

Unidade Despesa:

18 - Escola de Engenharia de São Carlos

Centro Gerencial:

\\DIR\\SMM (DEP. DE ENGENHARIA DE MATERIAIS)

Contratação PNCP:

102117-140/2025

DFD PNCP:

102117-955/2024

Valor Total Estimado:

108.224,69

Requisitante:

5085172 - Mauro Fernando Alonso (mfa@sc.usp.br)

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(0xx16)3373-9591

Endereço de Entrega:

Avenida João Dagnone, 1100 - Santa Angelina - São Carlos/SP - CEP: 13563120 | Departamento de Engenharia de Materiais - Área 2

Finalidade:

manutenção corretiva do nanodurômetro PB1000 NANOVEA, patrimônio USP 018.058611, s/n P-13-0153. Responsável: Haroldo Cavalcanti Pinto. Fin: 49000/49062. Fav: 49000/49062.

Data de Cadastro:

08/10/2025 15:10

Última Alteração:

06/02/2026 08:17

Nº Item	Classe Contabiliza	Cód.Mat.	Cód.Bem	Cód.Contabiliza	Cód.Compras Gov	Qtd.	Unid.Compra	Situação
1	509	492523	8146764	118435	16314	1	SERVIÇO	Em análise
Preço Unitário	Item PCA (gov.br)						Item Despesa	Processo Compra
77.822,8500	102117-2025/32-1604						33903980	9793/2026
Descrição - Grupo/Item/Subitem								
SERVICOS DE MANUTENCOES/CONSERVACOES DE BENS MOVEIS E IMOVEIS / SERVICOS DE MANUTENCOES EM EQUIPAMENTOS DE LABORATORIO / SERVICO DE CALIBRACAO/AFERICAO DE EQUIPAMENTO E INSTRUMENTO DE LABORATORIO								
Características								
- UNIDADE DE COMPRA: SERVIÇO								
- DESCRIÇÃO: DUROMETRO								
Complemento:								
Referência: Diagnóstico e Reparo (M1-RMA-REP - After Sales Diagnostic And/Or Repair - Mechanical Tester).								
Utilizado o catálogo eletrônico de padronização de compras, serviços e obras? Sim								

Nº Item	Classe Contabiliza	Cód.Mat.	Cód.Bem	Cód.Contabiliza	Cód.Compras Gov	Qtd.	Unid.Compra	Situação
2	3690	563706	10248218	6537464	600662	1	UNIDADE	Em análise
Preço Unitário	Item PCA (gov.br)						Item Despesa	Processo Compra
2.115,3100	102117-2025/32-1604						33903050	9793/2026
Descrição - Grupo/Item/Subitem								
MAQUINAS E EQUIPAMENTOS PARA INDUSTRIAS ESPECIALIZADAS / PECAS DE REPOSICAO E MANUTENCAO DE MAQUINAS, EQUIPAMENTOS E MATERIAIS PARA INDUSTRIAS ESPECIALIZADAS / PECA DE REPOSICAO PARA EQUIPAMENTO DE ENSAIO								
Características								
- UNIDADE DE COMPRA: UNIDADE								
- NOME DA PECA: BASE DE ESTAGIO NANO								
- EQUIPAMENTO: PARA NANODUROMETRO MODELO PB1000 MARCA NANOVEA								
- CARACTERISTICA I: REFERENCIA M9-NDOVES								
- GARANTIA: GARANTIA MINIMA DE 12 MESES								
Complemento:								
Utilizado o catálogo eletrônico de padronização de compras, serviços e obras? Sim								

Nº Item	Classe Contabiliza	Cód.Mat.	Cód.Bem	Cód.Contabiliza	Cód.Compras Gov	Qtd.	Unid.Compra	Situação
3	3690	563706	10248226	6537480	463644	1	UNIDADE	Em análise
Preço Unitário	Item PCA (gov.br)						Item Despesa	Processo Compra
9.900,3000	102117-2025/32-1604						33903050	9793/2026

Descrição - Grupo/Item/Subitem

MAQUINAS E EQUIPAMENTOS PARA INDUSTRIAS ESPECIALIZADAS / PECAS DE REPOSICAO E MANUTENCAO DE MAQUINAS, EQUIPAMENTOS E MATERIAIS PARA INDUSTRIAS ESPECIALIZADAS / PECA DE REPOSICAO PARA EQUIPAMENTO DE ENSAIO

Características

- UNIDADE DE COMPRA: UNIDADE
- NOME DA PECA: CELULA DE CARGA 200N
- EQUIPAMENTO: PARA NANODUROMETRO MODELO PB1000 MARCA NANOVEA
- CARACTERISTICA I: REFERENCIA M2-200N
- GARANTIA: GARANTIA MINIMA DE 12 MESES

Complemento:

Utilizado o catálogo eletrônico de padronização de compras, serviços e obras? Sim

Nº Item	Classe Contabiliza	Cód.Mat.	Cód.Bem	Cód.Contabiliza	Cód.Compras Gov	Qtd.	Unid.Compra	Situação
4	3690	563706	10248234	6537502	367730	1	UNIDADE	Em análise
Preço Unitário	Item PCA (gov.br)						Item Despesa	Processo Compra
2.191,0500	102117-2025/32-1604						33903050	9793/2026

Descrição - Grupo/Item/Subitem

MAQUINAS E EQUIPAMENTOS PARA INDUSTRIAS ESPECIALIZADAS / PECAS DE REPOSICAO E MANUTENCAO DE MAQUINAS, EQUIPAMENTOS E MATERIAIS PARA INDUSTRIAS ESPECIALIZADAS / PECA DE REPOSICAO PARA EQUIPAMENTO DE ENSAIO

Características

- UNIDADE DE COMPRA: UNIDADE
- NOME DA PECA: CABO OPTICO
- EQUIPAMENTO: PARA NANODUROMETRO MODELO PB1000 MARCA NANOVEA
- CARACTERISTICA I: REFERENCIA P3-00469-A-00
- GARANTIA: GARANTIA MINIMA DE 12 MESES

Complemento:

Utilizado o catálogo eletrônico de padronização de compras, serviços e obras? Sim

Nº Item	Classe Contabiliza	Cód.Mat.	Cód.Bem	Cód.Contabiliza	Cód.Compras Gov	Qtd.	Unid.Compra	Situação
5	3690	563706	10248463	6537510	472985	1	CONJUNTO	Em análise
Preço Unitário	Item PCA (gov.br)						Item Despesa	Processo Compra
695,1800	102117-2025/32-1604							9793/2026

Descrição - Grupo/Item/Subitem

MAQUINAS E EQUIPAMENTOS PARA INDUSTRIAS ESPECIALIZADAS / PECAS DE REPOSICAO E MANUTENCAO DE MAQUINAS, EQUIPAMENTOS E MATERIAIS PARA INDUSTRIAS ESPECIALIZADAS / PECA DE REPOSICAO PARA EQUIPAMENTO DE ENSAIO

Características

- UNIDADE DE COMPRA: CONJUNTO
- NOME DA PECA: PARAFUSO DE ACO INOXIDAVEL
- EQUIPAMENTO: PARA NANODUROMETRO MODELO PB1000 MARCA NANOVEA
- GARANTIA: GARANTIA MINIMA DE 12 MESES

Complemento:

Utilizado o catálogo eletrônico de padronização de compras, serviços e obras? Sim

Nº Item	Classe Contabiliza	Cód.Mat.	Cód.Bem	Cód.Contabiliza	Cód.Compras Gov	Qtd.	Unid.Compra	Situação
6		142646	4203798	0	13811	1	serviço (s)	Em análise
Preço Unitário	Item PCA (gov.br)						Item Despesa	Processo Compra
500,0000	102117-2025/32-1604						33903999	9793/2026

Descrição - Grupo/Item/Subitem

Características

- TARIFAS BANCÁRIAS: Fechamento de câmbio
- UNIDADE DE COMPRA: serviço (s)

Complemento:

Utilizado o catálogo eletrônico de padronização de compras, serviços e obras? Sim

Nº Item	Classe Contabiliza	Cód.Mat.	Cód.Bem	Cód.Contabiliza	Cód.Compras Gov	Qtd.	Unid.Compra	Situação
7		81485	2894904	0	16195	1	unidade (s)	Em análise
Preço Unitário	Item PCA (gov.br)						Item Despesa	Processo Compra
15.000,0000	102117-2025/32-1604						33903999	9793/2026

Descrição - Grupo/Item/Subitem

ENCARGOS / IMPOSTOS (PESSOA JURÍDICA) / IMPOSTO DE RENDA (PESSOA JURÍDICA)

Características

- UNIDADE DE COMPRA: unidade (s)

Complemento:

Utilizado o catálogo eletrônico de padronização de compras, serviços e obras? Sim

Tendo como base o disposto no artigo 18 - § 1º - o estudo técnico preliminar deverá evidenciar o problema a ser resolvido e a sua melhor solução, de modo a permitir a avaliação da viabilidade técnica e econômica da contratação, e conterá os seguintes elementos:

I - Descrição da necessidade da contratação/aquisição, GLOBAL ou por ITEM, conforme o caso, considerado o problema (ou necessidade) a ser resolvido sob a perspectiva do interesse público.

O nanodurômetro/tribômetro PB1000 (Nano/Macro Mechanical Hardness Scratch and Wear Testers with 3D Non-Contact Profiler), marca NANOVEA, é uma plataforma para caracterização mecânica de materiais e superfícies, que opera com dois módulos de aplicação de força: um NANO e outro MACRO, e está equipado com uma plataforma anti-vibratória. O equipamento permite realizar diversos tipos de ensaio: - nano e macro-indentação instrumentados; - determinação do módulo de elasticidade; - nano e macro-riscamento; - ensaios tribológicos de pino/esfera sobre disco; - medição de coeficiente de atrito; - perfilometria óptica 3D sem contato; - microscopia óptica para ampliações de até 4000x. Os ensaios de nanodureza e caracterização tribológica na escala nanométrica são fundamentais para a compreensão do comportamento mecânico e da resistência ao desgaste e ao atrito dos materiais e revestimentos de engenharia. Ele permite a análise das propriedades mecânicas e tribológicas individualmente nas diferentes fases que compõem a microestrutura dos materiais. O equipamento adquirido em 2013 por USD 149.677,00 para o projeto de pesquisa "Recobrimento para anéis de pistão com durabilidade estendida obtidos através de plasma", coordenado pelo Prof. Haroldo Cavalcanti Pinto, é único na região de São Carlos e um dos poucos existentes no estado de São Paulo e no âmbito nacional. No estado de São Paulo, até 2023, se encontravam apenas outros dois nanodurômetros disponíveis: um na FEM-UNICAMP e um outro na Escola Politécnica-USP.

O nanodurômetro é um dos equipamentos de ponta que integra o parque tecnológico da Central Multiusuário da USP, CEPAME - Centro de Pesquisa e Análise de Materiais de Engenharia. O CEPAME atua no projeto de novas ligas metálicas e no estudo da correlação entre os processos metalúrgicos de fabricação, as transformações de fase e a formação da microestrutura, das tensões residuais e da textura cristalográfica nos materiais metálicos com aplicações estruturais. Atualmente, o grupo desenvolve novas ligas leves e de alto desempenho à base de magnésio com adição de terras raras para aplicações aeronáuticas e estuda o seu processamento através da soldagem por fricção e mistura mecânica (SFMM). Outro trabalho recente compreende a pesquisa de aços austeníticos inovadores à base de Mn e sem adição de Ni com efeitos TWIP e TRIP para a indústria automotiva, bem como o estudo da sua soldabilidade por tecnologias convencionais a arco e também pelo processo SFMM. Estes aços combinam, de maneira única, elevada resistência mecânica e grande ductilidade com um reduzido custo de processamento. Em parceria com empresas, têm sido pesquisados ainda novos revestimentos cerâmicos anti-desgaste produzidos por deposição física a vapor (PVD), bem como o cladeamento por explosão de ligas de Ni e aços inoxidáveis sobre aços estruturais de baixa liga.

O equipamento se encontra completamente inoperante. Já foram realizadas visitas do representante no Brasil da fabricante NANOVEA (empresa Altmann), que não puderam identificar o problema. Também foram realizadas diversas sessões on-line com os técnicos da empresa NANOVEA com o objetivo de sanar ou detectar os problemas e não houve sucesso. Conforme o Relatório Técnico da NANOVEA, o equipamento apresenta falhas simultâneas, especialmente no módulo nano de indentação e riscamento (MI-NANOM), no capacitor de profundidade de alta resolução, na célula de carga 200N e em múltiplos componentes eletroeletrônicos (Hardware SGA e Power Supply). Sendo assim, a NANOVEA solicitou o envio do equipamento para que possam identificar o problema e realizar a manutenção. A visita do técnico americano ao Brasil não seria adequada, pois necessitam de bancadas específicas de teste e alinhamento, que não podem ser transportadas ao Brasil.

O presente Estudo Técnico Preliminar tem por objeto a contratação de serviço de manutenção corretiva do nanodurômetro PB1000 NANOVEA. A paralisação do equipamento compromete as atividades de pesquisa, ensino e extensão em materiais de engenharia, especialmente no que tange à caracterização mecânica e tribológica de superfícies e revestimentos; também impacta diretamente a execução de projetos de pesquisa financiados e multiusuários, gerando prejuízo à produção científica e ao uso compartilhado da infraestrutura de alto custo. A manutenção pelo fabricante original é a solução técnica e economicamente mais adequada para a plena restauração de sua funcionalidade e garantia de calibração metrológica, se impondo como ação de interesse público para a preservação do investimento público realizado e para o reestabelecimento da capacidade operacional do CEPAME, essencial à USP e à comunidade científica.

Vide anexo para o elemento I.

II - Demonstração da previsão da contratação no plano de contratações anual, sempre que elaborado, de modo a indicar o seu alinhamento com o planejamento da Administração.

A contratação está formalmente prevista no Plano de Contratações Anual (PCA) de 2025 através da DFD

955/2024, na Contratação nº 140/2025. A previsão assegura a compatibilidade da despesa com o planejamento estratégico da unidade e com os objetivos institucionais da Universidade de São Paulo de preservar e recuperar a infraestrutura de pesquisa. A iniciativa conta com recursos do Edital de Apoio a Propostas Estratégicas para Infraestrutura de Pesquisas da Pró-Reitoria de Pesquisa e Inovação da USP, reforçando o alinhamento da contratação às políticas institucionais de fomento à pesquisa e otimização da infraestrutura multiusuária.

III - Requisitos da contratação.

Requisitos técnicos essenciais da contratação:

1. O serviço deve ser executado pelo Fabricante Original (NANOVEA Inc.) ou por seu representante técnico exclusivo, devido à natureza singular do equipamento;
2. O escopo deve abranger todas as peças e os serviços cotados:

2.1. Serviços:

Diagnóstico e Reparo Pós-Venda (P/N M1-RMA-REP - After Sales Diagnostic And/Or Repair - Mechanical Tester):

- Substituição de componentes quebrados e parafusos enferrujados (Replaced broken components and rusted screws);
- Reajuste do Nano SGA (Retuned Nano SGA);
- Reajuste do MICRO SGA (Retuned MICRO SGA);
- Recalibração dos módulos Micro e Nano (Recalibrated both Micro and Nano Module);
- Reparo do conector de fibra óptica quebrado (Repaired broken fiber optic connector);
- Calibração do endopen reparado para CCS (Calibrated repaired endopen to CCS).

