-30130	SW, TRACEFINDER 3.1 FOR FORENSIC TOX	1 EA		
200	SHIPPING/HANDLING	Shipping And Handling	1 EA		
TSQ ENDURA Sub-Total:					350,160.00 USD
Discount:					110,774.84 - USD
TSQ ENDURA Total:					239,385.16 USD
201	869-999900	FIRST YEAR STANDARD WARRANTY TSQ SY	1 EA		
FIRST YEAR STANDARD WARRANTY TSQ SYS Total:					0.00 USD

Sales Quotation

Thermo Electron North America LLC

Quote No.	Create Date	Exp. Delivery Time	Page
20463762	05/15/2014	60-90 Days ARO	5 / 7
Contact Info	Phone No.	Payment Terms	Valid To
SEAN BENNETT	585-394-0749	NET 30 DAYS UPON INVOICE DATE	05/30/2014
Inco 1	Inco 2	Shipping Method	
Destination		Exped Def 5 Day	

1400 Northpoint Pkwy Ste 50,
West Palm Beach, FL 33407-1976

To place an order
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 Call: 608-273-6869
 Fax: 412-200-6542
 eMail: christopher.howland@thermofisher.com

Item	Material No.	Description	Qty	Unit Price	Total Price
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209 869-999900 SECOND YEAR WARRANTY TSQ SYSTEM 1 EA

210 701-079001 2 PM SERVICE W/3 YR TRIPLE QUAD WARRA 1 EA
 3 Planned Maintenance Service with Three Year Warranty for Triple Quad LCMS systems

220 701-081301 UNITY EXTENDED WARRANTY TSQ ENDURA 1 EA
 Unity Extended Warranty TSQ Endura (Including HESI III+source)

230 701-004601 EX WAR PLAN QUATERNARY PUMP 1 EA

240 701-007401 EXT WRNTY WPS-3000TPL RS NANO WP SMP 1 EA

250 701-889900 EPP TCC-3000SD THERMOSTAT COL COMPA 1 EA

SECOND YEAR WARRANTY TSQ SYSTEM Sub-Total: 50,161.01 USD

Discount: 10,032.20 - USD

SECOND YEAR WARRANTY TSQ SYSTEM Total: 40,128.81 USD

251 869-999900 THIRD YEAR WARRANTY TSQ SYSTEM 1 EA

270 701-081301 UNITY EXTENDED WARRANTY TSQ ENDURA 1 EA
 Unity Extended Warranty TSQ Endura (Including HESI III+source)

280 701-004601 EX WAR PLAN QUATERNARY PUMP 1 EA

290 701-007401 EXT WRNTY WPS-3000TPL RS NANO WP SMP 1 EA

300 701-889900 EPP TCC-3000SD THERMOSTAT COL COMPA 1 EA

Sales Quotation

Thermo Electron North America LLC

Quote No.	Create Date	Exp. Delivery Time	Page
20463762	05/15/2014	60-90 Days ARO	6 / 7
Contact Info	Phone No.	Payment Terms	Valid To
SEAN BENNETT	585-394-0749	NET 30 DAYS UPON INVOICE DATE	05/30/2014
Inco 1	Inco 2	Shipping Method	
Destination		Exped Def 5 Day	

1400 Northpoint Pkwy Ste 50,
West Palm Beach, FL 33407-1976

To place an order

Contact Info Christopher Howland
Call: 608-273-6869
Fax: 412-200-6542
eMail: christopher.howland@thermofisher.com

Item	Material No.	Description	Qty	Unit Price	Total Price
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THIRD YEAR WARRANTY TSQ SYSTEM Sub-Total: 29,861.01 USD

Discount: 5,972.20 - USD

THIRD YEAR WARRANTY TSQ SYSTEM Total: 23,888.81 USD

301 869-999900 SYSTEM SET UP & INSTALLATION TSQ SYST 1 EA

SYSTEM SET UP & INSTALLATION TSQ SYSTEM Total: 0.00 USD

310 702-027700 3-DAY LSMS TRNG COURSE AT CUSTOMER S 1 EA
Training expires 12 months from purchase.

3-day LSMS training course at customer site

3-DAY LSMS TRNG COURSE AT CUSTOMER SITE Sub-Total 10,000.00 USD

Discount: 3,190.00 - USD

3-DAY LSMS TRNG COURSE AT CUSTOMER SITE Total: 6,810.00 USD

Quotation Sub-total: 1,078,417.04 USD

Discount: 261,722.98 - USD

Quotation Total: 816,694.06 USD

To place your order and expedite shipment, please 1) sign and date this quotation below; and 2) fax or e-mail it along with your Purchase Order to one of the addresses below.

Please note-all Purchase Orders must show the vendor name of Thermo Electron North America LLC:

Thermo Electron North America LLC
5225 Verona Road
Madison, WI 53711

Thermo Electron North America LLC
1400 Northpoint Parkway, Ste 10
West Palm Beach, FL 33407

Complete System Orders:

Fax: 412-200-6542

e-mail: usmadorderprocessing@thermofisher.com or
uspal.orderprocessing@thermofisher.com

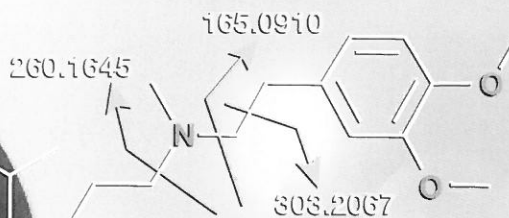
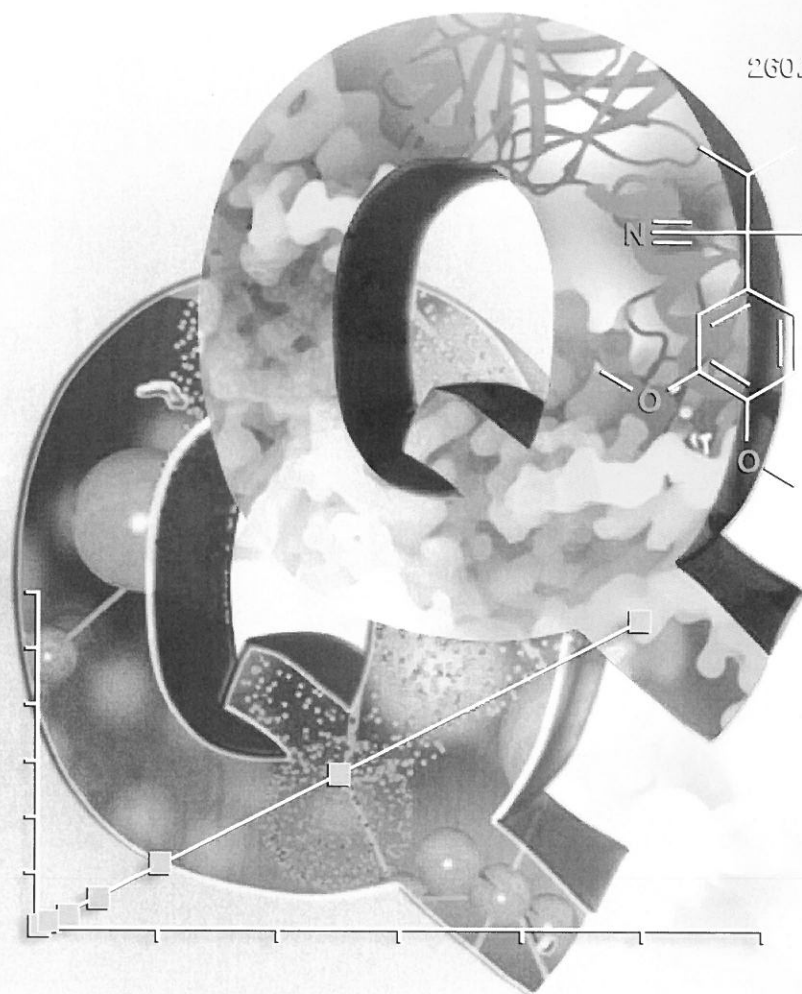
Parts or Service Orders:

Fax: 877-680-2565

e-mail: USMAD.ServiceOE.PO@thermofisher.com

Notes:

- A.) Items marked with an asterisk (*) on the face of the quotation are non-Thermo Electron North America LLC products.
- B.) Prices, warranty, installation and service on the items quoted herein are available only in the United States and may not be otherwise assigned.
- C.) Tax exemption certificates or direct pay permits must be provided with the order documents, if applicable. If tax exemption documentation is not provided, buyer shall pay federal, state & local taxes in addition to the price stated on this quotation.
- D.) Buyer shall not export or re-export technical data or products supplied by Thermo Electron North America LLC in violation of applicable export regulation. Buyer who exports from the U.S. products purchased hereunder assumes all responsibility for obtaining required export documentation, authorization, and payment of all applicable fees.



Thermo Scientific Q Exactive
Orbitrap LC-MS/MS System



Unmatched Confidence for Quan/Qual Analyses

Identify • Quantify • Confirm

Thermo
SCIENTIFIC

Quanfirmation

\,kwän-fər-'mā-shän\ n

1 : the ability to confidently identify, quantify, and confirm using a single mass spectrometer : *syn* **Q EXACTIVE**

MASS SPECTROMETER

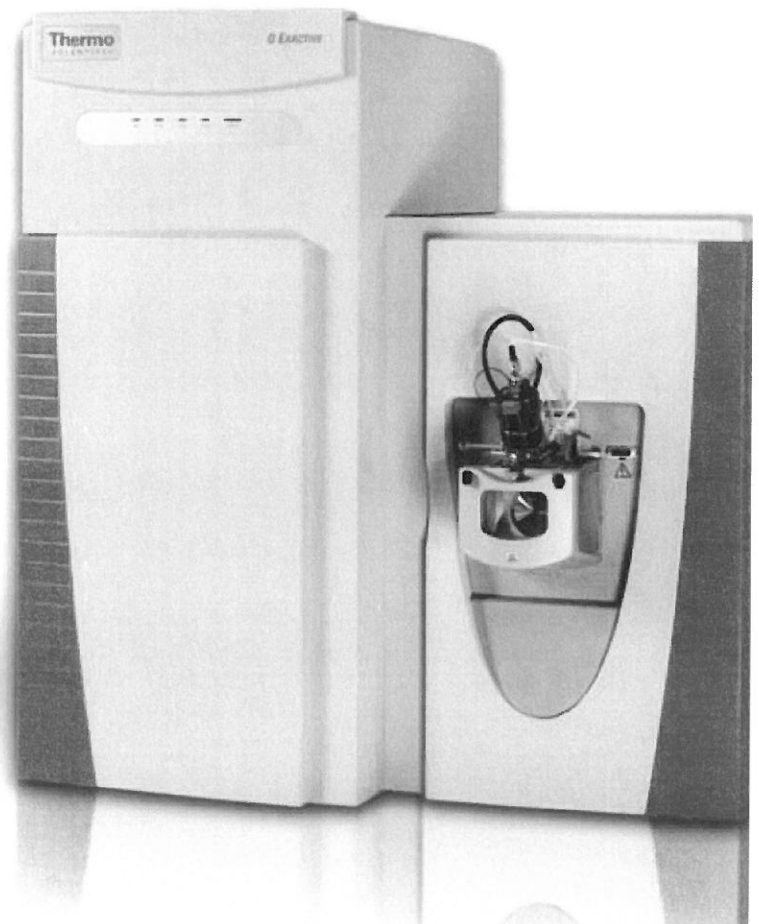
The unsurpassed performance of Orbitrap™ technology has revolutionized mass spectrometry. The Thermo Scientific Q Exactive benchtop LC-MS/MS is the next step in that revolution, combining high-performance quadrupole precursor selection with high-resolution, accurate-mass (HR/AM) Orbitrap detection for outstanding performance and tremendous versatility.

