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PURCHASE CONTRACT

This purchase contract ("**Contract**") was concluded pursuant to section 2079 *et seq.* of the act no. 89/2012 Coll., Civil Code ("**Civil Code**"), on the day, month and year stated below by and between:

- (1) **Institute of Physics of the Academy of Sciences of the Czech Republic, a public research institution,**

with its registered office at: Na Slovance 2, Praha 8, PSČ: 182 21,

registration no.: 683 78 271,

represented by: RNDr. Michael Prouza, Ph.D. – director

("Buyer"); and

- (2) **OptiXs, s.r.o.,**

with its registered office at: Křivoklátská 37/3, Letňany, 199 00 Praha 9

registration no.: 020 16 770,

represented by: Ing. Aleš Jandík, jednatel,

enrolled in the Commercial Register at the Municipal Court in Prague, section C, enclosure 212818

("Seller").

(The Buyer and the Seller are hereinafter jointly referred to as "**Parties**" and individually as "**Party**".)

WHEREAS

- (A) The Buyer is a public contracting authority and the beneficiary of a grant of the Ministry of Education, Youth and Sports of the Czech Republic for a project "Advanced designing of functional materials: From mono – to BI –And TRI- chromatic excitation with tailored laser pulses", reg. No. CZ.02.1.01/0.0/0.0/15_003/0000445 ("**Project**"), within the Operational Programme Research, Development and Education.
- (B) For the successful realization of the Project it is necessary to purchase the Object of Purchase (as defined below) in accordance with the Rules for the Selection of Suppliers within the Operational Programme Research, Development and Education.
- (C) The Seller wishes to provide the Object of Purchase to the Buyer for consideration.



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- (D) The Seller's bid for the public procurement entitled "Optical Tables with self-leveling pneumatic vibration isolators and non-contacting-electro pneumatic height control system", whose purpose was to procure the Object of Purchase ("**Public Procurement**"), was selected by the Buyer as the most suitable.

IT WAS AGREED AS FOLLOWS:

1. BASIC PROVISIONS

- 1.1 Under this Contract the Seller shall deliver to the Buyer products that are described in Annex 1 (Technical Specification) and Annex 2 (Seller's Technical Specification) to this Contract in the required quality, number (amount), and with the properties and related performance described therein ("**Object of Purchase**") and shall transfer to the Buyer ownership right to the Object of Purchase, and the Buyer shall take over the Object of Purchase and shall pay the Seller the Purchase Price (as defined below), all under the terms and conditions stipulated in this Contract.
- 1.2 Under this Contract the Seller shall also carry out the following activities ("**Related Activities**"):
- a) transport the Object of Purchase to the place of delivery;
 - b) installation of the Object of Purchase, and
 - c) cooperation with the Buyer during the performance of this Contract.

2. THE PLACE OF DELIVERY

The place of delivery is at the address: Fyzikální ústav AV ČR v.v.i - HILASE Centrum, Za Radnicí 828, 252 41 Dolní Břežany, Czech Republic or any other address in Dolní Břežany, Czech Republic, which the Buyer communicated to the Seller prior to the delivery of the Object of Purchase.

3. THE TIME OF DELIVERY

- 3.1 The Seller shall deliver the Object of Purchase and shall carry out Related Activities within 14 weeks from the effectiveness of this Contract.

4. THE OWNERSHIP RIGHT

The ownership right to the Object of Purchase shall be transferred to the Buyer upon the signature of the handover protocol (delivery note).



5. PRICE AND PAYMENT TERMS

- 5.1 The purchase price for the Object of Purchase is **70.600 EUR** (“**Purchase Price**”) without value added tax (“**VAT**”). VAT will be paid in accordance with the applicable legal regulations.
- 5.2 The Purchase Price cannot be exceeded and includes all costs and expenses of the Seller related to the performance of this Contract. The Purchase Price includes, among others, all expenses related to the handover of the Object of Purchase and execution of Related Activities, costs of copyright, insurance, customs, warranty service and any other costs and expenses connected with the performance of this Contract.
- 5.3 The Purchase Price for the Object of Purchase shall be paid on the basis of a tax document – invoice, to the account of the Seller designated in the invoice. **The Purchase Price shall be paid after the signature of the handover protocol (delivery note).**
- 5.4 The Buyer shall realize payments on the basis of duly issued invoices within 30 days from their receipt.
- 5.5 The invoice issued by the Seller as a tax document must contain all information required by the applicable laws of the Czech Republic. Invoices issued by the Seller in accordance with this Contract shall contain in particular following information:
- a) Name and registered office of the Buyer,
 - b) Tax identification number of the Buyer,
 - c) Name and registered office of the Seller,
 - d) Tax identification number of the Seller,
 - e) Registration number of the tax document,
 - f) Scope of the performance (including the reference to this Contract),
 - g) Date of the issue of the tax document,
 - h) Date of the fulfilment of the Contract,
 - i) Purchase Price,
 - j) Registration number of this Contract, which the Buyer shall communicate to the Seller based on Seller’s request before the issuance of the invoice,
 - k) Declaration that the performance of the Contract is for the purposes of a project „Advanced designing of functional materials: From mono – to BI –And TRI-chromatic excitation with tailored laser pulses”, reg. No. CZ.02.1.01/0.0/0.0/15_003/0000445.



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5.6 In case that the invoice shall not contain the above mentioned information, the Buyer is entitled to return it to the Seller during its maturity period and this shall not be considered as a default. The new maturity period shall begin from the receipt of the supplemented or corrected invoice to the Buyer.

6. **SELLER'S RIGHTS AND DUTIES**

6.1 The Seller shall ensure that the Object of Purchase and Related Activities are in compliance with this Contract including all its annexes and applicable legal (e.g. safety), technical and quality norms.

6.2 During the performance of this Contract the Seller proceeds independently. If the Seller receives instructions from the Buyer, the Seller shall follow such instructions unless these are against the law or in contradiction to this Contract. If the Seller finds out or should have found out if professional care was exercised that the instructions are for any reason inappropriate or illegal or in contradiction to this Contract, then the Seller must notify the Buyer.

6.3 All things necessary for the performance of this Contract shall procure the Seller, unless this Contract stipulates otherwise.

7. **HANDOVER OF THE OBJECT OF PURCHASE**

7.1 Handover and takeover of the Object of Purchase shall be realized on the basis of a handover protocol (delivery note).

7.2 If the Seller fails to duly carry out all Related Activities or if the Object of Purchase does not meet requirements of this Contract, the Buyer is entitled to refuse the takeover of the Object of Purchase. In such a case the Seller shall remedy the deficiencies within twenty (10) working days, unless Parties agree otherwise. The Buyer is entitled (but not obliged) take over the Object of Purchase despite the above mentioned deficiencies, in particular if such deficiencies do not prevent the Buyer in the proper operation of the Object of Purchase. In such a case the Seller and the Buyer shall list the deficiencies in the handover protocol, including the manner and the date of their removal (remedy). If the Parties do not reach agreement in the handover protocol regarding the date of the removal, the Seller shall remove the deficiencies within twenty (10) working days.

8. **WARRANTY**

8.1 The Seller hereby provides a warranty of quality of the Object of Purchase for the period of 24 months. If on the warranty list or other document is the warranty period of longer duration, then this longer warranty period shall have priority over the period stated in this Contract.