2.2. Peças:

Base de estágio Nano (P/N M9-NDOVES - Nano Dovetail stage);

Célula de Carga 200N (P/N M2-200N - 200N Load Cell Assembly);

Cabo Óptico (P/N P3-00469-A-00 - Optical Feedthrough for CCS controller - CCS Pen Slot);

Conjunto de Parafusos de Inox (SUPPLIES - Customer Part # Assortment of stainless screws);

3. Garantia mínima de 12 (doze) meses sobre o serviço e peças substituídas, contados a partir do recebimento definitivo.

Vide anexo para o elemento III.

IV - Estimativas das quantidades para a contratação, acompanhadas das memórias de cálculo e dos documentos que lhes dão suporte, que considerem interdependências com outras contratações, de modo a possibilitar economia de escala.

A quantidade estimada é de 01 (um) Serviço de Manutenção Corretiva e Calibração de Fábrica, em lote único. O objeto é indivisível e deve ser contratado integralmente para garantir a garantia e a calibração de fábrica.

V - Levantamento de mercado, que consiste na análise das alternativas possíveis, e justificativa técnica e econômica da escolha do tipo de solução a contratar.

O levantamento de mercado aponta para a inviabilidade de competição. O serviço é de natureza singular (calibração de precisão e reparo de componentes proprietários), exigindo a notória especialização do fabricante NANOVEA Inc. A contratação será conduzida via Inexigibilidade de Licitação, fundamentada no Art. 74, I, da Lei nº 14.133/2021 e pelo Decreto Estadual nº 68.017/2023, dada a natureza de serviço técnico especializado a ser realizado pelo fabricante/representante exclusivo, o qual detém a tecnologia e o know-how para o reparo e calibração de um equipamento singular.

VI - Estimativa do valor da contratação, acompanhada dos preços unitários referenciais, das memórias de cálculo e dos documentos que lhe dão suporte, que poderão constar de anexo classificado, se a Administração optar por preservar o seu sigilo até a conclusão da licitação.

A estimativa do valor da contratação é de R\$ 119.098,89 conforme documentos anexos.

Vide anexo para o elemento VI.

VII - Descrição da solução como um todo, inclusive das exigências relacionadas à manutenção e à assistência técnica, quando for o caso.

A solução abrange o reparo completo e a recalibração do nanodurômetro PB1000 NANOVEA em instalações especializadas do fabricante, nos Estados Unidos, com posterior devolução, reinstalação e testes de funcionalidade. Inclui todos os componentes substituídos, atualização de software, ajuste dos módulos Nano e Micro e validação de performance conforme padrões de fábrica. A assistência técnica será prestada pela Altmann S.A., representante exclusivo no Brasil, que acompanhará o processo logístico, garantindo conformidade com os padrões da NANOVEA Inc. Os custos de logística (frete, seguro, despacho aduaneiro e embalagem da exportação/reimportação) serão de responsabilidade da contratante (EESC/USP).

VIII - Justificativas para o parcelamento (divisão do objeto em lotes) ou não da contratação/aquisição.

A natureza do objeto, contratação de serviço de manutenção corretiva e calibração de fábrica para o equipamento nanodurômetro, serviço indivisível e interdependente não permite o parcelamento. A

manutenção corretiva de um equipamento singular exige a intervenção centralizada do fabricante para garantir a calibração precisa entre o hardware (peças de reposição) e o software de controle, sob pena de perda da garantia de fábrica e falha na funcionalidade final.

IX - Demonstrativo dos resultados pretendidos em termos de economicidade e de melhor aproveitamento dos recursos humanos, materiais e financeiros disponíveis.

O resultado esperado é o pleno restabelecimento do funcionamento do nanodurômetro/tribômetro PB1000 NANOVEA, assegurando precisão e confiabilidade dos ensaios de dureza, riscamento e desgaste. A manutenção permitirá retomar as atividades de pesquisa multiusuária, ampliando a economicidade e o aproveitamento da infraestrutura existente, evitando a substituição onerosa do equipamento. A medida também otimiza os recursos humanos e materiais disponíveis, viabilizando o uso compartilhado do equipamento em projetos de pós-graduação, iniciação científica e parcerias com a indústria.

X - Providências a serem adotadas pela Administração previamente à celebração do contrato, inclusive quanto à capacitação de servidores ou de empregados para fiscalização e gestão contratual.

Antes da formalização contratual, a Administração deverá:

1. Confirmar a vigência das cartas de exclusividade da Altmann S.A. e da NANOVEA Inc.;
2. Verificar a conformidade documental das proformas e traduções técnicas;
3. Designar servidor para gestão e fiscalização contratual, capacitado em acompanhamento de serviços técnicos especializados e de logística internacional;
4. Preparar e contratar a logística completa (exportação temporária, frete aéreo, desembaraço aduaneiro e reimportação definitiva);
5. Assegurar a disponibilidade orçamentária e a compatibilidade com o PCA 2025.

XI - Contratações correlatas e/ou interdependentes.

A contratação do serviço de manutenção corretiva é interdependente do serviço de logística internacional (exportação temporária e reimportação) e do fornecimento das peças de reposição originais (importação).

XII - Descrição de possíveis impactos ambientais e respectivas medidas mitigadoras, incluídos requisitos de baixo consumo de energia e de outros recursos, bem como logística reversa para desfazimento e reciclagem de bens e refugos, quando aplicável.

O serviço de manutenção não acarreta impactos ambientais relevantes, pois não envolve descarte de resíduos perigosos nem consumo energético local. O transporte e a exportação temporária seguirão protocolos internacionais de segurança e manuseio de equipamentos científicos. As peças substituídas serão reaproveitadas ou destinadas pelo fabricante conforme política de reciclagem tecnológica, atendendo ao princípio de logística reversa de componentes eletrônicos.

XIII - Posicionamento conclusivo sobre a adequação da contratação/aquisição para o atendimento da necessidade a que se destina.

Conclui-se que a contratação direta por inexigibilidade do serviço de manutenção corretiva do nanodurômetro PB1000 NANOVEA é tecnicamente indispensável, economicamente vantajosa e plenamente adequada ao interesse público, com a preservação do investimento no equipamento de pesquisa. A execução pelo fabricante original garante a integridade, a precisão e a longevidade do equipamento, assegurando o melhor aproveitamento da infraestrutura laboratorial da EESC/USP e contribuindo para o avanço científico e tecnológico na área de Engenharia de Materiais.



UNIVERSIDADE DE SÃO PAULO
ESCOLA DE ENGENHARIA DE SÃO CARLOS
Serviço de Importação

04
2

REQUISIÇÃO DE IMPORTAÇÃO DIRETA
IMPORTAÇÃO

Nº: 080/2013

Nº: 080/2013

Departamento Requirante	Coordenador/ Pesquisador	DESPACHO DO DIRETOR Autorizo a Importação/Despesa
Departamento de Engenharia de Materiais, da EESC/USP São Carlos, 23/10/2011	 Haroldo Cavalcanti Pinto Coordenador/ Pesquisador	 Geraldo R. Martins da Costa Diretor

Recurso: **Convênio BNDES x FIPAI**

Projeto de Pesquisa: **"Recobrimento para Anéis de Pistão com Durabilidade Estendida obtidos através de Plasma de Elevado Impulso"**

Fabricante/Exportador: **NANOVEA**

Endereço: **6 Morgan, Ste 156, Irvine CA 92618**

Representante Brasil: **Altmann s.a. Importação e Comércio**

Av. das Nações Unidas, 13.771-bl 1 - 7º andar - 04794-000 - São Paulo - SP - Brasil

Contato: **Arthur Altmann - altmann@altmann.com.br Fone: 55-11 2198-7198 Fax: 55-11-5507-3308**

	Qtd	DISCRIMINAÇÃO	VALOR US\$	
			Unitário	Total
01	01	- Riscador mecânico para medidas de dureza nano e macro com teste de desgaste associado ao Perfilômetro 3D sem contato com: - Plataforma base - Módulo Nano - Módulo Macro - Sistema de imagem microscópica - Pacote de Software para riscamento - Pacote de Software para indentação - Pacote de Software para desgaste - Consumíveis - NCM/SH nº. 9031.4990 Mercadorias explicitadas na proforma invoice nº. Q12-131017-1 de 17/10/2013		149.677,00
Total FOB Irvine, CA US\$				149.677,00

CÉLIA REGINA VENTURA DIBO
Serviço de Importação

QUOTATION Q12-131017-1

October 17, 2013

TO: Prof. Dr. Haroldo Cavalcanti Pinto
Universidade de São Paulo
Departamento de Engenharia de Materiais
Av. Trabalhador São Carlense 400
13566-590, São Carlos - SP - Brasil
e-mail: haroldo@sc.usp.br
Phone: +55-16-3373-8290
Fax: +55-16-3373-9590

NANOVEA Nano/Macro Mechanical Hardness Scratch and Wear Testers with 3D Non-Contact Profiler

M1-PBASE Platform Base:

- (1) Simultaneous mount of Micro or Macro Module and Nano Module
- (1) Motorized X-Y translation for work table (150mmx150mm)
- (1) Z motorized translation of 50mm
- (1) Gas-Spring Slide for a maximum clearance of 140mm
- (1) Electronic control unit and acquisition card
- (1) Intel Core 2 Duo 2.8GHz or higher computer with 19" LCD Display
- (1) Emergency Stop
- (1) **Four days onsite installation and training**

Options

- M1-ROT Rotation Table
 - (1) Rotation Table required for pin on disk nano, micro and macro wear testing
 - (1) 500rpm rotation motor (max useful speed for specific sample may be lower) (no friction)
- T1-VICE Sample Holder VICE Style for up to 2inch
- M1-ERGO Ergonomic anti-vibration workstation with keyboard and monitor flexible arms
- M1-ENCLO Plexiglas Enclosure for the workstation (P) (Required with ERGO for nano level)
- M1-COMP Air compressor for workstation

M1-NANOM Nano Module:

- (1) Scratch, Wear and Hardness Modes
- (1) High precision piezo control
- (1) Load cell feedback control loop
- (1) Loading system for 0 – 800mN loading range
- (1) Load Control Electronic
- (1) High Resolution Capacitor Depth Sensor
- (1) Calibration Certificate
- (1) Silica Verification Sample
- (1) Mounting Block 35x35x16mm with Crystalbond Glue
- (1) Set, installation tools & Manual

Options

- M1-NFRIC Standard nano level Friction Module for tangential force measurement

M1-MACRO Macro Module:

- (1) Scratch, Wear & Hardness Modes
- (1) Depth measured with Z motor encoders (25 or 50mm range)
- (1) Load Feedback control loop
- (1) Loading system for 0 – 200N loading range
- (1) Control Electronic
- (1) Calibration Certificate
- (1) Set, installation tools & Manual

Options

- M1-MDEPT3 Non-Contact Depth Sensor (*Required for Microindentation under 300micron*)
 - (1) Depth Controller for high precision depth versus load instrumented indentation
 - (1) 300micron Non-contact Sensor

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- (1) Adaptor for pen & Height adjustment micrometer
- (1) Allows Non-contact Optical Profiling (other optical pens available in the optical profiler section)
- (1) Micro-Indentation Clamp
- (1) Verification standard sample Steel
- M1-MAFRIC Standard Macro Friction Module for tangential force measurement (200N)
- M1-AE Acoustic Emission Sensor, Electronics (18bit ADC Card with output in aJ)
- M1-AEXTRA Extra AE Sensor and AE Cable for extra module (micro or macro under sample)
- M8-AEADV Advanced AE Analysis software (not required for scratch testing)
- M1-END100 100µm optical endoscopic pen for depth sensing

M1-MICROS Microscope Imaging System (only for Platform):

- (1) Microscope Imaging System
 - Video Card
 - Color Video Camera (PAL 1600x1200)
- (1) Polish copper sample for position calibration

Options

- M1-5X Objective Lens 5x for total video magnification of 200x
- M1-20X Objective Lens 20x for total video magnification of 800x
- M1-50X Objective Lens 50x for total video magnification of 2000x
- M1-100X Objective Lens 100x for total video magnification of 4000x

P8-PROF 3D Professional Mountain Surface 3D Analysis

M8-SCRISO Scratch Software Package:

- (1) Complete scratch testing software (Windows 7 Professional based):
 - Scratch at constant or increasing loads
 - Panoramic view of scratch
 - Pre and post profile scan
 - Multi-scratch Pass
 - Precise control of all the scratch parameters such as scratch length, scratch speed and loading rate
 - Pictures of the type of failure can be incorporated in the file
 - Stage is controlled directly from the computer for easy viewing of the scratch under the microscope.
 - Automated multi-sample handling
 - Automatic Report
- (1) Scratch Software Manual

M8-INDSOF Indentation Software Package:

- (1) Complete hardness testing control and analysis software (Windows 7 Professional based):
 - Control of all loading parameters
 - Depth versus load curves
 - Hardness & Young's modulus
 - Creep with separate creep data
 - Sinus mode Analysis for visco elastic properties (Nano Only)
 - Multi-cycle testing
 - Advanced Mapping (automated multi-sample handling)
 - Stress-strain studies
 - Yield Strength Flat Tip Measurement
 - Plastic and elastic energy
 - Indentation and Plastic work
 - Flow Stress
 - Automatic Report
 - Calculates Vickers value from size of indent
- (1) Hardness Software Manual

M8-WEASOF Wear Software Package:

- Pin-on-Disk wear software when used with rotative table
- Multi-pass linear wear & Friction testing
- Depth of wear during testing
- Calculation of wear rate from depth of wear or AFM/Optical Pen profile

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- Control of speed

Consumables*

NANO

Mo-Ngo5 Conical gage Diamond (X=5microns) (each)
M1-NBH1 Ball Holder (1, or 3mm) (works for both 1 and 3mm)
Mo-NINDB Diamond indenters IND/B Berkovich (each)

MICRO

Mo-M12200 Rockwell C diamonds, tip radius 200 µm (each)
Mo-M1220 Rockwell C diamonds, tip radius (X=20µm) (each)
Mo-MBALL6 Ball Holder (6mm dia.) (each)
Mo-MIND/V Diamond indenters (200N max): MIND/V Vickers (each)
To-S440CX Stainless Steel SS440C Balls (X= 1, 3 or 6mm) 3mm (250balls)
6mm(250 balls)

NANOVEA Nano/Macro Hardness Scratch & Wear Testers with 3D Non-Contact Profiler	\$199,570
*Special Discount of 25% (purchase order received before 12/31/2013)	\$ 49,893
Total with special discount	\$149,677

* Discount conditional to Universidade de São Paulo allowing Nanovea to refer clients to see the instrument. Publications using the instrument will indicate that the instrument use is from Nanovea inc.

