



The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at wvOASIS.gov. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at WVPurchasing.gov with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.

Header 5

List View


General Information | Contact | Default Values | Discount | Document Information

Procurement Folder: 505542

SO Doc Code: CRFQ

Procurement Type: Central Purchase Order

SO Dept: 0803

Vendor ID: 000000126069 

SO Doc ID: DOT1900000035

Legal Name: ANTON PAAR USA INC


Published Date: 11/7/18

Alias/DBA:

Close Date: 11/15/18


Total Bid: \$39,750.00

Close Time: 13:30

Response Date: 10/31/2018 

Status: Closed

Response Time: 12:19

Solicitation Description: ADDENDUM 2 DYNAMIC SHEAR RHEOMETERS 

Total of Header Attachments: 5

Total of All Attachments: 5

Apply Default Values to Commodity Lines

View Procurement Folder



Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

State of West Virginia
 Solicitation Response

Proc Folder : 505542
 Solicitation Description : ADDENDUM 2 DYNAMIC SHEAR RHEOMETERS (7719001)
 Proc Type : Central Purchase Order

Date issued	Solicitation Closes	Solicitation Response	Version
	2018-11-15 13:30:00	SR 0803 ESR10311800000001985	1

VENDOR

000000126069
 ANTON PAAR USA INC

Solicitation Number: CRFQ 0803 DOT1900000035

Total Bid : \$39,750.00 Response Date: 2018-10-31 Response Time: 12:19:51

Comments: Anton Paar USA is offering the industry preferred Dynamic Shear Rheometer with a discount of \$19,037.00. This make the versatile instrumentation capable of AASHTO standard T315 and T350 measurements, 4mm low temperature testing, Peltier temperature controlled concentric cylindrical chamber, tribology test solutions as well as solid torsion bar testing, available at a bid price of \$ 39,750.00
 We look forward to supporting WV DOH in their analytical needs.
 Sincerely,
 Prajakta Kamerkar

FOR INFORMATION CONTACT THE BUYER

Crystal Rink
 (304) 558-2402
 crystal.g.rink@wv.gov

Signature on File	FEIN #	DATE
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All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	DYNAMIC SHEAR RHEOMETERS	1.00000	EA	\$39,750.000000	\$39,750.00

Comm Code	Manufacturer	Specification	Model #
41112502			

Extended Description :	DYNAMIC SHEAR RHEOMETERS
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Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

State of West Virginia
 Request for Quotation
 19 — Highways

Proc Folder: 505542

Doc Description: DYNAMIC SHEAR RHEOMETERS (7719001)

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2018-10-17	2018-11-08 13:30:00	CRFQ 0803 DOT1900000035	1

BID RECEIVING LOCATION

BID CLERK
 DEPARTMENT OF ADMINISTRATION
 PURCHASING DIVISION
 2019 WASHINGTON ST E
 CHARLESTON
 US

WV 25305

VENDOR

Vendor Name, Address and Telephone Number:

Anton Paar USA
 10215 Timber Ridge Drive,
 Ashland VA 23005
 Phone: 804-550-1051
 Contact person: Prajakta Kamerkar (804-938-2542)

FOR INFORMATION CONTACT THE BUYER

Crystal Rink
 (304) 558-2402
 crystal.g.rink@wv.gov

Signature X

FEIN # 23-2432816

DATE 10/30/2018

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION:

THE WEST VIRGINIA PURCHASING DIVISION IS SOLICITING BIDS ON BEHALF OF THE AGENCY, WEST VIRGINIA DIVISION OF HIGHWAYS, MATERIALS CONTROL SOIL & TESTING DIVISION, TO ESTABLISH A CONTRACT FOR THE ONE-TIME PURCHASE OF A DYNAMIC SHEAR RHEOMETER AND APPURTENANCES.

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS TRAFFIC ENGINEERING DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM A550 CHARLESTON WV25305-0430 US	DIVISION OF HIGHWAYS TRAFFIC ENG. TSC - CENTRAL SIGN SHOP 180 DRY BRANCH DR CHARLESTON WV 25306 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	DYNAMIC SHEAR RHEOMETERS	 000	EA		

Comm Code	Manufacturer	Specification	Model #
41112502			

Extended Description :
 DYNAMIC SHEAR RHEOMETERS

SCHEDULE OF EVENT:

Line	Event	Event Date
1	QUESTION DEADLINE 10AM EST	2018-10-24

INSTRUCTIONS TO VENDORS SUBMITTING BIDS

1. REVIEW DOCUMENTS THOROUGHLY: The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

2. MANDATORY TERMS: The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

3. PREBID MEETING: The item identified below shall apply to this Solicitation.

A pre-bid meeting will not be held prior to bid opening

A **NON-MANDATORY PRE-BID** meeting will be held at the following place and time:

A **MANDATORY PRE-BID** meeting will be held at the following place and time:

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one person attending the pre-bid meeting may represent more than one Vendor.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. The State will not accept any other form of proof or documentation to verify attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing.

Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

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 nonbinding.

Submitted e-mails should have solicitation number in the subject line.

Question Submission Deadline: **October 24, 2018 at 10:00 AM EST**

Submit Questions to: **Crystal Rink**
2019 Washington Street, East
Charleston, WV 25305
Fax: (304) 558-4115 (Vendors should not use this fax number for bid submission)
Email: Crystal.G.Rink@wv.gov

5. VERBAL COMMUNICATION: Any verbal communication between the Vendor and any State personnel is not binding, including verbal communication 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 submitted electronically through wvOASIS or 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 electronic submission via wvOASIS, 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

A bid that is not submitted electronically through wvOASIS should contain the information listed below on the face of the envelope or the bid may be rejected by the Purchasing Division.:

SEALED BID:

BUYER: Crystal Rink
SOLICITATION NO.: CRFQ DOT1900000035
BID OPENING DATE: November 8, 2018
BID OPENING TIME: 1:30 PM EST
FAX NUMBER: 304-558-3970

The Purchasing Division may prohibit the submission of bids electronically through wvOASIS at its sole discretion. Such a prohibition will be contained and communicated in the wvOASIS system resulting in the Vendor's inability to submit bids through wvOASIS. Submission of a response to an Expression or Interest or Request for Proposal is not permitted in wvOASIS.

For Request For Proposal ("RFP") Responses Only: 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 n/a 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: (This only applies to CRFP)

- 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 confirmation of delivery is provided by wvOASIS (in the case of electronic submission) or when the bid is time stamped by the official Purchasing Division time clock (in the case of hand delivery).

Bid Opening Date and Time: November 8, 2018 at 1:30 PM 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.

10. ALTERNATE MODEL OR BRAND: Unless the box below is checked, any model, brand, or specification listed in this Solicitation 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.

This Solicitation is based upon a standardized commodity established under W. Va. Code § 5A-3-61. Vendors are expected to bid the standardized commodity identified. Failure to bid the standardized commodity will result in your firm's bid being rejected.

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. 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.

13. 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.

14. UNIT PRICE: Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

15. PREFERENCE: Vendor Preference may be requested in purchases of motor vehicles or construction and maintenance equipment and machinery used in highway and other infrastructure projects. Any request for preference must be submitted in writing with the bid, must specifically identify the preference requested with reference to the applicable subsection of West Virginia Code § 5A-3-37, and should include with the bid any information necessary to evaluate and confirm the applicability of the requested preference. A request form to help facilitate the request can be found at:
<http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf>.

15A. RECIPROCAL PREFERENCE: The State of West Virginia applies a reciprocal preference to all solicitations for commodities and printing in accordance with W. Va. Code § 5A-3-37(b). In effect, non-resident vendors receiving a preference in their home states, will see that same preference granted to West Virginia resident vendors bidding against them in West Virginia. A request form to help facilitate the request can be found at:
<http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf>.

16. SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES: For any solicitations publicly advertised for bid, 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 contract award 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.

17. 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.

18. ELECTRONIC FILE ACCESS RESTRICTIONS: Vendor must ensure that its submission in wvOASIS can be accessed and viewed by the Purchasing Division staff immediately upon bid opening. The Purchasing Division will consider any file that cannot be immediately accessed and viewed at the time of the bid opening (such as, encrypted files, password protected files, or incompatible files) to be blank or incomplete as context requires, and are therefore unacceptable. A vendor will not be permitted to unencrypt files, remove password protections, or resubmit documents after bid opening to make a file viewable if those documents are required with the bid. A Vendor may be required to provide document passwords or remove access restrictions to allow the Purchasing Division to print or electronically save documents provided that those documents are viewable by the Purchasing Division prior to obtaining the password or removing the access restriction.

19. NON-RESPONSIBLE: The Purchasing Division Director reserves the right to reject the bid of any vendor as Non-Responsible in accordance with W. Va. Code of State Rules § 148-1-5.3, when the Director determines that the vendor submitting the bid does not have the capability to fully perform, or lacks the integrity and reliability to assure good-faith performance.”

20. ACCEPTANCE/REJECTION: The State may accept or reject any bid in whole, or in part in accordance with W. Va. Code of State Rules § 148-1-4.5. and § 148-1-6.4.b.”

21. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor’s entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled “confidential,” “proprietary,” “trade secret,” “private,” or labeled with any other claim against public disclosure of the documents, to include any “trade secrets” as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

22. INTERESTED PARTY DISCLOSURE: West Virginia Code § 6D-1-2 requires that the vendor submit to the Purchasing Division a disclosure of interested parties to the contract for all contracts with an actual or estimated value of at least \$1 Million. That disclosure must occur on the form prescribed and approved by the WV Ethics Commission prior to contract award. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

23. WITH THE BID REQUIREMENTS: In instances where these specifications require documentation or other information with the bid, and a vendor fails to provide it with the bid, the Director of the Purchasing Division reserves the right to request those items after bid opening and prior to contract award pursuant to the authority to waive minor irregularities in bids or specifications under W. Va. CSR § 148-1-4.6. This authority does not apply to instances where state law mandates receipt with the bid.

GENERAL TERMS AND CONDITIONS:

1. CONTRACTUAL AGREEMENT: Issuance of a Award Document 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. "Bid" or "Proposal" means the vendors submitted response to this solicitation.

2.3. "Contract" means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

2.4. "Director" means the Director of the West Virginia Department of Administration, Purchasing Division.

2.5. "Purchasing Division" means the West Virginia Department of Administration, Purchasing Division.

2.6. "Award Document" 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 contract holder.