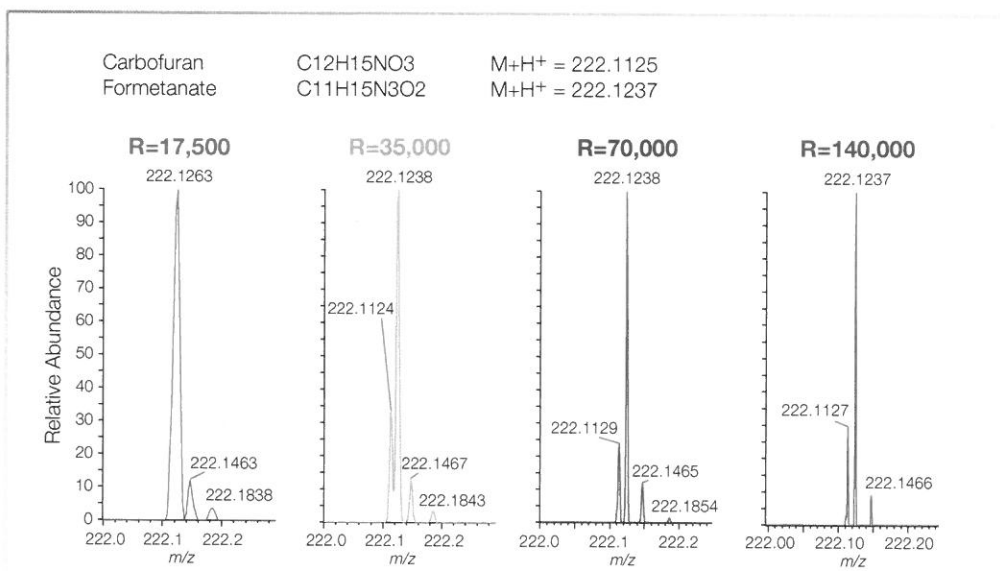
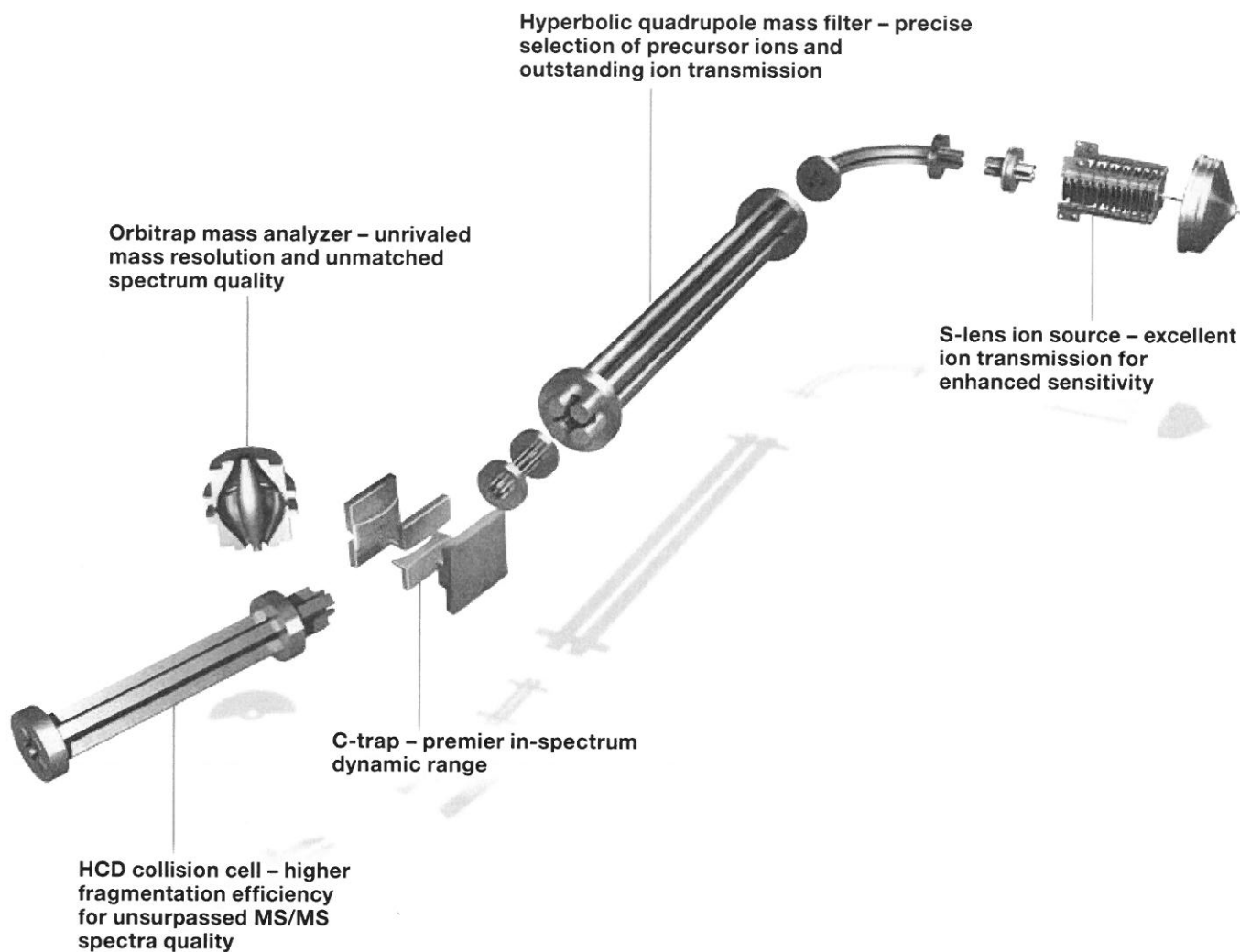
The Q Exactive™ mass spectrometer is superbly suited to untargeted or targeted screening with high-confidence confirmation, but is equally capable of a broad range of qualitative and quantitative applications.

The superior quality of Q Exactive data enables identification and quantitation of more compounds with greater confidence.

With the Q Exactive LC-MS/MS:

- Proven S-lens ion source provides the enhanced sensitivity needed to find more analytes
- 140,000 resolution at m/z 200 and <1 ppm mass accuracy provide outstanding ID confidence
- Spectrum multiplexing and advanced signal processing ensure UHPLC-compatible data acquisition speed for increased throughput
- Fast scan-to-scan polarity switching in both MS and MS/MS reveals more compounds in a single run





Nominally isobaric pesticides carbofuran and formetanate are unresolved or only poorly resolved at the highest resolutions available in Q-TOF instruments. The higher resolutions easily achieved by the Q Exactive instrument clearly resolve analytes from complex matrix interferences without sacrificing sensitivity.

Metabolic Analyses in Drug Discovery

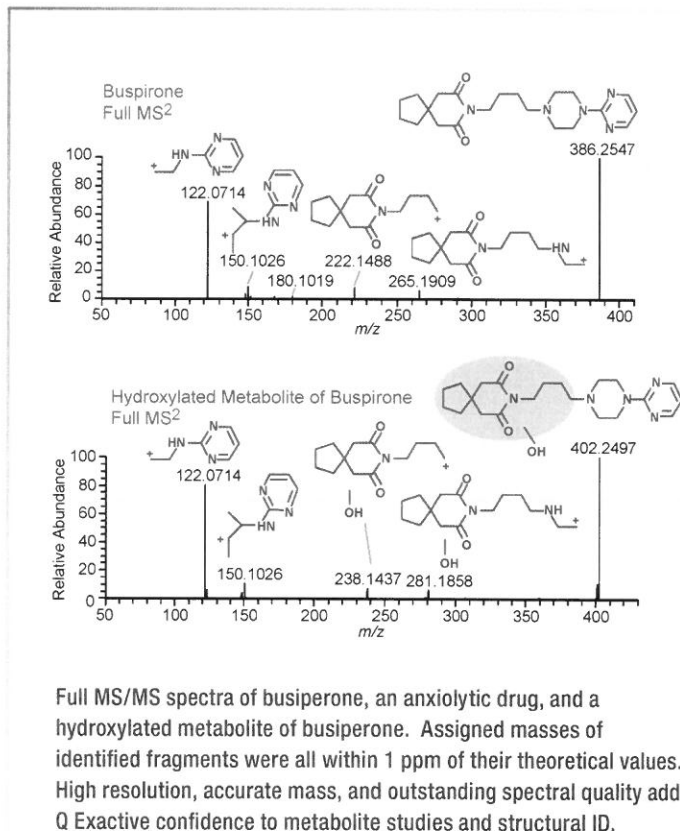
The flexible quantification capabilities of the Q Exactive instrument make it a versatile solution for drug discovery and metabolism research.

Greater throughput for drug discovery studies

For DMPK quan/qual screening studies, the Q Exactive instrument provides triple quadrupole-equivalent ability to quantify parent compounds and metabolites, and identity confirmation with MS/MS sensitivity and selectivity superior to Q-TOFs. Thermo Scientific MetQuest software enables laboratories to quantify metabolic stability and confirm putative metabolites from a single injection for better throughput.

Confident metabolite structural identification

For structural identification of metabolites, the Q Exactive mass spectrometer leverages the accuracy and confidence of Orbitrap technology to eliminate interferences. The Q Exactive instrument provides superior MS/MS sensitivity and greater confidence in structural identification. Thermo Scientific MetQuest metabolite identification software and Mass Frontier spectral interpretation software assist with fast, confident structural elucidation.



