

## AM02 - Texas A&amp;M University

P.O. Date: 1/19/2017

## Purchase Order

Purchase Order Number

AM02-17-P043013

SHOW THIS NUMBER ON ALL  
PACKAGES, INVOICES AND  
SHIPPING PAPERS.

V E N D O R	Vendor Number: 00111796 Nanomechanics Inc
	105 Meco Ln Oak Ridge, TN 37830

INVOICING VENDOR SHALL SUBMIT AN ITEMIZED INVOICE SHOWING PURCHASE ORDER NUMBER. IF YOUR INVOICE IS NOT PROCESSED AS INSTRUCTED, PAYMENT MAY BE DELAYED.

S H I P T O	Materials Science & Engineering Attn: Contact Murat Kaynak at (979)204-1987; Email: mkaynak@tamu.edu Giesecke Engineering & Research Bldg. 1611 1617 Research Parkway College Station, TX 77843 US Email: purchasing@tamu.edu Phone: (979) 845-4570
	ATTN: FMO Accounts Payable 750 Agronomy Road - Suite 3101 6000 TAMU Attn: Email invoices to invoices@tamu.edu Attn: Do not mail invoice if sending via email College Station, TX 778436000 USA Email: invoices@tamu.edu Phone: (979) 845-8362

**Please login to Buy A&M to retrieve attachments associated with the Purchase Order.**

Solicitation (Bid) No.: AM02-17-B000766

Payment Terms: Net 30  
Shipping Terms: F.O.B., Destination  
Freight Terms: Freight Prepaid and Add  
Delivery Calendar Day(s) A.R.O.: 120

Item # 1  
Class-Item 490-90

OBIA-1044 - iMicro Nanoindenter System  
\*Displacement measurement: capacitive gauge  
\*Displacement range: 80 microns  
\*Displacement resolution (electronic): 0.04 nm  
\*Typical noise <0.25 nm

Quantity	Unit Price	UOM	Discount %	Total Discount Amt.	Tax Rate	Tax Amount	Freight	Total Cost
1.00	\$ 53,400.00	LOT	0.00 %	\$ 0.00		\$ 0.00	\$ 0.00	\$ 53,400.00

LN/FY/Account Code 1/17/02-CLEN-BLANK-292116-00000-8422----842250-N-AA-CD-EN-S--	Dollar Amount \$ 53,400.00
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Item # 2  
Class-Item 490-90

OBIA-1143-0 - InForce 50 Option for iMicro  
\*Displacement measurement: capacitive gauge  
\*Displacement range: 50 microns  
\*Displacement resolution (electronic): 0.02 nm

\*Typical noise < 0.1 nm  
 \*Load application: coil/magnet  
 \*Maximum Load: 50 mN  
 \*Load resolution: 3 nN  
 \*Loading column mass: <150mg  
 \*Typical indenter normal stiffness: 80 N/m  
 \*Damping coefficient: 0.05 N-s/m  
 \*Typical resonant frequency: 120 Hz

Quantity	Unit Price	UOM	Discount %	Total Discount Amt.	Tax Rate	Tax Amount	Freight	Total Cost
1.00	\$ 16,800.00	EA	0.00 %	\$ 0.00		\$ 0.00	\$ 0.00	\$ 16,800.00

<u>LN/FY/Account Code</u>	<u>Dollar Amount</u>
2/17/02-CLEN-BLANK-292116-00000-8422----842250-N-AA-CD-EN-S--	\$ 16,800.00

Item # 3  
 Class-Item 490-90

MET-0001 - User Method Development for InView  
 To provide for editing and creating methods for instrument operations and analysis

Quantity	Unit Price	UOM	Discount %	Total Discount Amt.	Tax Rate	Tax Amount	Freight	Total Cost
1.00	\$ 7,200.00	EA	0.00 %	\$ 0.00		\$ 0.00	\$ 0.00	\$ 7,200.00

<u>LN/FY/Account Code</u>	<u>Dollar Amount</u>
3/17/02-CLEN-BLANK-292116-00000-8422----842250-N-AA-CD-EN-S--	\$ 7,200.00

Item # 4  
 Class-Item 490-90

SMA-14115 - NanoFlip Mechanical Properties Microprobe

Incorporates the following:

\*Inview software, InQuest Controller, InForce 50 Actuator, and integrated Dynamics. An additional 90 degree motor-controlled rotation axis which will allow the sample to be oriented either perpendicular to the SEM/FIB or Optic axis or perpendicular to the Actuator for mechanical property testing. To operate seamlessly in either compressive or tensile modes.