- 8.2 The warranty period shall begin on the day of the signature of the handover protocol by both Parties.
- 8.3 The Seller shall remove defects that occur during the warranty period free of charge.
- 8.4 If the Buyer ascertains a defect of the Object of Purchase during the warranty period, the Buyer shall notify such defect without undue delay to the Seller. Defects may be notified on the last day of warranty period, at the latest.
- 8.5 The Buyer notifies defects in writing via e-mail. The Seller shall accept notifications of defects on the following e-mail address: servis@optixc.cz.
- 8.6 In the notification the Buyer shall describe the defect and the manner of removal of the defect. The Parties shall agree on the manner of defects removal. If the Parties do not reach the agreement, the Buyer has the right to:
- a) request removal of the defect by the delivery of new Object of Purchase or its individual parts, or
 - b) request removal of the defect by repair, or
 - c) request adequate discount from the Purchase Price.
- The choice among the above mentioned rights belongs to the Buyer. However, in case of a removable defect that occurs for the first time the Buyer shall not request removal of the defect by delivery of new Object of Purchase or its individual parts.
- 8.7 The Seller shall remove the defect within 20 working days. In cases where it is not possible for objective reasons proven to the Buyer by the Seller the Parties shall agree on another sufficient deadline.
- 8.8 Parties shall execute a protocol on the removal of the defect, which shall contain the description of the defect and the confirmation that the defect was removed. The warranty period shall be extended by a period of time that elapses between the notification of the defect until its removal in cases where the Buyer was prevented from using the Object of Purchase for its intended purpose.
- 8.9 In case that the Seller does not remove the defect within stipulated time or if the Seller refuses to remove the defect, then the Buyer is entitled to remove the defect at his own costs and the Seller shall reimburse these costs within 20 calendar days after the Buyer's request to do so.
- 8.10 The warranty does not cover defects caused by unprofessional manipulation or by the failure to follow Seller's instructions for the operation and maintenance of the Object of Purchase.



9. **RIGHT OF WITHDRAWAL, CONTRACTUAL PENALTIES**

9.1 The Buyer is entitled to withdraw from this Contract, if any of the following circumstances occur:

- a) the Seller is in delay with the fulfilment of this Contract and such delay lasts more than 4 weeks; or
- b) the insolvency proceeding is initiated against the Seller.

9.2 In the event the Seller is in delay with term of delivery as stipulated in Art. 3 para 3.1 herein, the Seller shall pay to the Buyer the contractual penalty in the amount of 0.1% of the Purchase Price for each, even commenced day of delay.

9.3 The Parties have agreed that the maximal amount of contractual penalties shall be limited to 5% of the Purchase Price.

10. **SPECIAL PROVISIONS**

By signing this Contract, the Seller becomes a person that must cooperate during the finance control within the meaning of Section 2 letter e) of the act no. 320/2001 Coll., on finance control in the public administration, and shall provide to the Directing Body of the Operational Programme Research, Development and Education or other control bodies access to all parts of the bid, Contract or other documents that are related to the legal relationship formed by this Contract. This duty also covers documents that are subject to the protection in accordance with other acts (business secrets, secret information, etc.) provided that control bodies fulfil requirements stipulated by these acts. The Seller shall secure that all its subcontractors are also obliged to cooperate with control bodies in the above stipulated extent. The possibility of effective control must be preserved until the year 2027.

11. **FINAL PROVISIONS**

11.1 This Contract is governed by the laws of the Czech Republic, especially by the Civil Code.

11.2 All disputes arising out of this Contract or out of legal relations connected with this Contract shall be preferably settled by a mutual negotiation. In case that the dispute is not settled within sixty (60) days, such dispute shall be decided by courts of the Czech Republic in the procedure initiated by one of the Parties.

11.3 All modifications and supplements of this Contract must be in writing.

11.4 If any of provisions of this Contract are invalid or ineffective, the Parties are bound to change this Contract in such a way that the invalid or ineffective provision is replaced by



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a new provision that is valid and effective and to the maximum possible extent correspond to the original invalid or ineffective provision.

- 11.5 This Contract is executed in four (4) counterparts and every Party shall receive two (2) counterparts.
- 11.6 An integral parts of this Contract are Annex 1 (*Technical Specification - RSD*) and Annex 2 (*Seller's Technical Specification*). If Annex 1 (*Technical Specification*) uses the term "Contracting Authority" or "contracting authority" it means Buyer. If Annex 1 (*Technical Specification*) uses the term "Supplier" or "supplier" it means Seller.
- 11.7 This Contract shall be valid and effective on the date of the signature of both Parties.

IN WITNESS WHEREOF attach Parties their handwritten signatures:

Buyer

Signature: _____

Name: RNDr. Michael Prouza, Ph.D.

Position: director

Date:

Seller

Signature: _____

Name: Ing. Aleš Jandík

Position: jednatel společnosti

Date:



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ANNEX 1

TECHNICAL SPECIFICATION - RSD

(NOTE: Annex No 3 to the Invitation to bid for the Public Procurement shall be attached hereto by the Contracting Authority before signature hereof by the Contracting authority after the Public Procurement procedure is finished)

Optical Tables with self-leveling pneumatic vibration isolators and non-contacting-electro pneumatic height control system.

Parameter name	Desired value
Properties of optical table type 1	
Quantity	2
Maximum weight of each table	648 kg max
Bench	spill free optical bench with closed shell Honeycomb core with internal cell size not exceeding 5 cm ²
Hole pattern	M6 tapped on 1 inch (25 mm) grid
Other property for the worktop	Alphanumeric grid labels on worktop
Dimensions	2400x1500x300mm
Material and thickness of upper and lower plate of the bench	Ferromagnetic stainless steel with minimum sheet thickness of 5 mm.
Tabletop sidewalls	Steel sidewalls (damping quality)
Flatness	+/- 0.13 mm over entire length of table=2400 mm
Vibration damping	Yes (Broad band vibrational damping)
First resonance frequency	250 Hz
Maximum Static deflection	$\leq 1.1 \times 10^{-6}$ mm/N
Air vibration isolators	Yes (Self-leveling pneumatic isolator frames for legs
Isolation efficiency @ 5 Hz	Vertical 80-90% Horizontal 80-90%
Isolation efficiency @ 10 Hz	Vertical 90-99% Horizontal 90-99%
Finish for isolator frame	Black powder coat
Isolator frame load capacity	Total 3000 kg (500 kg per isolator)
No of legs	6 for each table
Legs height	600 mm
Roller casters	NO
Height control system	Yes (see description below *)

Properties of optical table type 2

Quantity	1
Maximum weight	346 kg max
Bench	spill free optical bench with closed shell Honeycomb core
Hole pattern	M6 tapped on 1 inch (25 mm) grid
Other property for the worktop	Alphanumeric grid labels on worktop
Dimensions	1800x1200x200mm
Material and thickness of upper and lower plate of the bench	Ferromagnetic stainless steel with minimum sheet thickness of 5 mm.
Tabletop sidewalls	Steel sidewalls (damping quality)
Flatness	+/- 0.13 mm over entire length of table=1800 mm
Vibration damping	Yes (Broad band vibrational damping)
First resonance frequency	250 Hz
Maximum Static deflection	$\leq 1.76 \times 10^{-6}$ mm/N
Finish for isolator frame	Black powder coat
Air vibration isolators	Yes (Self-leveling pneumatic isolator frames for legs
Isolation frequency @ 5 Hz	Vertical 80-90% Horizontal 80-90%
Isolation frequency @ 10 Hz	Vertical 90-99% Horizontal 90-99%
Finish for isolator frame	Black powder coat
Isolator frame load capacity	Total 2000 kg (500 kg per isolator)
No of legs	4
Legs height	700 mm
Roller casters	NO
Height control system	Yes (see description below*)

*Height control system for pneumatic vibration isolation (For above mentioned table)	
Type	Non-contacting electro-pneumatic servo
Quantity	3
Communication port	USB
Proximity sensor	3 x vertical non-contact inductive sensors
Control and front interface	Digital control with user friendly LCD interface, BNC diagnostic sockets, menu control buttons in a compact table top electronic controller box form.
Rear interface	Air input and output (Exhaust) snap-in ports for ¼ inch O.D. tubing. 4-air snap-in ports for 1/4" O.D. tubing (one per isolator).
Pneumatic specs	-Long term height stability +/- 50 µm. - Long term tilt stability +/- 50 µm. -Active Z-axis position repeatability ≤ 10 µm. -Fail safe: Isolators deflate upon power failure. -Pneumatic fittings: Quick couplings for ¼ inch O.D. hoses. -Operable for clear, dry and filtered air)
Power input requirement	220-240 V AC/50 Hz