2.7. "Solicitation" means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

2.8. "State" means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

2.9. "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 _____ and extends for a period of _____ 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 should be delivered to the Agency and then submitted to the Purchasing Division 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. Unless otherwise specified below, renewal of this Contract is limited to _____ successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed the total number of months available in all renewal years combined. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

Alternate Renewal Term – This contract may be renewed for _____ successive _____ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

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

Fixed Period Contract with Renewals: This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within _____ days. Upon completion of the work covered by the preceding sentence, the vendor agrees that maintenance, monitoring, or warranty services will be provided for _____ year(s) thereafter.

One Time Purchase: The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will 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 Award Document 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. 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 a 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.

7. REQUIRED DOCUMENTS: All of the items checked below must be provided to the Purchasing Division by the Vendor as specified below.

BID BOND (Construction Only): Pursuant to the requirements contained in W. Va. Code § 5-22-1(c), All Vendors submitting a bid on a construction project shall furnish a valid 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 100% of the contract. The performance bond must be received by the Purchasing Division prior to Contract award.

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 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. Notwithstanding the foregoing, West Virginia Code § 5-22-1 (d) mandates that a vendor provide a performance and labor/material payment bond for construction projects. Accordingly, substitutions for the performance and labor/material payment bonds for construction projects is not permitted.

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.

LICENSE(S) / CERTIFICATIONS / PERMITS: In addition to anything required under the Section of the General Terms and Conditions entitled Licensing, 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.

8. INSURANCE: The apparent successful Vendor shall furnish proof of the insurance identified by a checkmark below and must include the State as an additional insured on each policy prior to Contract award. The insurance coverages identified below must be maintained throughout the life of this contract. Thirty (30) days prior to the expiration of the insurance policies, Vendor shall provide the Agency with proof that the insurance mandated herein has been continued. Vendor must also provide Agency with immediate notice of any changes in its insurance policies, including but not limited to, policy cancelation, policy reduction, or change in insurers. 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 in this section.

Vendor must maintain:

- Commercial General Liability Insurance** in at least an amount of: \$1,000,000.00 or more per occurrence.
- Automobile Liability Insurance** in at least an amount of: _____ per occurrence.
- Professional/Malpractice/Errors and Omission Insurance** in at least an amount of: _____ per occurrence.
- Commercial Crime and Third Party Fidelity Insurance** in an amount of: _____ per occurrence.
- Cyber Liability Insurance** in an amount of: _____ per occurrence.
- Builders Risk Insurance** in an amount equal to 100% of the amount of the Contract.
- Pollution Insurance** in an amount of: _____ per occurrence.
- Aircraft Liability** in an amount of: _____ per occurrence.
- ***STATE OF WV MUST BE LISTED AS ADDITIONAL INSURED*****

***CERTIFICATE HOLDER TO READ AS FOLLOWS:

- STATE OF WV
1900 KANAWHA BLVD E, BLDG 5
CHARLESTON, WV 25305

Notwithstanding anything contained in this section to the contrary, the Director of the Purchasing Division reserves the right to waive the requirement that the State be named as an additional insured on one or more of the Vendor's insurance policies if the Director finds that doing so is in the State's best interest.

9. WORKERS' COMPENSATION INSURANCE: The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

10. [Reserved]

11. LIQUIDATED DAMAGES: 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. Vendor shall pay liquidated damages in the amount specified below or as described in the specifications:

N/A _____ for _____

Liquidated Damages Contained in the Specifications

12. ACCEPTANCE: Vendor's signature on its bid, or on the certification and signature page, constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

13. 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.

14. PAYMENT IN ARREARS: 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.

15. PAYMENT METHODS: Vendor must accept payment by electronic funds transfer and P-Card. (The State of West Virginia's Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.)

16. 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.

17. ADDITIONAL FEES: Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly provided for in the solicitation published by the State of West Virginia or included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Including such fees or charges as notes to the solicitation may result in rejection of vendor's bid. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract.

18. 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.

19. 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 also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-5.2.b.

20. TIME: Time is of the essence with regard to all matters of time and performance in this Contract.

21. 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.

22. COMPLIANCE WITH LAWS: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances.

SUBCONTRACTOR COMPLIANCE: Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to comply with all applicable laws, regulations, and ordinances. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

23. 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.

24. 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). Any change to existing contracts that adds work or changes contract cost, and were not included in the original contract, must be approved by the Purchasing Division and the Attorney General's Office (as to form) prior to the implementation of the change or commencement of work affected by the change.

25. 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.

26. 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.

27. 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.

28. 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.

29. 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.

30. PRIVACY, SECURITY, AND 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>.

31. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

32. LICENSING: In accordance with West Virginia Code of State Rules § 148-1-6.1.e, 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. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. 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.

SUBCONTRACTOR COMPLIANCE: Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to be licensed, in good standing, and up-to-date on all state and local obligations as described in this section. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

33. ANTITRUST: In submitting a bid to, signing a contract with, or accepting a Award Document 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.

34. VENDOR CERTIFICATIONS: By signing its bid or entering into this Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer 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 Solicitation in its entirety; understands the requirements, terms and conditions, and other information contained herein.

Vendor's signature on its bid or offer 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 or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer 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.

35. 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.

36. 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.

37. PURCHASING AFFIDAVIT: In accordance with West Virginia Code §§ 5A-3-10a and 5-22-1(i), the State is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State, Vendors are required to sign, notarize, and submit the Purchasing Affidavit to the Purchasing Division affirming under oath that it is not in default on any monetary obligation owed to the state or a political subdivision of the state.

38. ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE: This Contract may be utilized by 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”), provided that both the Other Government Entity and the Vendor agree. Any extension of this Contract to the aforementioned Other Government Entities must be on the same prices, terms, and conditions as those offered and agreed to in this Contract, provided that such extension is in compliance with the applicable laws, rules, and ordinances of the Other Government Entity. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.

39. CONFLICT OF INTEREST: Vendor, its officers or members or employees, shall not presently have or acquire an 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.

40. 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.

41. 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.

Revised 06/08/2018

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

42. 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:
- c. 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
- d. 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.

43. 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.

44. INTERESTED PARTY SUPPLEMENTAL DISCLOSURE: W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least \$1 million, the vendor must submit to the Agency a supplemental disclosure of interested parties reflecting any new or differing interested parties to the contract, which were not included in the original pre-award interested party disclosure, within 30 days following the completion or termination of the contract. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

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CRFQ DOT1900000035
Dynamic Shear Rheometer and Appurtenances**

SPECIFICATIONS

- 1. PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of WVDOH, Materials Control Soil & Testing Division to establish a contract for the one-time purchase of a Dynamic Shear Rheometer and Appurtenances.
- 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 (1) Dynamic Shear Rheometer (DSR), capable of measuring liquid asphalt binder in accordance with American Association of State Highway and Transportation Officials (AASHTO) test standard T 315 and AASHTO T 350 as more fully described by these specifications.
 - 2.2 “Pricing Page”** means the pages, contained in wvOASIS or attached as Exhibit A, upon which Vendor should list its proposed price for the Contract Items.
 - 2.3 “Solicitation”** means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.
 - 2.4 “AASHTO”** means the American Association of State Highway and Transportation Officials
- 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 – (1) Dynamic Shear Rheometer (DSR)**
 - 3.1.1.1 DSR: The Dynamic Shear Rheometer shall meet all requirements set forth in the following Standards:**
 - 3.1.1.1.1 AASHTO T315 - Standard Test Method for Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer**

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Dynamic Shear Rheometer and Appurtenances

3.1.1.1.2 AASHTO T 350 - Test Method for Multiple Stress Creep and Recovery (MSCR) of Asphalt Binder Using A Dynamic Shear Rheometer

3.1.1.1.3 The DSR shall additionally be capable of fulfilling all potential “non-standard” testing applications as noted in Section 3.1.1.8.

3.1.1.2 DSR Measuring System:

3.1.1.2.1 The DSR shall be supplied with all components necessary for operations; air filters, flow indicators, communication cables, hoses, connectors, etc.

3.1.1.2.2 Test Plates: The upper and lower test plates shall be serialized via permanently machined etching and be delivered with documentation of precise plate diameters as required by AASHTO T315 reporting requirements. One set of each 8 and 25-millimeter diameter upper and lower test plates shall be provided.

3.1.1.2.3 The system shall have automatic recognition upon connection of upper test plates and chambers which transmits the model and serial number of each and in addition the precise diameter of the upper plate. Information automatically dispatched to the software via the automatic recognition system shall include, at minimum: plate name, plate serial number, exact plate diameter, coefficient of thermal expansion of plate, and operating temperature range of the plate and/or chamber. The user shall not be required to enter any details regarding the geometry of the upper test plate or serial identification in the DSR software.

3.1.1.2.4 Test Plates: The upper test plate must have a zero-heat flow thermal insulator integrated into the upper plate

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shaft to prevent drift in temperature calibration due to changes in room temperature.

3.1.1.2.5 Test Plates: The DSR shall utilize a precision quick connect coupling system which provides one handed quick connect coupling of the upper test plate to the instrument. The quick connect coupling system shall be of high precision taper design such that re-zeroing of the gap is not necessary after upper test plate removal for cleaning. Systems utilizing a screw-on mechanism or draw rod for affixing upper test plates will not be considered.

3.1.1.2.6 The DSR shall be capable of automatically setting the gap via the operational software. The measuring gap shall be automatically corrected for any temperature changes during the test procedure.

3.1.1.3 Temperature Control:

3.1.1.3.1 The DSR Environmental Chamber shall control temperature using a lower plate chamber with integrated Peltier elements and an upper hood with integrated Peltier elements. Systems providing temperature control of the upper test plate via electrical resistance heating, fluid circulator cooling, vortex chiller cooling, or Liquid Nitrogen cooling will not be considered. One Peltier controlled lower plate and one Peltier controlled upper hood enclosure shall be provided

3.1.1.3.2 The DSR shall be capable of maintaining specimen temperatures within $\pm 0.1^{\circ}$ Celsius for test temperatures ranging from 4°C to 88°C .

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3.1.1.4 Temperature Calibration:

3.1.1.4.1 The DSR shall be provided with a PT100 platinum resistance thermometer temperature calibration device (wafer) or equivalent which integrates directly with the DSR to perform automatic temperature calibrations via the DSR software.

3.1.1.4.2 Temperature calibration shall be capable of being conducted with no user interaction, covering at least 21 temperatures.