\*Displacement Measurement: Capacitive Gauge

\*Displacement Range: 50um

\*Displacement Resolution (Electronic): 0.02nm

\*Typical Noise: <0.1 nm

\*Load Application: Electromagnetic

\*Maximum Load: 50mN

\*Load Resolution: 3nN

\*Maximum Load: 50mN

\*Load Resolution: 3nN

\*Data Acquisition Rate: 100 kHz

\*Closed Loop CPU Control Rate: 500 Hz

\*Dynamic Excitation Frequencies 0.1 Hz - 1 kHz

\*Travel: >5mm

\*Minimum Step Size: <= 10nm

\*Axial Stiffness: >8E+5 N/m

Quantity	Unit Price	UOM	Discount %	Total Discount Amt.	Tax Rate	Tax Amount	Freight	Total Cost
1.00	\$ 99,000.00	EA	0.00 %	\$ 0.00		\$ 0.00	\$ 0.00	\$ 99,000.00

<u>LN/FY/Account Code</u>	<u>Dollar Amount</u>
4/17/02-CLEN-BLANK-292116-00000-8422----842250-N-AA-CD-EN-S--	\$ 99,000.00

Item # 5  
Class-Item 490-90

INVF-1160 - NanoBlitz 4D Mechanical Property Tomography

To utilize the InForce 50 Actuator to perform 4D map testing on materials with low E/H and high E (>3GPa) with a Berkovich tip.

To perform indents in 5-10 seconds per indent up to 1000 indents (30x30 array), and to provide E, H, S as a function of depth for each indent in the array)

Quantity	Unit Price	UOM	Discount %	Total Discount Amt.	Tax Rate	Tax Amount	Freight	Total Cost
1.00	\$ 12,000.00	EA	0.00 %	\$ 0.00		\$ 0.00	\$ 0.00	\$ 12,000.00

LN/FY/Account Code

5/17/02-CLEN-BLANK-292116-00000-8422----842250-N-AA-CD-EN-S--

Dollar Amount

\$ 12,000.00

Item # 6  
Class-Item 490-90

INVA-0864-0 - Thin Film Method Pack (Hard on Soft)

Includes one (1) hard film on soft substrate reference standard, and test methods for evaluation of thin film properties

Quantity	Unit Price	UOM	Discount %	Total Discount Amt.	Tax Rate	Tax Amount	Freight	Total Cost
1.00	\$ 2,400.00	EA	0.00 %	\$ 0.00		\$ 0.00	\$ 0.00	\$ 2,400.00

LN/FY/Account Code

6/17/02-CLEN-BLANK-292116-00000-8422----842250-N-AA-CD-EN-S--

Dollar Amount

\$ 2,400.00

Item # 7  
Class-Item 490-90

INVA-1048-0 - Polymer Method Pack

Includes one (1) 50um dia Flat Punch End, 90 degree Conical Diamond, Conductive Tip, along with one (1) viscoelastic reference standard, and test methods for evaluation of viscoelastic properties

Quantity	Unit Price	UOM	Discount %	Total Discount Amt.	Tax Rate	Tax Amount	Freight	Total Cost
1.00	\$ 4,500.00	EA	0.00 %	\$ 0.00		\$ 0.00	\$ 0.00	\$ 4,500.00

LN/FY/Account Code

7/17/02-CLEN-BLANK-292116-00000-8422----842250-N-AA-CD-EN-S--

Dollar Amount

\$ 4,500.00

Item # 8  
Class-Item 490-90

INVF-1281 - Scratch Method Pack

Enables scratch capability by providing one Method as well as a Cube Corner tip

Maximum Scratch Load: 10uN

Maximum Scratch Load: 50 - 100 mN

Maximum Displacement: 20 - 40 um

Maximum Scratch Speed: 500 um/s

Maximum Scratch DEistance 2.5 mm

Quantity	Unit Price	UOM	Discount %	Total Discount Amt.	Tax Rate	Tax Amount	Freight	Total Cost
1.00	\$ 4,500.00	EA	0.00 %	\$ 0.00		\$ 0.00	\$ 0.00	\$ 4,500.00

LN/FY/Account Code

8/17/02-CLEN-BLANK-292116-00000-8422----842250-N-AA-CD-EN-S--

Dollar Amount

\$ 4,500.00

Item # 9

Class-Item 490-90

POLY-0001 - Polymer Test Chamber for NanoFlip  
 -20 degree C to 100 degree C temperature chamber for NanoFlip,  
 allows use of inert gas, includes all pumps, fixtures, optical  
 microscope with focus axis, and isolation chamber