Table type 3

Quantity	1
Maximum weight table	250 kg
Bench	spill free optical bench with closed shell Honeycomb core with internal cell size not exceeding 5 cm ²
Hole pattern	honeycomb breadboard with M6 hole pattern
Other property for the worktop	Alphanumeric grid labels on worktop
Dimensions	1200x750x100mm
Material and thickness of upper and lower plate of the bench	Ferromagnetic stainless steel with minimum sheet thickness of 5 mm.
Flatness	+/- 0.13 mm over entire length of table=1200 mm
Vibration damping	Yes (Broad band vibrational damping)
First resonance frequency	230 Hz
Maximum Static deflection	$\leq 1.76 \times 10^{-6}$ mm/N
Air vibration isolators	Yes (Self-leveling pneumatic isolator frames for legs
Isolation frequency @ 5 Hz	Vertical 80-90% Horizontal 80-90%
Isolation frequency @ 10 Hz	Vertical 90-99% Horizontal 90-99%
Finish for isolator frame	Black powder coat
First resonance frequency	250 Hz
Isolator frame load capacity	600 kg (150 kg per isolator)
Finish for isolator frame	Black powder coat
No of legs	4
Legs height	735 +/- 29 mm
Leveling feet	YES, leveling feet for every isolator to compensate uneven floor
Roller casters	Yes (quantity = 4), retractable
Load capacity	Atleast 160 kg
Height control system	Selfleveling pneumatic system, 6 bar air pressured
Accessories	Perimeter enclosure, armrests and a sliding shelf of width 250 mm.

Double optical table type 4 with a joiner section	
Quantity	1 + 1
Bench	spill free optical bench with closed shell Honeycomb core
Hole pattern	M6 tapped on 1 inch (25 mm) grid
Other property for the worktop	Alphanumeric grid labels on worktop
Dimensions	2500x1500x300mm
Material and thickness of upper and lower plate of the bench	Ferromagnetic stainless steel with minimum sheet thickness of 5 mm.
Flatness	Max. +/- 0.13 mm over entire surface of joined tables
Vibration damping	Yes (Broad band vibrational damping)
First resonance frequency	>150 Hz
Maximum Static deflection	$\leq 2 \times 10^{-6}$ mm/N
Compliance level	$< 2 \times 10^{-5}$ mm/N
Air vibration isolators	Yes (Self-leveling pneumatic isolator frame)
Joiner section	Tables joined together to make a single T-shape table
No of legs	Optimized for joint tables
Height of table-top from the floor level	Value must be in a range of 900 - 1050 mm
Roller casters	NO
Height control system	Simple self-levelling system

This bid applies to the purchase of optical tables with spill-free optical bench, M6 Tapped holes on 1-inch (25 mm) grid. The top and bottom of the plate material of the table must be made of Ferromagnetic stainless steel with minimum sheet thickness of 5 mm. Table top is required to have labeled with alphanumeric grid pattern. Tables must be equipped with air vibration isolators (Self-leveling pneumatic isolator frames). In addition to that, non-contacting electro pneumatic servo system is required only for the height control of the optical **tables type 1 and 2** (please refer to the description table above).

For the **table type 3** we require, self leveling pneumatic height control system, levelling feet for each leg to compensate the uneven floor and retractable roller casters under each leg.

Table **type 4** consists of 2 optical tables joint together by a rigid joiner section to create a T-shaped optical table. The system of tables is supported by a pneumatically- damped self-levelling system (controlled by a simple valve).

The optical bench and legs dimensions and properties of all parameters including vibration damping for bench, air vibration isolators, flatness precession, non-contacting electro-pneumatic height control system are specified in tables above. **All tables must comply the above mentioned flatness, vibration damping, air vibration isolator, height control and load capacity requirements.**



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ANNEX 2

SELLER'S TECHNICAL SPECIFICATION

(NOTE: Specification (catalogue) sheets or other description of Object of Purchase provided by the Seller in its bid submitted within the Public procurement shall be attached hereto by the Contracting Authority before signature hereof by the Contracting authority after the Public Procurement procedure is finished)

Optical Tables with self-leveling pneumatic vibration isolators and non-contacting-electro pneumatic height control system

Parameter name	Desired value	Bid
Properties of optical table type 1		
Quantity	2	YES, 2
Maximum weight of each table	648 kg max	YES, 648kg
Bench	spill free optical bench with closed shell Honeycomb core with internal cell size not exceeding 5 cm ²	YES
Hole pattern	M6 tapped on 1 inch (25 mm) grid	YES
Other property for the worktop	Alphanumeric grid labels on worktop	YES
Dimensions	2400x1500x300mm	YES
Material and thickness of upper and lower plate of the bench	Ferromagnetic stainless steel with minimum sheet thickness of 5 mm.	YES, 5mm
Tabletop sidewalls	Steel sidewalls (damping quality)	YES
Flatness	+/- 0.13 mm over entire length of table=2400 mm	YES
Vibration damping	Yes (Broad band vibrational damping)	YES
First resonance frequency	250 Hz	YES
Maximum Static deflection	≤ 1.1x10 ⁻⁶ mm/N	YES
Air vibration isolators	Yes (Self-leveling pneumatic isolator frames for legs	YES
Isolation efficiency @ 5 Hz	Vertical 80-90% Horizontal 80-90%	
Isolation efficiency @ 10 Hz	Vertical 90-99% Horizontal 90-99%	
Finish for isolator frame	Black powder coat	YES
Isolator frame load capacity	Total 3000 kg (500 kg per isolator)	YES
No of legs	6 for each table	YES
Legs height	600 mm	YES
Roller casters	NO	Without casters

Height control system Yes (see description below *)

Properties of optical table type 2

Quantity	1	YES, 1
Maximum weight	346 kg max	YES, 346kg
Bench	spill free optical bench with closed shell Honeycomb core	YES
Hole pattern	M6 tapped on 1 inch (25 mm) grid	YES
Other property for the worktop	Alphanumeric grid labels on worktop	YES
Dimensions	1800x1200x200mm	YES
Material and thickness of upper and lower plate of the bench	Ferromagnetic stainless steel with minimum sheet thickness of 5 mm.	YES
Tabletop sidewalls	Steel sidewalls (damping quality)	YES
Flatness	+/- 0.13 mm over entire length of table=1800 mm	YES
Vibration damping	Yes (Broad band vibrational damping)	YES
First resonance frequency	250 Hz	
Maximum Static deflection	$\leq 1.76 \times 10^{-6}$ mm/N	YES
Finish for isolator frame	Black powder coat	YES
Air vibration isolators	Yes (Self-leveling pneumatic isolator frames for legs)	YES
Isolation frequency @ 5 Hz	Vertical 80-90% Horizontal 80-90%	
Isolation frequency @ 10 Hz	Vertical 90-99% Horizontal 90-99%	
Finish for isolator frame	Black powder coat	YES
Isolator frame load capacity	Total 2000 kg (500 kg per isolator)	YES
No of legs	4	YES
Legs height	700 mm	YES
Roller casters	NO	Without caster
Height control system	Yes (see description below*)	

***Height control system for pneumatic vibration isolation (For above mentioned table)**

Type	Non-contacting electro-pneumatic servo	YES
Quantity	3	YES, 3
Communication port	USB	YES
Proximity sensor	3 x vertical non-contact inductive sensors	YES
Control and front interface	Digital control with user friendly LCD interface, BNC diagnostic sockets, menu control buttons in a compact table top electronic controller box form.	YES
Rear interface	Air input and output (Exhaust) snap-in ports for ¼ inch O.D. tubing. 4-air snap-in ports for 1/4" O.D. tubing (one per isolator).	YES
Pneumatic specs	-Long term height stability +/- 50 µm. - Long term tilt stability +/- 50 µm. -Active Z-axis position repeatability ≤ 10 µm. -Fail safe: Isolators deflate upon power failure. -Pneumatic fittings: Quick couplings for ¼ inch O.D. hoses. -Operable for clear, dry and filtered air)	YES
Power input requirement	220-240 V AC/50 Hz	YES