3.1.1.4.3 The temperature calibration device shall be delivered with a traceable certificate of calibration which meets the full reporting requirements of AASHTO T 315 and with Calibration in 6 °C increments from 4 °C to 88 °C.

3.1.1.4.4 The temperature calibration device shall not require use of a multi-meter and shall be capable of being sent to a certified calibration laboratory, or rheometer manufacturer, for traceable calibration.

3.1.1.4.5 The DSR shall generate an AASHTO compliant temperature calibration report upon completion of the calibration routine and the DSR software shall provide archiving and retrieval of past temperature calibration reports.

3.1.1.5 General Accessory Requirements: The purchaser may choose to conduct one or more non-standardized tests that rely upon the use of the DSR. The following systems outfitted for such tests shall be commercially available through the vendor:

3.1.1.5.1 A 4 mm measuring system that uses the standard dry, Peltier system. The system is used for low temperature testing of asphalt in studies designed to correlate with the Bending Beam Rheometer.

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- 3.1.1.5.2** Peltier controlled concentric cylinder chamber with temperature gradient within the sample not more than +/- 0.1 C and including a traceable PT100 PRT temperature calibration device or equivalent for the measuring gap of the concentric cylinder chamber which integrates directly with the DSR to perform automatic temperature calibrations via the DSR software. The vendors bidding this solicitation shall include in their bid proposal a brochure and/or specification sheet showing a photo of such a concentric cylinder chamber, the temperature calibration sensor for use in the cup and bob configuration, technical specifications and available measuring system geometries.
- 3.1.1.5.3** Tribology system for evaluation of asphalt lubricity specifically the impact of warm mix additives.
- 3.1.1.5.4** Torsion bar fixtures for the evaluation of asphalt mixtures.
- 3.1.1.6 Training, Support, and Delivery:** The DSR shall be delivered within thirty days of award. Installation of the DSR and training shall occur within forty-five days of award.
- 3.1.1.7 Preventative Maintenance:** The DSR shall include one preventive maintenance visit to occur at the purchaser's location within the first year of the instrument's installation.
- 3.1.1.8 Onsite Verification of Conformance to Bid Specifications:** The Vendor shall verify conformance to each bid specification at the time of installation. Any non-conformance to the bid specifications discovered at the installation or within the first thirty days of ownership will result in the order being canceled and the DSR being returned to the vendor at the vendor's expense.

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Dynamic Shear Rheometer and Appurtenances

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 the Contract Items meeting the required specifications for the lowest overall total cost as shown on the Pricing Pages.

4.2 Pricing Page: Vendor should complete the Exhibit A 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.

5. PAYMENT:

5.1 Payment: Vendor shall accept payment in accordance with the payment procedures of the State of West Virginia.

6. DELIVERY AND RETURN:

6.1 Shipment and Delivery: Vendor shall ship the Contract Items immediately after being awarded this Contract and receiving a purchase order or notice to proceed. Vendor shall deliver the Contract Items within [30] working days after receiving a purchase order or notice to proceed. Contract Items must be delivered to Agency at [190 Dry Branch Drive, Charleston, WV 25306].

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

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Dynamic Shear Rheometer and Appurtenances**

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 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. VENDOR DEFAULT:

7.1 The following shall be considered a vendor default under this Contract.

- 7.1.1** Failure to provide Contract Items in accordance with the requirements contained herein.
- 7.1.2** Failure to comply with other specifications and requirements contained herein.
- 7.1.3** Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.
- 7.1.4** Failure to remedy deficient performance upon request.


7.2 The following remedies shall be available to Agency upon default.

- 7.2.1** Immediate cancellation of the Contract.
- 7.2.2** Immediate cancellation of one or more release orders issued under this Contract.
- 7.2.3** Any other remedies available in law or equity.

Exhibit A Pricing Page

CRFQ DOT1900000035

Item Number	Quantity	Unit of Measure	Description	Total Bid Amount
1	1	Each	Dynamic Shear Rheometers	\$39,750.00

Vendor Information
Contact Person: Prajakta Kamerkar
Address: Anton Paar USA, 10215 Timber Ridge Drive, Ashland, VA 23005, USA
Phone: 804-550-1051 ext. 336 Mobile: +1 - 804 - 938 - 2542
Email: prajakta.kamerkar@anton-paar.com
Fax: 804 - 550-1057
Signature: 

West Virginia Ethics Commission



Disclosure of Interested Parties to Contracts

Pursuant to *W. Va. Code* § 6D-1-2, a state agency may not enter into a contract, or a series of related contracts, that has/have an actual or estimated value of \$1 million or more until the business entity submits to the contracting state agency a Disclosure of Interested Parties to the applicable contract. In addition, the business entity awarded a contract is obligated to submit a supplemental Disclosure of Interested Parties reflecting any new or differing interested parties to the contract within 30 days following the completion or termination of the applicable contract.

For purposes of complying with these requirements, the following definitions apply:

"Business entity" means any entity recognized by law through which business is conducted, including a sole proprietorship, partnership or corporation, but does not include publicly traded companies listed on a national or international stock exchange.

"Interested party" or *"Interested parties"* means:

- (1) A business entity performing work or service pursuant to, or in furtherance of, the applicable contract, including specifically sub-contractors;
- (2) the person(s) who have an ownership interest equal to or greater than 25% in the business entity performing work or service pursuant to, or in furtherance of, the applicable contract. (This subdivision does not apply to a publicly traded company); and
- (3) the person or business entity, if any, that served as a compensated broker or intermediary to actively facilitate the applicable contract or negotiated the terms of the applicable contract with the state agency. (This subdivision does not apply to persons or business entities performing legal services related to the negotiation or drafting of the applicable contract.)

"State agency" means a board, commission, office, department or other agency in the executive, judicial or legislative branch of state government, including publicly funded institutions of higher education: Provided, that for purposes of *W. Va. Code* § 6D-1-2, the West Virginia Investment Management Board shall not be deemed a state agency nor subject to the requirements of that provision.

The contracting business entity must complete this form and submit it to the contracting state agency prior to contract award and to complete another form within 30 days of contract completion or termination.

This form was created by the State of West Virginia Ethics Commission, 210 Brooks Street, Suite 300, Charleston, WV 25301-1804. Telephone: (304)558-0664; fax: (304)558-2169; e-mail: ethics@wv.gov; website: www.ethics.wv.gov.

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

Prajakta Kamerkar, Technical Sales Representative

(Name, Title)

Prajakta Kamerkar, Technical Sales Representative

(Printed Name and Title)

10215 Timber Ridge Drive, Ashland VA 23005

(Address)

804-938-2542

(Phone Number) / (Fax Number)


prajakta.kamerkar@anton-paar.com

(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Anton Paar USA

(Company)



Jorge Gonzalez, Vice President

(Authorized Signature) (Representative Name, Title)

Jorge Gonzalez, Vice President

(Printed Name and Title of Authorized Representative)

10/30/18

(Date)

Phone: 804-550-1051 ext 179 , Fax: 804-550-1057

(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFQ DOT1900000035

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:

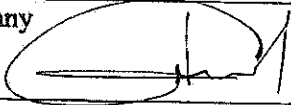
(Check the box next to each addendum received)

- | | |
|---|--|
| <input 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.

Anton Paar USA

Company



Authorized Signature

10/30/18

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

West Virginia Ethics Commission
Disclosure of Interested Parties to Contracts

(Required by *W. Va. Code* § 6D-1-2)

Name of Contracting Business Entity: Anton Paar USA, Inc. **Address:** 10215 Timber Ridge Road
Ashland, Virginia 23005

Name of Authorized Agent: Jorge Gonzalez **Address:** _____

Contract Number: 0803 DOT1900000035 **Contract Description:** Rheometers

Governmental agency awarding contract: Dept. of Transportation

Check here if this is a Supplemental Disclosure

List the Names of Interested Parties to the contract which are known or reasonably anticipated by the contracting business entity for each category below (*attach additional pages if necessary*):

1. Subcontractors or other entities performing work or service under the Contract

Check here if none, otherwise list entity/individual names below.

2. Any person or entity who owns 25% or more of contracting entity (not applicable to publicly traded entities)

Check here if none, otherwise list entity/individual names below.

Anton Paar GmbH 100%

3. Any person or entity that facilitated, or negotiated the terms of, the applicable contract (excluding legal services related to the negotiation or drafting of the applicable contract)

Check here if none, otherwise list entity/individual names below.

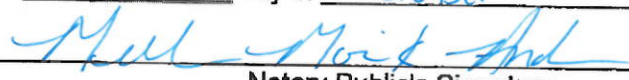
Signature:  Date Signed: 10/30/18

Notary Verification

State of Virginia, County of Hanover:

I, Jorge Gonzalez, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledge that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this 30 day of October, 18 .


Notary Public's Signature

To be completed by State Agency:

Date Received by State Agency: _____

Date submitted to Ethics Commission: _____

Governmental agency submitting Disclosure: _____

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

ALL CONTRACTS: 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: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, 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: Anton Paar USA Inc.

Authorized Signature:  Date: 10/30/18

State of Virginia

County of Hanover, to-wit:

Taken, subscribed, and sworn to before me this 30 day of October, 2018.

My Commission expires June 30, 2022.

AFFIX SEAL HERE

MELANIE MONIK ANDREWS
NOTARY PUBLIC
REGISTRATION # 7023031
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES

NOTARY PUBLIC 

Purchasing Affidavit (Revised 01/19/2018)



Anton Paar USA

**West Virginia Division of Highways
Attn: John Crane
190 Dry Branch Dr
CHARLESTON WV 25306-6616
UNITED STATES OF AMERICA**

Quotation	No. 820150416
Customer Reference No. / Date	Page 1 of 6 10/29/2018
Customer No. 419620	
Validity of quotation 10/29/2018 till 12/28/2018	
Your sales representative Prajakta Kamerkar (prajakta.kamerkar@anton-paar.com)	

Dear Mr. John Crane,
Referring to your request we are pleased to submit the following quotation.

Conditions

Transport by: Truck
 Delivery time: Approx. 4-8 weeks after receipt of purchase order.
 Subject to availability.
 Delivery date: Exact delivery date will be confirmed with the order confirmation.
 Terms of Delivery: FOB Charleston
 Terms of Payment: Within 30 days due net
 New customer's terms to be determined after Credit check!

Invoices exceeding \$ 10,000.00 paid with a credit card are subject to a 2 % processing fee at the time of payment, as permitted per law.