Quantity	Unit Price	UOM	Discount %	Total Discount Amt.	Tax Rate	Tax Amount	Freight	Total Cost
1.00	\$ 39,000.00	EA	0.00 %	\$ 0.00		\$ 0.00	\$ 0.00	\$ 39,000.00

LN/FY/Account Code

9/17/02-CLEN-BLANK-292116-00000-8422----842250-N-AA-CD-EN-S--

Dollar Amount

\$ 39,000.00

Item # 10

Class-Item 490-90

2DMA-0001 - 2D Multiaxis Indenter Option NanoFlip  
 Consists of mechanical adaptation to connect two InForce  
 50 actuators for synchronous testing in two dimensions. The 2D  
 Indenter Assembly is interchangeable with the InForce 50 on  
 the NanoFlip platform

Quantity	Unit Price	UOM	Discount %	Total Discount Amt.	Tax Rate	Tax Amount	Freight	Total Cost
1.00	\$ 42,000.00	EA	0.00 %	\$ 0.00		\$ 0.00	\$ 0.00	\$ 42,000.00

LN/FY/Account Code

10/17/02-CLEN-BLANK-292116-00000-8422----842250-N-AA-CD-EN-S--

Dollar Amount

\$ 42,000.00

Item # 11

Class-Item 490-90

CUSTOM - 2D Tester Standalone Run Kit  
 The 2D Tester Standalone Run Kit includes one InForce 50  
 actuator, one InQuest controller, one CPU with bundled  
 InView software, along with the electronic and mechanical  
 adapters which allow integration with a standard NanoFlip  
 motion system. This allows the 2D Multiaxis Indenter Option to run  
 independently of the NanoFlip

Quantity	Unit Price	UOM	Discount %	Total Discount Amt.	Tax Rate	Tax Amount	Freight	Total Cost
1.00	\$ 40,800.00	EA	0.00 %	\$ 0.00		\$ 0.00	\$ 0.00	\$ 40,800.00

LN/FY/Account Code

11/17/02-CLEN-BLANK-292116-00000-8422----842250-N-AA-CD-EN-S--

Dollar Amount

\$ 40,800.00

Item # 12  
Class-Item 490-90

SVC-0003 - Site Service Contract, 1 Year, 2-4 Instruments  
To include software updates, 30% discount on repairs, free  
simulation copies of software, phone support up to 3 support  
instances, 10% discount on consumables, tips, and options.  
Valid for multiple instruments at a single site.

Quantity	Unit Price	UOM	Discount %	Total Discount Amt.	Tax Rate	Tax Amount	Freight	Total Cost
1.00	\$ 5,700.00	EA	0.00 %	\$ 0.00		\$ 0.00	\$ 0.00	\$ 5,700.00

<u>LN/FY/Account Code</u>	<u>Dollar Amount</u>
12/17/02-CLEN-BLANK-292116-00000-8422----842250-N-AA-CD- EN-S--	\$ 5,700.00

TAX: \$ 0.00  
FREIGHT: \$ 0.00  
TOTAL: \$ 327,300.00

ANY EXCEPTIONS TO PRICING OR DESCRIPTION CONTAINED HEREIN MUST  
BE APPROVED BY THE TEXAS A&M UNIVERSITY AGENCY PROCUREMENT  
OFFICE PRIOR TO SHIPPING.

The State of Texas is Exempt from all Federal Excise Taxes.  
State and City Sales Tax Exemption Certificate: The A&M System claims an  
exemption from taxes under Chapter 20, Title 122A Revised Civil Statutes of Texas  
for purchase of tangible personal property described in this order, purchased from  
Vendor listed above as this property is being secured for the exclusive use of the State  
of Texas.

FAILURE TO DELIVER: If the Vendor fails to deliver these supplies by the promised  
delivery date or a reasonable time thereafter, without giving acceptable reasons for  
delay, or if supplies are rejected for failure to meet specifications, the State reserves  
the right to purchase specified supplies and equipment elsewhere, and charge the  
increase in price and cost of handling to the Vendor. No substitution or cancellations  
permitted without prior approval of The Texas A&M University System.

THE TEXAS A&M UNIVERSITY SYSTEM TERMS AND CONDITIONS APPLY.

APPROVED

By: Angel Constancio

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Phone#: (979) 845-3847

BUYER