Table type 3

Quantity	1	YES
Maximum weight table	250 kg	YES, 250kg
Bench	spill free optical bench with closed shell Honeycomb core with internal cell size not exceeding 5 cm ²	YES
Hole pattern	honeycomb breadboard with M6 hole pattern	YES
Other property for the worktop	Alphanumeric grid labels on worktop	YES
Dimensions	1200x750x100mm	YES
Material and thickness of upper and lower plate of the bench	Ferromagnetic stainless steel with minimum sheet thickness of 5 mm.	YES
Flatness	+/- 0.13 mm over entire length of table=1200 mm	YES
Vibration damping	Yes (Broad band vibrational damping)	YES
First resonance frequency	230 Hz	YES
Maximum Static deflection	≤ 1.76x10 ⁻⁶ mm/N	YES
Air vibration isolators	Yes (Self-leveling pneumatic isolator frames for legs	YES
Isolation frequency @ 5 Hz	Vertical 80-90% Horizontal 80-90%	
Isolation frequency @ 10 Hz	Vertical 90-99% Horizontal 90-99%	
Finish for isolator frame	Black powder coat	YES
First resonance frequency	250 Hz	YES
Isolator frame load capacity	600 kg (150 kg per isolator)	YES
Finish for isolator frame	Black powder coat	YES
No of legs	4	YES
Legs height	735 +/- 29 mm	YES
Leveling feet	YES, leveling feet for every isolator to compensate uneven floor	YES
Roller casters	Yes (quantity = 4), retractable	YES
Load capacity	Atleast 160 kg	YES
Height control system	Selfleveling pneumatic system, 6 bar air pressured	YES
Accessories	Perimeter enclosure, armrests and a sliding shelf of width 250 mm.	YES

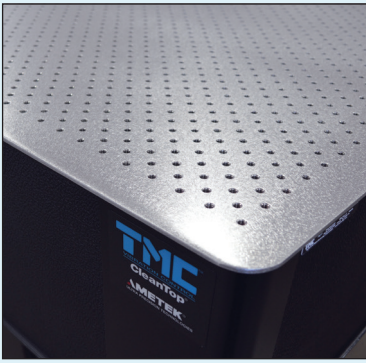
Double optical table type 4 with a joiner section

Quantity	1 + 1	YES
Bench	spill free optical bench with closed shell Honeycomb core	YES
Hole pattern	M6 tapped on 1 inch (25 mm) grid	YES
Other property for the worktop	Alphanumeric grid labels on worktop	YES
Dimensions	2500x1500x300mm	YES
Material and thickness of upper and lower plate of the bench	Ferromagnetic stainless steel with minimum sheet thickness of 5 mm.	YES
Flatness	Max. +/- 0.13 mm over entire surface of joined tables	YES
Vibration damping	Yes (Broad band vibrational damping)	YES
First resonance frequency	>150 Hz	YES
Maximum Static deflection	$\leq 2 \times 10^{-6}$ mm/N	YES
Compliance level	$< 2 \times 10^{-5}$ mm/N	YES
Air vibration isolators	Yes (Self-leveling pneumatic isolator frame)	YES
Joiner section	Tables joined together to make a single T-shape table	YES
No of legs	Optimized for joint tables	YES
Height of table-top from the floor level	Value must be in a range of 900 - 1050 mm	YES
Roller casters	NO	Without casters
Height control system	Simple self-levelling system	YES, micro-g selfleveling pneumatic system

List of components of TMC optical tables setup

Cat. Number	Description	Quantity
Optical table type 1		
783-673-12R	CleanTop optical table top 2400x1500x300mm, M6 holes pattern, standard broadband vibration damping, weight 684kg	2
14-616-33	Self leveling pneumatic Micro-g isolator frame, 6 legs, 600height	2
Optical table type 2		
783-451-12R	CleanTop optical table top 1800x1200x200mm, M6 holes pattern, standard broadband vibration damping, weight 346kg	1
14-417-34	Self leveling pneumatic Micro-g isolator frame, 4 legs, 700mm height	1
Height control system for pneumatic vibration isolation		
	PEPS systém including sensor kit, controller unit. One systém for one optical table	3
Optical table type 3		
63-544	Micro-g optical table, 1200x750x100mm honeycomb breadboard with M6 hole pattern http://www.techmfg.com/products/labtables/Micro-g-labtable.html	1
83-014-01	Set of retracable casters	1
81-302-024	Front support bar	1
81-301-022	Rear support bar	1
81-303-01	Armrest pad	2
81-312-02	Sliding shelg, 250mm width	1
Optical table type 4		
783-CUSTOM-12R	CleanTop optical table top 2500x1500x300mm, M6 holes pattern, standard broadband vibration damping,	1
	Joiner section 300x300mm (you need 5pcs to connect tables on drawing)	5
783-CUSTOM-12R	CleanTop optical table top 2500x1500x300mm, M6 holes pattern, standard broadband vibration damping,	1
14-147-00	Self leveling pneumatic Micro-g isolator, standalone version, 700mm height	8
Delivery and instalation		
	Delivery, installation, user training in Hilase	1

The CleanTop™ Advantage



Liquid spills on the surface are contained and cannot reach the top's honeycomb core.

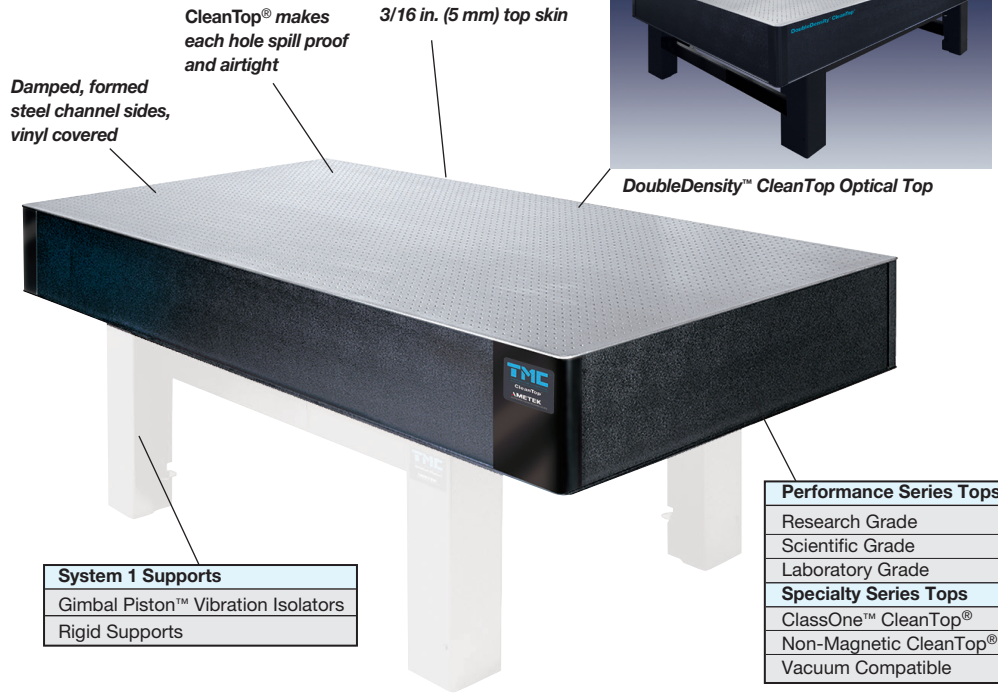
The core and skins are completely clean and dry with no residual thread-cutting oils to compromise an environment as well as the epoxy bonding.

Extremely clean tapped holes make screw insertion smooth and simple.

Easy retrieval of small parts dropped into the holes is assured.

Homogenous thermal expansion across entire structure.

Direct core to skin contact, no intermediate layer.