CRFQ DOT1900000035:
Dynamic Shear Rheometer and Appurtenances
DSR for AASHTO standard T315 and T350 measurements. The Anton Paar DSR is also capable for 4mm low temperature testing, Peltier temperature controlled concentric cylindrical chamber, tribology test solutions as well as solid torsion bar testing.

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Pos.	Part No. Description	Qty / Unit Price per unit	Currency	Value
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Anton Paar

Quotation

No. 820150416

Pos.	Part No. Description	Qty / Unit Price per unit	Currency	Value
000010	92008 SMARTPAVE 102 MODULAR COMPACT RHEOMETER	1 EA 30,969.00	USD	30,969.00
	<ul style="list-style-type: none">- rheometer system in modern, compact design with an air bearing supported electronically commutated synchron motor drive system for rheological measurements in rotation and oscillation- normal force sensor integrated in the air bearing- fully automatic stand for a high precision Automatic Gap Setting (AGS) including automatic zero-gap-setting procedure without user action- with automatic tool recognition and intelligent configuration system (ToolmasterTM)- quick-fitting coupling for measuring geometries (QuickConnect)- automatic gap control (AGC) and patented gap measurement technology (TruGapTM, optional)- easy and modular extension of the application area due to various special accessories- sample-adaptive motor controller in rotation (TruRateTM, optional) and oscillation (TruStrainTM, optional) <p>Technical data please see from enclosed brochure.</p>			
000020	301805 Air Dryer with Air Filter Unit including pressure regulator and pressure gauge.	1 EA 1,058.00	USD	1,058.00
	Provides required air according to ISO 8573.1, class 1.3.1." For use with required pressure source to provide: Minimum 5 bar, max. 10 bar			
000030	104907 RHEOMETER SOFTWARE RheoCompassTM PROFESSIONAL	1 EA 7,180.00	USD	7,180.00
	- Shared lab software license including one rheometer driver MCR 51, 52, 101, 102,301, 302, 501, 502,			



Anton Paar

Quotation

No. 820150416

Pos.	Part No. Description	Qty / Unit Price per unit	Currency	Value
	MCR 702 TwinDrive™, SmartPave or EC Twist - Running under Microsoft Windows 7/8/8.1/10 (64bit versions only) - Recommended hardware: Intel™ i5, 2.67 GHz or higher, 8 GB RAM or more, SSD with 240 GB or more - Two computers can simultaneously access the built-in SQL database - The software license is upgradeable to the operation of several instruments (Art.-Nr. 104909). Technical data please see from the software brochure.			
000040	16091 P-PTD200/56/I PELTIER TEMPERATURE CONTROL DEVICE - for mounting inset plates - temperature range: -40 to 200 °C	1 EA 4,413.00	USD	4,413.00
000050	16095 H-PTD120 HOOD WITH PELTIER HEATING/COOLING - temperature range: -30 to 120 °C	1 EA 5,575.00	USD	5,575.00
000060	3479 MEASURING PLATE PP25/PE D: 25 mm	1 EA 1,362.00	USD	1,362.00
000070	76678 INSET I-PP25/CU/CX D: 25 mm; COPPER ALLOY, COATED	1 EA 698.00	USD	698.00
000080	3477 MEASURING PLATE PP08/PE D: 8 mm	1 EA 1,362.00	USD	1,362.00



Anton Paar

Quotation

No. 820150416

Pos.	Part No. Description	Qty / Unit Price per unit	Currency	Value
000090	76677 INSET I-PP08/CU/CX D: 8 mm; COPPER ALLOY, COATED	1 EA 698.00	USD	698.00
000100	20237 RECIRCULATING COOLER AWC100 115V/60Hz	1 EA 1,272.00	USD	1,272.00
000110	162177 TEMPERATURE MEASURING SET SMARTPAVE FACTORY CALIBRATED	1 EA 1,405.00	USD	1,405.00
000120	P00394 CONTRACT "STANDARD" (1)	1 EA 2,795.00	USD	2,795.00

One preventative maintenance visit to occur at WV DOT location with the first year of the instrument's installation.

Discount	USD	-19,037.00
Total amount	USD	39,750.00
Your total discount is:	-19,037.00 USD	

"Anton Paar sells more Rheometers annually than any other company"

Congratulations on your investment in an Anton Paar rheometer!

Your rheometer by Anton Paar USA comes with a complete support package which includes the following:

Warranty:

Includes all parts, labor, required software and firmware updates during standard 1 year warranty for MCR Rheometer. Warranty does not cover damage to unit as a result of improper operation or misuse of equipment.

Technical Support:

Qualified users may call our rheology resource center at 1 800-722-7556 for technical assistance.

Anton Paar USA, 10215 Timber Ridge Drive, Ashland, VA 23005
Phone: 800 722 7556, Fax: 804 550 9074, E-Mail: info.us@anton-paar.com



Anton Paar

Quotation	No. 820150416

The rheology resource center is available Monday Friday, 8:30 AM to 5:00 PM EST.

Our Technical Support handles requests in the fastest way for you, including immediate telephone support, remote diagnostics through Web meeting and loaner equipment.

Installation & Onsite Training:

Instrument training is conducted on-site at time of installation.

In addition, Anton Paar USA offers user training courses throughout the year. Your instrument purchase includes one free registration to a user training course. Your free registration will expire two years from the installation date of your MCR rheometer. We recommend you plan to attend roughly 3-4 months after installation. The current course schedule is posted at <http://www.anton-paar.com/us-en/events/seminars/>. You may also call for dates and additional information.

Important: Please indicate your tax status at time of order as the total amount does not include sales tax and freight charges, unless stated otherwise.

Terms: Upon credit approval our standard payment terms are Net 30 days from date of invoicing. Anton Paar extends credit and terms to buyers and reserves the right to modify the amount of credit, terms of payment, or revoke credit at any time. A Surcharge may apply for purchase orders which vary from this quotation in regards to payment terms.

When collect shipping (EXW) is used, an insurance value will not be added to the Bill of Lading unless otherwise instructed.

Your sales representative is:

Prajakta Kamerkar
10215 Timber Ridge Drive
Ashland, VA 23005
Phone 804-550-1051
prajakta.kamerkar@anton-paar.com

Please send order to: Anton Paar USA, 10215 Timber Ridge Drive, Ashland, VA 23005
phone: (804) 550 1051, fax: (804) 550 1057, e-mail: us-orders@anton-paar.com



Anton Paar

Quotation	No. 820150416

The General Terms of Delivery of Anton Paar USA shall be applied to the contract. The General Terms of Delivery can be accessed at www.anton-paar.com/terms.

Liability: Any and all claims that may arise out of or in connection with the present contract are limited in total to the value of the present order. Any claims exceeding this limitation of liability are expressly excluded.

We greatly appreciate this opportunity.


Sincerely yours
Anton Paar USA

The Equal Opportunity Clauses set forth in 41 CFR Section 60-1.4(a), 60-741(a) - (f), 60-250.4(a) and 29 CFR Part 471, Appendix A are incorporated herein by reference.

Exhibit A Pricing Page

CRFQ DOT1900000035

Item Number	Quantity	Unit of Measure	Description	Total Bid Amount
1	1	Each	Dynamic Shear Rheometers	\$39,750.00

Vendor Information
Contact Person: Prajakta Kamerkar
Address: Anton Paar USA, 10215 Timber Ridge Drive, Ashland, VA 23005, USA
Phone: 804-550-1051 ext. 336 Mobile: +1 - 804 - 938 - 2542
Email: prajakta.kamerkar@anton-paar.com
Fax: 804 - 550-1057
Signature: 



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

10/25/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Scott Insurance (Rich) 1700 Bayberry Court Ste. 200 Richmond VA 23226	CONTACT NAME: Carolyn Varnier PHONE (A/C. No. Ext): 804-545-2211 E-MAIL ADDRESS: cvarnier@scottins.com		FAX (A/C. No.): 434-485-8798
	INSURER(S) AFFORDING COVERAGE		
INSURED ANTON-3 Anton Paar USA, Inc. Attn: Reinhard Eberl 10215 Timber Ridge Drive Ashland VA 23005	INSURER A: North River Insurance Company (A)		NAIC # 21105
	INSURER B: Zurich American Insurance Company (A+)		16535
	INSURER C: The Travelers Indemnity Company (A++)		25658
	INSURER D: The Travelers Indemnity Company of America (A++)		25666
	INSURER E:		
	INSURER F:		

COVERAGES

CERTIFICATE NUMBER: 641390212

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
B	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:	Y		GLO654207209	1/1/2018	1/1/2019	EACH OCCURRENCE \$2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$500,000 MED EXP (Any one person) \$5,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 \$
C	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY			Y8107C138451	1/1/2018	1/1/2019	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	<input type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 0			5821067286	1/1/2018	1/1/2019	EACH OCCURRENCE \$10,000,000 AGGREGATE \$10,000,000 FOLLOW FORM \$EXCLUDES GL
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N	N/A	UB9J547983	1/1/2018	1/1/2019	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Thirty Days Notice of Cancellation, with the exception of Non Payment of Premium, will be provided as per Policy Provisions. Workers Compensation includes Employers Liability Stop Gap coverage for the states of West Virginia, Ohio, North Dakota, Wyoming, and Washington. STATE OF WV IS LISTED AS ADDITIONAL INSURED UNDER GENERAL LIABILITY IF REQUIRED BY WRITTEN CONTRACT.

CERTIFICATE HOLDER**CANCELLATION**

STATE OF WV 1900 KANAWAH BLV E, BLDGE 5 CHARLESTON WV 25305	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE <i>Stacy W. Hall</i>
---	---

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October 30, 2018

WVDOH, Materials Control Soil
& Testing Division

Crystal Rink
Buyer
Email: crystal.g.rink@wv.gov
Phone: (304) 558-2402

Department of Administration
Purchasing Division
2019 Washington ST E
Charleston, WV 25305 US

Prajakta Kamerkar
Technical Sales Representative
Rheology Division: Mid-Atlantic

10215 Timber Ridge Drive,
Ashland VA 23005

Tel.: 804-938-2542
Fax: 804-550-1057

Email: prajakta.kamerkar@anton-
paar.com
www.anton-paar.com

Ref: Dynamic Shear Rheometer CRFQ 0803 DOT1900000035

Dear Ms. Rink,

Anton Paar USA, Inc. is pleased to respond to **Solicitation Number CRFQ 0803 DOT1900000035** for **Dynamic Shear Rheometer** to be used in **WVDOH, Materials Control Soil & Testing Division** with the **SmartPave 102 DSR**.