TERMS & CONDITIONS

Delivery: 6-12 Weeks ARO**
Payment Terms: 100% with order or certified letter of credit
F.O.B.: Irvine, CA
Ship Via: Standard Air
Warranty: 24 months warranty

- Country of Origin USA
- Value for customs purpose only
- Wire Bank Information:
Union Bank of CA
Mission Viejo Priority # 598
25276 Margerite Pkwy
Mission Viejo, CA 92692
Acct# 5980003851
ABA# 12 2000496
Acct Name: Nanovea Inc.
Swift: BOFCUS33MPK

By:



Pierre Leroux

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102
7

COMMERCIAL INVOICE

Date: January 22, 2014

Shipper/Exporter

Nanovea Inc.
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Fax: 949-461-9232

Consignee

Razao Social: Escola De Engenharia De Sao Carlos-USP
Servico de Importacao
Av. Trabalhador Saocarlene, 400 -CEP
13566-590 – Sao Carlos- SP
CNPJ. 63.025.530/0028-24
Tel: (0XX16) 3373.9224

Description

Value

M1-PBASE	Platform Base Assembly INCLUDING:
M1-ROT	Rotary Stage assembly
T1-VICE	Vice Clamp Assembly
M1-ERGO	ERGO Assembly
M1-ENCLO	Enclosure Assembly
M1-COMP2	Air Compressor 220V
M1-NANOM	Nano Module (400uN) Assembly
M1-NFRICT	Nano Friction Table Assembly
M1-MACROM	Macro Module Assembly
M1-MDEPT3	300 um Non-Contact Depth Sensor Assembly
M1-MAFRIC	Macro Friction Table
M1-AE	Acoustic Emission Assembly
M1-AEXTRA	AE Extra Assembly
M8-AEADV	Advanced AE Analysis Software
M9-END100	Confocal Chromatic Endoscopic Pen 100um Measuring Range
M1-MICROS2	240V Microscope Assembly
M1-SX	Objective Lens 5x for video magnification of 200x
M1-20X	Objective Lens 20x for video magnification of 800x
M1-50X	Objective Lens 50x for video magnification of 2000x
M1-100X	Objective Lens 100x for video magnification of 4000x
P8-PROF3D	Professional 3D
M8-SCRISO	Nanovea Scratch Software Package
M8-INDISO	Nanovea Hardness Software Package
M8-WEARISO	Wear Software Package
M0-N905	Conical 90deg Diamond 5um
M1-NBH1	Nano 1mm and 3mm Ball Holder
M0-MINDB	Micro Berkovich Indenter
M0-M12200	Micro Conical 120deg Diamond 200um
M0-M1220	Micro Conical 120deg Diamond 20um
M0-MBALL6	6mm Ball Holder Assembly
M0-M9020	Micro Conical 90deg Diamond 20um Indenter
M0-MINDV	Micro IND/V Vickers Indenter
T0-S440-C6	Stainless Steel Balls 440C-6mm

Total

\$149,677.00 USD

- Country of Origin: USA
- Harmonized code: 9024.80.00 00
- Purchase Order#: 077/2013
- Nanovea SO#: 13-4314
- "Importacao amparada pela Lei Federal mr. 8010/90, Credenciamento CNPq nr. 900.0633/95"


Frank Martinez
Nanovea, Inc.

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PB1000 Technical Report - Universidade de São Paulo

v.1.1

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Abstract

The purpose of this report is to provide a detailed list of observations and data that led to the decision of the return and repair of Universidade de São Paulo's PB1000 system (P-13-0153). After having several engineers assess the system, it has been determined that further troubleshooting would be best done at Nanovea Inc.'s main office in Irvine, CA, as remote calls and troubleshooting attempts have shown no further improvements. A tentative schedule may be sent with this technical report, but the timeline is entirely dependent on the issues observed after the shipment is received, unpacked, and after a full diagnostics screening has taken place. The issues noted below will be re-observed.



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| 2

Timeline

January 2022	- New SGA was going to be installed and tuned by Paulo M. Falci Jr. from Altmann. 1/19 - 1/20 Christopher Hutchinson, an after sales engineer at Nanovea Inc., assisted Paulo M. Falci Jr. in setting up the SGA through email correspondence. - The week after (1/25-1/28) Cory Will, the After Sales Engineering Manager at Nanovea Inc, assisted Daniel Macedo, a representative at Altmann, with tuning the SGA and troubleshooting the issues.
February 2022	Christopher Hutchinson and Daniel Macedo continued to troubleshoot the indentation issue via email, remote calls, and TeamViewer sessions. This continued the whole month.
March 2022	- Christopher Hutchinson and Daniel Macedo continued to troubleshoot the issues with the PB1000. tried tuning the PIDs to see if that helped the shape of the curve. - Christopher Hutchinson and Júlia Nascimento Pereira worked on the PB1000 via TeamViewer and emails. - Daniel went back on site, and together with Christopher found issues with the depth sensor not reading within the correct range. The instructions were sent on how to adjust the nano-depth. - It was later noted that the L-bar might be unlevelled, and possibly bent.
April 2022	It was determined that the power supply would possibly need replacement. The quotation was sent.
July 2022	- The power supply was received, and Daniel Macedo went on site to do the repairs. Afterwards, he reported that the system was still not functioning correctly. - It was questioned about the piezo being the issue. - Daniel suggested that Nanovea send in all parts available for the machine that may need to be replaced, and send back the ones not used, however, it was determined that the process would be difficult and very expensive.
August 2022	Cory interjected and was in conversation with Daniel about the next steps for troubleshooting.
September 2022	Haroldo Cavalcanti Pinto reached out to Nanovea support after Paulo and Daniel visited multiple times. Issues were not resolved.
October 2022	- Cory Will overviewed the data from the PB1000 and worked on the system remotely. - It was determined that the depth needed to be adjusted. 10/20 Christopher met with representatives of the university for a remote call. It was determined that there might be an issue with some electrical components.
November 2022	- Cory Will met with the lab representatives again to remotely troubleshoot the issue of the system. Despite reviewing the electrical and hardware components, the system was not functional. 11/22 Cory Will and Christopher Hutchinson held a remote meeting in a final attempt to troubleshoot remotely - there were concerns of the SGA. - Cory Will suggested shipping the system in as an RMA
December 2022	Marcos Ochoa, an after sales engineer at Nanovea Inc., assisted the lab techs on further troubleshooting via email communication.
January 2023	- Julia Nascimento Pereira reached out following up the last email sent. Cory Will again advised to send in the system as an RMA to Nanovea's main office. - The thought of an on-site visit was discussed, but it was determined that the expenses would be greater than shipping in the system for a diagnostics and repair.



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| 3

Data and Observations

1/19/22

- Paulo was having trouble adjusting the range of the SGA board upon installation.
Calibration Range: -8.5V to -9V for the lower limit (zero applied force). 9.0V to 9.5V for the upper limit (maximum load for the module).
Actual Range Recorded: -7.9V for lower limit, 0.5V for upper limit\
- An SGA tuning SOP was sent.
- After a second attempt, the range improved to -7.9V for the lower limit, 9.5V for the upper limit.

1/20/22

- Second day of SGA tuning, no improvements in the lower limit value. Adjusting the dip switches on the SGA showed no improvement in the lower limit voltage.
- Final Range Recorded:** -7.7V to 9.2V. Not within optimal range, but the load should still be functional.

1/24/22

- Daniel attempted to tune with the old SGA and found the same problem – the lower limit cannot reach -8.5V.
- Nano depth and dovetail was noted to be close to their maximum value (56µm), and videos show the depth behaving erratically during indentation testing.
Calibration Rane for Depth: >25µm below the maximum depth. The point before the indenter holder touches the capacitor plate.
Observed Depth Behavior: close to the maximum value. No indication of depth when the load is applied during indentation

1/25/22

- It was observed that the capacitor plate was not leveled to the indenter holder – Cory sent out an SOP for leveling the nano depth sensor and information on the dip switches for the SGA.

1/27/22 – 1/28/22

- After viewing the testing data from the 1/25 visit, a problem with the DAQ was indicated because of the following reason:
Depth Behavior During Testing: Depth should be graphed in the positive direction
Observed Behavior: Depth was graphed in the negative direction. This is an indication that the cabling for the depth may be reversed on the external DAQ, or that the depth factor in the Calibration and Options tab should change signs.
- Cory reported completing a full indentation test after changing the depth factor sign in Calibration and Options

2/01/22

- Daniel tried running compliance, but it was not possible. All calibration values were wrong and hardness/elastic modulus was higher than standardized values.
- It was determined that the dovetail still needed to be adjusted and troubleshot extensively.

2/15/22

- Another Hardness test was run after cleaning the tip and checking the DAQ. Silica values were off for the Elastic Modulus:
Standardized Silica Values: 8.8GPa – 8.9GPa for Hardness. ~70GPa for Elastic Modulus (EM).
Recorded Value: 8.8GPa for Hardness. 15GPa for EM.
- Christopher sent area correction SOP.
- Daniel noted that the curve shape of the indentation test was bell-shaped, abnormal from a typical indentation test (see below)



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4

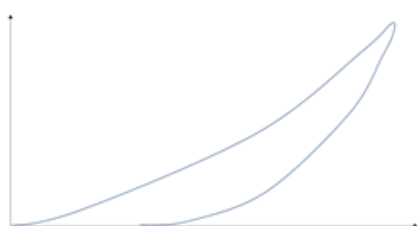


Figure 1. Normal-shaped curve



Figure 2. Bell-shaped curve

2/24/22

- Daniel recorded to tune the SGA within range: -9V for the lower limit and 9V for the upper limit.
- Christopher determined that the noise in recorded tests might be a PID issue.

3/07/22

- Julia reported that previous problems with the instrument plotting in the negative direction (negative depth) and a low EM for silica are still present.

3/09/22

- After a remote session, Christopher noted the depth was not reading correctly and suggested adjusting the dovetail and capacitor bar (similar to 1/24/22).
Observed value: Maximum depth is 63 μ m, capacitor should be moved so depth output is 38 μ m or below.

3/10/22 – 3/11/2022

- Julia adjusted the depth to 27 μ m. Tested on silica: hardness recorded 500GPa
- Christopher suggested re-tuning the SGA as it may have been tuned when the capacitor bar was touching the indenter holder – this would throw off the SGA calibration.

3/23/2022

- SGA successfully re-tuned.
- Daniel recorded the capacitor bar being slightly bent. See figure below.

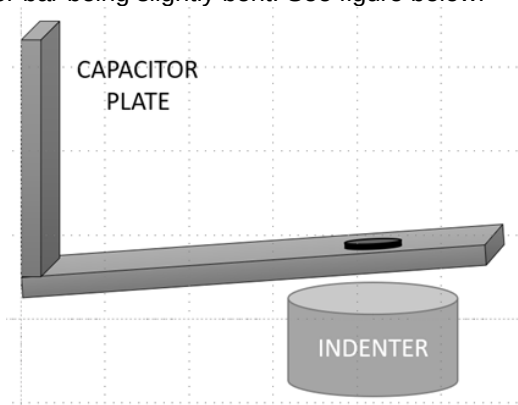


Figure 3. Bent capacitor diagram that was observed

- The capacitor was touching the indenter holder at 48 μ m. The range of depth is not >25 μ m.
- After adjusting, Daniel tried running an indentation test – depth still posed an issue with abnormal behavior. The depth jumped multiple times and was not consistent.

3/24/2022

- Daniel sent a picture of the power board inside the motion control box. The LED was off.
Voltage Values: Input on the 24V board is either 120V or 220V depending on local power. Output is 24V. Input power to piezo board is 24V.

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Observed Voltage: 122V going to the 24V power supply, but no output voltage meaning the piezo has no input voltage.

3/28/2022

- Quotation was sent for 24V power supply.

7/20/2022

- New 24V power supply is installed. System configuration and re-tuning of the SGA showed no improvements.

Observed voltage: 24V power supply output read 23.92V, piezo board output read -1.15V.

- It was decided that the system should be sent in as an RMA.

10/20/2022

- Julia, with assistance from Christopher, reversed the wires on the DAQ to troubleshoot the depth more. It did not work. No fuse was blown in the system.

10/24/2022 – 10/26/2022

- Julia sent photos of the control box wiring. Christopher pointed out that the SGA was wired for **220V** and not the **110V** that was coming from the outlet.
- The fuse voltage was checked to make sure the system is plugged into the right power outlet: the fuses were for 110V.
- An attempt was made to switch out the 110V fuse with a 220V one since the SGA was wired for 220V. This did not work.
-

In the months following, the troubleshooting went in circles: problems suggested that there might be an SGA issue, then the depth would be incorrect, and the wiring was double-checked. It was suggested that Nanovea Inc. quote and send all possible items that could be at fault for the system, but this method was proven to be more expensive and riskier compared to returning the PB1000 entirely. An on-site visit by a Nanovea engineer was mentioned, but since the problem is hardware or electrically related, the visit would not be productive as most of the components needed are only at the Nanovea headquarters.

Schedule for repair

Once the system is received at the Nanovea Inc. headquarters the repair will be completed and the system will be returned within 1 year.

Conclusion

The end decision to send Universidade de São Paulo's PB1000 system in for repair resulted from the above timeline and series of events that deemed the problems faced more than what a remote troubleshooting session can handle. Multiple parts of the PB1000 began to fail including the entire Nano indentation module, depth capacitor, SGA board, and power supply. Due to the inability to directly pinpoint a cause, it is determined that sending the system to Nanovea's headquarters to be evaluated and diagnosed by the engineering team there is the best option moving forward. After receiving the system, the repair timeline would be less than 1 year.