System 1 Supports
Gimbal Piston™ Vibration Isolators
Rigid Supports

Performance Series Tops
Research Grade
Scientific Grade
Laboratory Grade
Specialty Series Tops
ClassOne™ CleanTop®
Non-Magnetic CleanTop®
Vacuum Compatible

CleanTop™ Optical Tops

With System 1 Supports

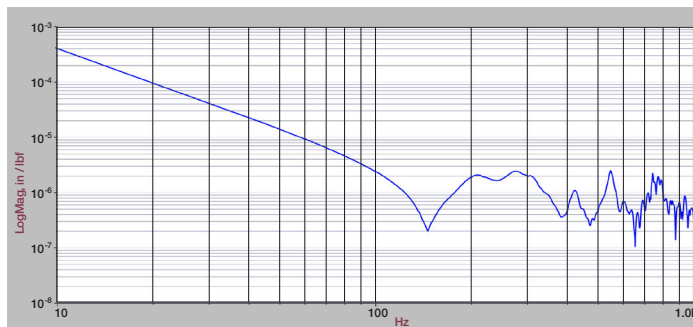
Research Grade CleanTop® provides the ultimate in optical top performance. Unmatched in the industry, Research Grade performance combines the smallest cell-size and highest core density with the unique CleanTop® design, all-steel construction, and the highest level of structural damping commercially available. Research Grade CleanTops are recommended for the most demanding applications including interferometers, holography, and ultra-fast lasers, as well as the most severe floor vibration environments. For the best overall vibration control, consider combining this top with a STACIS® iX support, a hybrid air/piezoelectric, 2-stage vibration cancellation system.

Features

- **Maximum Structural Damping – Research Grade**
- **CleanTop individual nylon cups under each tapped hole are airtight (25mm)**

Specifications

- Core:** Steel honeycomb, closed-cell, 0.010 in. thick foil
- Core shear modulus:** 275,000 psi
- Core cell size:** <0.5 in.²
- Core density:** 13.3 lb/ft³ (230 kg/m³)
- Flatness:** ± 0.005 in. (0.13 mm)
- Top skin:** 430 series ferromagnetic stainless steel, 3/16 in. thick (5 mm)
- Sidewalls:** Damped, formed steel channel, vinyl covered
- Tapped holes:** Backed by 1 in. (25 mm) long CleanTop nylon cups

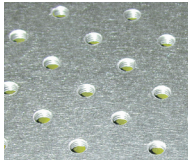


Note: Corner Compliance data measures the displacement of the top in response to impact by a calibrated hammer. The lack of response below 300 Hz is indicative of extremely high damping and excellent overall structural performance. Compliance was measured on a 48 x 96 x 12 in. top.

TMC offers a comprehensive line of options and accessories to help you obtain maximum efficiency from TMC optical tops. We also provide unequalled expertise and fast turnaround in designing and building custom configurations to your specifications.

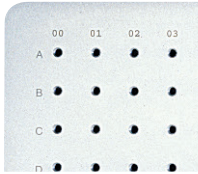
CleanTop® DoubleDensity™

By combining our existing uniquely small honeycomb cell size (0.50 in.²) with our proprietary CleanTop® individual sealed hole technology, we are now able to offer twice the number of tapped holes.



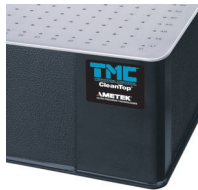
Alpha-Numeric Grid

By electro-chemically etching a coordinate pattern on the top surface, each tapped hole has an address. This is also helpful in documenting a setup for OEM applications.



Rounded Corners

CleanTop® Tops include user-friendly 1-in. radiused rounded corners as a standard feature. If required, conventional square corners are available at no extra charge.



Overhead Shelf

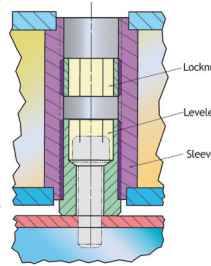
An ideal storage rack for equipment and instrumentation. It spans the long axis of the table, is adjustable in height and free standing. Included a UL-approved electrical strip with two eight-grounded outlet strips in the 6-ft shelf and four eight-grounded



outlets in the 8- and 10-ft shelves. (125 V, 60 Hz, 15 A). Optional accessories include a second tier shelf. The shelf includes two rows of holes on a 2 in. (50 mm) spacing to facilitate mounting of fixtures. The structure is formed steel with a non-resonant design, black powder-coat finish, and leveling feet for uneven floors. Capacity is 200 lb (90 kg). For custom requirements such as non-U.S. format outlet strips, contact TMC.

Breadboard Leveler

As an option on 2 in. (50 mm) thick breadboards with 1/8 in. (3 mm) or 3/16 in. (5 mm) skins, TMC provides a breadboard leveler mechanism. The leveler consists of a threaded sleeve bonded into the top, a bushing leveler, and a locknut. An M6 or 1/4-20 bolt may then be used to fasten the breadboard to another top. The leveler is adjusted and locked with an Allen wrench.



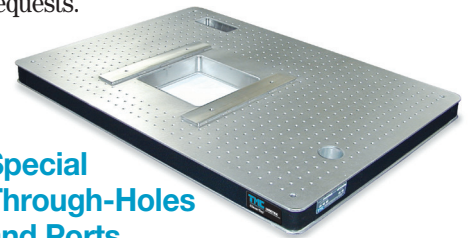
Earthquake Restraint System

TMC's earthquake restraint bracket system provides increased safety and stability for optical tables in high-risk earthquake areas without affecting table performance. The TMC earthquake restraint system relies on top brackets and upper tiebars to control motion of the table top and, where severe occurrences are anticipated, floor brackets with lower tiebars to secure the support structure to the floor.



Special Materials

Tables made of any commercially available metallic materials are readily manufactured by TMC. Aluminum, non-ferromagnetic 300 series stainless steel, and thermally stable Invar Alloys are among the most frequent requests.



Special Through-Holes and Ports

Our multiple new 2,000-watt laser machining centers coupled with our capacity to punch, drill, shear, form, and weld steel makes inclusion of custom hole patterns readily available. Common patterns include notches, rectangular through-holes, laser ports, and threaded bosses.

Joined Tables

By welding a precision ground and aligned joiner plate system to the table skins, TMC can provide a rigid coupling between optical tables. In addition to tables coupled end-to-end, we can easily join them in "L" or "T" shapes. In addition, we can provide configurations with two working heights on one table by coupling tables of differing thicknesses.

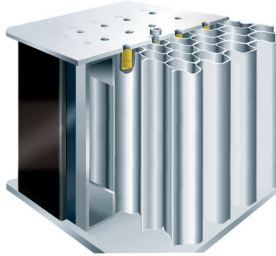


CleanTop[®] Optical Tops

With System 1 Supports

TMC optical tops provide the highest core density and smallest honeycomb cell area in an all-steel construction with the first, and still best, spill-proof tapped hole design. The small honeycomb cell size results in a more rigid structure, a heavier structure, and a table with the highest inertia.

TMC utilizes broadband damping that does not need careful tuning and therefore is less susceptible to mass loading of the table that can change the table's resonant frequency.



We offer three different levels of Performance: Research, Scientific or Laboratory grade, as well as Specialty Tables for environmental considerations.

TMC's Optical Tops with Micro-g[®] System 1 Vibration Isolation Legs feature patented Gimbal Piston[™] Isolators which provide unparalleled isolation efficiency in both horizontal and vertical directions. Combined with its highly tuned, non-linear damping response, the Gimbal Piston provides the most stable experimental working environments for advanced research.

TMC's Micro-g[®] System 1 isolators are available in a variety of different configurations. The most popular being the internal casters which allows for easy placement of the system in the lab. Many vibration isolation/cancellation options exist within TMC, allowing the end user to overcome just about any vibration problem.

Perhaps no single characteristic of an optical top is as crucial as its structural damping. TMC's R&D Department is



System 1

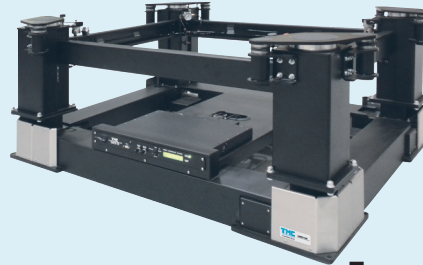
constantly evaluating new techniques and materials to maximize structural damping performance. We are able to offer various levels of performance and added flexibility in specifying a TMC top.