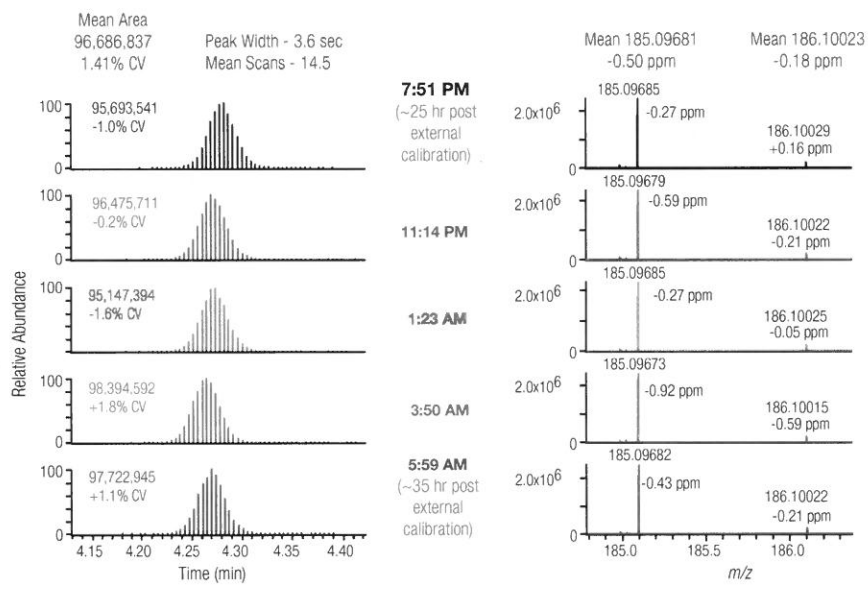
From acquisition to reporting, MetQuest software automates processing of metabolic stability screening data from the Q Exactive LC-MS/MS.

Metabolites from the same parent compound can have a large variance in ionization efficiency between ionization polarities. With fast scan-to-scan polarity switching in both MS and MS/MS, the Q Exactive instrument maximizes metabolite detection and identification from a single chromatographic run.

Whether you are screening to find the toughest impurities, genotoxic compounds, or leachables and extractables, the quantification capabilities of the Q Exactive mass spectrometer provide a greater measure of confidence.

Powerful Engine for Large-Scale Metabolomic Profiling

With the high mass resolution to differentiate analytes from interferences, the scan speed to keep up with UHPLC, and fast polarity switching to find more endogenous metabolites, the Q Exactive mass spectrometer is the platform of choice for the large-scale profiling of complex metabolomics samples. The component elucidator algorithm in Thermo Scientific SIEVE software removes chemical background signals and groups related adducts, dimers and isotopes, dramatically improving confidence, reducing the false discovery rate, and accelerating biomarker discovery.



A 12-hour continuous UHPLC-MS analysis of d5 hippuric acid (m/z 185.0969) from rat plasma demonstrates the Q Exactive mass spectrometer's robust ion statistics and highly stable mass accuracy.

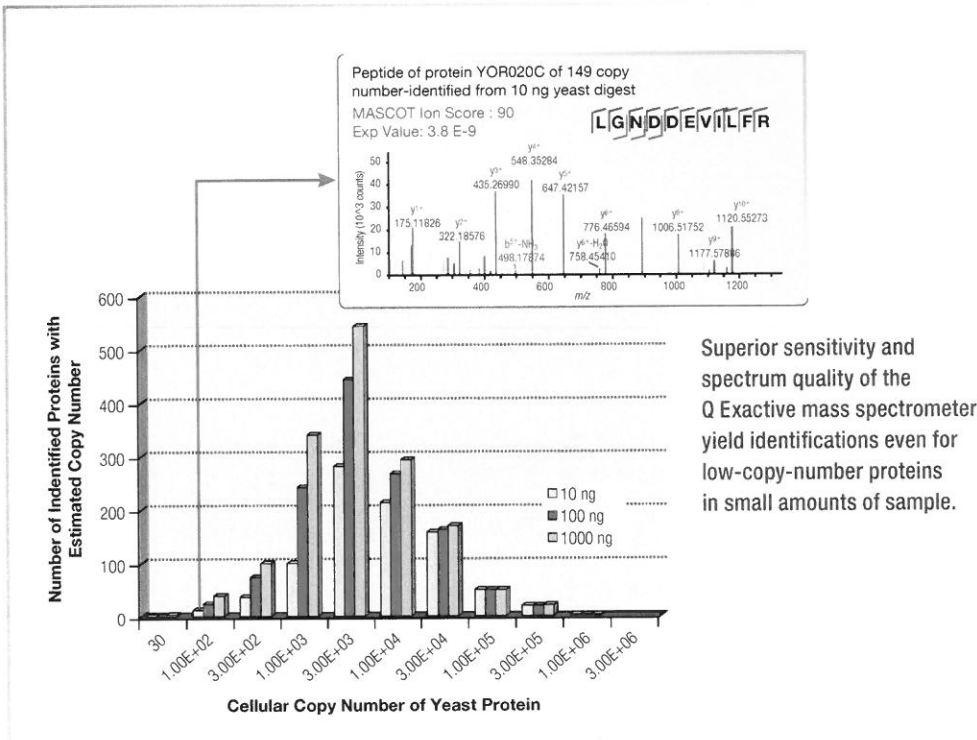
Profiling

All Classes of Lipids

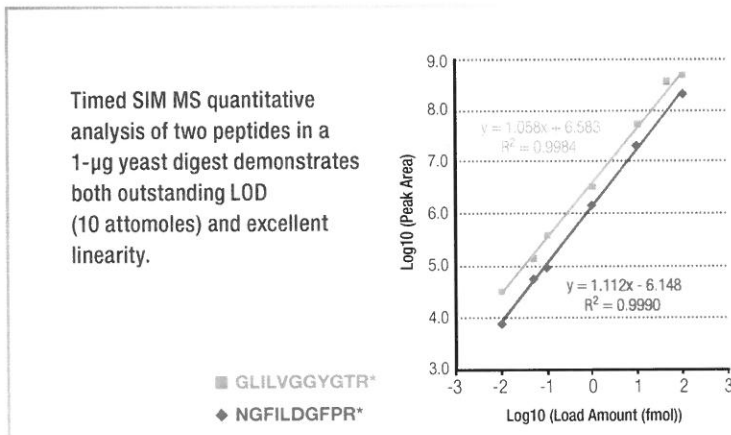
The Q Exactive mass spectrometer is also well-suited for lipid profiling. Its outstanding resolution helps unravel complex samples. The Q Exactive LC-MS/MS is an excellent solution for analysis of fragile labile lipids and can perform qualitative and quantitative analyses of all classes of lipids.

Making High-Resolution, Accurate-Mass Quan/Qual More Accessible for Proteomics Research

Proteomics, more than any other field, has benefited from Orbitrap technology. The Q Exactive mass spectrometer provides robust, easy-to-use high-resolution, accurate-mass (HR/AM) capabilities for quantitative and qualitative proteomics applications. It is ideally suited for proteomics labs already benefiting from Orbitrap technology that need to expand their analytical capacity. And it makes HR/AM confidence available to labs relying on unit resolution instruments for high-throughput quantitation.



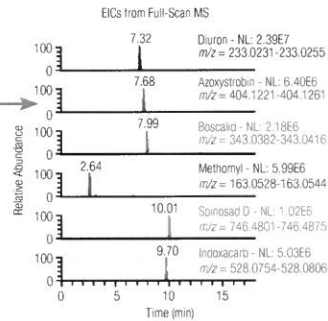
- Higher-energy collisional dissociation (HCD) often yields superior fragmentation and higher-quality MS/MS spectra compared CID.
- Superior spectral quality and a wide dynamic range make it possible to explore deeper in the proteome, identifying more proteins and quantifying proteins other instruments cannot find.
- Unlike Q-TOF technology, Orbitrap technology requires no tradeoff between high sensitivity and mass resolution.
- The quan/qual capabilities of the Q Exactive instrument make it easier than ever to transition from proteomic discovery experiments to targeted protein quantitation and confirmation.



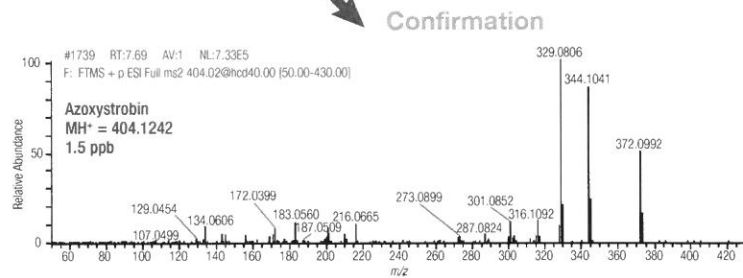
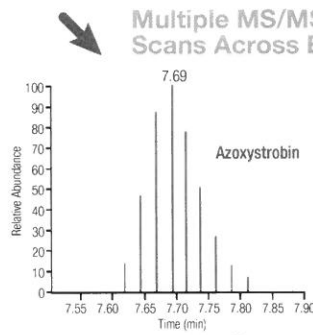
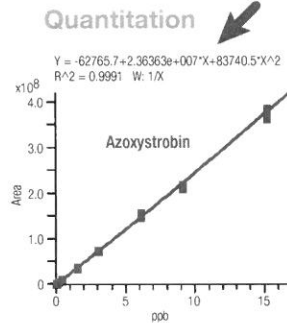
Supporting the Q Exactive LC-MS/MS for proteomics research is a range of software including Thermo Scientific Proteome Discoverer software for protein identification, SIEVE software for differential expression analysis, and Pinpoint software for quantitation and verification.

Screening and Quantifying Environmental and Food Samples with Greater Confidence

The Q Exactive LC-MS/MS is the ideal quan/qual screening platform, with specificity that far exceeds triple quadrupole, Q-TOF, or Q-Trap levels. Whether screening and quantifying antibiotics, pesticides or hormones, its data-dependent™, full-scan MS/MS capabilities, superior 140,000 resolution and mass accuracy ensure the highest possible confidence in every ID. Thermo Scientific ExactFinder software simplifies every step from method development through data processing and reporting. Even with challenging experiments like multi-residue analyses involving hundreds of compounds in multiple classes, the Q Exactive MS and ExactFinder™ software provide results that stand up to the closest scrutiny.



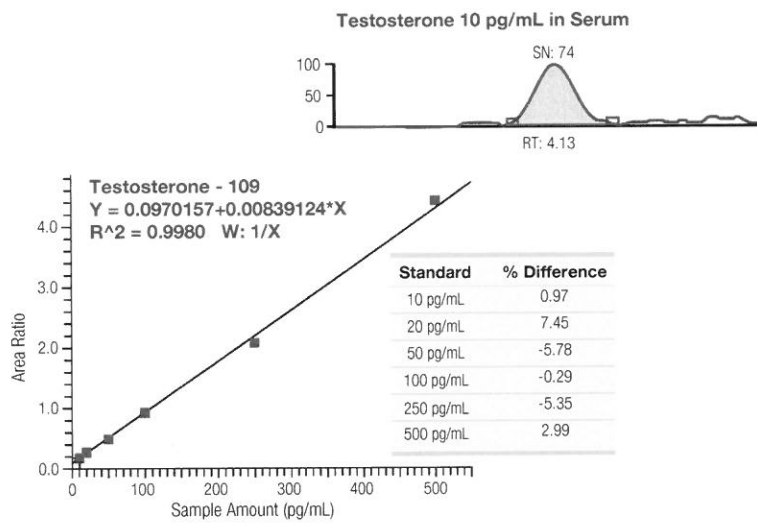
Quantification capabilities of the Q Exactive system provide simultaneous quan/qual analysis of a 60-pesticide mixture. Fast scanning ensures high-quality MS/MS data from narrow UHPLC peaks.