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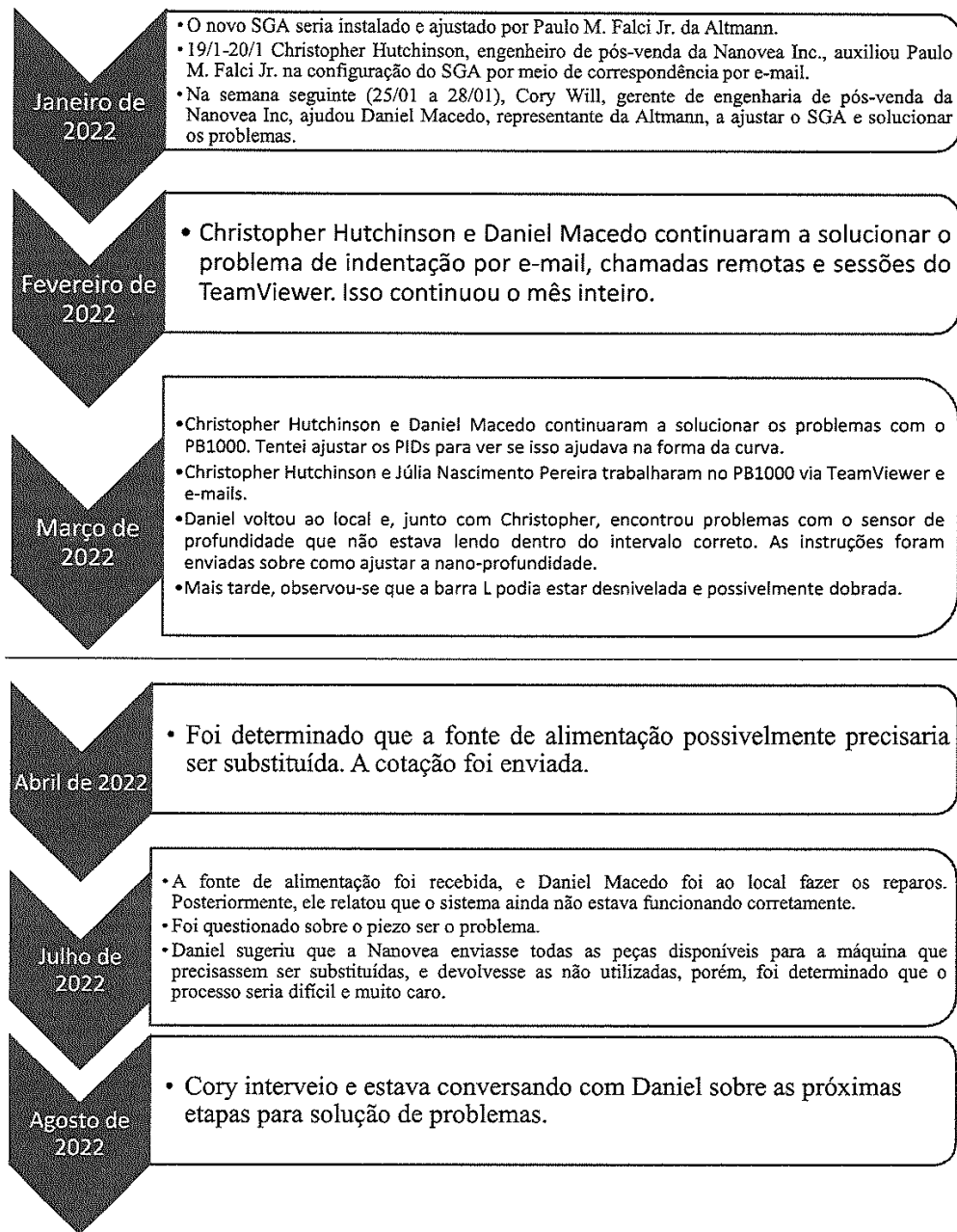
Relatório Técnico PB1000 - Universidade de São Paulo

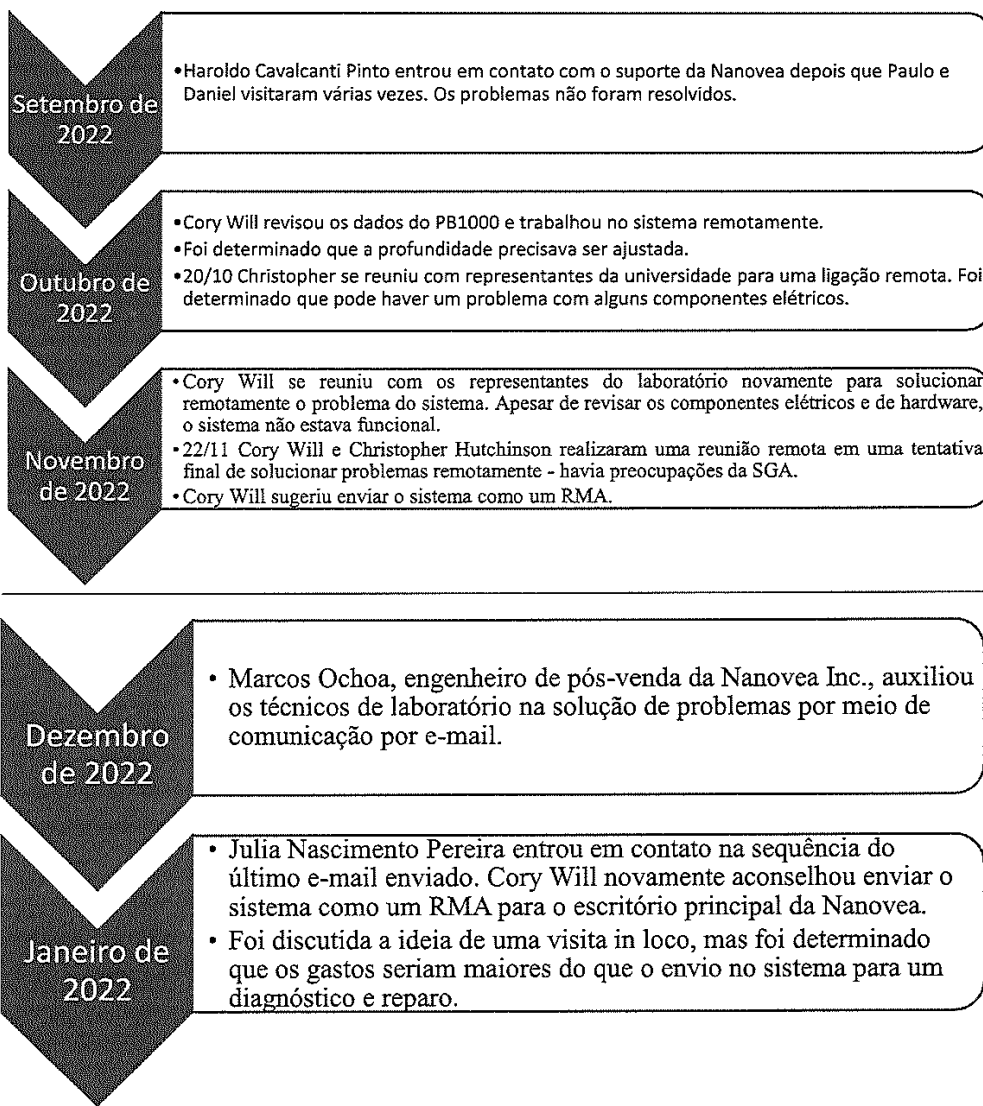
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Resumo

O objetivo deste relatório é fornecer uma lista detalhada de observações e dados que levaram à decisão de devolução e reparo do sistema PB1000 da Universidade de São Paulo (P-13-0153). Depois de vários engenheiros avaliarem o sistema, foi determinado que a solução de problemas adicionais seria melhor realizada na Nanovea Inc. em Irvine, CA, uma vez que chamadas remotas e tentativas de solução de problemas não mostraram melhorias. Um cronograma provisório pode ser enviado com este relatório técnico, mas o cronograma depende inteiramente dos problemas observados após o recebimento da remessa, desembalagem e após a realização de uma triagem de diagnóstico completa. Os problemas observados abaixo serão observados novamente.

Linha do tempo





Dados e Observações

19/1/22

- Paulo estava tendo problemas para ajustar o alcance da placa SGA na instalação.
Faixa de calibração: -8,5 V a -9 V para o limite inferior (força aplicada zero). 9,0V a 9,5V para o limite superior (carga máxima para o módulo).
Faixa real registrada: -7,9 V para limite inferior, 0,5 V para limite superior\
- Foi enviado um SOP de ajuste do SGA.
- Após uma segunda tentativa, a faixa melhorou para -7,9 V para o limite inferior e 9,5 V para o limite superior.

20/1/22

- Segundo dia de ajuste do SGA, sem melhorias no valor do limite inferior. Ajustando as chaves DIP no SGA não houve melhora na tensão de limite inferior.
- **Faixa final registrada:** -7,7 V a 9,2 V. Não está dentro da faixa ideal, mas a carga ainda deve funcionar.

24/01/22.

- Daniel tentou sintonizar com o antigo SGA e encontrou o mesmo problema – o limite inferior não pode chegar a 8,5V.
- Observou-se que a nanoprofundidade e a cauda de andorinha estão próximas de seu valor máximo (56 μ m), e os vídeos mostram a profundidade se comportando de forma irregular durante o teste de indentação.
Faixa de calibração para profundidade: >25 μ m abaixo da profundidade máxima. O ponto antes do suporte do penetrador toca a placa do capacitor.
Comportamento da Profundidade Observada: próximo ao valor máximo. Nenhuma indicação de profundidade quando a carga é aplicada durante a indentação.

25/1/2022

- Observou-se que a placa do capacitor não estava nivelada com o porta-indentador – Cory enviou um POP para nivelamento do nanosensor de profundidade e informações sobre as chaves DIP do SGA.

27/01/22 – 28/01/22

- Depois de visualizar os dados de teste da visita de 25/01, um problema com o DAQ foi indicado pelo seguinte motivo:
Comportamento da profundidade durante o teste: A profundidade deve ser representada graficamente na direção positiva.
Comportamento observado: A profundidade foi representada graficamente na direção negativa. Isso é uma indicação de que o cabeamento para a profundidade pode estar invertido no DAQ externo ou que o fator de profundidade na guia Calibração e opções deve mudar de sinal.
- Cory relatou a conclusão de um teste de indentação completo após alterar o sinal do fator de profundidade em Calibração e opções.

1/2/2022

- Daniel tentou executar compliance, mas não foi possível. Todos os valores de calibração estavam errados e a dureza/módulo de elasticidade estava acima dos valores padronizados.
- Foi determinado que a cauda de andorinha ainda precisava ser ajustada e solucionada extensivamente.

15/2/2022

- Outro teste de dureza foi executado após a limpeza da ponta e verificação do DAQ. Os valores de sílica estavam fora do módulo elástico:
Valores padronizados de sílica: 8,8GPa – 8,9GPa para Dureza. ~70GPa para Módulo Elástico (EM).

Valor registrado: 8,8 GPa para Dureza. 15GPa para EM.

- Christopher enviou SOP de correção de área.
- Daniel notou que a forma da curva do teste de indentação era em forma de sino, anormal de um teste de indentação típico (veja abaixo).

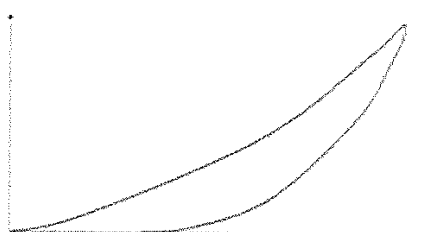


Figure 1. Normal-shaped curve

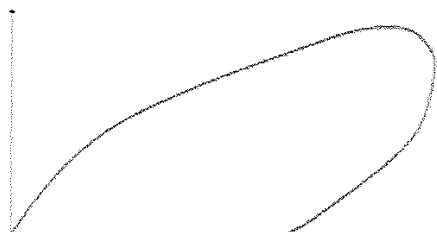


Figure 2. Curva em forma de sino

24/2/2022

- Daniel registrou para ajustar o SGA dentro da faixa: -9V para o limite inferior e 9V para o limite superior.
- Christopher determinou que o ruído nos testes gravados pode ser um problema de PID.

07/3/2022

- Julia relatou que problemas anteriores com a plotagem do instrumento na direção negativa (profundidade negativa) e um baixo EM para sílica ainda estão presentes.

09/3/2022

- Após uma sessão remota, Christopher notou que a profundidade não estava sendo lida corretamente e sugeriu ajustar a cauda de andorinha e a barra do capacitor (semelhante a 24/01/22).

Valor observado: A profundidade máxima é de 63 μm , o capacitor deve ser movido para que a saída de profundidade seja de 38 μm ou menos.

10/03/22 - 11/03/2022

- Julia ajustou a profundidade para 27 μm . Testado em sílica: dureza registrada 500GPa.
- Christopher sugeriu reajustar o SGA, pois ele pode ter sido ajustado quando a barra do capacitor estava tocando o suporte do indentador - isso prejudicaria a calibração do SGA.

23/03/2022

- SGA reajustado com sucesso.
- Daniel registrou a barra do capacitor ligeiramente dobrada. Veja a figura abaixo.

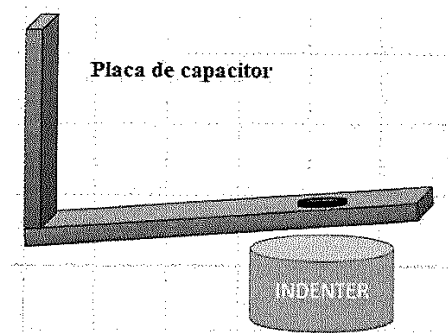


Figure 3: Diagrama de capacitor dobrado que foi observado.

- O capacitor estava tocando o suporte do indentador em $48\mu\text{m}$. A faixa de profundidade não é $>25\mu\text{m}$.
- Após o ajuste, Daniel tentou executar um teste de recuo – a profundidade ainda apresentava um problema de comportamento anormal. A profundidade saltou várias vezes e não era consistente.

24/03/2022

- Daniel enviou uma foto da placa de força dentro da caixa de controle de movimento. O LED estava desligado.

Valores de tensão: A entrada na placa de 24 V é 120 V ou 220 V, dependendo da energia local. A saída é 24V. A alimentação de entrada para a placa piezo é de 24V.

Tensão observada: 122 V indo para a fonte de alimentação de 24 V, mas sem tensão de saída, o que significa que o piezo não tem tensão de entrada.

28/3/2022

- Foi enviada uma cotação para fonte de alimentação 24V.

20/7/2022

- A nova fonte de alimentação de 24 V está instalada. A configuração do sistema e o reajuste do SGA não apresentaram melhorias.

Tensão observada: saída da fonte de alimentação de 24 V lida 23,92 V, saída da placa piezo lida -1,15 V.

- Foi decidido que o sistema deveria ser enviado como um RMA.

20/10/2022

- Julia, com a ajuda de Christopher, inverteu os fios do DAQ para solucionar mais problemas de profundidade. Não funcionou. Nenhum fusível foi queimado no sistema.

24/10/2022 – 26/10/2022

- Julia enviou fotos da fiação da caixa de controle. Christopher apontou que o SGA estava ligado para 220V e não para os 110V que vinham da tomada.

-
- A tensão do fusível foi verificada para garantir que o sistema esteja conectado na tomada correta: os fusíveis eram para 110V.
 - Foi feita uma tentativa de trocar o fusível de 110 V por um de 220 V, pois o SGA foi conectado para 220 V. Isso não funcionou.

Nos meses seguintes, a solução de problemas andou em círculos: os problemas sugeriam que poderia haver um problema de SGA, a profundidade estaria incorreta e a fiação foi verificada duas vezes. Foi sugerido que a Nanovea Inc. cotasse e enviasse todos os possíveis itens que poderiam estar com defeito no sistema, mas esse método provou ser mais caro e arriscado em comparação com a devolução completa do PB1000. Foi mencionada a visita de um engenheiro da Nanovea ao local, mas como o problema é de hardware ou elétrico, a visita não seria produtiva, pois a maioria dos componentes necessários está apenas na sede da Nanovea.

Cronograma para reparo

Assim que o sistema for recebido na sede da Nanovea Inc., o reparo será concluído e o sistema será devolvido em 1 ano.

Conclusão

A decisão final de enviar o sistema PB1000 da Universidade de São Paulo para reparo resultou do cronograma acima e da série de eventos que consideraram os problemas enfrentados mais do que uma sessão de solução de problemas remota pode suportar. Várias partes do PB1000 começaram a falhar, incluindo todo o módulo de indentação Nano, capacitor de profundidade, placa SGA e fonte de alimentação. Devido à impossibilidade de identificar diretamente uma causa, determina-se que enviar o sistema para a sede da Nanovea para ser avaliado e diagnosticado pela equipe de engenharia é a melhor opção para seguir em frente. Depois de receber o sistema, o prazo de reparo seria inferior a 1 ano.