TMC's CleanTop Optical Top is the best method yet for providing a spill-proof, clean, precise, and corrosion resistant optical top with unmatched structural performance.

STACIS[®] iX LaserTable-Base[™]

Hybrid Piezoelectric/Air Active Vibration Cancellation System

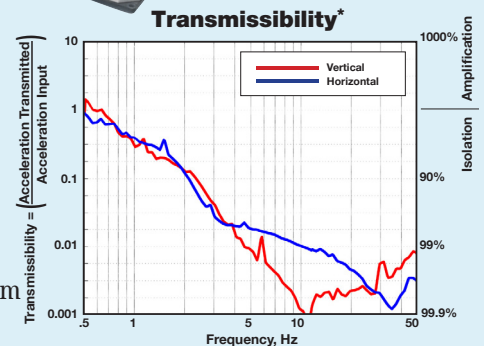
Two-stage hybrid active/passive system achieves breakthrough vibration isolation performance



For the ultimate in vibration isolation performance, TMC developed STACIS[®] iX LaserTable-Base[™], a new, hybrid active/passive two-stage isolation system. Though low frequency air isolators provide excellent high frequency isolation, passive mass-spring-dampers actually amplify vibration at their resonant frequency, typically 1 to 3 Hz. LaserTable-Base combines the patented STACIS[®] piezoelectric vibration cancellation system achieving almost 20 dB of isolation at 2 Hz with TMC's MaxDamp[®] Gimbal Piston[™] Isolators to provide unprecedented overall vibration isolation performance. LaserTable-Base is ideal for the most demanding, vibration-sensitive applications including atomic force microscopy, single molecule biophysics, laser trapping, and interferometry.

Features

- Incorporates patented STACIS[®] technology
- Active inertial vibration cancellation system
- Vibration cancellation starts below 1 Hz
- 6 active degrees-of-freedom
- Consists of two isolation systems in series for maximum vibration cancellation
- Installs easily, minimal tuning required
- Incorporates patented MaxDamp Air Isolators
- Includes TMC's DC-2020 Digital Controller

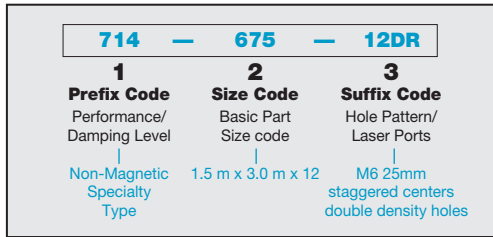
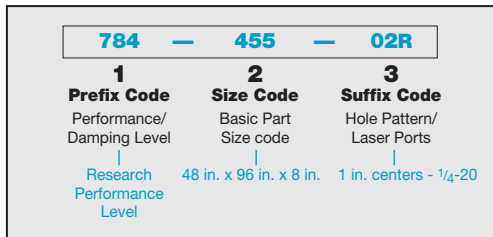


* 4,000 lb (1,800 kg) capacity LaserTable-Base[™] with MaxDamp[®] Isolation System. Payload of 2,000 lbs (907 kg), tested with simulated floor vibration at VC-C (500 micro-inches per second, 12.5 microns per second).

How to configure your CleanTop® Optical Top part number

1. Select a performance level or specialty type code from the Prefix Chart.
2. Select a size code for any one of the thicknesses indicated from the Size Chart.
3. Select a suffix code indicating hole pattern/laser ports requirements from the Suffix Chart.

Model Number Examples



Online
Installation
videos
available
for setup
assistance.

1. Prefix Chart

Code	CleanTop® Performance Level	Damping Level
784	Research Grade	Maximum structural damping
783	Scientific Grade	Standard structural damping
781	Laboratory Grade	Nominal structural damping
Code	CleanTop® Specialty Type	
794	ClassOne™ (cleanroom compatible)	Maximum structural damping
794ss	ClassOne™ (cleanroom compatible)	Maximum structural damping (stainless steel cups)
793	ClassOne™ (cleanroom compatible)	Standard structural damping
793ss	ClassOne™ (cleanroom compatible)	Standard structural damping (stainless steel cups)
714	Non-Magnetic	Maximum structural damping (304 Alloy)
714L	Non-Magnetic 316L	Maximum structural damping (316 Alloy)
730	Vacuum Compatible	n/a

2. Size Chart

Surface Dimensions			Code			
in.	ft	m	8 in. Thick (200 mm)	12 in. Thick (300 mm)	18 in. Thick (450 mm)	24 in. Thick (600 mm)
30 x 60		0.75 x 1.5	- 432 -	- 632 -		
30 x 72		0.75 x 1.8	- 491 -	- 691 -		
30 x 96		0.75 x 2.4	- 492 -	- 692 -		
30 x 120		0.75 x 3.0	- 493 -	- 693 -		
36 x 60	3 x 5	0.9 x 1.5	- 436 -	- 636 -		
36 x 72	3 x 6	0.9 x 1.8	- 439 -	- 639 -		
36 x 96	3 x 8	0.9 x 2.4	- 440 -	- 640 -	- 740 -	- 840 -
36 x 120	3 x 10	0.9 x 3.0	- 494 -	- 694 -	- 794 -	- 894 -
40 x 60		1.0 x 1.5	- 443 -	- 643 -		
40 x 80		1.0 x 2.0	- 444 -	- 644 -	- 744 -	- 844 -
40 x 120		1.0 x 3.0	- 445 -	- 645 -	- 745 -	- 845 -
48 x 48	4 x 4	1.2 x 1.2	- 447 -	- 647 -		
48 x 60	4 x 5	1.2 x 1.5	- 449 -	- 649 -		
48 x 72	4 x 6	1.2 x 1.8	- 451 -	- 651 -	- 751 -	- 851 -
48 x 96	4 x 8	1.2 x 2.4	- 455 -	- 655 -	- 755 -	- 855 -
48 x 120	4 x 10	1.2 x 3.0	- 459 -	- 659 -	- 759 -	- 859 -
48 x 144	4 x 12	1.2 x 3.6	- 463 -	- 663 -	- 763 -	- 863 -
48 x 168	4 x 14	1.2 x 4.2	- 465 -	- 665 -	- 765 -	- 865 -
48 x 192	4 x 16	1.2 x 4.8	- 467 -	- 667 -	- 767 -	- 867 -
59 x 60	5 x 5	1.5 x 1.5	- 470 -	- 670 -	- 770 -	- 870 -
59 x 72	5 x 6	1.5 x 1.8	- 471 -	- 671 -	- 771 -	- 871 -
59 x 80		1.5 x 2.0	- 472 -	- 672 -	- 772 -	- 872 -
59 x 96	5 x 8	1.5 x 2.4	- 473 -	- 673 -	- 773 -	- 873 -
59 x 120	5 x 10	1.5 x 3.0	- 475 -	- 675 -	- 775 -	- 875 -
59 x 144	5 x 12	1.5 x 3.6	- 476 -	- 676 -	- 776 -	- 876 -
59 x 168	5 x 14	1.5 x 4.2	- 477 -	- 677 -	- 777 -	- 877 -
59 x 192	5 x 16	1.5 x 4.8	- 478 -	- 678 -	- 778 -	- 878 -
Weight Factor (WF) (approx.); Area x WF = Total Weight			0.225 lb/in. ² (0.016 kg/cm ²)	0.265 lb/in. ² (0.019 kg/cm ²)	0.420 lb/in. ² (0.030 kg/cm ²)	0.475 lb/in. ² (0.033 kg/cm ²)

3. Suffix Chart

Code	Hole Pattern - Threads	Double Density*	Laser Port**
00R	No Holes	no	no
01R	1 in. centers - 1/4-20	no	yes
02R	1 in. centers - 1/4-20	no	no
11R	25 mm centers - M6	no	yes
12R	25 mm centers - M6	no	no
01DR	1 in. staggered centers - 1/4-20	yes	yes
02DR	1 in. staggered centers - 1/4-20	yes	no
11DR	25 mm staggered centers - M6	yes	yes
12DR	25 mm staggered centers - M6	yes	no