Retention Time (min)	Relative Abundance	Compound
6.72	8.72	Azoxystrobin
6.81	1.81	Fenamidone
6.91	1.91	Metrocarb
6.92	1.92	Dimethomorph 1
6.93	1.93	Pyrimorant
6.94	1.94	Linuron
6.95	1.95	Boscalid
6.96	1.96	Hexafluorimethyl
6.97	1.97	Rubiacin
6.98	1.98	Methoxyfenozide
6.99	1.99	Dimethomorph 2

Moving Quantitation Confidence to Another Level in Clinical Research and Forensic Toxicology

SRM is the standard approach to quantitative analysis in clinical research, toxicology, and doping control. The Q Exactive LC-MS/MS takes quantitative analyses to another level, providing the strength of SRM with a level of confidence only possible with high-resolution, accurate-mass Orbitrap technology. The superior Q Exactive quantification capabilities make it possible to identify, quantify, and confirm endogenous steroids, drugs of abuse, and pain-management therapeutics with equal ease.



Sample	Fragment m/z 97		Fragment m/z 109	
	ng/dL (Calibrators in water)	ng/dL (Calibrators in plasma)	ng/dL (Calibrators in water)	ng/dL (Calibrators in plasma)
T1	15	15	13	14
T2	17	17	19	20
T3	156	156	156	152
T4	34	34	37	36
T5	8	8	8	7

Analysis of testosterone in water and in charcoal-stripped serum demonstrates the excellent sensitivity and ion-ratio stability of the Q Exactive LC-MS/MS.



www.thermoscientific.com/qexactive

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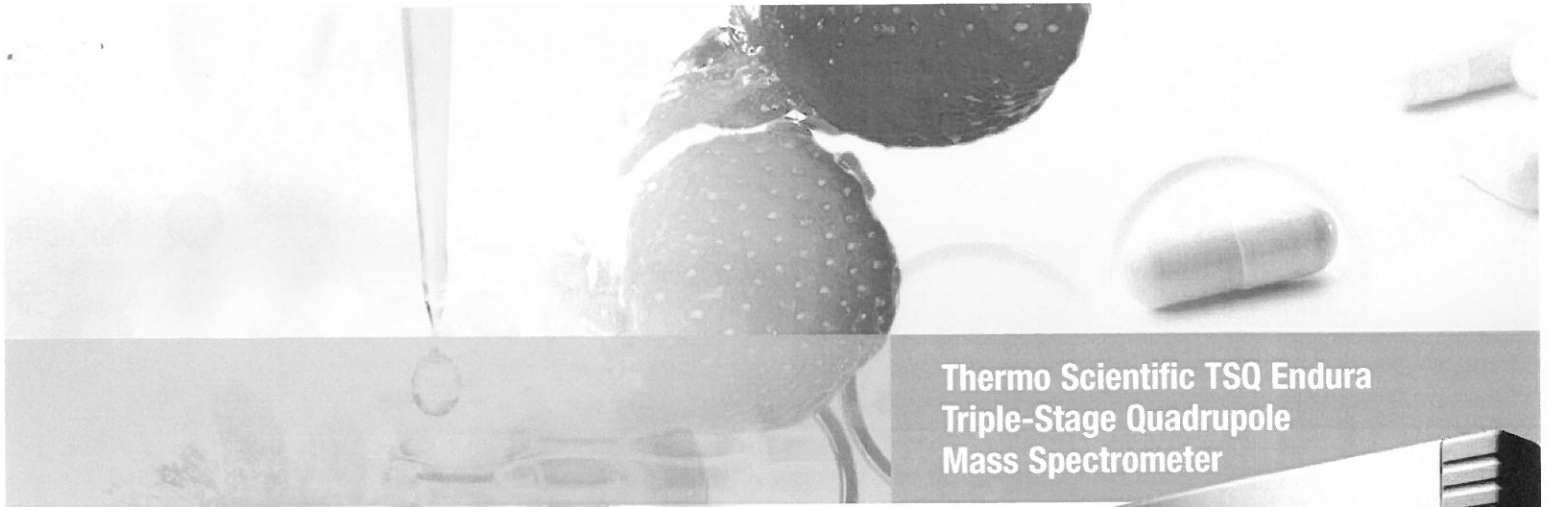
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Australia +61 3 9757 4300
Austria +43 1 333 50 34 0
Belgium +32 53 73 42 41
Canada +1 800 530 8447
China +86 10 8419 3588
Denmark +45 70 23 62 60

Europe-Other +43 1 333 50 34 0
Finland/Norway/Sweden
 +46 8 556 468 00
France +33 1 60 92 48 00
Germany +49 6103 408 1014
India +91 22 6742 9434
Italy +39 02 950 591

Japan +81 45 453 9100
Latin America +1 561 688 8700
Middle East +43 1 333 50 34 0
Netherlands +31 76 579 55 55
New Zealand +64 9 980 6700
Russia/CIS +43 1 333 50 34 0
South Africa +27 11 570 1840

Spain +34 914 845 965
Switzerland +41 21 694 71 11
UK +44 1442 233555
USA +1 800 532 4752

Thermo
SCIENTIFIC
 Part of Thermo Fisher Scientific



Thermo Scientific TSQ Endura
Triple-Stage Quadrupole
Mass Spectrometer



Extreme quantitative value
with unprecedented ease

Thermo
SCIENTIFIC



Unsurpassed value

From forensic toxicology to environmental analysis to pharmaceutical research, a constant in almost every field is the need for greater productivity; to quantify more samples in less time with greater reliability and confidence, and to do it all on ever tighter budgets. The Thermo Scientific™ Endura™ triple-stage quadrupole mass spectrometer meets these needs with unsurpassed value. It delivers best-in-class sensitivity run-after-run and day-after-day regardless of sample type or matrix, and does so with an ease-of-use that takes the worry out of method development and operation.

Best-in-class sensitivity

The TSQ Endura mass spectrometer delivers best-in-class, research-level sensitivity and dynamic range, assuring accurate, reliable quantitation of even low-level or difficult-to-analyze samples.

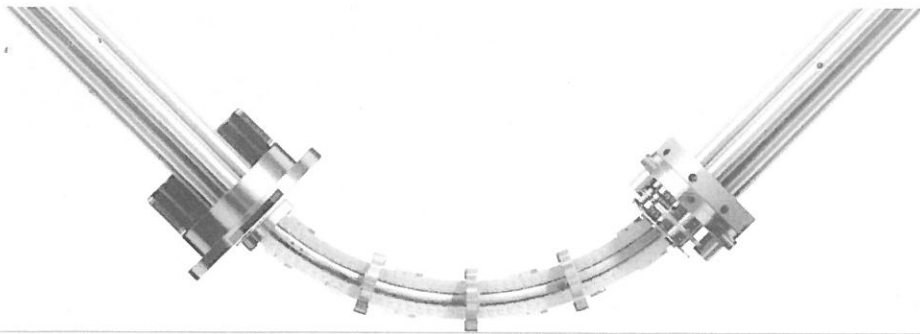
Unprecedented usability

New software with a simplified user interface makes this next-generation triple quadrupole easier to use. The drag-and-drop method editor speeds method development. Seamless integration with application-specific software ensures maximum productivity.

Ultimate robustness

From an enhanced ion source exhaust port that removes more solvent vapor, to a neutral blocker that keeps the ion optics cleaner, to new electronics that maintain mass accuracy and mass resolution stability, the TSQ Endura mass spectrometer design ensures the same best-in-class performance over hundreds or thousands of samples.





Economical solutions for clinical research and forensic toxicology

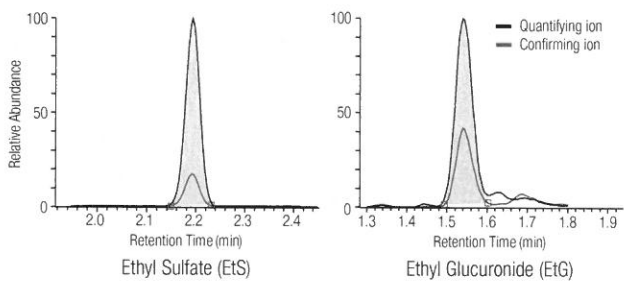
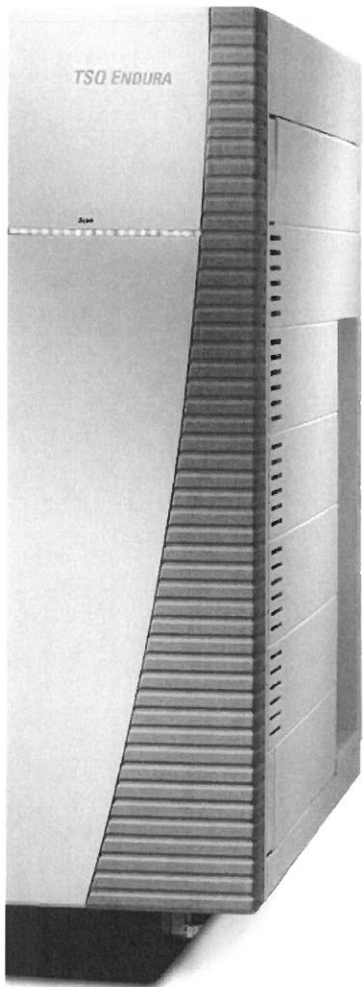
Clinical research and forensic toxicology demand fast, accurate, reproducible quantitative analyses...that don't break the budget. The TSQ Endura MS delivers fast, economical quantitation without compromising sensitivity or reproducibility. Simplified methods make operation straightforward for experts and non-experts alike.

Flexible sensitivity for environmental and food safety research

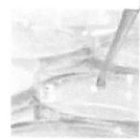
New threats to food safety and the environment emerge every day. The TSQ Endura system makes it easy and practical to keep up with them. A drag-and-drop method editor and close integration with Thermo Scientific™ TraceFinder™ software make development of sensitive, reliable screening and quantitation methods faster and easier than ever before.