QUOTATION Q57-250305-1*

March 5, 2025

TO:

Universidade de Sao Paulo

Attn:

Haroldo Cavalcanti Pinto

Dovetail

\$391

M9-NDOVES

Nano dovetail stage S15mm

200N Macro Load Cell

\$1830

M2-200N

200N Load cell assembly

CCS Pen Slot

\$405

P3-00469-A-00

Optical feedthrough for CCS controller

Stainless Steel Screws

\$128.50

MISC

Assortment of stainless screws

GRAND TOTAL

\$2754.50**

TERMS & CONDITIONS

Payment Terms: 100% Prior to shipment

Please send purchase order accordingly

Any processing fee from buyer will be added to the total charged

* Quote valid only if purchase order is received on or before April 5, 2025

** Shipping not included in quoted price. Subject to change depending on the order.

By:


Christopher Hutchinson – After Sales Engineer

NANOVEA INC. TERMS AND CONDITIONS OF SALES

6 Morgan, Ste156, Irvine CA 92618 · P: 949.461.9292 · F: 949.461.9232 · nanovea.com



1. **Scope.** The following terms and conditions ("Agreement") apply to the sale of all Products manufactured or distributed (the "Products") by Nanovea Inc., a California corporation, including its affiliates ("Nanovea"), to Nanovea's customer (the "BUYER").
2. **Purchase Orders.** BUYER shall issue to Nanovea firm Purchase Orders for each purchase. All Purchase Orders are subject to credit approval and confirmation of delivery schedule by Nanovea prior to acceptance by Nanovea and may require credit enhancement, such as advanced payment, letter of credit or other guarantee, prior to acceptance. Nanovea's acceptance of a purchase order shall only occur upon delivery to BUYER of a written acceptance executed by Nanovea's duly authorized representative. In the event of any conflict between this Agreement and any Purchase Order or other document, the terms of this Agreement shall prevail.
3. **Prices.** The prices for Products are set forth in Nanovea's quotation which can be changed at any time prior to acceptance by Nanovea, upon prior written notice to BUYER. The quoted prices are exclusive of all taxes, freight, duties, and other applicable charges which shall be paid by BUYER. Any taxes, duties, fees, charges or assessments of any nature levied by any governmental authority in connection with any transaction under this Agreement, whether levied against BUYER, against Nanovea or its employees, or against any of Nanovea's subcontractors or their employees, shall be the responsibility of BUYER and shall be paid directly by BUYER to the governmental authority concerned. If Nanovea or its subcontractors, or the employees of either, are required to pay any such levies, fines, penalties, or assessments, then BUYER shall reimburse such payor promptly upon submission of the applicable document.
4. **Changes.** Within thirty (30) days of receipt from BUYER of a request for changes within the general scope of work under an accepted purchase order, Nanovea shall respond in writing stating the consequences of such requested change. If such requested change causes an increase or decrease in the cost of the Products and/or the time required for performance, an equitable adjustment reasonably determined by Nanovea shall be made in the price and/or the time required for performance. Such price adjustment may include but not be limited to any rework charges associated with the requested change. Nanovea shall have the right in its sole discretion to accept or reject any such requested changes and shall not be required to proceed with the change unless the parties have mutually agreed in writing. All approved change orders shall be considered amendments to the applicable purchase order. If a requested change is not accepted by Nanovea, the original purchase order shall remain in effect.
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7. **Title and Risk of Loss.** Title to the Products shall pass to BUYER upon Nanovea's delivery of the Products to a common carrier or to the BUYERS designated location. BUYER hereby grants Nanovea a security interest in the Products until the invoice covering the Products has been paid in full. BUYER also irrevocably appoints Nanovea as its lawful attorney-in-fact coupled with an interest with full authority to execute and file UCC-1's and any other necessary documents to perfect and enforce its security interest. Nanovea shall bear the risk of loss or damage until the Products are delivered to a common carrier or to the BUYERS designated location. Upon Nanovea's delivery to a common carrier or to the BUYERS designated location, BUYER shall bear the entire risk of loss and shall be liable for all loss or damage to the Products.
8. **Inspection.** Acceptance of any shipment of products shall be presumed conclusively to have occurred fifteen days following delivery of products to BUYER, unless BUYER has accepted the products prior to that date. BUYER shall carefully inspect all deliveries of products upon receipt and report to Nanovea promptly any alleged error, shortage, defect or nonconformity of such products. BUYER waives any claim or right to revoke acceptance if BUYER fails to so inspect and report promptly. In order for the notice of rejection to be effective, BUYER must also specify in detail the reason(s) why the Products are being rejected. BUYER shall only have the right to reject Product for "defects," as defined in Section 10 below. All returned products must be shipped to Nanovea, freight prepaid, at BUYER's risk of loss or damage.
9. **Force Majeure.** Nanovea shall not be liable for any failure to perform or other loss due to unforeseen circumstances or causes beyond its control, including without limitation acts of God, strikes, material and/or transportation shortages, natural casualties, governmental regulations, war, fire, flood, disasters and civil unrest.
10. **Limited Warranty; Disclaimer; Limitations on Remedies.** Subject to the limitations and conditions contained in this Agreement, Nanovea warrants to BUYER for a period of 90 days after shipment that as of the date of shipment the products sold under this Agreement conformed to Nanovea's applicable published technical specifications for such products. Failure to conform to such specifications constitutes a "defect". Nanovea's prices are based upon this limited warranty and any different or greater warranty coverage which BUYER requests may require a price adjustment. This limited warranty does not cover and excludes, without limitation: (i) any failure, losses, damages, deficiencies, costs or expenses arising or relating to any misuse (including use with incompatible materials, abnormal conditions of use and use for purposes not intended for the product), accident, abuse or neglect; normal wear and tear; improper storage, handling, installation, maintenance or application of the product or other materials or items used with the product; and any similar acts, events or circumstances; (ii) products made with materials or parts supplied by BUYER or manufactured to BUYER's specifications; (iii) products which have been altered, repaired, modified, or serviced by anyone other than Nanovea; (iv) any Product, or parts thereof, that has had the Serial Number, Model Number, or other identification markings altered, removed or rendered illegible; or has been damaged by or subject to improper installation or operation, misuse, accident, neglect and/or has been used in any way other than in strict compliance with Nanovea's operation and installation manual; or has become defective or inoperative due to its integration or assembly with any equipment or products not supplied by Nanovea; or has been repaired, modified or otherwise altered by anyone other than Nanovea; (v) products for which BUYER has not paid in full; (vi) products which are sold as obsolete, off-spec, seconds or substandard, and (vii) any other claim or matter not within the scope of the limited warranty. Nanovea's sole and exclusive liability and BUYER's exclusive remedy for any breach of the limited warranty shall be (at Nanovea's option) to repair, replace or credit the purchase price to BUYER's account for any such products which fail to conform, subject to BUYER: (a) promptly notifying Nanovea in writing that such products failed to conform to the limited warranty with a detailed explanation of the alleged non-conformities, (b) if directed by Nanovea, returning such products or a sample of such products to Nanovea at BUYER's expense, and (c) Nanovea's examination of such products establishing Nanovea's satisfaction that such alleged nonconformity existed as of the date of shipment and did not result from causes excluded from the limited warranty. If Nanovea elects to repair or replace such products, Nanovea shall have a reasonable time to do so and the repaired or replaced products shall be covered by the foregoing limited warranty for the remainder of the original limited warranty period. If Nanovea determines that any products(s) so returned are not covered by the limited warranty, Nanovea reserves the right to charge BUYER for all costs and expenses incurred by Nanovea in examining and handling such product(s). Failure by BUYER to give such written notice within the applicable limited warranty period shall be deemed an absolute and unconditional waiver by BUYER of any claim for breach of such limited warranty and shall fully and completely release and discharge Nanovea from any obligation or liability under the limited warranty.
THE FOREGOING LIMITED WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY NANOVEA WITH RESPECT TO PRODUCTS SOLD BY NANOVEA. NANOVEA MAKES NO AND DISCLAIMS ALL OTHER REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESSED OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY; ANY IMPLIED WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE; ANY IMPLIED WARRANTY ARISING BY USAGE OF TRADE, COURSE OF DEALING OR COURSE OF PERFORMANCE; ANY IMPLIED WARRANTY ARISING FROM ANY USE OF ANY PRODUCTS, OR NANOVEA'S AND/OR BUYERS CONDUCT IN RELATION TO THE PRODUCTS WHETHER OR NOT THE PURPOSE OR USE OF THE PRODUCTS HAS BEEN DISCLOSED TO NANOVEA AND WHETHER OR NOT THE PRODUCTS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BY NANOVEA FOR BUYER'S USE OR PURPOSE.
BUYER acknowledges that, except as expressly provided in this Agreement, no representative of Nanovea is authorized to give or make any other representation or warranty or modify the above limited warranty in any way and that no Nanovea samples, catalogs, brochures or other publications and no statement, advice, recommendation, or instruction made or assistance given by Nanovea in connection with any products or services shall constitute a representation or warranty or a waiver or modification by Nanovea of this Agreement. Except for the above limited warranty, BUYER assumes all risk and liability from BUYER's use of the products and acknowledges

that it does not rely on, and waives any claim relating to, any such samples, catalogs, brochures, publications, statement, advice, recommendation, or instruction regarding the products given to BUYER by Nanovea.

BUYER acknowledges that all Nanovea products and services are sold with the understanding that it is the sole and exclusive responsibility of BUYER to determine the suitability of the products and services for BUYER's intended purposes. BUYER acknowledges that Nanovea has no control over BUYER's use of the products and that Nanovea has made no warranties, guarantees, or assurances as to the results that may be obtained from the use of the products whether used singly or in combination with other items.

BUYER acknowledges and agrees that all Nanovea products are sold with the understanding that the disclaimers, limitations, and disclosures in this Paragraph 10 apply to subsequent purchasers or users of the products as well as any BUYER products which incorporate the products. BUYER shall obtain from any subsequent purchaser or user of the products appropriate terms which give Nanovea the protection and benefit of the disclaimers, disclosures, and limitations in this Paragraph 10.

Any claim against Nanovea permitted under this Agreement and not brought within 12 months after the cause of action accrues shall be deemed waived by BUYER. BUYER agrees never to institute, file, initiate, prosecute or maintain any claim, demand, cause of action, action, suit, administrative or other proceeding (at law, in equity or otherwise), seeking any remedy except for those remedies permitted by this Agreement.

11. Limitation of Liability. NANOVEA SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL OR EXEMPLARY DAMAGES SUFFERED BY BUYER AND/OR ANY END USER RELATED TO OR ARISING OUT OF THIS AGREEMENT, THE TRANSACTIONS CONTEMPLATED HEREBY AND/OR THE USE OR INABILITY TO USE THE PRODUCTS, INTEGRATION OF THE PRODUCTS WITH EQUIPMENT NOT PROVIDED BY NANOVEA, LOSS OF GOODWILL OR PROFITS AND/OR FROM ANY OTHER CAUSE WHATSOEVER, EVEN IF IT HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT WILL NANOVEA'S LIABILITY FOR ANY CAUSE OF ACTION RELATING TO THIS AGREEMENT EXCEED AMOUNTS RECEIVED BY NANOVEA FROM BUYER FOR THE PRODUCT OR SERVICE THAT IS THE SUBJECT OF SUCH CLAIM OR DISPUTE. NANOVEA AND BUYER FURTHER AGREE THAT EACH AND EVERY PROVISION OF THIS AGREEMENT WHICH PROVIDES FOR A LIMITATION OF LIABILITY, DISCLAIMER OF WARRANTIES OR EXCLUSION OF DAMAGES IS EXPRESSLY INTENDED TO BE SEVERABLE AND INDEPENDENT OF ANY OTHER PROVISION SINCE THOSE PROVISIONS REPRESENT SEPARATE ELEMENTS OF RISK ALLOCATION BETWEEN THE PARTIES, AND SHALL BE SEPARATELY ENFORCED. BOTH PARTIES ALSO AGREE THAT THE PRICE OF THE PRODUCTS REFLECTS THE ALLOCATION OF RISK, WARRANTY AND LIMITATION OF LIABILITY PROVISIONS HEREIN.

12. Confidentiality. Many aspects of the design, production and operation of the Products, in any form, are proprietary information and trade secrets of Nanovea ("Proprietary Rights"), and such Proprietary Rights shall not be disclosed or otherwise transferred by BUYER or BUYER's employees to any other person or entity at any time. BUYER shall not modify, reverse engineer, improve or otherwise change any Product or parts thereof, or any of Nanovea's Proprietary Rights related thereto, and shall not use, appropriate or copy any of Nanovea's Proprietary Rights, either for itself or for others. BUYER also agrees not to incorporate or in any way use any of Nanovea's Proprietary Rights or confidential information (disclosed separately or embodied in any of the Products) in its or any other party's products or businesses.

13. Property Rights. Nanovea shall solely own and have exclusive worldwide right, title and interest in and to all United States and foreign patents, trademarks, service marks, copyrights, mask works, trade secrets, and all other intellectual and industrial property rights in any way related to the Products, to Nanovea's Proprietary Rights, and to all modifications, improvements and derivative works related thereto. Title to all of Nanovea's Proprietary Rights embodied in the Products shall always remain with Nanovea, and BUYER's use thereof shall be restricted under a non-exclusive license granted by Nanovea. Subject to BUYER's performance of all obligations hereunder, Nanovea hereby grants to BUYER a personal, non-exclusive, non-transferable and indivisible license to use Nanovea's Proprietary Rights only as they are embodied in the Products and for no other purpose. BUYER shall not remove Nanovea trademark notices, copyright notices, patent markings or mask work notices on or in the Products or on any other materials supplied by Nanovea. Paragraphs 11 and 12 shall survive the termination of this Agreement, and shall be specifically enforceable by injunctive and other relief against BUYER in the event of BUYER's breach since both parties agree that Nanovea will be irreparably harmed and money damages would be inadequate compensation to Nanovea for BUYER's breach. In the event of such breach, Nanovea shall be entitled to injunctive relief against BUYER in addition to any other remedies to which it is entitled.

14. Waiver. Nanovea shall not be deemed to waive any default of any provision of this Agreement unless Nanovea signs a written waiver.

15. Indemnity. BUYER shall indemnify, defend and hold Nanovea harmless from all claims, damages, expenses, liabilities and losses, including without limitation attorney's fees and costs incurred that in any way arise out of or relate to (a) the manner in which BUYER and/or any of its customers or end users use or operate the Products; (b) any personal injuries, property damages or other losses resulting or occurring from the willful or negligent acts or omissions of BUYER, its customers or end users; (c) defects or other problems with other component parts, equipment or materials produced or supplied by anyone other than Nanovea and that may be used with the Products; and/or (d) BUYER's transactions with its customers, end users or other parties regarding the Products.

16. Termination. BUYER shall not terminate or cancel any order, or portion thereof, after it is given to Nanovea without Nanovea's prior written consent in its sole discretion and subject to the condition that BUYER pays to Nanovea the sum of (1) the price of all Products previously delivered to BUYER, (2) Nanovea's actual costs incurred as a result of such termination (e.g., purchase of raw materials and other obligations), which Nanovea will attempt to keep as low as possible, and (3) a cancellation fee of twenty percent (20%) of such actual costs.

17. Attorney's Fees. In the event a dispute arises regarding this Agreement or the Products, the prevailing party shall be entitled to recover from the unsuccessful party actual attorney's fees and costs incurred.

18. Entire Agreement. BUYER agrees to all of the provisions of this Agreement by signing below and/or by submitting its purchase order for the Products. This Agreement is the sole and entire agreement between the parties (except for the price or the shipment schedule for the Products contained in Nanovea's quotation or BUYER's purchase order accepted by Nanovea which shall be incorporated herein subject to the terms hereof) and shall supersede all prior or contemporaneous written or oral understandings, representations or communications and/or other terms in any purchase order or other document, now or hereafter delivered. The provisions of this Agreement shall apply to any and all purchase orders or requests for Products submitted by BUYER to Nanovea at any time in the future after executing this Agreement, without the need for either party to re-execute this Agreement. No modification of this Agreement shall be valid unless in writing and signed by an authorized representative of Nanovea.