RESPONSE TO THIS NOTICE:

- Name of Company: **Anton Paar USA Inc.**
- Address of Company: **10215 Timber Ridge Drive, Ashland VA 23005**
- Name, phone number and email address of company representative.

Prajakta Kamerkar, Technical Sales Representative,
Rheology Division: Mid-Atlantic (Tel.: 804-938-2542)
Email: prajakta.kamerkar@anton-paar.com
Website: www.anton-paar.com

Response to mandatory contract item requirements:

3.1.1.1 DSR: [The Anton Paar SmartPave 102 Dynamic Shear Rheometer meets and exceeds all requirements set forth](#) in the following Standards:

3.1.1.1.1 AASHTO T315 - Standard Test Method for Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer

3.1.1.1.2 AASHTO T 350- Test Method for Multiple Stress Creep and Recovery (MSCR) of Asphalt Binder Using A Dynamic Shear Rheometer

3.1.1.1.3 The DSR shall additionally be capable of fulfilling all potential "non-standard" testing applications as noted in Section 3.1.1.8.

3.1.1.2 DSR Measuring System: [The Anton Paar SmartPave 102 Dynamic Shear Rheometer meets and exceeds all requirements set forth in this section.](#)

3.1.1.2.1 The DSR shall be supplied with all components necessary for operations; air filters, flow indicators, communication cables, hoses, connectors, etc.

3.1.1.2.2 Test Plates: The upper and lower test plates shall be serialized via permanently machined etching and be delivered with documentation of precise plate diameters as required by AASHTO T315

reporting requirements. One set of each 8 and 25-millimeter diameter upper and lower test plates shall be provided.

3.1.1.2.3 The system shall have automatic recognition upon connection of upper test plates and chambers which transmits the model and serial number of each and in addition the precise diameter of the upper plate. Information automatically dispatched to the software via the automatic recognition system shall include, at minimum: plate name, plate serial number, exact plate diameter, coefficient of thermal expansion of plate, and operating temperature range of the plate and/or chamber. The user shall not be required to enter any details regarding the geometry of the upper test plate or serial identification in the DSR software.

3.1.1.2.4 Test Plates: The upper test plate must have a zero-heat flow thermal insulator integrated into the upper plate shaft to prevent drift in temperature calibration due to changes in room temperature.

3.1.1.2.5 Test Plates: The DSR shall utilize a precision quick connect coupling system which provides one handed quick connect coupling of the upper test plate to the instrument. The quick connect coupling system shall be of high precision taper design such that re-zeroing of the gap is not necessary after upper test plate removal for cleaning. Systems utilizing a screw-on mechanism or draw rod for affixing upper test plates will not be considered.

3.1.1.2.6 The DSR shall be capable of automatically setting the gap via the operational software. The measuring gap shall be automatically corrected for any temperature changes during the test procedure.

3.1.1.3 Temperature Control: [The Anton Paar SmartPave 102 Dynamic Shear Rheometer meets and exceeds all requirements set forth in this section.](#)

3.1.1.3.1 The DSR Environmental Chamber shall control temperature using a lower plate chamber with integrated Peltier elements and an upper hood with integrated Peltier elements. Systems providing temperature control of the upper test plate via electrical resistance heating, fluid circulator cooling, vortex chiller cooling, or Liquid Nitrogen cooling will not be considered. One Peltier controlled lower plate and one Peltier controlled upper hood enclosure shall be provided

3.1.1.3.2 The DSR shall be capable of maintaining specimen temperatures within ± 0.1 a Celsius for test temperatures ranging from 4°C to 88°C.

3.1.1.4 Temperature Calibration: [The Anton Paar SmartPave 102 Dynamic Shear Rheometer meets and exceeds all requirements set forth in this section.](#)

3.1.1.4.1 The DSR shall be provided with a PT100 platinum resistance thermometer temperature calibration device (wafer) or equivalent which integrates directly with the DSR to perform automatic temperature calibrations via the DSR software .

3.1.1.4.2 Temperature calibration shall be capable of being conducted with no user interaction, covering at least 21 temperatures.

3.1.1.4.3 The temperature calibration device shall be delivered with a traceable certificate of calibration which meets the full reporting requirements of AASHTO T 315 and with Calibration in 6 oc increments from 4 oc to 88 °C.

3.1.1.4.4 The temperature calibration device shall not require use of a multi-meter and shall be capable of being sent to a certified calibration laboratory, or rheometer manufacturer, for traceable calibration.

3.1.1.4.5 The DSR shall generate an AASHTO compliant temperature calibration report upon completion of the calibration routine and the DSR software shall provide archiving and retrieval of past temperature calibration reports.

3.1.1.5 General Accessory Requirements: The purchaser may choose to conduct one or more non-standardized tests that rely upon the use of the DSR. The following systems outfitted for such tests shall be commercially available through the vendor:

The Anton Paar SmartPave 102 Dynamic Shear Rheometer meets and exceeds all requirements set forth in this section.

The accessories mentioned in 3.1.1.5.1 and 3.1.1.5.2 are commercially available system that can be browsed in the attached SmartPave Brochure for additions to the base system.

3.1.1.5.1 A 4 mm measuring system that uses the standard dry, Peltier system. The system is used for low temperature testing of asphalt in studies designed to correlate with the Bending Beam Rheometer.

3.1.1.5.2 Peltier controlled concentric cylinder chamber with temperature gradient within the sample not more than +/- 0.1 C and including a traceable PT100 PRT temperature calibration device or equivalent for the measuring gap of the concentric cylinder chamber which integrates directly with the DSR to perform automatic temperature calibrations via the DSR software. The vendors bidding this solicitation shall include in their bid proposal a brochure and/or specification sheet showing a photo of such a concentric cylinder chamber, the temperature calibration sensor for use in the cup and bob configuration, technical specifications and available measuring system geometries.

The accessories mentioned in 3.1.1.5.3 and 3.1.1.5.4 are commercially available system that can be browsed in the attached SmartPave Tribology and Solid torsion Bar Brochure for additions to the base system.

3.1.1.5.3 Tribology system for evaluation of asphalt lubricity specifically the impact of warm mix additives.

3.1.1.5.4 Torsion bar fixtures for the evaluation of asphalt mixtures.

3.1.1.6 Training, Support, and Delivery: The DSR shall be delivered within thirty days of award. Installation of the DSR and training shall occur within forty-five days of award. [The Anton Paar SmartPave 102 Dynamic Shear Rheometer meets and exceeds all requirements in this section.](#)

3.1.1.7 Preventative Maintenance: The DSR shall include one preventive maintenance visit to occur at the purchaser's location within the first year of the instrument's installation. [The Anton Paar SmartPave 102 Dynamic Shear Rheometer meets and exceeds all requirements in this section.](#)

3.1.1.8 Onsite Verification of Conformance to Bid Specifications: The Vendor shall verify conformance to each bid specification at the time of installation. Any non-conformance to the bid specifications discovered at the installation or within the first thirty days of ownership will result in the order being canceled and the DSR being returned to the vendor at the vendor's expense [The Anton Paar SmartPave 102 Dynamic Shear Rheometer meets and exceeds all requirements and will co-ordinate the onsite verification of Conformance to Bid Specifications](#)

In addition the SmartPave 102 Dynamic Shear Rheometer has:

- One year warranty
- Comprehensive onsite Installation Qualification, Performance Qualification, and Operator Training during which trained Anton Paar staff will verify full operation and calibration of the MCR rheometer and provide comprehensive user training on operation of the rheometer and its software
- One free registration to an MCR user training course at either the Ashland, VA or Houston, TX or Los Angeles Anton Paar facility
- Lifetime applications support via email, web meeting, and/or toll free phone

Thank you for your consideration.

Best Regards,

Prajakta Kamerkar, PhD
Technical Sales Representative
Rheology



Anton Paar

MCR

Extended Material
Characterization



Use your rheometer for ...

Extended Material Characterization



MCR rheometers offer you an open range of possibilities – and this range does not stop at shear rheology.

A comprehensive selection of easily integrated accessories transfer the capabilities of the intrinsically modular MCR series into other material characterization applications. Patented features ensure the convenient, reliable exchange and configuration of any application-specific accessory.

The choice is yours: Whether you want to perform DMA analysis in torsion or extension, interfacial rheology, tribology or more – the dynamic performance, high sensitivity and low-torque capabilities of MCR rheometers are at your service.

4
Dynamic Mechanical
Analysis (DMA)

6
Powder rheology

5
Extensional rheology and
mixing processes

7
Starch rheology

8
Large-particle
rheology

9
Interfacial rheology

10–11
Tribology

Use your rheometer for ... Dynamic Mechanical Analysis (DMA)

Fixtures for films, rectangular and circular solids

MCR rheometers can also be used for Dynamic Mechanical Analysis (DMA). The temperature and mechanical behavior of films, fibers and solids is investigated with a variety of available fixtures such as solid circular or rectangular fixtures (SCF, SRF), film and fiber fixtures (UXF) or parallel-plate systems.

The large temperature range of the CTD convection temperature devices (-160 °C to 1000 °C) allows you to characterize materials from the glassy to the molten state. Consequently, materials' transition temperatures and relaxations are precisely determined.

The humidity option for the convection oven device CTD 180 enables DMA measurements under controlled temperature and humidity conditions and prevents sample drying.