Highly productive pharmaceutical research

Pharmaceutical research demands high productivity with uncompromising performance. The high sensitivity and utter reliability of the TSQ Endura MS make it the perfect instrument for the day-in and day-out quantitation of large numbers of pharmaceutical samples. Thermo Scientific™ LCQUAN™ software provides 21 CFR Part 11-compliant data analysis.

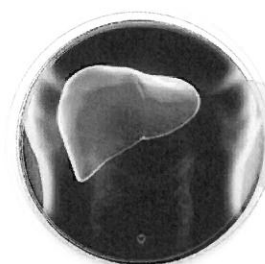


▲ The TSQ Endura system provides sensitive analysis of even difficult-to-analyze samples such as ethyl sulfate and ethyl glucuronide in a urine matrix

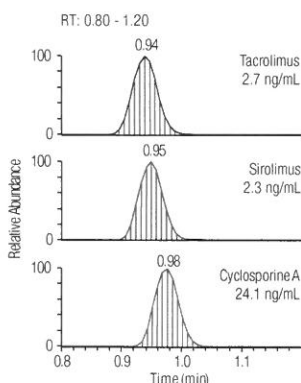


Simplified, integrated software delivers performance with ease

Integral to the TSQ Endura system is entirely new software for method development and instrument operation; software that ensures more performance with less effort. The drag-and-drop method editor simplifies method development and close integration with application-specific software packages ensures seamless, effective operation. TSQ Endura software helps researchers focus on their science instead of their instruments while maintaining the highest levels of productivity.



CLINICAL RESEARCH AND FORENSIC TOXICOLOGY

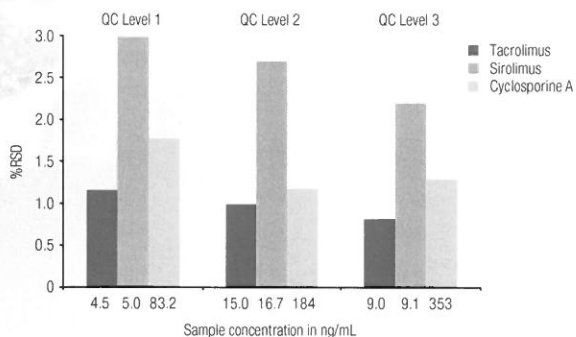


Quantitative analysis of immunosuppressant drugs with the TSQ Endura MS. %RSD for five injections of three different QC samples show excellent precision across a range of concentrations.



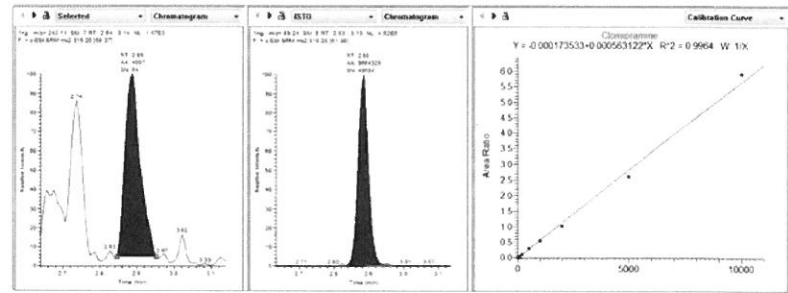
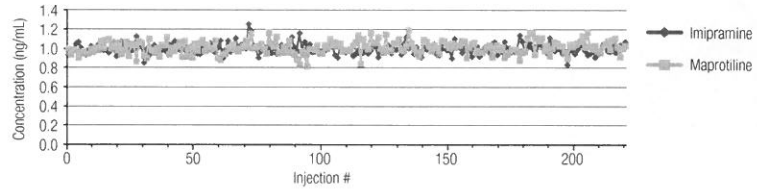
TRACEFINDER SOFTWARE

TraceFinder software provides an extensive database of SRM parameters as well as a set of preconfigured but customizable report templates for environmental, food safety, clinical research, and forensic toxicology applications.

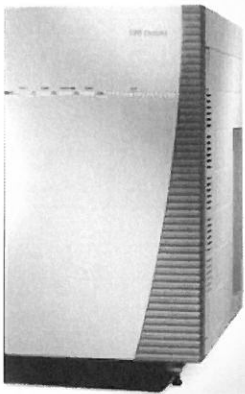


ENVIRONMENT AND FOOD SAFETY

Stability of imipramine (%CV = 5.51%) and maprotiline (%CV = 6.56%) at 1 ng/mL over the course of 221 injections in protein-precipitated plasma, with a single set of integration parameters for all samples



Analysis of clomipramine, a tricyclic antidepressant (TCA), in human plasma at LOQ of 1 ng/mL showing quantifying ion, internal standard ion, and calibration curve

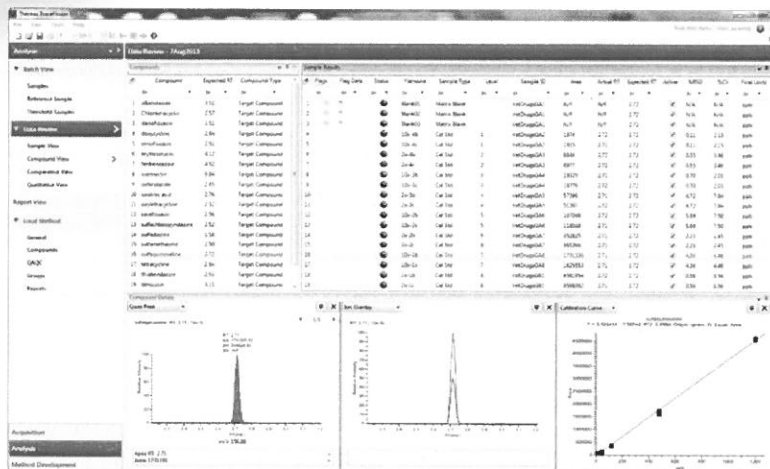


PHARMACEUTICAL ANALYSIS

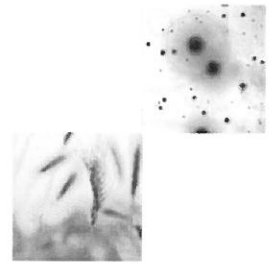


LCQUAN SOFTWARE

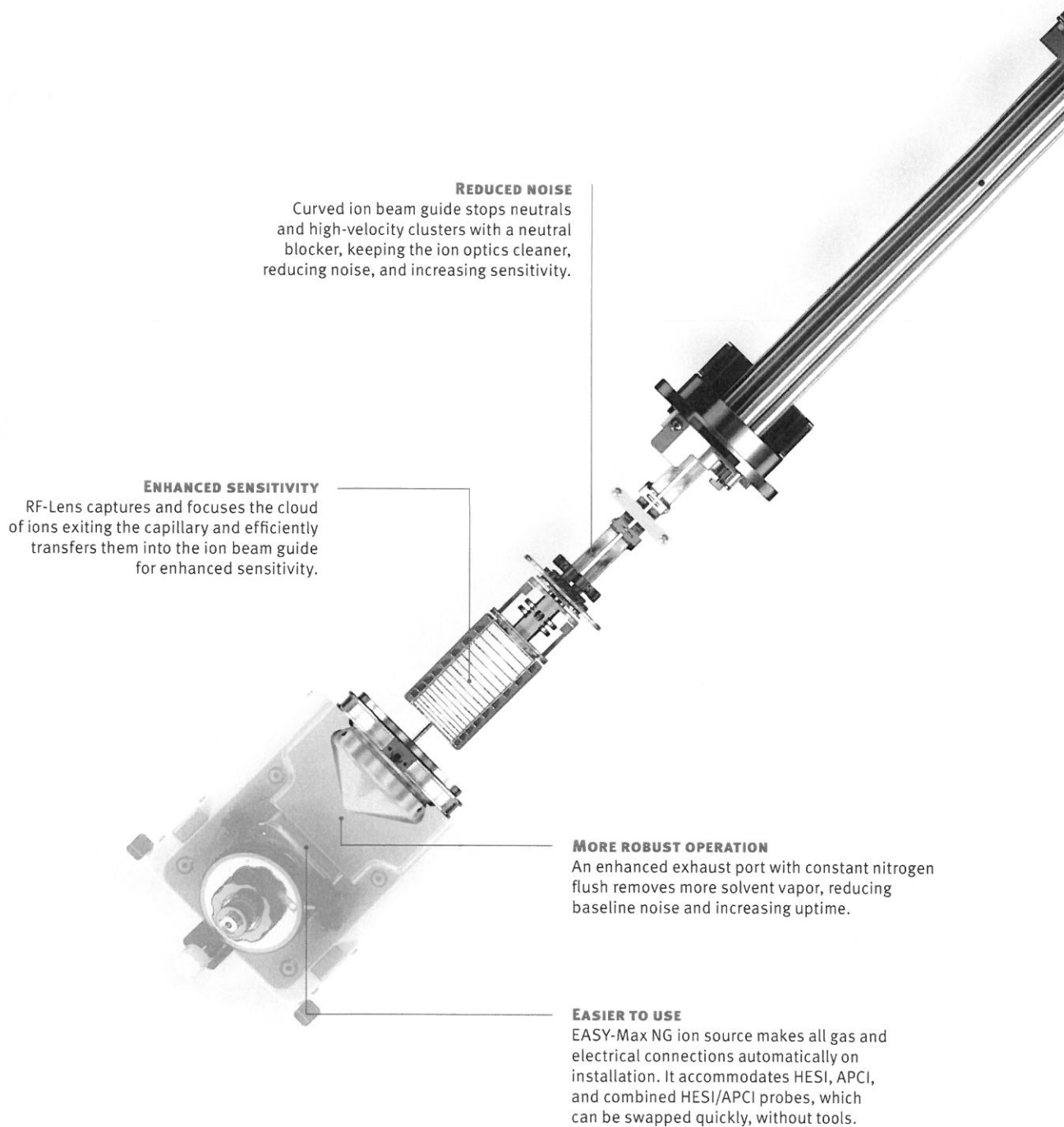
LCQUAN software is a 21 CFR Part 11-compliant solution for method development, data review, processing, reporting, and data export in drug discovery and development experiments.