19. Governing Law and Venue. This Agreement shall be construed and enforced according to the laws of the State of California regarding contracts made and wholly performed in California, and without regard to California's principles of conflicts of laws, and, where applicable, according to the federal laws of the United States of America. Nanovea and BUYER irrevocably submit to the jurisdiction of the state and/or federal courts in Irvine, CA for any action or proceeding regarding this Agreement. **In the event this transaction involves an international sale, the parties expressly agree to exclude from all purchases and sales the United Nations Convention on Contracts for the International Sale of Goods. The parties further agree, to the extent permitted by law, to waive all rights to a trial by jury of any action relating to any dispute or interpretation of this Agreement. The parties specifically acknowledge that this waiver is made knowingly after an adequate opportunity to negotiate its terms.**

20. Export. BUYER shall not directly or indirectly export, transfer or in any way distribute any of the Products, or parts thereof, or any of Nanovea's Proprietary Rights or technical data to any country or territory that is prohibited from receiving such materials under any applicable law of the United States. **BUYER shall comply with all applicable laws and regulations, including, without limitation, all of the laws and regulations of any applicable agency of the United States government responsible for the administration of the United States export control laws and regulations and the United States Foreign Corrupt Practices Act of 1977, as amended.** BUYER shall also be responsible for obtaining all export licenses or other approvals required to export or re-export the Products outside the United States. BUYER further indemnifies, defends and holds Nanovea harmless from all damages, claims, expenses, liabilities and losses including without limitation attorney's fees and costs that in any way arise out of or relate to BUYER's breach of this warranty and/or failure to comply with the provisions of this Section 20. Nanovea shall not be liable in the event any authorization of any governmental authority is delayed, denied, revoked, restricted and not renewed, and BUYER shall not be relieved thereby of its obligations to pay Nanovea for its Products or any other charges which are the obligations of BUYER under this Agreement.

21. Integration of Equipment. Nanovea shall not be liable for any problems, damages or costs associated with the integration, installation or incorporation of the Products with equipment or materials not provided by Nanovea.

22. Authority. The persons executing this Agreement on behalf of Nanovea and BUYER warrant and represent that they have been authorized by their respective board of directors or other governing bodies to enter into this Agreement and to bind their respective companies to all of the provisions of this Agreement.

23. Survival. All of the provisions of this Agreement shall survive the termination or expiration of this Agreement.

24. **Assignment.** BUYER shall not assign, transfer or otherwise encumber this Agreement or any part thereof without Nanovea's prior written consent.

25. **Severability.** If any provision of this Agreement is held by a court of competent jurisdiction to be void, invalid or unenforceable, the remaining provisions shall remain in full force and effect.

26. **General.** BUYER and Nanovea confirm that it is their wish that this Agreement, as well as any other documents or proceedings relating to or conducted under this Agreement or relating to this Agreement, including notices, have been and shall be drawn up and interpreted in the English language only. The Terms and Conditions may not be modified or cancelled without Nanovea's written agreement. Accordingly, Products furnished by Nanovea are sold only on the terms and conditions stated herein. The sale of Products hereunder will be governed by the Terms and Conditions, notwithstanding contrary or additional terms and conditions in any order purchase order, planning schedule, acknowledgment, confirmation or any other form or document issued by either party affecting the purchase and/or sale of Products. Any conflicting statements or terms listed on the BUYER purchase orders, invoices, confirmations or other BUYER generated documents ("BUYER Documents"), whether heretofore or hereafter submitted, and all different or additional terms and conditions contained in any BUYER Documents are hereby objected to by Nanovea. Nanovea's performance of any contract is expressly made conditional on BUYER's agreement to Nanovea's Terms and Conditions of Sale, unless otherwise specifically agreed upon in writing by Nanovea. In the absence of such agreement, commencement of performance and/or delivery shall be for BUYER's convenience only and shall not be deemed or construed to be acceptance of BUYER's terms and conditions or any of them. Acceptance by BUYER of any goods or services shall be deemed acceptance by BUYER of the terms and conditions stated herein. No rights, duties, agreements or obligations hereunder, may be assigned or transferred by operation of law, merger or otherwise, without the prior written consent of Nanovea. The obligations, rights, terms and conditions hereof will be binding on the parties hereto and their respective successors and assigns. The waiver or breach of any term, condition or covenant hereof, or default under any provision hereof, will not be deemed to constitute a waiver of any other term, condition, or covenant contained herein, or of any subsequent breach or default of any kind or nature. Any provision hereof which is prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such prohibition or unenforceability without invalidating the remaining provisions hereof in that jurisdiction, or affecting the validity or enforceability of such provision in any other jurisdiction.

Any changes or deviations to the above Terms & Conditions of Sale must be mutually agreed to by both Parties in written form

QUOTATION Q57-250305-1(Cont.)*

March 5, 2025

TO:

Universidade de Sao Paulo

Attn:

Haroldo Cavalcanti Pinto

After Sales Diagnostic and Repair of PB1000

P1-RMA-Diag

Diagnostic of issues with PB1000 and repair/replacement of parts

\$14,385

- Replaced broken components and rusted screws
- Retuned Nano SGA
- Retuned MICRO SGA
- Recalibrated both Micro and Nano Module
- Repaired broken fiber optic connector
- Calibrated repaired endopen to CCS

GRAND TOTAL

\$14,385**

TERMS & CONDITIONS

Payment Terms: 100% Prior to shipment

Please send purchase order accordingly

Any processing fee from buyer will be added to the total charged

* Quote valid only if purchase order is received on or before **April 5, 2025**

** Shipping not included in quoted price. Subject to change depending on the order.

By:



Christopher Hutchinson – After Sales Engineer



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3. **Prices.** The prices for Products are set forth in Nanovea's quotation which can be changed at any time prior to acceptance by Nanovea, upon prior written notice to BUYER. The quoted prices are exclusive of all taxes, freight, duties, and other applicable charges which shall be paid by BUYER. Any taxes, duties, fees, charges or assessments of any nature levied by any governmental authority in connection with any transaction under this Agreement, whether levied against BUYER, against Nanovea or its employees, or against any of Nanovea's subcontractors or their employees, shall be the responsibility of BUYER and shall be paid directly by BUYER to the governmental authority concerned. If Nanovea or its subcontractors, or the employees of either, are required to pay any such levies, fines, penalties, or assessments, then BUYER shall reimburse such payor promptly upon submission of the applicable document.
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6. **Transportation.** All shipments by Nanovea are F.O.B. point of shipment from Nanovea's facility and the amount of all transportation charges will be paid to Nanovea by the BUYER in addition to the purchase price of the Products. Nanovea will make reasonable efforts to initiate shipment and schedule delivery as close as possible to BUYER's requested delivery date(s). BUYER acknowledges that delivery dates provided by Nanovea are estimates only and that Nanovea will not be liable for failure to deliver on such dates. Selection of the carrier and delivery route will be made by Nanovea unless specifically designated by BUYER. Nanovea reserves the right to make deliveries in installments. Delay in delivery of one installment will not entitle BUYER to cancel any other installment(s). Delivery of any installment of Products within thirty (30) days after the date requested will constitute a timely delivery. Delivery of a quantity that varies from the quantity specified shall not relieve BUYER of the obligation to accept delivery and pay for the Products delivered.
7. **Title and Risk of Loss.** Title to the Products shall pass to BUYER upon Nanovea's delivery of the Products to a common carrier or to the BUYERS designated location. BUYER hereby grants Nanovea a security interest in the Products until the invoice covering the Products has been paid in full. BUYER also irrevocably appoints Nanovea as its lawful attorney-in-fact coupled with an interest with full authority to execute and file UCC-1's and any other necessary documents to perfect and enforce its security interest. Nanovea shall bear the risk of loss or damage until the Products are delivered to a common carrier or to the BUYERS designated location. Upon Nanovea's delivery to a common carrier or to the BUYERS designated location, BUYER shall bear the entire risk of loss and shall be liable for all loss or damage to the Products.
8. **Inspection.** Acceptance of any shipment of products shall be presumed conclusively to have occurred fifteen days following delivery of products to BUYER, unless BUYER has accepted the products prior to that date. BUYER shall carefully inspect all deliveries of products upon receipt and report to Nanovea promptly any alleged error, shortage, defect or nonconformity of such products. BUYER waives any claim or right to revoke acceptance if BUYER fails to so inspect and report promptly. In order for the notice of rejection to be effective, BUYER must also specify in detail the reason(s) why the Products are being rejected. BUYER shall only have the right to reject Product for "defects," as defined in Section 10 below. All returned products must be shipped to Nanovea, freight prepaid, at BUYER's risk of loss or damage.
9. **Force Majeure.** Nanovea shall not be liable for any failure to perform or other loss due to unforeseen circumstances or causes beyond its control, including without limitation acts of God, strikes, material and/or transportation shortages, natural casualties, governmental regulations, war, fire, flood, disasters and civil unrest.
10. **Limited Warranty: Disclaimer: Limitations on Remedies.** Subject to the limitations and conditions contained in this Agreement, Nanovea warrants to BUYER for a period of 90 days after shipment that as of the date of shipment the products sold under this Agreement conformed to Nanovea's applicable published technical specifications for such products. Failure to conform to such specifications constitutes a "defect". Nanovea's prices are based upon this limited warranty and any different or greater warranty coverage which BUYER requests may require a price adjustment. This limited warranty does not cover and excludes, without limitation: (i) any failure, losses, damages, deficiencies, costs or expenses arising or relating to any misuse (including use with incompatible materials, abnormal conditions of use and use for purposes not intended for the product), accident, abuse or neglect; normal wear and tear; improper storage, handling, installation, maintenance or application of the product or other materials or items used with the product; and any similar acts, events or circumstances; (ii) products made with materials or parts supplied by BUYER or manufactured to BUYER's specifications; (iii) products which have been altered, repaired, modified, or serviced by anyone other than Nanovea; (iv) any Product, or parts thereof, that has had the Serial Number, Model Number, or other identification markings altered, removed or rendered illegible; or has been damaged by or subject to improper installation or operation, misuse, accident, neglect and/or has been used in any way other than in strict compliance with Nanovea's operation and installation manual; or has become defective or inoperative due to its integration or assembly with any equipment or products not supplied by Nanovea; or has been repaired, modified or otherwise altered by anyone other than Nanovea; (v) products for which BUYER has not paid in full; (vi) products which are sold as obsolete, off-spec, seconds or substandard, and (vii) any other claim or matter not within the scope of the limited warranty. Nanovea's sole and exclusive liability and BUYER's exclusive remedy for any breach of the limited warranty shall be (at Nanovea's option) to repair, replace or credit the purchase price to BUYER's account for any such products which fail to conform, subject to BUYER: (a) promptly notifying Nanovea in writing that such products failed to conform to the limited warranty with a detailed explanation of the alleged non-conformities, (b) if directed by Nanovea, returning such products or a sample of such products to Nanovea at BUYER's expense, and (c) Nanovea's examination of such products establishing Nanovea's satisfaction that such alleged nonconformity existed as of the date of shipment and did not result from causes excluded from the limited warranty. If Nanovea elects to repair or replace such products, Nanovea shall have a reasonable time to do so and the repaired or replaced products shall be covered by the foregoing limited warranty for the remainder of the original limited warranty period. If Nanovea determines that any products(s) so returned are not covered by the limited warranty, Nanovea reserves the right to charge BUYER for all costs and expenses incurred by Nanovea in examining and handling such product(s). Failure by BUYER to give such written notice within the applicable limited warranty period shall be deemed an absolute and unconditional waiver by BUYER of any claim for breach of such limited warranty and shall fully and completely release and discharge Nanovea from any obligation or liability under the limited warranty.
THE FOREGOING LIMITED WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY NANOVEA WITH RESPECT TO PRODUCTS SOLD BY NANOVEA. NANOVEA MAKES NO AND DISCLAIMS ALL OTHER REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESSED OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY; ANY IMPLIED WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE; ANY IMPLIED WARRANTY ARISING BY USAGE OF TRADE, COURSE OF DEALING OR COURSE OF PERFORMANCE; ANY IMPLIED WARRANTY ARISING FROM ANY USE OF ANY PRODUCTS, OR NANOVEA'S AND/OR BUYERS CONDUCT IN RELATION TO THE PRODUCTS WHETHER OR NOT THE PURPOSE OR USE OF THE PRODUCTS HAS BEEN DISCLOSED TO NANOVEA AND WHETHER OR NOT THE PRODUCTS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BY NANOVEA FOR BUYER'S USE OR PURPOSE.
BUYER acknowledges that, except as expressly provided in this Agreement, no representative of Nanovea is authorized to give or make any other representation or warranty or modify the above limited warranty in any way and that no Nanovea samples, catalogs, brochures or other publications and no statement, advice, recommendation, or instruction made or assistance given by Nanovea in connection with any products or services shall constitute a representation or warranty or a waiver or

modification by Nanovea of this Agreement. Except for the above limited warranty, BUYER assumes all risk and liability from BUYER's use of the products and acknowledges that it does not rely on, and waives any claim relating to, any such samples, catalogs, brochures, publications, statement, advice, recommendation, or instruction regarding the products given to BUYER by Nanovea.

BUYER acknowledges that all Nanovea products and services are sold with the understanding that it is the sole and exclusive responsibility of BUYER to determine the suitability of the products and services for BUYER's intended purposes. BUYER acknowledges that Nanovea has no control over BUYER's use of the products and that Nanovea has made no warranties, guarantees, or assurances as to the results that may be obtained from the use of the products whether used singly or in combination with other items.

BUYER acknowledges and agrees that all Nanovea products are sold with the understanding that the disclaimers, limitations, and disclosures in this Paragraph 10 apply to subsequent purchasers or users of the products as well as any BUYER products which incorporate the products. BUYER shall obtain from any subsequent purchaser or user of the products appropriate terms which give Nanovea the protection and benefit of the disclaimers, disclosures, and limitations in this Paragraph 10.

Any claim against Nanovea permitted under this Agreement and not brought within 12 months after the cause of action accrues shall be deemed waived by BUYER. BUYER agrees never to institute, file, initiate, prosecute or maintain any claim, demand, cause of action, action, suit, administrative or other proceeding (at law, in equity or otherwise), seeking any remedy except for those remedies permitted by this Agreement.