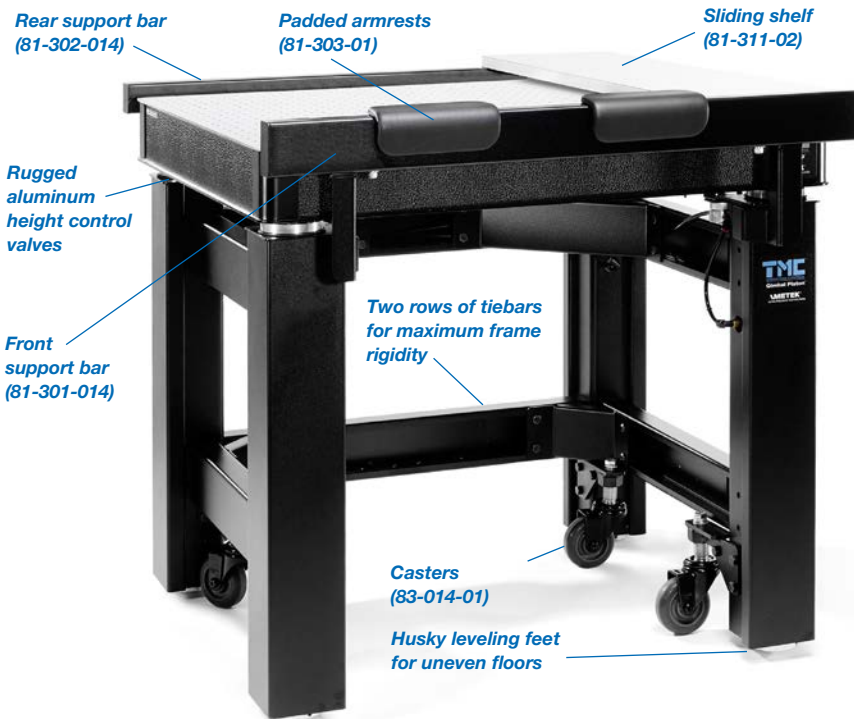


Contact sales@techmfg.com to easily configure a custom system

63-500 Series

Micro-g® Lab Table

Gimbal Piston™ Isolators



Shown above is a Micro-g® Lab Table (63-533) with CleanTop® Optical Top and accessories. At right is a Micro-g® Lab Table (63-541) featuring a stainless steel laminate top with listed accessories.

TMC's Micro-g® Lab Table provides an excellent vibration-free working surface for loads up to 350 lb (160 kg). Now with modular construction, these tables are recommended for use in such diverse applications as electrophysiology, cell injection, ultramicrotomy, photomicroscopy, scanning tunnel microscopy, and confocal laser scanning microscopy.

General Specifications

Isolator natural frequency:

High Input
Vertical = 1.2 Hz
Horizontal = 1.0 Hz

Low Input
Vertical = 1.5 - 2.0 Hz
Horizontal = 1.2 - 1.7 Hz

Isolation efficiency @ 5 Hz:

Vertical = 70 - 85%
Horizontal = 75 - 90%

Isolation efficiency @ 10 Hz:

Vertical = 90 - 97%
Horizontal = 90 - 97%

Recommended load capacity:

350 lb (160 kg)

Finish: Medium texture black powder coat frame, stainless steel top

Facilities required:

80 psi nitrogen or air

Shipping weight:

Approximately 600 lb (272 kg)

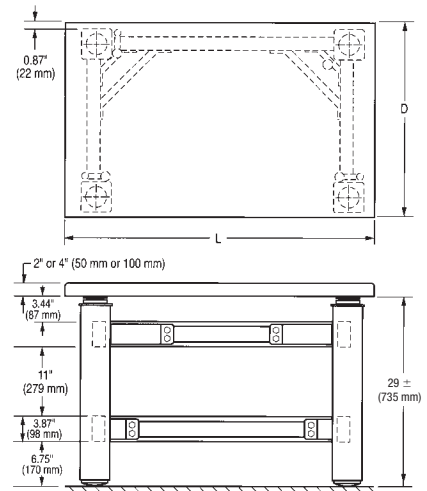
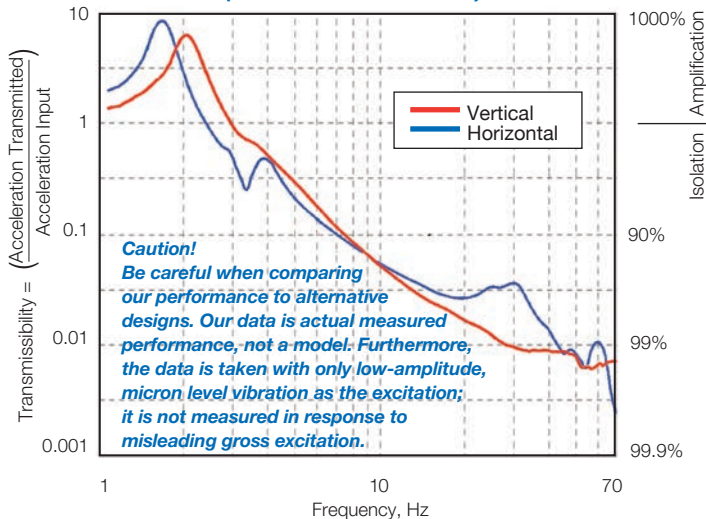
Height control valves:

repeatability standard valve
+/- 0.050 in. (1.3 mm)

Precision valve: +/- 0.005in. (.13mm)



63-531 Vibration Isolation Performance (actual measured data)



Which top is best for you?

CleanTop® features TMC's proprietary spill-proof, drilled and tapped mounting hole array. Tops are 4 in. (100 mm) thick and have 1/4-20 holes on 1 in. spacing or M6 holes on 25 mm spacing. The small cell-size steel honeycomb design is even stiffer than our stainless steel laminate. Guaranteed flat to ± 0.005 in. (± 0.13 mm).

Stainless Steel Laminate, our least expensive 63-500 Series top, is recommended for applications that require a strong magnetic attachment and will not involve repeated exposure of the top to corrosive liquids. However, stains from such liquids can be removed with an industrial strength stainless steel cleaner. This top does not have the precision flatness of our CleanTop honeycomb top. Flatness is ± 0.030 in. (± 0.8 mm).

Formica® Layer on Stainless Steel laminate is an easy-to-clean alternative to stainless steel, without sacrificing structural performance. A plastic layer is added to the top surface, which reduces ferromagnetic attachment strength.



Photo courtesy of Leica Microsystems Inc.

Table and Accessory Ordering Chart (see page 56)