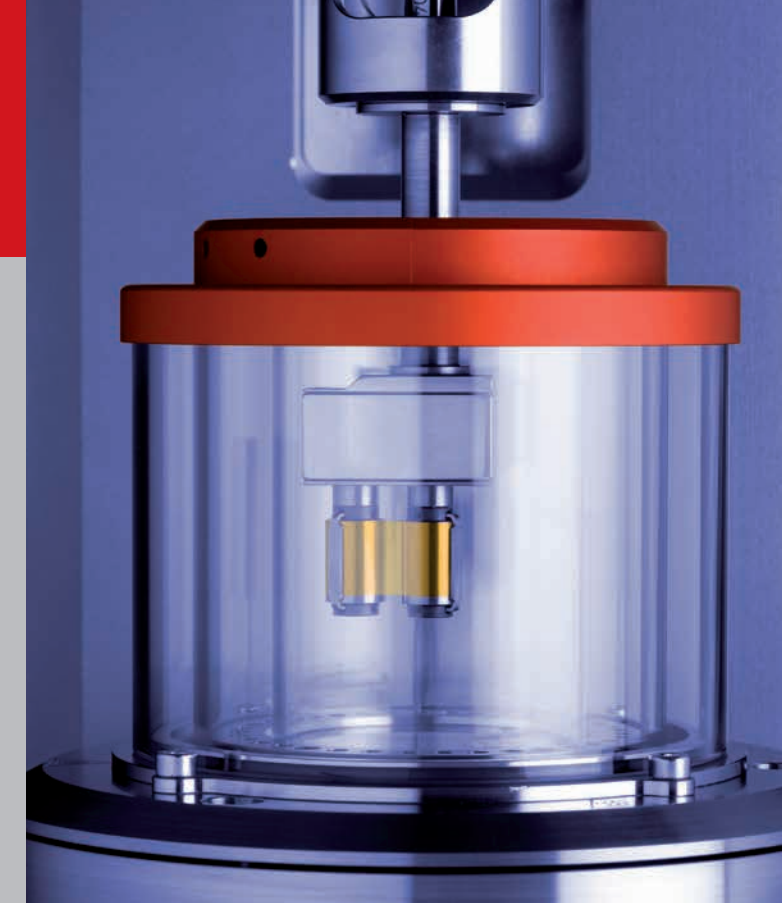


Use your rheometer for ... Extensional rheology

Elongation tests for film and fibers

Elongational viscosity functions and optimization can play a crucial role in product planning. Elongational tests can be used for product control, product research and for the structure determination of competitive products. Using extensional measurements at all stages of development, the behavior of polymers with branching structures will increase understanding and product security.

Combined with the convection temperature devices, this setup enables extensional tests, e.g. tests on synthetic polymers, biopolymers or tissues, across a wide temperature and deformation range.



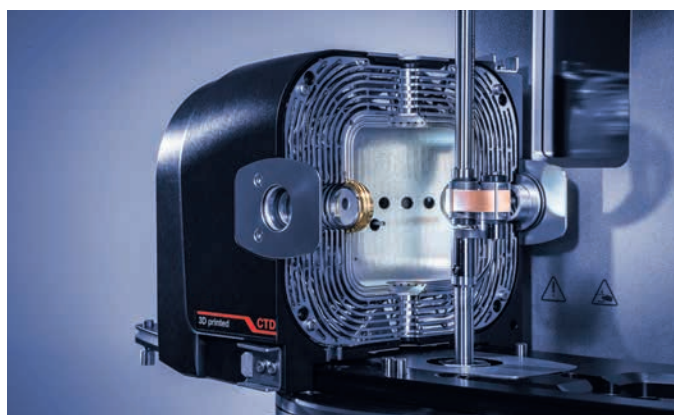
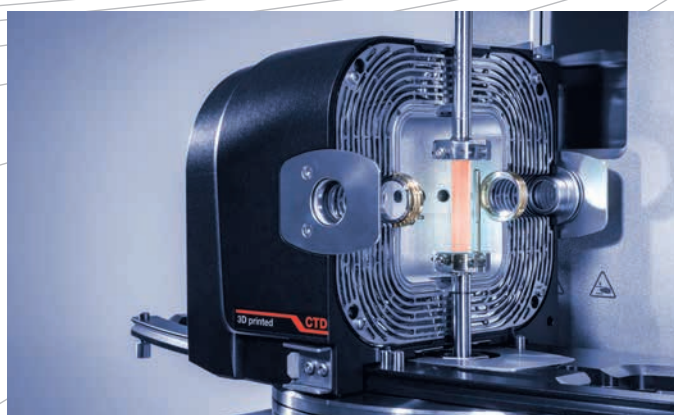
Solid Rectangular or Circular Fixtures (SRF, SCF)

MCR rheometers can be used for Dynamic Mechanical Analysis in torsion. The temperature and mechanical behavior of solids is investigated with a variety of available fixtures such as solid circular or rectangular fixtures (SCF, SRF).

Universal Extensional Fixture (UXF)

The Universal Extensional Fixture (UXF) can be used for Dynamic Mechanical Analysis in tension on films and fibers.

In combination with an MCR rheometer and a CTD convection temperature device, the UXF enables tensile strain- or stress-controlled DMA tests across a wide temperature range. This combined system is used to investigate effects such as temperature stability, shrinkage, elongation, crystallizations, phase transitions, relaxations and the brittleness of films and fibers.



Sentmanat Extensional Rheometer (SER)

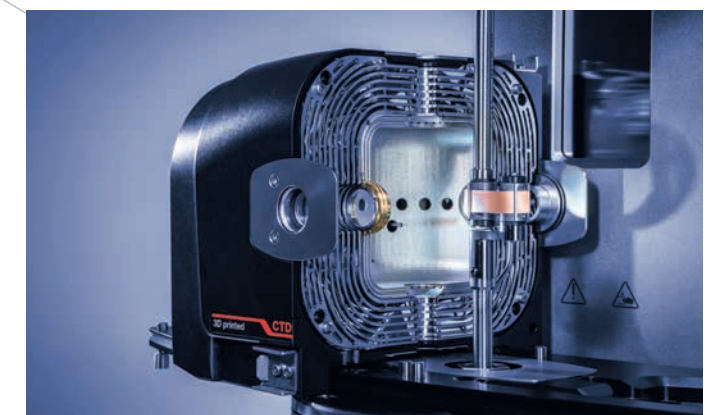
The Extensional Rheometer System developed by Dr. Martin Sentmanat turns your MCR rheometer into a universal testing platform for extensional rheology.

The setup consists of two drums which are connected to the rheometer. While one drum is driven directly by the shaft, the second is connected via gears and turns in the opposite direction. This setup can be immersed into a fluid to prevent potential sample sagging. Besides characterizations in extension, the SER system can be used for solid tensile, tear, peel and friction testing.

Universal Extensional Fixture (UXF)

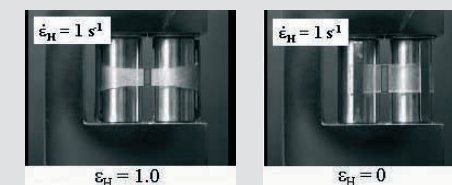
The UXF for single-drive is a universal extensional fixture. It is used for oscillatory measurements (DMA in tension) as well as rotational measurements for measuring the extensional viscosity of melts.

UXF TwinDrive is the extensional fixture with best low torque sensitivity but not suitable for oscillatory measurements.

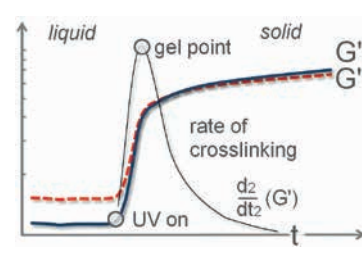
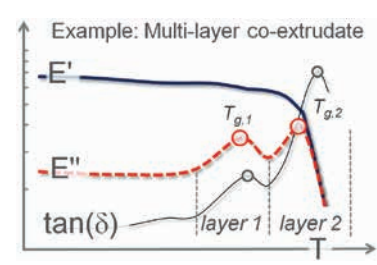
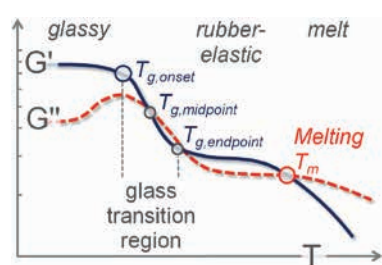
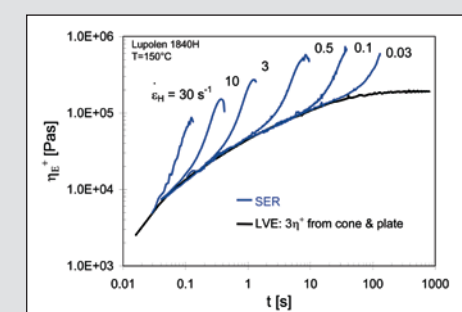


Application	SER	UXF	UXF TD
Extensional rheology	++	+	++
Oscillation measurements (DMA tension)	-	++	-

LDPE measured at different Hencky strain rates compared to cone-plate measurements in oscillation:



Visualization of an extensional experiment on a polyolefin melt



Use your rheometer for ... Powder rheology

Powder Cell

The Powder Cell turns an MCR rheometer into a powder rheometer and brings the full array of traditional rheological methods to the field of powder.

It enables quality control for true powder rheology in an easy, reliable and extraordinarily reproducible way by giving a value which indicates deviations in powder flow. No matter what has caused the changes (particle size and shape, chemical structure, humidity, packing behavior, static charge, surface morphology, gas adsorption, etc.), it is represented by this value: Cohesion Strength!

In the field of advanced true powder rheology the amazing precision achieved with MCR rheometers is brought to the field of granular media. The powder rheometer enables both rotational and oscillatory tests in any state of either consolidation or fluidization and also includes a high-precision pressure-drop device.



Use your rheometer for ... Starch Pasting Rheology

Starch Cell

The Starch Cell turns your MCR rheometer into a platform for the analysis of starch pasting and gelatinization behavior at elevated pressure and temperature conditions.

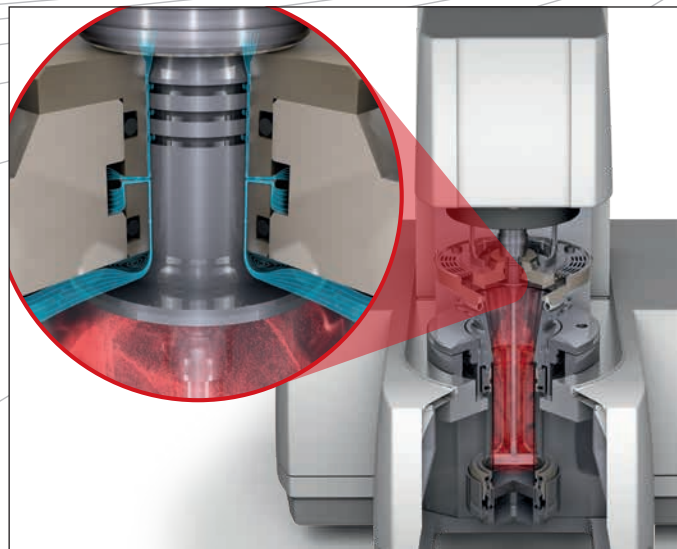
The high heating and cooling rates required for starch pasting measurements are achieved by combining electrical heating with fluid-circulator-supported cooling. A special stirrer prevents sedimentation in the liquid phase.