11. Limitation of Liability. NANOVEA SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL OR EXEMPLARY DAMAGES SUFFERED BY BUYER AND/OR ANY END USER RELATED TO OR ARISING OUT OF THIS AGREEMENT, THE TRANSACTIONS CONTEMPLATED HEREBY AND/OR THE USE OR INABILITY TO USE THE PRODUCTS, INTEGRATION OF THE PRODUCTS WITH EQUIPMENT NOT PROVIDED BY NANOVEA, LOSS OF GOODWILL OR PROFITS AND/OR FROM ANY OTHER CAUSE WHATSOEVER, EVEN IF IT HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT WILL NANOVEA'S LIABILITY FOR ANY CAUSE OF ACTION RELATING TO THIS AGREEMENT EXCEED AMOUNTS RECEIVED BY NANOVEA FROM BUYER FOR THE PRODUCT OR SERVICE THAT IS THE SUBJECT OF SUCH CLAIM OR DISPUTE. NANOVEA AND BUYER FURTHER AGREE THAT EACH AND EVERY PROVISION OF THIS AGREEMENT WHICH PROVIDES FOR A LIMITATION OF LIABILITY, DISCLAIMER OF WARRANTIES OR EXCLUSION OF DAMAGES IS EXPRESSLY INTENDED TO BE SEVERABLE AND INDEPENDENT OF ANY OTHER PROVISION SINCE THOSE PROVISIONS REPRESENT SEPARATE ELEMENTS OF RISK ALLOCATION BETWEEN THE PARTIES, AND SHALL BE SEPARATELY ENFORCED. BOTH PARTIES ALSO AGREE THAT THE PRICE OF THE PRODUCTS REFLECTS THE ALLOCATION OF RISK, WARRANTY AND LIMITATION OF LIABILITY PROVISIONS HEREIN.

12. Confidentiality. Many aspects of the design, production and operation of the Products, in any form, are proprietary information and trade secrets of Nanovea ("Proprietary Rights"), and such Proprietary Rights shall not be disclosed or otherwise transferred by BUYER or BUYER's employees to any other person or entity at any time. BUYER shall not modify, reverse engineer, improve or otherwise change any Product or parts thereof, or any of Nanovea's Proprietary Rights related thereto, and shall not use, appropriate or copy any of Nanovea's Proprietary Rights, either for itself or for others. BUYER also agrees not to incorporate or in any way use any of Nanovea's Proprietary Rights or confidential information (disclosed separately or embodied in any of the Products) in its or any other party's products or businesses.

13. Property Rights. Nanovea shall solely own and have exclusive worldwide right, title and interest in and to all United States and foreign patents, trademarks, service marks, copyrights, mask works, trade secrets, and all other intellectual and industrial property rights in any way related to the Products, to Nanovea's Proprietary Rights, and to all modifications, improvements and derivative works related thereto. Title to all of Nanovea's Proprietary Rights embodied in the Products shall always remain with Nanovea, and BUYER's use thereof shall be restricted under a non-exclusive license granted by Nanovea. Subject to BUYER's performance of all obligations hereunder, Nanovea hereby grants to BUYER a personal, non-exclusive, non-transferable and indivisible license to use Nanovea's Proprietary Rights only as they are embodied in the Products and for no other purpose. BUYER shall not remove Nanovea trademark notices, copyright notices, patent markings or mask work notices on or in the Products or on any other materials supplied by Nanovea. Paragraphs 11 and 12 shall survive the termination of this Agreement, and shall be specifically enforceable by injunctive and other relief against BUYER in the event of BUYER's breach since both parties agree that Nanovea will be irreparably harmed and money damages would be inadequate compensation to Nanovea for BUYER's breach. In the event of such breach, Nanovea shall be entitled to injunctive relief against BUYER in addition to any other remedies to which it is entitled.

14. Waiver. Nanovea shall not be deemed to waive any default of any provision of this Agreement unless Nanovea signs a written waiver.

15. Indemnity. BUYER shall indemnify, defend and hold Nanovea harmless from all claims, damages, expenses, liabilities and losses, including without limitation attorney's fees and costs incurred that in any way arise out of or relate to (a) the manner in which BUYER and/or any of its customers or end users use or operate the Products; (b) any personal injuries, property damages or other losses resulting or occurring from the willful or negligent acts or omissions of BUYER, its customers or end users; (c) defects or other problems with other component parts, equipment or materials produced or supplied by anyone other than Nanovea and that may be used with the Products; and/or (d) BUYER's transactions with its customers, end users or other parties regarding the Products.

16. Termination. BUYER shall not terminate or cancel any order, or portion thereof, after it is given to Nanovea without Nanovea's prior written consent in its sole discretion and subject to the condition that BUYER pays to Nanovea the sum of (1) the price of all Products previously delivered to BUYER, (2) Nanovea's actual costs incurred as a result of such termination (e.g., purchase of raw materials and other obligations), which Nanovea will attempt to keep as low as possible, and (3) a cancellation fee of twenty percent (20%) of such actual costs.

17. Attorney's Fees. In the event a dispute arises regarding this Agreement or the Products, the prevailing party shall be entitled to recover from the unsuccessful party actual attorney's fees and costs incurred.

18. Entire Agreement. BUYER agrees to all of the provisions of this Agreement by signing below and/or by submitting its purchase order for the Products. This Agreement is the sole and entire agreement between the parties (except for the price or the shipment schedule for the Products contained in Nanovea's quotation or BUYER's purchase order accepted by Nanovea which shall be incorporated herein subject to the terms hereof) and shall supersede all prior or contemporaneous written or oral understandings, representations or communications and/or other terms in any purchase order or other document, now or hereafter delivered. The provisions of this Agreement shall apply to any and all purchase orders or requests for Products submitted by BUYER to Nanovea at any time in the future after executing this Agreement, without the need for either party to re-execute this Agreement. No modification of this Agreement shall be valid unless in writing and signed by an authorized representative of Nanovea.

19. Governing Law and Venue. This Agreement shall be construed and enforced according to the laws of the State of California regarding contracts made and wholly performed in California, and without regard to California's principles of conflicts of laws, and, where applicable, according to the federal laws of the United States of America. Nanovea and BUYER irrevocably submit to the jurisdiction of the state and/or federal courts in Irvine, CA for any action or proceeding regarding this Agreement. **In the event this transaction involves an international sale, the parties expressly agree to exclude from all purchases and sales the United Nations Convention on Contracts for the International Sale of Goods. The parties further agree, to the extent permitted by law, to waive all rights to a trial by jury of any action relating to any dispute or interpretation of this Agreement. The parties specifically acknowledge that this waiver is made knowingly after an adequate opportunity to negotiate its terms.**

20. Export. BUYER shall not directly or indirectly export, transfer or in any way distribute any of the Products, or parts thereof, or any of Nanovea's Proprietary Rights or technical data to any country or territory that is prohibited from receiving such materials under any applicable law of the United States. **BUYER shall comply with all applicable laws and regulations, including, without limitation, all of the laws and regulations of any applicable agency of the United States government responsible for the administration of the United States export control laws and regulations and the United States Foreign Corrupt Practices Act of 1977, as amended.** BUYER shall also be responsible for obtaining all export licenses or other approvals required to export or re-export the Products outside the United States. BUYER further indemnifies, defends and holds Nanovea harmless from all damages, claims, expenses, liabilities and losses including without limitation attorney's fees and costs that in any way arise out of or relate to BUYER's breach of this warranty and/or failure to comply with the provisions of this Section 20. Nanovea shall not be liable in the event any authorization of any governmental authority is delayed, denied, revoked, restricted and not renewed, and BUYER shall not be relieved thereby of its obligations to pay Nanovea for its Products or any other charges which are the obligations of BUYER under this Agreement.

21. Integration of Equipment. Nanovea shall not be liable for any problems, damages or costs associated with the integration, installation or incorporation of the Products with equipment or materials not provided by Nanovea.

22. Authority. The persons executing this Agreement on behalf of Nanovea and BUYER warrant and represent that they have been authorized by their respective board of directors or other governing bodies to enter into this Agreement and to bind their respective companies to all of the provisions of this Agreement.

23. Survival. All of the provisions of this Agreement shall survive the termination or expiration of this Agreement.

24. **Assignment.** BUYER shall not assign, transfer or otherwise encumber this Agreement or any part thereof without Nanovea's prior written consent.

25. **Severability.** If any provision of this Agreement is held by a court of competent jurisdiction to be void, invalid or unenforceable, the remaining provisions shall remain in full force and effect.

26. **General.** BUYER and Nanovea confirm that it is their wish that this Agreement, as well as any other documents or proceedings relating to or conducted under this Agreement or relating to this Agreement, including notices, have been and shall be drawn up and interpreted in the English language only. The Terms and Conditions may not be modified or cancelled without Nanovea's written agreement. Accordingly, Products furnished by Nanovea are sold only on the terms and conditions stated herein. The sale of Products hereunder will be governed by the Terms and Conditions, notwithstanding contrary or additional terms and conditions in any order purchase order, planning schedule, acknowledgment, confirmation or any other form or document issued by either party affecting the purchase and/or sale of Products. Any conflicting statements or terms listed on the BUYER purchase orders, invoices, confirmations or other BUYER generated documents ("BUYER Documents"), whether heretofore or hereafter submitted, and all different or additional terms and conditions contained in any BUYER Documents are hereby objected to by Nanovea. Nanovea's performance of any contract is expressly made conditional on BUYER's agreement to Nanovea's Terms and Conditions of Sale, unless otherwise specifically agreed upon in writing by Nanovea. In the absence of such agreement, commencement of performance and/or delivery shall be for BUYER's convenience only and shall not be deemed or construed to be acceptance of BUYER's terms and conditions or any of them. Acceptance by BUYER of any goods or services shall be deemed acceptance by BUYER of the terms and conditions stated herein. No rights, duties, agreements or obligations hereunder, may be assigned or transferred by operation of law, merger or otherwise, without the prior written consent of Nanovea. The obligations, rights, terms and conditions hereof will be binding on the parties hereto and their respective successors and assigns. The waiver or breach of any term, condition or covenant hereof, or default under any provision hereof, will not be deemed to constitute a waiver of any other term, condition, or covenant contained herein, or of any subsequent breach or default of any kind or nature. Any provision hereof which is prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such prohibition or unenforceability without invalidating the remaining provisions hereof in that jurisdiction, or affecting the validity or enforceability of such provision in any other jurisdiction.

Any changes or deviations to the above Terms & Conditions of Sale must be mutually agreed to by both Parties in written form

CALIFORNIA ACKNOWLEDGMENT

CIVIL CODE § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

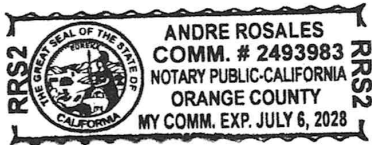
State of California

County of Orange }

On 19th Sept. 2024 before me, Andre Rosales Notary Public
Date Here Insert Name and Title of the Officer

personally appeared Pierre Leroux
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.



Place Notary Seal and/or Stamp Above

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature [Signature]
Signature of Notary Public

OPTIONAL

Completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____

☐ Corporate Officer – Title(s): _____

☐ Partner – ☐ Limited ☐ General

☐ Individual ☐ Attorney in Fact

☐ Trustee ☐ Guardian or Conservator

☐ Other: _____

Signer is Representing: _____

Signer's Name: _____

☐ Corporate Officer – Title(s): _____

☐ Partner – ☐ Limited ☐ General

☐ Individual ☐ Attorney in Fact

☐ Trustee ☐ Guardian or Conservator

☐ Other: _____

Signer is Representing: _____

NANOVEA

Date: 09/19/2024
Expiration Date: 12/31/2025

To Whom It May Concern,

We, NANOVEA Inc., certify that **Altmann SA Importacao e Comercio**, a corporation formed under the laws of Brasil, with its principle office located at Av. Dr. Chucri Zaidan, 1550 – 17º andar- CJ 1701- Vila Cordeiro, São Paulo - SP, 04711-130, Brasil, is our exclusive representative to promote and offer the products manufactured and distributed by us for the purpose of representing us in bidding, including all arrangements and registrations from public agencies and private companies giving Altmann SA Importacao e Comercio full powers to intervene the bidding stage, sign bids, proposals and contracts, including deliberate appeal and/or waiver of resources, and for the purpose of negotiating and concluding contracts or tenders for our signature, in the following territories:

Republica Federativa do Brasil

Said representation to include the negotiation of any possible demands under our warranty. Altmann SA Importacao e Comercio will be responsible for technical assistance during warranty period and thereafter.

Best Regards,


Pierre Veroux CEO

See attached CA Acknowledgement

AR 09/19/24



Letter of Exclusivity

Date: April 25th, 2023

To: Universidade de Sao Paulo

From: Nanovea, Inc.

Maintenance Proposal, PB1000 – S/N P-13-0153

This Letter of Exclusivity hereby confirms that Nanovea, Inc. will be the exclusive entity performing the servicing and maintenance on PB1000 S/N P-13-0153. No information related to the aforementioned unit will be shared to any party outside of Nanovea, Inc.

Customer also agrees that no other entity will be contracted to service or perform maintenance on PB1000 – S/N P-13-0153.

Nanovea, Inc.

Name: Wesley Nelson

Title: Operations Director

Date: April 25th, 2023

Signature: 

Universidade de Sao Paulo

Name:

Title:

Date:

Signature:



Memória de Cálculo

Despesas	Estimativa	
	USD	BRL
Serviços de Manutenção (proforma 25-5762-2)	14.385,00	77.822,85
Peças e suprimentos (proforma 25-5762-1)	2.754,50	14.901,85
Exportação temporária (SecFigueiredo) - já realizada	2.315,74	0,00
Reimportação (SecFigueiredo)	2.511,14	25.874,20
Despesas bancárias	0,00	500,00
Total	-	119.098,89

Notas:

1) 1,00 USD = 5,41 BRL

2) Exportação temporária realizada em 17/10/2023 - Proc. 23.1.850.18.1 - valor total R\$ 23.860,84.

3) Estimativa de reimportação proporcional as despesas de exportação temporária (índice 10,304).

SecFigueiredo Logística Aduaneira

Ref. Importador (NANOVEA, INC) - valor USD 149.677,00

Exportação Temporária	USD
Frete Aéreo	1.180,40
Despacho	365,00
Land Freight	496,64
Handling	80,00
Terminal Charges	125,00
Warehouse Fee	68,70
Total	2.315,74

Reimportação	USD
Frete Aéreo	1.225,80
Customs Clearance	365,00
Land Freight	496,64
Handling	80,00
Terminal Charges	125,00
Warehouse Fee	68,70
Collect Fee	60,00
Delivery Fee	30,00
Desconsolidação	60,00
Total	2.511,14



São Paulo, 14 de abril de 2023.

