



**Acoustic & Vibration  
Isolation Specialists**

# Onyx Series User Guide



Affordable Vibration Isolation Helping You  
Achieve More from your Research

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## Overview

The Onyx Series vibration isolation table is designed to isolate sensitive equipment from vibrations caused by foot traffic, HVAC systems, nearby operating machinery, and more. Onyx Series tables consist of a steel tabletop supported by pneumatic isolators, providing significant vibration isolation starting at 5 Hz.

The Onyx Series is the perfect solution for end users operating in a space-limited lab environment wanting affordable vibration isolation in a desktop form factor.

## Item(s) Checklist

This checklist ensures all necessary items are included in the Onyx Series table shipment. Please mark YES if an item listed below has been included in your shipment. Please mark NO or N/A if any items listed below have not been included. If there are items listed below not included in your shipment, please contact Herzan directly (949-363-2905 or support@herzan.com) to receive replacement parts.

Item	Description/Notes	Yes	No	N/A
Onyx Series Table	Refer to your purchase order/quotation to confirm the table model number received matches the model number found in the quotation/purchase order. If the model number provided in your shipment does not match the model number listed in the quotation/purchase order, contact Herzan directly (949-363-2905 or <a href="mailto:sales@herzan.com">sales@herzan.com</a> ) for further instructions.			
Installation Manual	Provides detailed instructions on how to install, operate, and optimize your Onyx Series vibration isolation table. If a printed installation manual was not provided in the Onyx Series shipment, please reference the following online resource for further download/print instructions: <a href="http://www.herzan.com/resources/manuals-downloads.html">http://www.herzan.com/resources/manuals-downloads.html</a>			

Item	Description/Notes	Yes	No	N/A
<b>Included In Manual Leveling Tables Only</b>				
Manual Air Pump	Air pump used to inflate the isolators using the front three schrader valves.			
Adjustment Schrader Valve	Adjustment schrader valve can be found on the front of an Onyx Series table on one of the three schrader valves.			

Item	Description/Notes	Yes	No	N/A
<b>Included In Automatic Leveling Tables Only</b>				
<b>Air Regulator</b>	Air regulator adjusts the air pressure received from the air source to the Onyx Series table.			
<b>Air Line Tubing</b>	Six feet of 4mm air line tubing is included to connect the following: 1) table to the air regulator; and 2) air source to the air regulator.			

## Pre-Installation Checklist

The pre-installation checklist reviews all preliminary items needing to be considered prior to installation, ensuring an optimal user experience. Please mark YES if an item listed below has been confirmed to be true. Please mark NO or N/A if items listed below are incorrect or have not been confirmed to be true. If there are items listed below marked No or N/A, please contact Herzan directly (949-363-2905 or support@herzan.com) for further instructions.

Item	Description/Notes	Yes	No	N/A
<b>Load Capacity</b>	Is the load capacity of the purchased Onyx Series table greater than the weight of your instrument or application?			
<b>Top Plate Dimensions</b>	Are the top plate dimensions of the purchased Onyx Series table greater than the dimensions of your instrument or application?			
<b>Support Surface</b>	Is the support surface beneath the Onyx table rigid and flat?			
<b>Ambient Vibration Levels</b>	Are the ambient vibration levels known (i.e. have they been measured) and has that information been shared with Herzan?			
<b>Instrument/Application Vibration Specifications</b>	Are there instrument manufacturer specifications for vibration levels in an operating environment for your instrument or application?			
<b>Instrument/Application Vibration Specifications</b>	Will the performance of the Onyx Series table bring your instrument or application within manufacturer-defined technical specification?			

# Installation Procedures

## Manual Leveling Tables

**Step 1:** Place the Onyx table on a flat and rigid support surface, ensuring the support surface can withstand the weight of the Onyx table and instrument to be placed on it.

**Step 2:** Install the instrument onto the Onyx table. **NOTE:** Onyx tables with three isolator configurations should have the heavier portion of the instrument installed on the backside of the Onyx table as it has two isolators in the back and one isolator in the front.



Figure 1: AFM Supported By An Onyx Table

**Step 3:** Remove the front valve covers from the schrader valves and insert air into each valve using the air pump provided. Raise all isolators to maximum height. **NOTE:** air pressure is dependent upon the weight of the instrument on top of the Onyx table, with typical values ranging from 25 – 35 psi. Do not exceed 70 psi (0.5 MPa, 5 kg/cm<sup>2</sup>), which is the Onyx tables maximum pressure.