The system can be used for starch tests under ambient pressure at up to 95 °C and, equipped with a specific pressure cell (max. 30 bar), even allows rapid sample cooking up to 160 °C. Any real process condition, such as food sterilization, can be simulated based on tailor-made test programs.



Unique dust protection

The Powder Cell's unique dust protection hood safeguards the operator and the instrument from fine and potentially hazardous powder even when the powder is fully fluidized. By combining the air-seal technology and a two-fold geometric barrier, the Powder Cell is one hundred percent dustproof without any friction on the measurement axis and therefore retains the MCR rheometer's extraordinary accuracy and resolution down to 10 nNm and below.

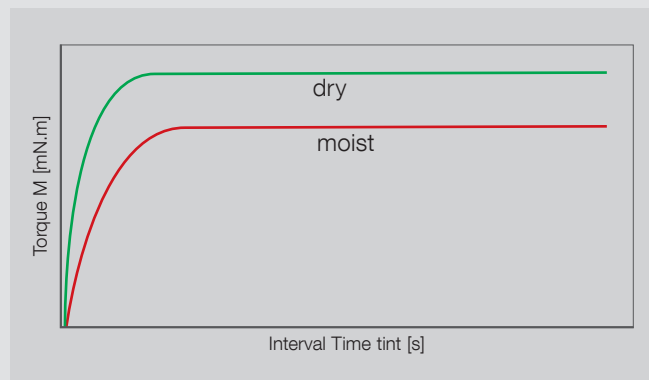


Easily customized and automated workbook templates with pre-defined heating, holding and cooling intervals simplify your measurement setup and provide all required starch analysis results such as the pasting temperature, peak viscosity and final viscosity.

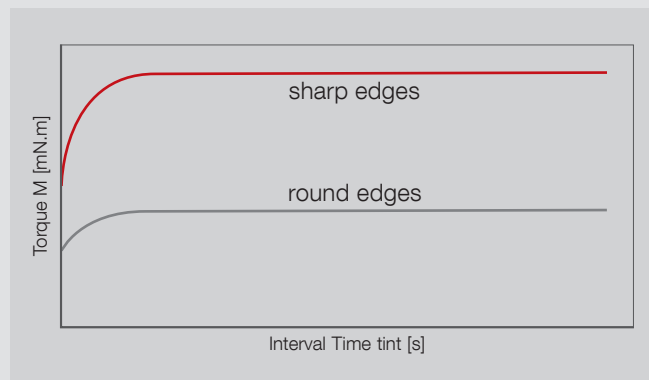
The two examples below illustrate the Starch Cell's reproducibility for starch testing.



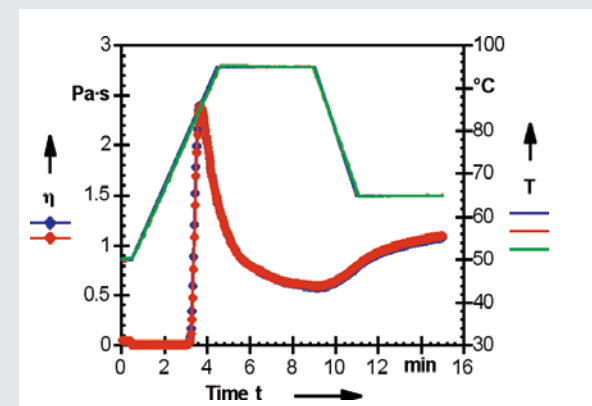
No matter which factor influences your powder, the established Cohesion Strength value will change:



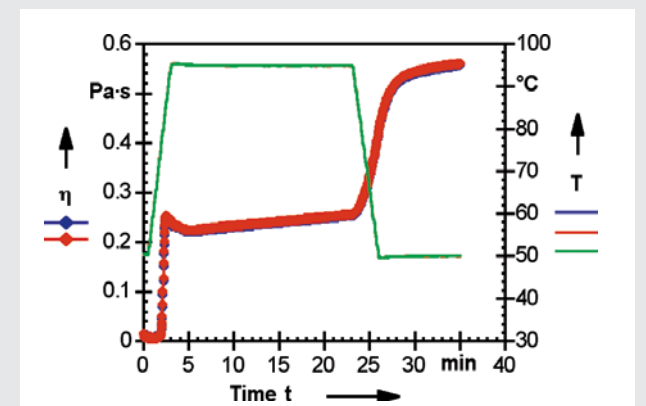
Even a small amount of moisture can influence the flow behavior to a large degree



The shape of your particles can and will influence the flow behavior (same particle size)



Pasting of dent corn starch



Pasting of modified waxy corn starch

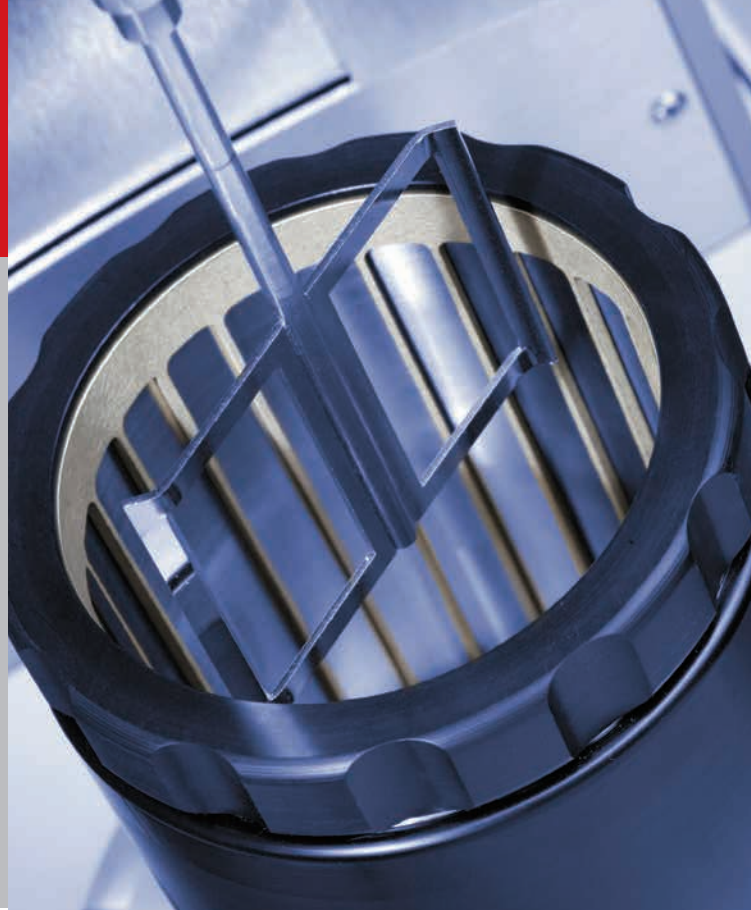
Use your rheometer for ... Large-particle rheology

Building Material Cell

The Building Material Cell (BMC) is specially designed for rheological measurements on building materials with large particles, providing information on processability, shelf life and flowability.

Building materials are often pastes or highly filled suspensions containing large particles with sizes up to 5 mm. They show tendencies of wall slippage or separation when sheared with conventional measuring systems. The BMC's special vane and cup design eliminates this risk; its modular inset cages with flow breakers prevent wall slippage and improve mix-up effects.

The Peltier-temperature-controlled cell is abrasion-proof and easy to clean, since all wetted surfaces are made of stainless steel. It is easily adapted to all MCR rheometer models and can be used in all rheological test modes: controlled shear rate (CSR), controlled shear stress (CSS) and oscillatory testing.

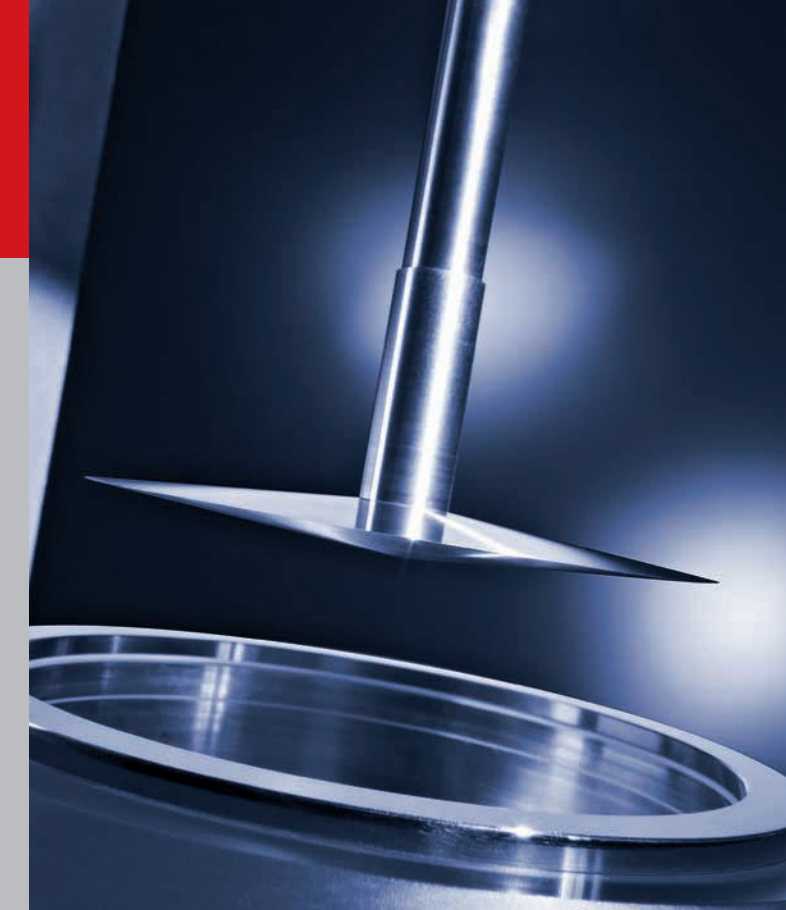


Use your rheometer for ... Interfacial rheology

Interfacial Rheology System

The Interfacial Rheology System (IRS) combined with an MCR rheometer enables two-dimensional rheological measurements of interfacial films at the air/liquid and the liquid/liquid interface.

In the IRS, a bi-cone measuring system is placed in the interface and measures absorbed or spread films, e.g. films produced by proteins or surfactants. Employing the low-torque capabilities and the TruStrain™ feature of the MCR rheometer, the IRS enables rheological measurements of weakest interfacial structures.