À
ESCOLA DE ENGENHARIA DE SÃO CARLOS DA
USP - DEP. DE IMPORTAÇÃO

A/C - SR. RICARDO JOSÉ SANT'ANA

ASSUNTO: ESTIMATIVA DE CUSTO PARA EXPORTAÇÃO
TEMPORÁRIA E REIMPORTAÇÃO

REF. Importador (NANOVEA, INC) - valor USD 149.677,00

Segue abaixo estimativa de custos para essa Exportação Temporária para
Conserto:

1. EXPORTAÇÃO

Origem: GRU
Destino: LAX
Peso bruto e cubado: 227,00 kg
Incoterm: DDP

Transit time: 6

dias

Frete aéreo: USD 5,20 per kg/m³ (usd 1.180,40)

Valores no exterior:

Despacho: USD 365,00
Iland freight: USD 496,64
Handling: USD 80,00
Terminal charges: USD 125,00
Warehouse fee: USD 68,70



2. REIMPORTAÇÃO

Origem: LAX
Destino: GRU
Peso bruto e cubado: 227,00 kg
Incoterm: EXW

Transit time: 6
dias

Frete aéreo: USD 5,40 per kg/m3 (usd 1.225,80)

Customs clearance: USD 365,00
Inland freight: USD 496,64
Handling: USD 80,00
Terminal charges: USD 125,00
Warehouse fee: USD 68,70

Valores no exterior:

COLLECT FEE: USD 60,00
DELIVERY FEE: USD 30,00
DESCONSOLIDAÇÃO: USD 60,00

Valor total em reais: R\$ 30.000,00 (IDA e VOLTA)

Atenciosamente,



Eduardo A.A. Figueiredo (Guto)

www.secfigueiredo.com.br

(11) 5083.1929 R.214

R. Estela, 515 - BlocoH - 3ºAndar-Cj31
CEP: 04011-002 - Paraíso - São Paulo/SP

NANOVEA

Irvine, CA 92618
6 Morgan

Invoice

Date	Invoice #
9/30/2025	25-5762-1

Bill To
Universidade De Sao Paulo EscolaDeEngenhariaDeSaoCarlos DepartamentodeEngenhariadeMateriais Aveni Sao Carlos, SP 13563-120 BRAZIL

Cust P.O. No.	Terms	Rep
Q57-250305-1	100% w/order	ADM

Description	Quantity	Rate	Amount
M9-NDOVES - Nano Dovetail stage	1	391.00	391.00T
M2-200N - 200N Load Cell Assembly	1	1,830.00	1,830.00T
P3-00469-A-00 - Optical Feedthrough	1	405.00	405.00T
SUPPLIES - SUPPLIES - (Customer Part # Assortment of stainless screws)	1	128.50	128.50T
Banking Information: U.S. Bank N.A. 800 Nicollet Mall Minneapolis, MN 55402 Acct# 158220042093 ABA# 122235821 Acct Name: Nanovea Inc. Swift: USBKUS44IMT ***ALL WIRE TRANSFER FEES ARE THE RESPONSIBILITY OF THE CUSTOMERS***			
Out-of-state sale, exempt from sales tax		0.00%	0.00

Balance Due	USD 2,754.50
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Phone #	E-mail
(949) 461-9292 x510	accounting@nanovea.com

NANOVEA

Irvine, CA 92618
6 Morgan

Invoice

Date	Invoice #
9/30/2025	25-5762-2

Bill To
Universidade De Sao Paulo EscolaDeEngenhariaDeSaoCarlos DepartamentodeEngenhariadeMateriais Aveni Sao Carlos, SP 13563-120 BRAZIL

Cust P.O. No.	Terms	Rep
Q57-250305-1	100% w/order	ADM

Description	Quantity	Rate	Amount
M1-RMA-REP - After Sales Diagnostic And/Or Repair - Mechanical Tester	1	14,385.00	14,385.00T
Banking Information: U.S. Bank N.A. 800 Nicollet Mall Minneapolis, MN 55402 Acct# 158220042093 ABA# 122235821 Acct Name: Nanovea Inc. Swift: USBKUS44IMT ***ALL WIRE TRANSFER FEES ARE THE RESPONSIBILITY OF THE CUSTOMERS***			
Out-of-state sale, exempt from sales tax		0.00%	0.00

Balance Due	USD 14,385.00
-------------	---------------

Phone #	E-mail
(949) 461-9292 x510	accounting@nanovea.com



USPAssina - Autenticação digital de documentos da USP

Registro de assinatura(s) eletrônica(s)

Este documento foi assinado de forma eletrônica pelos seguintes participantes e sua autenticidade pode ser verificada através do código ZMIP-Y5Z3-483V-74ZL no seguinte link: <https://portalservicos.usp.br/iddigital/ZMIP-Y5Z3-483V-74ZL>

Haroldo Cavalcanti Pinto

Nº USP: 6931500

Data: 05/02/2026 15:36

Com base nos aspectos abordados para elaboração do Estudo Técnico Preliminar e Termo de Referência e para atendimento do Inciso X artigo 18 da Lei 14.133/2021, que dispõe sobre a análise dos riscos que possam comprometer o sucesso da licitação e a boa execução contratual, descrever os riscos avaliados:

Risco: Atraso na entrega/execução

Probabilidade de ocorrência: 3 - alta

Impacto estimado: 3 - alto

Possibilidade de mitigação: 1 - potencial

Índice do risco: 3 - alto

Risco: Outro - Alteração cambial

Probabilidade de ocorrência: 3 - alta

Impacto estimado: 3 - alto

Possibilidade de mitigação: 3 - média

Índice do risco: 3 - alto

Risco: Outro-2 - Logística aduaneira

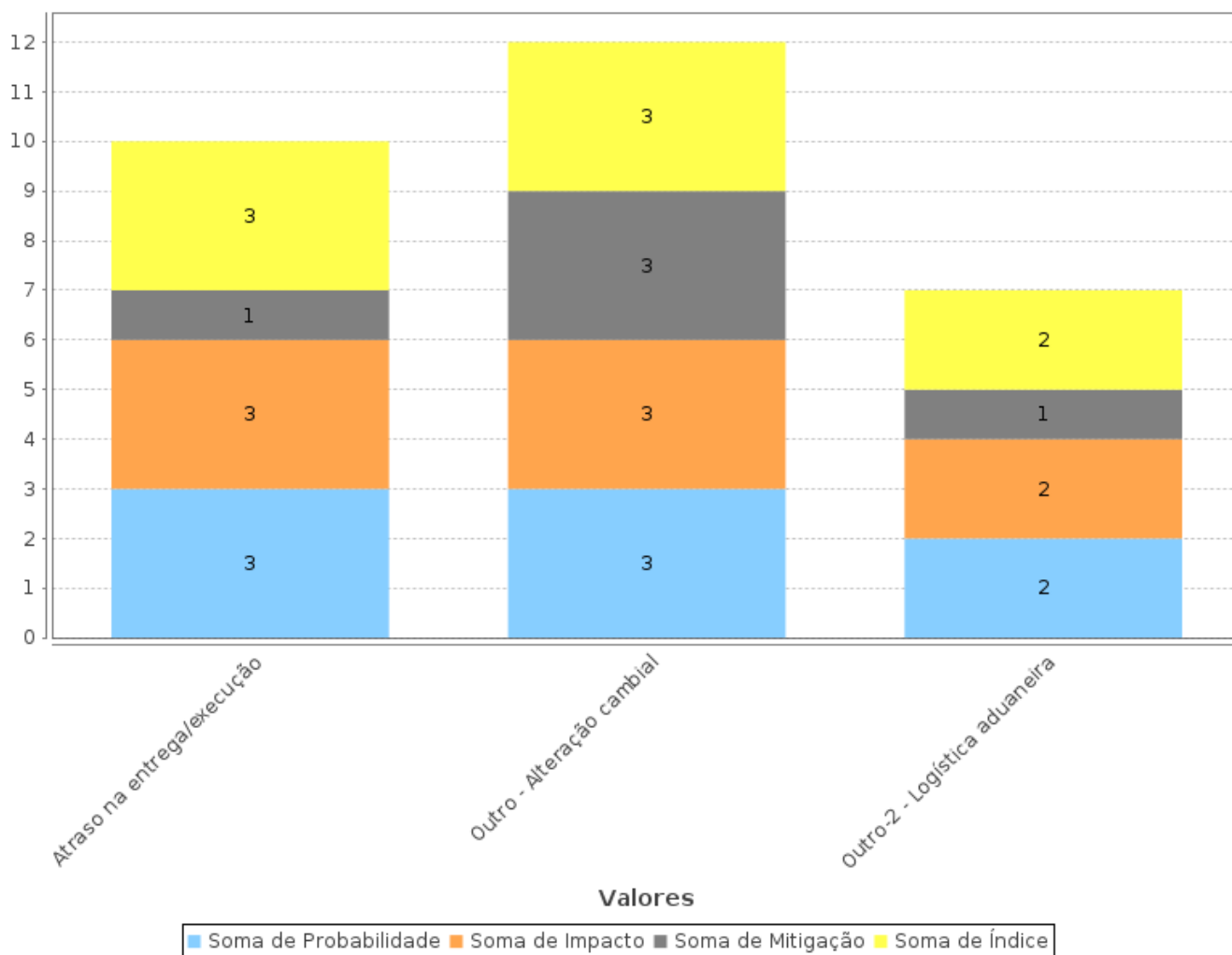
Probabilidade de ocorrência: 2 - moderada

Impacto estimado: 2 - moderado

Possibilidade de mitigação: 1 - potencial

Índice do risco: 2 - médio

ANEXO GRÁFICO DE ANÁLISE DE RISCO PRELIMINAR





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Haroldo Cavalcanti Pinto

Nº USP: 6931500

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UNIVERSIDADE DE SÃO PAULO

TERMO DE REFERÊNCIA PRELIMINAR

DEMANDA DE COMPRA Nº 321019/2025

Contemplar os requisitos do inciso XXIII, art. 6º, Lei nº 14.133/2021.

Observação -

Anexo: Vide anexo para "Termo de Referência Preliminar".



TERMO DE REFERÊNCIA PRELIMINAR
Demanda nº 321019/2025

A) OBJETO

Contratação de pessoa jurídica, por meio de seu representante exclusivo no Brasil (**Altmann S/A**), para prestação de serviço técnico especializado de **manutenção corretiva e calibração de fábrica**, com fornecimento de peças proprietárias, para o equipamento **Nanodurômetro/Tribômetro NANOVEA (Nano/Macro Mechanical Hardness Scratch and Wear Testers)**, modelo **PB1000**, patrimônio USP 018.058611.

B) FUNDAMENTAÇÃO DA CONTRATAÇÃO

Necessidade: recuperação da plena funcionalidade do Nanodurômetro NANOVEA PB1000, equipamento crítico da Central Multiusuário CEPAME - Centro de Pesquisa e Análise de Materiais de Engenharia do Departamento de Engenharia de Materiais da Escola de Engenharia de São Carlos – USP. Está inoperante devido a falhas no Módulo Nano e Célula de Carga.

Fundamentação Legal: Inexigibilidade de Licitação (Art. 74, I): Caráter singular do serviço (calibração de fábrica) e notória especialização do fabricante (NANOVEA Inc.), sendo a Altmann S/A a representante exclusiva (Carta de Exclusividade).

C) DESCRIÇÃO DA SOLUÇÃO COMO UM TODO

A solução abrange o reparo completo e a recalibração do nanodurômetro PB1000 NANOVEA em instalações especializadas do fabricante, nos Estados Unidos, com posterior devolução, reinstalação e testes de funcionalidade. Inclui todos os componentes a serem substituídos, atualização de software, ajuste dos módulos Nano e Micro e validação de performance conforme padrões de fábrica. A assistência técnica será prestada pela Altmann S.A., representante exclusivo no Brasil, que acompanhará o processo logístico, garantindo conformidade com os padrões da NANOVEA Inc. Os custos de logística (frete, seguro, despacho aduaneiro e embalagem da exportação/reimportação) são de responsabilidade da contratante.

D) REQUISITOS DA CONTRATAÇÃO

Requisitos técnicos essenciais da contratação:

1. O serviço deve ser executado pelo Fabricante Original (NANOVEA Inc.) ou por seu representante técnico exclusivo, devido à natureza singular do equipamento.
2. O escopo deve abranger todas as peças e os serviços cotados:
 - 2.1. Serviços:
 - Diagnóstico e Reparo Pós-Venda (P/N M1-RMA-REP - After Sales Diagnostic

And/Or Repair - Mechanical Tester):

- Substituição de componentes quebrados e parafusos enferrujados (Replaced broken components and rusted screws);
- Reajuste do Nano SGA (Retuned Nano SGA);
- Reajuste do MICRO SGA (Retuned MICRO SGA);
- Recalibração dos módulos Micro e Nano (Recalibrated both Micro and Nano Module);
- Reparo do conector de fibra óptica quebrado (Repaired broken fiber optic connector);
- Calibração do endopen reparado para CCS (Calibrated repaired endopen to CCS).

2.2. Peças:

- Base de estágio Nano (P/N M9-NDOVES - Nano Dovetail stage);
- Célula de Carga 200N (P/N M2-200N - 200N Load Cell Assembly);
- Cabo Óptico (P/N P3-00469-A-00 - Optical Feedthrough for CCS controller - CCS Pen Slot);
- Conjunto de Parafusos de Inox (SUPPLIES - Customer Part # Assortment of stainless screws);

3. Garantia mínima de 12 (doze) meses sobre o serviço e peças substituídas, contados a partir do recebimento definitivo.

E) EXECUÇÃO DO OBJETO

Início da Execução: Condicionado ao envio do equipamento à sede da **NANOVEA Inc., Irvine, CA, EUA**, por conta da contratante.

Prazo de Execução: Estimado em **até 1 (um) ano** para o reparo na fábrica, após o recebimento do equipamento na NANOVEA.

Vigência Contratual: 12 (doze) meses, prorrogável se a execução do objeto ultrapassar este prazo.

F) GESTÃO DO CONTRATO

Fiscal do Contrato-Nome: a ser indicado pela Administração;

Recebimento Provisório: **5 (cinco) dias** após a entrega do equipamento na USP e conferência da integridade física e do Relatório de Reparo.

Recebimento Definitivo: **30 (trinta) dias** após a conclusão e **aprovação formal** na EESC/USP, atestando a plena funcionalidade e calibração.

G) CRITÉRIOS DE MEDIÇÃO E DE PAGAMENTO

Medição: O serviço será medido em lote único e indivisível, sendo considerado concluído apenas após o **recebimento definitivo**.

Pagamento: 100% Antecipado (w/order), exigido pela fornecedora internacional.

Valor: O valor total é de **USD 17.139,50** (peças e serviço) acrescido dos custos de logística por conta da contratante.

H) FORMA E CRITÉRIOS DE SELEÇÃO DO FORNECEDOR

O fornecedor foi selecionado por **Inexigibilidade de Licitação**, com base no **Art. 74, I, da Lei nº 14.133/2021**, dada a inviabilidade de competição atestada pela singularidade do objeto e a notória especialização do fabricante (NANOVEA Inc.) e seu representante exclusivo (Altmann SA).

I) ESTIMATIVAS DO VALOR UNITÁRIOS REFERENCIAIS

1) Estimativa dos valores dos serviços e peças:

Item	USD	BRL
Serviços de Manutenção (Proforma 25-5762-2)	14.385,00	77.822,85
Peças e suprimentos (Proforma 25-5762-1)	2.754,50	14.901,85
Total	17.139,50	92.724,70

2) Estimativa dos valores da logística completa:

Item	USD	BRL
Exportação temporária (realizada)	2.315,74	0,00
Reimportação	2.511,14	25.874,20
Despesas bancárias	0,00	500,00
Total	-	26.374,20

Notas:

- 1,00 USD = 5,41 BRL;
- Exportação temporária realizada em 17/10/2023 - Proc. 23.1.850.18.1 - valor total R\$ 23.860,84.
- Estimativa de reimportação proporcional às despesas de exportação temporária.

J) ADEQUAÇÃO ORÇAMENTÁRIA

O recurso é proveniente da dotação orçamentária vinculada ao projeto **Manutenção USPMULTI** / Edital de Apoio a Propostas Estratégicas para Infraestrutura de Pesquisa, centro financiador: 49000/49062. A contratação está formalmente prevista no Plano de Contratações Anual (PCA) de 2025 através da DFD 955/2024, na Contratação nº 140/2025.

K) OBSERVAÇÕES

Este Termo de Referência Preliminar poderá ser ajustado ou complementado durante a fase de planejamento da contratação.



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