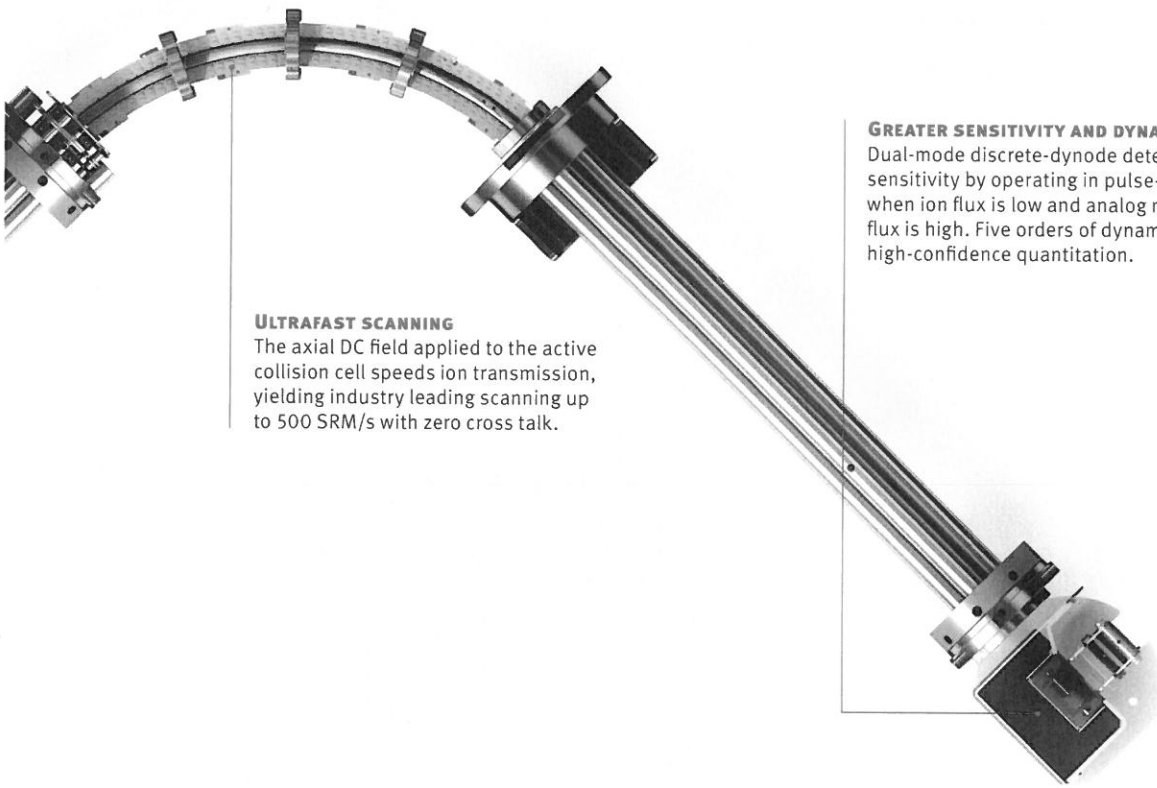


TSQ Endura MS provides sensitive, accurate quantitation of 21 antibiotics with results for sulfaquinoxaline from 0.48 ng/mL to 1200 ng/mL shown here



Innovative design delivers outstanding sensitivity and unsurpassed robustness



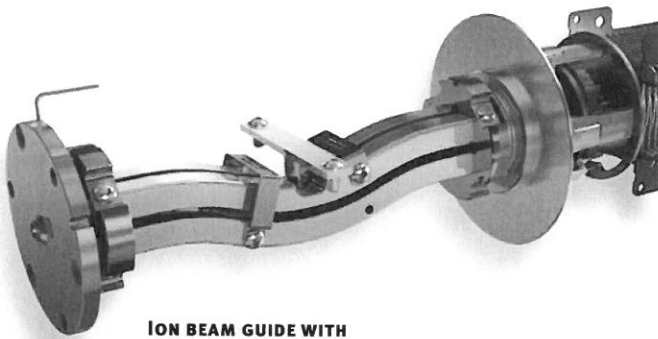


ULTRAFAST SCANNING

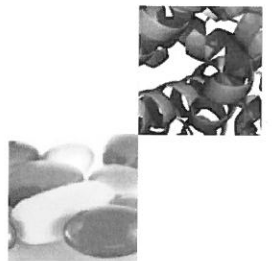
The axial DC field applied to the active collision cell speeds ion transmission, yielding industry leading scanning up to 500 SRM/s with zero cross talk.

GREATER SENSITIVITY AND DYNAMIC RANGE

Dual-mode discrete-dynode detector increases sensitivity by operating in pulse-counting mode when ion flux is low and analog mode when ion flux is high. Five orders of dynamic range provide high-confidence quantitation.



ION BEAM GUIDE WITH NEUTRAL BLOCKER

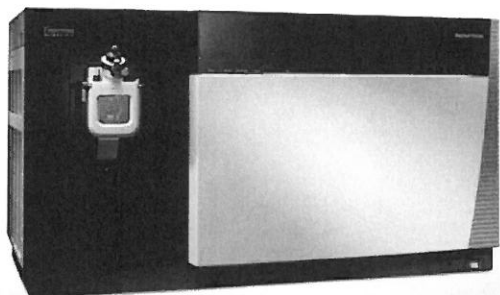


Transforming science with the next generation of mass spectrometers

The TSQ Endura mass spectrometer is just one of a family of transformational, next-generation Thermo Scientific mass spectrometers that combine unprecedented performance and usability. Others include:

- Thermo Scientific™ TSQ Quantiva™ triple-stage quadrupole mass spectrometer
- Thermo Scientific™ Orbitrap Fusion™ Tribrid™ mass spectrometer

These next-generation instruments are built on a foundation of shared, state-of-the-art hardware and software components. This commonality makes it easier to transfer methods from one instrument to another when research progresses from single-sample-based experiments to validation and high-volume screening or routine quantification.



All of these Thermo Scientific mass spectrometers can be paired with a range of high-performance Thermo Scientific LC systems. Regardless of application, there is an LC that will ensure the highest possible performance.



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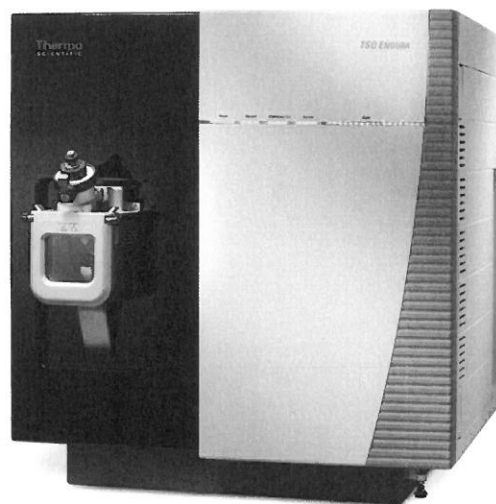
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Thermo Scientific TSQ Endura Triple-Stage Quadrupole Mass Spectrometer

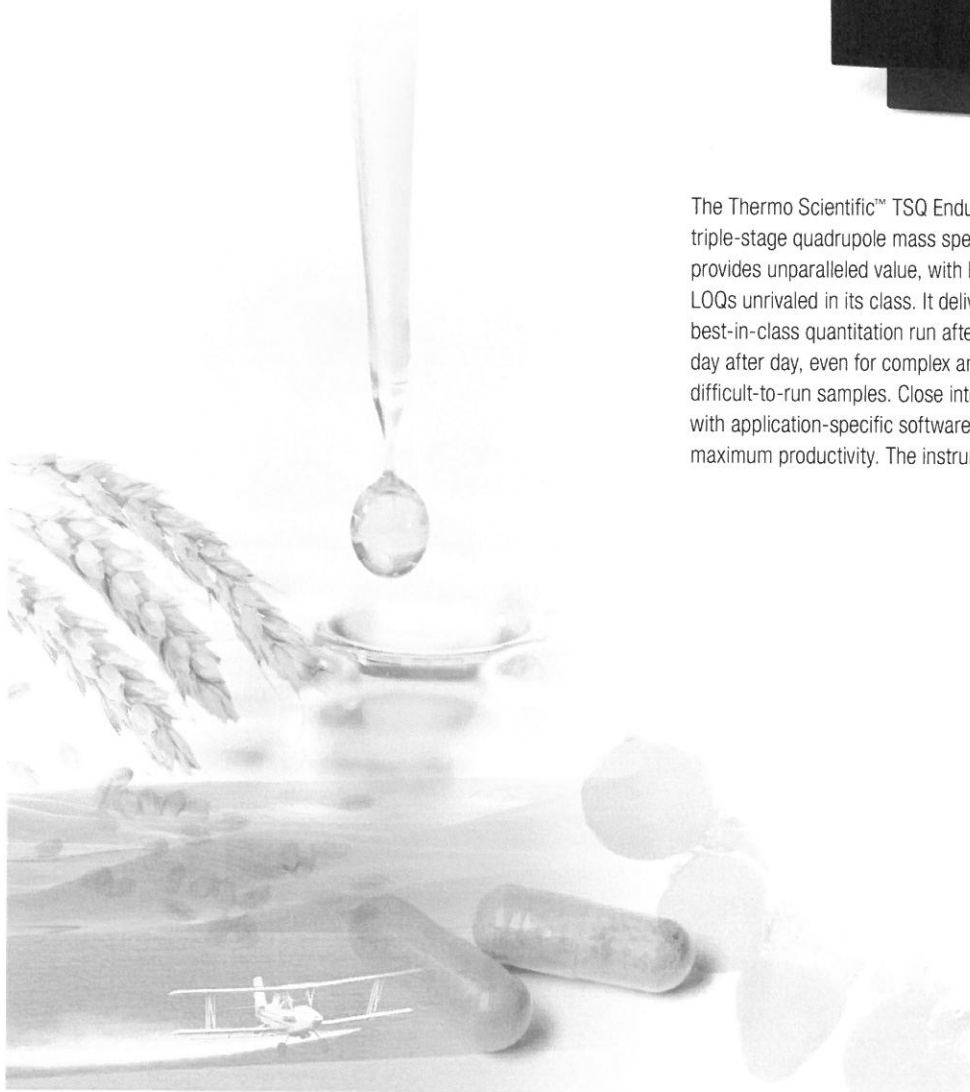
Extreme quantitative value with unprecedented ease

- Extreme quantitative value in a triple quadrupole mass spectrometer
- Best-in-class sensitivity
- Ultrafast selected-reaction monitoring enables quantification of more compounds in less time
- Superb robustness and reliability
- Close integration with application-specific software ensures maximum productivity
- Simple method development and easy operation



The Thermo Scientific™ TSQ Endura™ triple-stage quadrupole mass spectrometer provides unparalleled value, with LODs and LOQs unrivaled in its class. It delivers this best-in-class quantitation run after run and day after day, even for complex and difficult-to-run samples. Close integration with application-specific software ensures maximum productivity. The instrument's

excellent analytical performance doesn't come at the price of complexity or lack of durability; breakthrough software and hardware developments make operation far easier and more reliable than in previous-generation triple quadrupoles. The TSQ Endura MS helps users spend more time thinking about their analyses and less time worrying about instrument setup and operation.