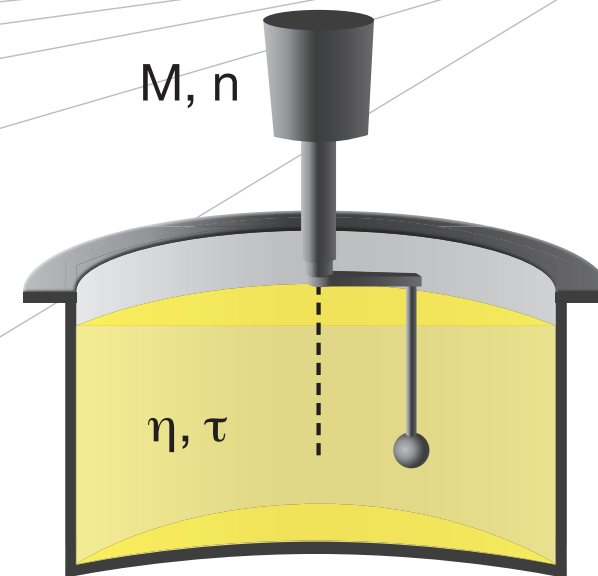


Ball Measuring System

The Ball Measuring System (BMS) is used in combination with an MCR rheometer to measure the flow properties of samples with very large particles.

The system is based on a principle by Mueller-Tyrach which involves an excentrically rotating sphere. This sphere is available in various diameters depending on your samples' viscosity. Due to the outstanding speed control of the MCR series' EC motor, a full flow and viscosity curve can be determined in one single revolution of the measuring system.

The flow properties of large-particle samples such as slurries, sludges or food products can be determined within one single rotation; dimensionless analysis of the produced flow field allows the online calculation of rheological parameters such as viscosity and shear rate.



The temperature is controlled by Peltier elements in the range from 5 °C to 70 °C; the normal force sensor in the air-bearing of the MCR rheometer allows the accurate positioning of the bi-cone in the interface.

A post-processing hydrodynamic flow field analysis subtracts the contribution of the bulk and covering phase and calculates the relevant interfacial properties of the measured interfacial layer.

Measurements can be performed in rotational and oscillatory mode, e.g. allowing flow curves and creep tests at an interfacial layer or oscillatory tests during the film formation process.

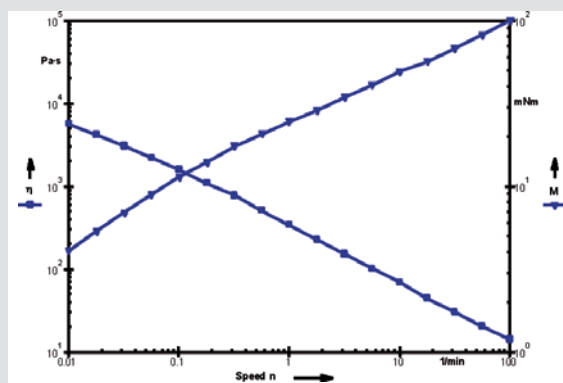
All measured and calculated interfacial data is recorded and displayed in the MCR series' application software, in which pre-defined interfacial rheology workbooks are available for user-friendly operation.

Specifications Interfacial Rheology System

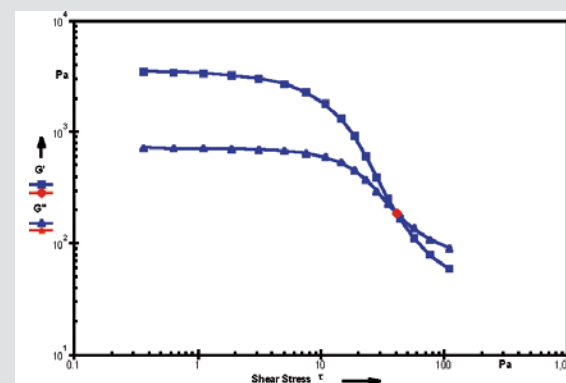
Measuring geometry	Bi-cone with radius of 34.14 mm and bi-cone angle of 10° (2 x 5°)
Temperature range	5 °C to 70 °C
Temperature accessory	P-PTD 200/80/I
Software	Interfacial Flow Field Analysis

Specifications sample

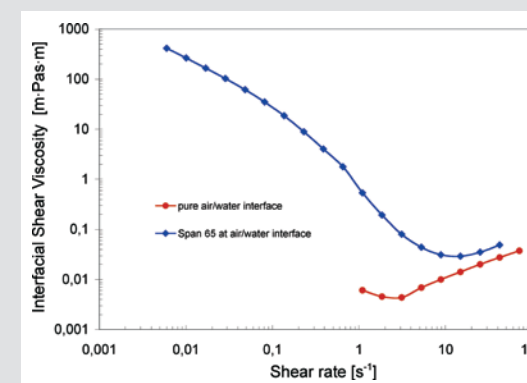
Spread interfacial film	Sample dissolved in solvent
Absorbed interfacial film	Sample dissolved in the bulk liquid
Covering phase	Air or fluid



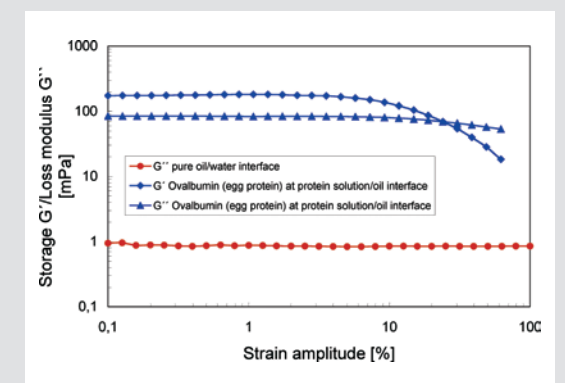
Flow curve of silica plaster measured with the BMC



Amplitude sweep of silica plaster measured with the BMC



Air/liquid interface



Liquid/liquid interface

Use your rheometer for ... Tribology

Use the MCR Tribometer, based on a Rheometer platform, for highest precision in motion and force control to accurately characterize your tribological systems.

You can use this unique setup to complement rheological and DMA measurements. Stribeck curves, static or limiting friction tests (including breakaway torque), and customized test definitions provide information that will take you one step closer to the real life application.

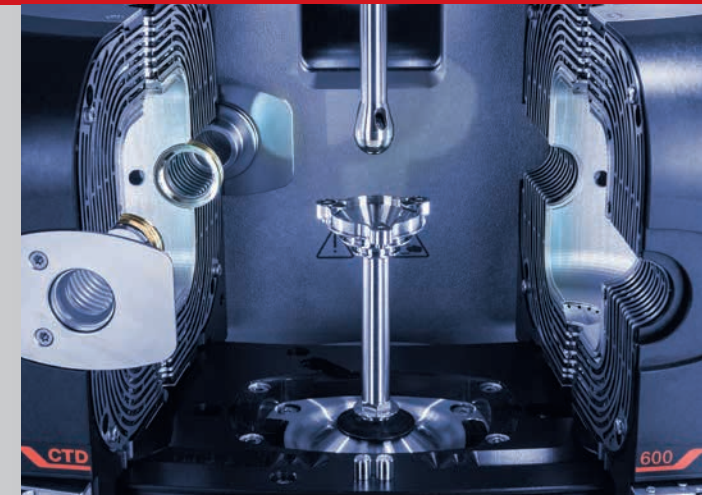
Test the performance of a broad range of applications from the characterization of lubricants (oil, greases) to materials and coatings (metals, polymers, etc.), biomaterials (skin, cartilage, ophthalmic, etc.), food and beverages, and component tests (bearings or the like).



T-BTP

Extended atmosphere control for ball-on-three-plates/pins

- ▶ Employ advantages of CTD temperature control for tribological measurements
- ▶ Temperature control between -160 °C and 600 °C
- ▶ Humidity control 5 % to 95 %
- ▶ Spring stiffness adjustable in z-direction



T-PID/44

High precision motion control pin-on-disk

- ▶ Full flexibility, high precision motion control
- ▶ Spring stiffness adjustable in z-direction
- ▶ Suitable for contact pressures ranging from a few kPa to an excess of 1.5 GPa
- ▶ For a broad range of contact geometries -flat/flat, ball/flat, line/flat, etc.



T-PTD 200

Tribology with full motion flexibility and precision

- ▶ Range of measuring setups:
 - Ball-on-three-plates (1/2" ball, 30 mm ball)
 - Sample holder for different specimen geometries and materials
 - Rolling bearing test setup
- ▶ Exceptional motion precision in rotation and oscillation
 - Deflection angles down to 1 µrad
 - Sliding velocity as low as 10⁻⁸ m/s
 - For ball-on-three-plates and ball bearing test setup
- ▶ Superior temperature control
 - Temperature range: -40 °C to 200 °C
 - Application of Peltier control



MCR 302/502/702	T-PID/44	T-PTD 200		T-BTP
Contact types	Pin-on-disk	round-on-flat	Rolling bearing test	round-on-flat
Normal force F_N	1 N to 50 N	1 N to 50 N	1 N to 50 N	0.1 N to 70 N
Sliding velocity	10 ⁻⁸ m/s to 2.3 m/s	10 ⁻⁸ m/s to 1.4 m/s (extendable to 3.3 m/s)	-	10 ⁻⁸ m/s to 1.4 m/s
Speed range	10 ⁻⁶ rpm to 1000 rpm	10 ⁻⁶ rpm to 3000 rpm		
Torque M		MCR 302: 0,5 nNm to 200 mNm MCR 502 TDR: 0,5 nNm to 230 mNm MCR 702 TD: 0,5 nNm to 230 mNm MCR 702 MD: 0,5 nNm to 230 mNm MCR 502 S: 50 nNm to 300 mNm		
Temperature T	-30 °C to 190 °C	-40 °C to 200 °C		CTD 180: -20 °C to 180 °C CTD 450 TDR: -150 °C to 450 °C CTD 600 MDR : -160 °C to 600 °C
Deflection angle φ		1 µrad to ∞ µrad		

Customized solutions

For your specific application in the broad field of tribology, not covered by the current accessories, Anton Paar offers customized solutions. Benefit from the high precision of the Anton Paar workshop and the creative heads of our development and engineering department. We customize sample holders as well as partial or complete measuring setups to meet your specific needs.

Please contact Anton Paar: tribo@anton-paar.com