TABLE MODEL (D x L)	25 in. x 36 in. 625 x 900 mm	30 in. x 30 in. 750 x 750 mm	30 in. x 36 in. 750 x 900 mm	30 in. x 48 in. 750 x 1200 mm	30 in. x 60 in. 750 x 1500 mm	36 in. x 48 in. 900 x 1200 mm	36 in. x 60 in. 900 x 1500 mm
Isolator frame only (no top)	63-510	63-520	63-530	63-540	63-540	63-560	63-560
Isolator with 2 in. stainless steel laminate	63-511	63-521	63-531	63-541	63-551	63-561	63-571
Isolator with 2 in. Formica® layer on stainless steel laminate	63-512	63-522	63-532	63-542	63-552	63-562	63-572
Isolator with 4 in. CleanTop®, 1/4-20 on 1 in. spacing			63-533	63-543	63-553	63-563	63-573
Isolator with 100 mm CleanTop, M6 on 25 mm			63-534	63-544	63-554	63-564	63-574
ACCESSORY (see page 56)							
Front support bar, 2 in. (50mm) tops	81-301-012	81-301-002	81-301-012	81-301-022	81-301-032	81-301-022	81-301-032
Front support bar, 4 in. (100mm) tops	81-301-014	81-301-004	81-301-014	81-301-024	81-301-034	81-301-024	81-301-034
Rear support bar, 2 in. (50mm) tops	81-302-012	81-302-002	81-302-012	81-302-022	81-302-032	81-302-022	81-302-032
Rear support bar, 4 in. (100mm) tops	81-302-014	81-302-004	81-302-014	81-302-024	81-302-034	81-302-024	81-302-034
Armrest pads (front support bar)	81-303-01 for all tables (order 2)						
Armrest pads (perimeter enclosure and Faraday Cage)	81-303-02 for all tables (order 2)						
Sliding shelf, 6 in. (150 mm) wide	81-311-01	81-311-02	81-311-02	81-311-02	81-311-02	81-311-03	81-311-03
Sliding shelf, 10 in. (250 mm) wide	81-312-01	81-312-02	81-312-02	81-312-02	81-312-02	81-312-03	81-312-03
Sliding shelf, 14 in. (350 mm) wide	81-313-01	81-313-02	81-313-02	81-313-02	81-313-02	81-313-03	81-313-03
Sliding shelf, 20 in. (500 mm) wide	81-314-01	81-314-02	81-314-02	81-314-02	81-314-02	81-314-03	81-314-03
Full perimeter enclosure, 2 in. (50 mm) tops	81-321-01	81-321-02	81-321-03	81-321-04		81-321-06	
Full perimeter enclosure, 4 in. (100 mm) tops			81-322-03	81-322-04		81-322-06	
Raised rear shelf	81-324-01	81-324-02	81-324-01	81-324-04		81-324-04	
Subshelf	81-325-01	81-325-02	81-325-03	81-325-04	81-325-04	81-325-04	81-325-04
Sliding shelf for perimeter enclosure	81-327-03	81-327-04	81-327-04	81-327-04		81-327-06	
Acrylic enclosure			81-328-03	81-328-04		81-328-06	
Casters, set of 4	83-014-01 for all tables						

PEPS® II

Digital Precision Electronic Positioning System

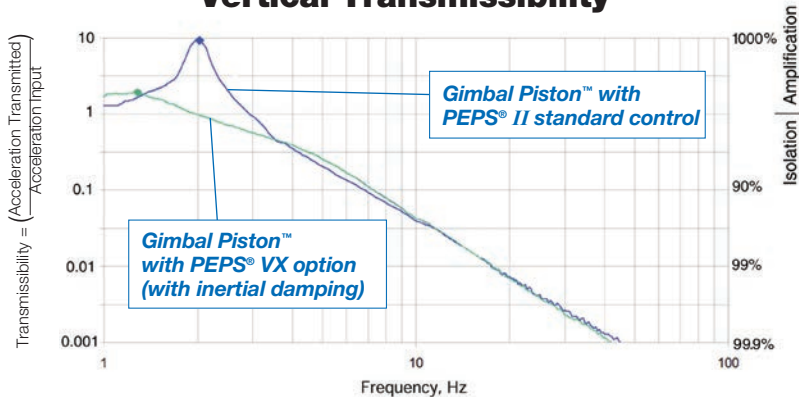


PEPS® II improves and builds upon TMC's patented PEPS® (Precision Electronic Positioning System). With the addition of a new digital controller, PEPS® II is easier to use, offers more features, and has an improved user interface. PEPS® II is a digital non-contacting, height control system for TMC pneumatic vibration isolation systems. Such systems normally incorporate mechanical height valves and a mechanical height sensing linkage. Its applications range from semiconductor manufacturing equipment to improve settling time and increase yields, to precision laboratory environments which demand the optimum noise performance and platform stability.

Features & Benefits

- Digital control, user-friendly LCD interface
- Non-contacting electro-pneumatic height control for Gimbal Piston™, CSP®, and MaxDamp® vibration isolation systems
- Z-axis position repeatability: 10 microns
- Improved vibration isolation due to the elimination of the lever contact of conventional mechanical height control systems
- Pneumatic feedforward function minimizes Z-axis reaction to X-Y stage motion
- May be tuned to rapidly settle motion induced by X-Y stages
- Optional "VX" feature incorporates inertial sensors for active damping of vertical isolator resonance
- "Soft-dock" compatible. Allows for wafer loading/unloading without kinematic mounting
- Proportional electronic valves. No pulse noise introduced by "on-off" or conventional electronic valves
- Plumbed exhaust line for clean disposal of waste air
- Logic dock control and status

Vertical Transmissibility



How to order:

- Contact a TMC Applications Engineer for part numbers and pricing.



PEPS® II – Rear View



Adaptor brackets can be provided to mount the PEPS® II controller in a RETMA rack.

General Specifications

Physical Dimensions	PEPS® II Controller 1.72 in. (43.7mm) H x 8.0 in. (203mm) W x 9.4 in. (240 mm) D	PEPS® II Performance Specifications	<p>Analog inputs (unipolar): 8x12 bit (16 bit using over sampling), 0...3.0 V full scale Analog inputs (feedforward, diag.): 5x12 bit (16 bit using over sampling), ± 9 V full scale Analog inputs (unipolar) protection: +5 Volts, -0.5 V clipping Analog input (feedforward, diag.) protection: ± 15 Volts clipping Analog outputs: 4x12 bit (16 bit with over sampling), 0...3.0 V full scale Analog outputs (OPTIONAL): 8x16 bit, 0...3.0 V full scale Analog output protection: indefinite short circuit protection, +5 Volts clipping Digital input voltage rating: 0...+3.3 V, +5 V tolerant (+5 Volts clipping) Digital output rating: 0...+3.3 V, 20 mA max. Digital I/O protection: +5 Volts, -0.5 Volts clipping External available power: +5 VDC, 2.0 A max; +15 VDC, 1.0 A max. (20 Watt max) Communication port: USB, appears as RS-232 on PC Processor: ARM7TDMI / 41.78 MHz Control loop rate: 100 Hz - 2.0 KHz Proximity sensors: 3x vertical, (3x horizontal optional) Eddy current NAMUR 0-20 mA output Velocity sensors - geophones ("VX" option): 3x vertical, current output</p>
Weights	PEPS® II Controller: approximately 3.0 lb (1.2 kg)		
Environmental (refer to EN 61010-1: 1993, EN 61010-1/A2: 1995)	For indoor use only, up to an elevation of 2,000 m (6560 ft.) Maximum allowable temperature range: 5° C to 35° C Maximum allowable humidity: 80% up to 31° C, decreasing linearly to 50% relative humidity at 40° C Tolerance in main supply voltage: 85 VAC - 240 VAC Over voltage category: 2 Pollution degree (IEC 664): 2 Ventilation requirements: 25 mm clearance on sides, 0 mm top and bottom	PEPS® II Pneumatic Specifications	<p>Long-term height stability: ± 50 microns Long-term tilt stability: ± 50 micro radians Servo valves: 4 x 2-way variable-orifice proportional servo valves Valving technique: pure class-A Maximum input pressure: 120 PSI or 8.3 Bar or 830 KPa Nominal air consumption: 60 slpm (2 scfm) Air requirements: clean, dry air, filtered to 20 microns or better Fail safe: isolators deflate on power failure or power off Pneumatic fittings: 'one-touch' quick fittings for 1/4 in. O.D. hose</p>
Power Requirements	Power input voltage range: 90-230 VAC Input frequency range: 50-60 Hz		
PEPS® II User Interface (Front Panel)	Power switch 4 menu buttons LCD display 20x2 characters 2 diagnostic sockets (BNC-type) Three-color status LED USB port		
PEPS® II Interface (Rear Panel)	AC power entry with EMI filter 1 air INPUT snap-in port for 1/4 in. OD tubing 1 air OUTPUT (Exhaust) snap-in port for 1/4 in. OD tubing 4 air snap-in ports for 1/4 in. OD tubing (one per isolator) DB-25 male inputs-outputs and feedforward socket 1 Phoenix 0.2 in. pitch 6 pins GREEN header (vertical proximity sensors) 1 Phoenix 3.5 mm pitch 6 pins BLACK header (horizontal proximity sensors) Grounding threaded stud (#10-32 thread) DB-25 F socket: 1x digital Input, 3x geophone sensors interface ("VX" option) DB-25 F socket: 1x digital input, 3x current output proximity sensors (optional)		