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Hardware Features

Thermo Scientific™ EASY-Max NG™ API Source

- Automatic connection of all gases and voltages on installation for simpler operation and greater reliability
- Automatic source recognition for ease of use and simplified data logging
- Sweep gas reduces chemical noise
- Enhanced exhaust port efficiently removes solvent vapor, improving uptime and reducing chemical noise
- Optimal 60 degree spray angle
- Minimal adjustment
- Interchangeable HESI and APCI ionization probes
- Dual-mode HESI and APCI capability

Ion Optics

RF-Lens

The progressively spaced stacked-ring ion guide (RF-Lens) captures and efficiently focuses ions in a tight beam. Large variable spacing between electrodes provides better pumping efficiency and improved ruggedness. Automatic tuning program optimizes ion transmission.

Ion Beam Guide

The ion beam guide, with its neutral blocker, stops neutrals and high-velocity clusters, keeping the ion optics cleaner, reducing noise, and increasing sensitivity.

Hyperbolic Quadrupole Mass Filter (Q1 and Q3)

Hyperbolic quadrupoles with high ion transmission at isolation widths down to 0.4 amu provide excellent sensitivity and selectivity.

Active Collision Cell (Q2)

The high-pressure argon-filled collision cell produces efficient fragmentation for high sensitivity. An axial DC field speeds ion transits, yielding up to 500 SRMs/s with zero cross talk.

Vacuum System

- Four-stage differentially pumped vacuum manifold
- Advanced triple-inlet turbomolecular pump integrated with the vacuum manifold
- Single rotary vacuum pump configuration

Detector

- Dual-mode discrete-dynode detector increases sensitivity by operating in pulse-counting mode when ion flux is low and analog mode when ion flux is high
- Six orders of dynamic range provide high-confidence quantitation

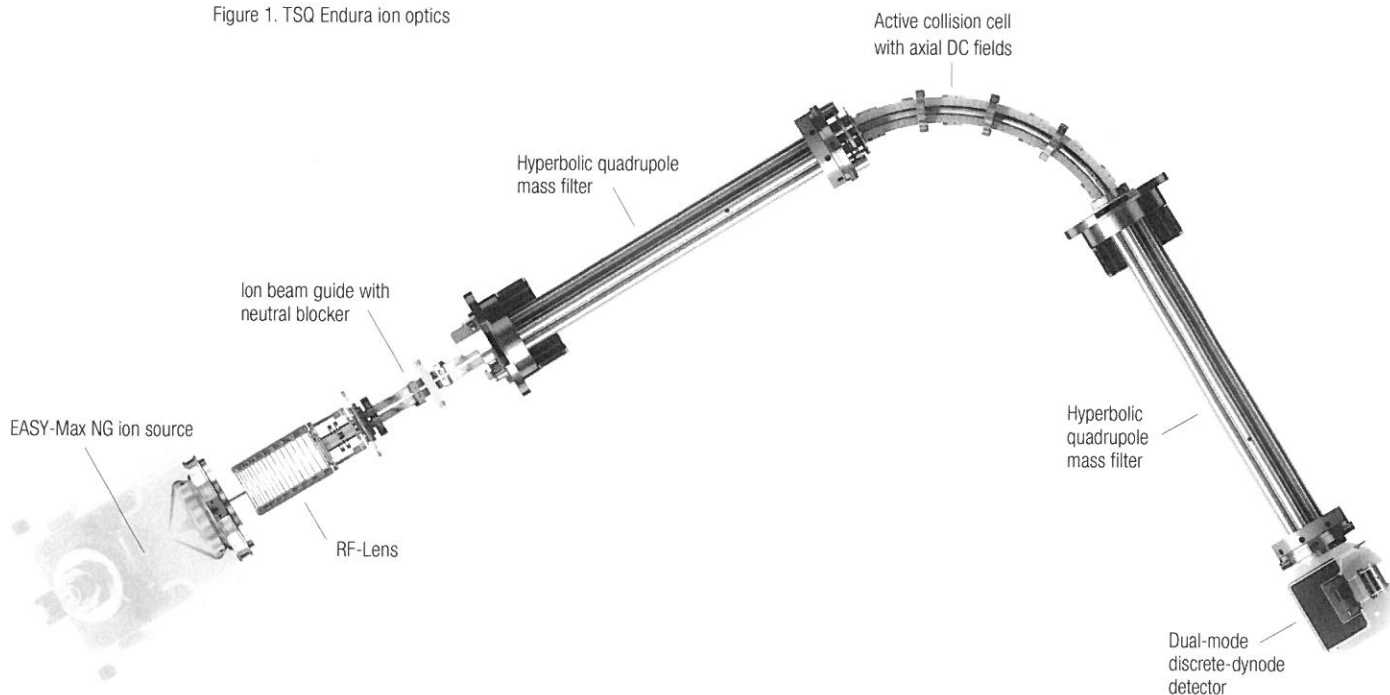
Integrated Divert Valve and Syringe Pump

Fully automated data system control of the divert valve enables switching the solvent front, gradient end point, or any portion of the HPLC run to waste.

Optional Ion Sources

- Thermo Scientific™ Ion Max NG™ ion source provides ultimate performance with full adjustments for optimization
- Thermo Scientific™ EASY-Spray NG™ ion source is designed for maximum nanoelectrospray performance with no need for adjustments
- Thermo Scientific™ Nanospray Flex NG™ ion source is designed for ultimate nanoelectrospray performance with complete flexibility of column selection

Figure 1. TSQ Endura ion optics



Software Features

Data System

- High-performance PC with Intel® microprocessor
- High-resolution LCD color monitor
- Microsoft® Windows® 7 operating system (64 bit)
- Microsoft Office 2010 software

Standard MS Software

- Thermo Scientific™ Xcalibur™ processing and instrument control software
- Tune editor for system calibration, diagnostics, and manual data acquisition
- Method editor with comprehensive application-specific template library and drag-and-drop user interface to facilitate method development
- Automated optimization of all instrument parameters, including gas pressures and collision energy, within an experiment
- Direct control of multiple vendors' LC systems and autosampler configurations through Xcalibur software
- Foundation of shared, state-of-the-art software makes it easier to transfer methods between next-generation instruments

Scan Functions

- Highly sensitive full-scan MS in Q1 or Q3
- Selected-ion monitoring (SIM) in Q1 or Q3
- Selected-reaction monitoring (SRM) with up to 30,000 SRMs definable and up to 500 SRMs/s
- High-resolution (0.4 Da) selected-reaction monitoring
- Product ion scanning
- Precursor ion scanning
- Neutral-loss scanning
- Reverse energy ramp (RER) MS/MS spectra gives information-rich MS/MS spectra for solid compound identification
- Polarity switching capabilities

Optional Application-Specific Software

- Thermo Scientific™ LCQUAN™ quantitation software supports 21 CFR Part 11 compliance
- Thermo Scientific™ TraceFinder™ software simplifies method development and routine analysis in food safety, environmental, clinical research, and forensic toxicology laboratories
- Thermo Scientific™ Pinpoint™ software automates peptide quantitation applications
- Thermo Scientific™ Mass Frontier™ spectral interpretation and classification software for the identification of unknowns

Performance Specifications

Sensitivity

Positive Electrospray (HESI) at Resolution 0.4 Da FWHM

A 2 μ L injection of a 500 fg/ μ L reserpine solution on a Thermo Scientific™ Hypersil GOLD™ aQ 20 x 2.1 mm 1.9 μ m particle packed column at a flow rate of 300 μ L/min 30:70:0.02 water/methanol/formic acid will produce a minimum signal-to-noise ratio of 10,000:1 for the transition of the protonated molecule at m/z 609.3 to the fragment ion at m/z 195.1 when operated in selected-reaction monitoring (SRM) mode with Q1 and Q3 resolution set to 0.4 and 0.7 Da FWHM respectively.

Mass Range

m/z 10-3400

Resolution

Q1 and Q3 adjustable to 0.4 Da peak width (FWHM) across the entire mass range

Scan Rate

15,000 amu/second at a resolution of 2 FWHM

500 SRMs/second (for any resolution from 0.4 through 2.0 FWHM)

Mass Stability

Mass assignment will be within ± 0.05 Da over a 24 hour period. The laboratory room temperature must be maintained between 18–27 °C (65–81 °F). The room temperature may not change by more than 5 °C (9 °F) during this period.

Installation Requirements

Power

- Three 230 Vac $\pm 10\%$, 50/60 Hz at 16 A minimum
- Four 120 Vac $+6-10\%$, 50/60 Hz at 20 A or four 230 Vac $\pm 10\%$, 50/60 Hz at 13 A
- Earth ground hardwired to main panel
- Free from voltage variations above or below the recommended operating range

Gas

- Collision gas: 99.995% pure argon
- Collision gas supply pressure: 135 \pm 70 kPa (20 \pm 10 psig)
- Sheath/aux/sweep gas: 99% pure nitrogen
- Sheath/aux/sweep gas supply pressure: 690 \pm 140 kPa (100 \pm 20 psig)
- Maximum sheath gas consumption: \approx 20 L/min

Environment

- Functional temperature range: 15–27 °C (59–81 °F)
- Optimal temperature range: 18–21 °C (65–70 °F)
- Heat output: 1550 W (5400 Btu/h)
- Total system heat output: 4420 W (15,380 Btu/h)
- Particulate matter: <3,500,000 particles per cubic meter of air (<100,000 particles of >5 μ m diameter per cubic foot of air)
- Relative humidity: 20% to 80%, without condensation
- Floors must be free of vibration

Dimensions

Size

- TSQ Endura MS¹: 680 x 760 x 840 mm (h, w, d – 27 x 30 x 33 in)
- Oerlikon® SV 65 forepump: 270 x 320 x 489 mm (h, w, d – 10 x 13 x 19 in)

Weight

- TSQ Endura MS: 125 kg (275 lb)
- Oerlikon® SV 65 forepump: 52 kg (115 lb)

1. Includes the divert/inject valve

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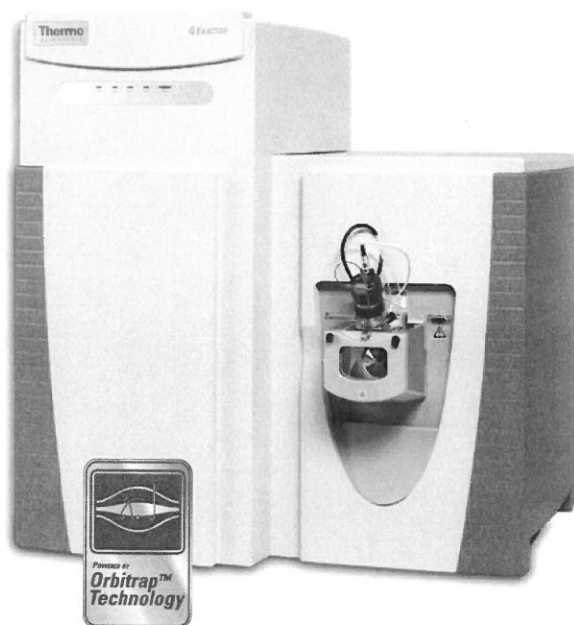
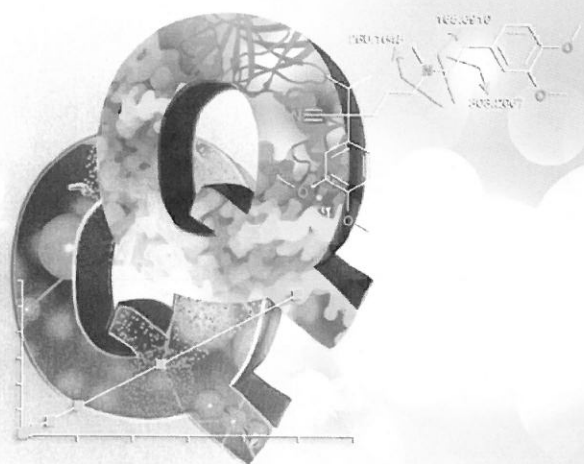
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Identify, quantify and confirm with unmatched confidence using the Q Exactive mass spectrometer.

Thermo Scientific Q Exactive

Benchtop Quadrupole-Orbitrap
Mass Spectrometer



- Resolving power up to 140,000
- Maximum scan speed 12 Hz
- Intra-scan dynamic range > 5000:1
- Quadrupole mass filter
- Spectral multiplexing for enhanced duty cycle
- S-Lens ion source for increased sensitivity

The Thermo Scientific Q Exactive benchtop LC-MS/MS combines high-performance quadrupole precursor selection with high-resolution, accurate-mass (HR/AM) Orbitrap detection to deliver high performance and tremendous versatility.

With a fast scan speed and multiplexing capabilities, the Q Exactive mass spectrometer is an outstanding detector for fast chromatography separation techniques. The superior quality of Q Exactive MS/MS data enables identification and quantitation of more compounds with greater confidence.

The Q Exactive LC-MS/MS system not only offers broad screening capabilities but also excels at targeted quantitation experiments, making it a versatile addition to any laboratory. Fast, alternating positive-negative scan modes allow for the most comprehensive approaches, saving time during screening experiments. The benchtop system is ideally suited for drug metabolism, proteomics, environmental analysis, food safety, toxicology and clinical research applications.

Hardware Specifications

Thermo Scientific Ion Max API Source

- Enhanced sensitivity and ruggedness
- Sweep Gas reduces chemical noise
- 60° interchangeable ion probe orientation
- Removable metal ion transfer capillary provides vent-free maintenance

Ion Source

- H-ESI II probe with Dual Desolvation Zone technology equipped as standard
- A progressively spaced stacked ring ion guide (S-lens)
- The S-lens is a radio frequency (RF) device that captures and efficiently focuses the ions in a tight beam
- Large variable spacing between electrodes allows for better pumping efficiency and improves ruggedness

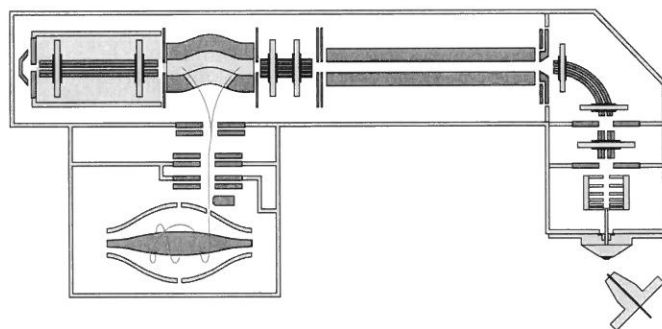
Transfer Ion Optics

- Advanced ion guides for high sensitivity and ruggedness
- High stability and ion transmission efficiency

Quadrupole Mass Filter

- Thermo Scientific HyperQuad mass filter provides superior and unique combination of resolution and sensitivity
- Variable precursor isolation width selection from 0.4 Da to full mass range

Schematic of the Thermo Scientific Q Exactive Benchtop LC-MS/MS



Vacuum System

- Differentially pumped vacuum system with final vacuum <math>< 1 \times 10^{-9}</math> mbar
- Two split-flow turbomolecular pumps and one rotary vane pump
- Seven vacuum regions

Orbitrap Mass Analyzer

- Gas (nitrogen) filled C-Trap
- Highly efficient ion transfer to Orbitrap analyzer
- Straight multipole collision cell for HCD
- Orbitrap analyzer with 5 kV central electrode voltage
- Low-noise image current pre-amplifier
- 16-bit signal digitalization

Data Acquisition

- Ultra fast real-time data acquisition and instrument control system
- Fully automated calibration via instrument control software
- Automated gain control

Performance Characteristics

Max resolving power	140,000 @ m/z 200
Max scan rate	Up to 12 Hz at resolution setting of 17,500 @ m/z 200
Mass accuracy	Internal: < 1 ppm RMS External: < 5 ppm RMS
Sensitivity	Full MS: 500 fg Buspirone on column S/N 100:1 SIM: 50 fg Buspirone on column S/N 100:1
Dynamic range	> 5000:1
Polarity switching	One full cycle in < 1 sec (one full scan positive mode and one full scan negative mode at resolution setting of 17,500)
Multiplexity	up to 10 precursors/scan
Analog inputs	One (1) analog input (0 - 1 V) One (1) analog (0 - 10 V)

Options

- Nanospray source supports static packed tip and dynamic nanospray experiments, compatible with liquid flow rates of 50 nL/min to 2 μ L/min
- NanoSpray Flex Ion source – single set-up for all online nanoflow applications
- ESI probe compatible with liquid flow rates of < 1 μ L/min to 1 mL/min without splitting
- APCI source compatible with liquid flow rates of 50 μ L/min to 2 mL/min without splitting
- APCI/APPI source compatible with liquid flow rates of 50 μ L/min to 2 mL/min without splitting
- Metal needle kits for high and low flow analyses

Software Features

Data System

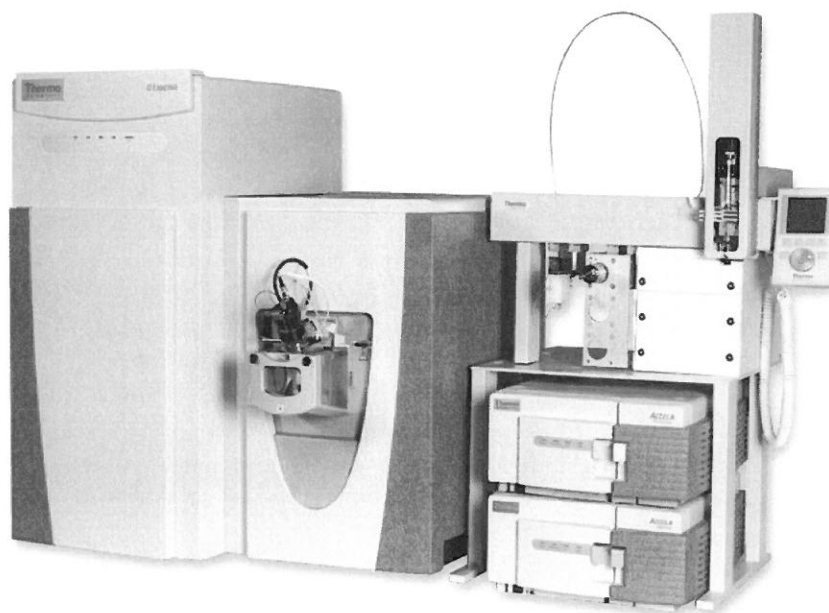
- High performance PC with Intel® Pentium® microprocessor
- High resolution LCD color monitor
- Microsoft Windows® 7 operating system
- Microsoft Office software package
- Thermo Scientific Xcalibur processing and instrument control software
- New workflow based method editor

Operation Modes

- Full MS with high resolution accurate mass detection
- Selected Ion Monitoring (SIM) with high resolution accurate mass detection
- MS/MS of isolated ions with high resolution accurate mass detection
- 'All Ion Fragmentation' in the HCD collision cell with high resolution accurate mass detection
- Source fragmentation of all ions in the source region
- Positive/negative ion switching on chromatographic timescale
- Data Dependent on-the-fly decision making
- Timed SIM for scheduled data acquisition of the targets of interest

Exclusive Technologies

- Unique, patented* Thermo Scientific Automatic Gain Control (AGC) ensures that the Orbitrap is always filled with the optimum number of ions for all scans
- New high performance HCD collision cell for highest performance MS/MS fragmentation
- Collision energy profiling using different collision energies for HCD fragmentation
- Advanced signal processing
- Interleaved operation
- Multiplex-MS for simultaneous detection of up to 10 compounds in the Orbitrap



Product Specifications

Installation Requirements

Power

- 2x 230 V_{ac} ± 10% single phase, 15 Ampere, 50/60 Hz, with earth ground for the instrument
- 120 or 230 V_{ac} single phase with earth ground for the data system

Gas

Nitrogen

High purity nitrogen gas supply (99% pure at 800 ± 30 kPa (0.8 ± 0.3 bar, 116 ± 4 psi))

Environment

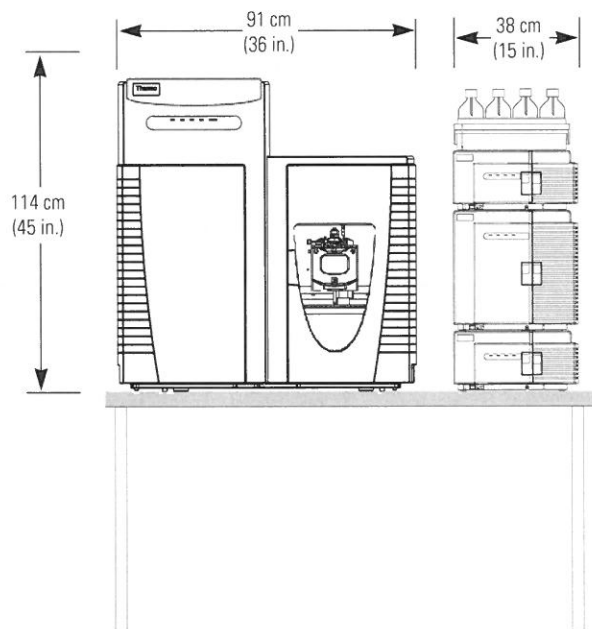
- System averages 2,500 W (~9,000 Btu/h) output when considering air conditioning needs
- Operating environment must be 15 - 26 °C (59 - 78 °F) and relative humidity must be 40 - 70% with no condensation
- Optimum operating temperature is 18 - 21 °C (65 - 70 °F)

Weight

- Q Exactive mass spectrometer: 182 kg (401 pounds)

Dimensions

- Q Exactive mass spectrometer: (h x d x w) 114 x 83 x 91 cm (45 x 33 x 36 inches)



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