**Step 4:** Once the isolators reach maximum height, slowly decrease the air inside each isolator to make all isolators “float”. Floating refers to the ability of the table to slowly respond when pressure has been applied to the top plate. To release air from each isolator, gently press on the front pin found on each schrader valve.

**Step 5:** Re-install the front schrader valve covers.

**Step 6:** Periodically check the Onyx table every three weeks to ensure it is operating effectively and air has not excessively dissipated or leaked.

## Automatic Leveling Tables

**Step 1:** Place the Onyx table on a flat and rigid support surface, ensuring the support surface can withstand the weight of the Onyx table and instrument to be placed on it.

**Step 2:** Install the instrument onto the Onyx table. **NOTE:** Onyx tables with three isolator configurations should have the heavier portion of the instrument installed on the backside of the Onyx table as it has two isolators in the back and one isolator in the front.

**Step 3:** Cut the provided 4mm air line tubing (6ft in total) to length based on where the air regulator will be positioned with respect to the table and air supply.

**Step 4:** Connect the Onyx table to the air regulator using one of the cut 4mm tubing pieces. Make sure the tubing connecting the table to the air regulator is connected to the "Air Out" port on the air regulator. **NOTE:** The air regulator should be fully closed before connecting the air regulator to the local air supply.



Figure 2: Onyx Table Air Regulator

**Step 5:** Connect the local air supply to the air regulator using the other cut 4mm tubing piece. Make sure the tubing connecting the air source to the air regulator is connected to the "Air In" port on the air regulator.

**Step 6:** Once the Onyx table, air regulator, and local air supply are connected, raise and slowly turn the air regulator knob (clockwise) to introduce air from the local air supply into the table. Introduce the minimum amount of air to allow the table to float, causing a subtle bounce when pressure is applied to the top plate. **NOTE:** air pressure is dependent upon the weight of the instrument on top of the Onyx table, with typical values ranging from 25 – 35 psi. Do not exceed 70 psi (0.5 MPa, 5 kg/cm<sup>2</sup>), which is the Onyx tables maximum pressure.

**Step 7:** When the correct amount of air is introduced into the table, press down on the air regulator knob to lock in the air pressure being introduced into the table.

# Specifications

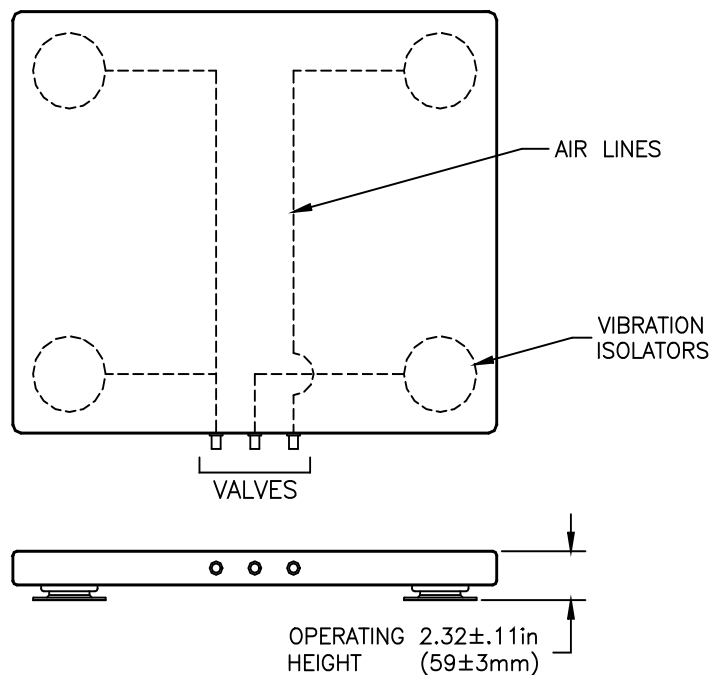


Figure 3: This image represents a four-isolator Onyx table. Not all Onyx tables will include four isolators (i.e. Onyx-6M/A or Onyx-7M/A)

Model Number	Onyx – 6M/A	Onyx – 7M/A	Onyx – 8M/A
Table Dimensions (W x D x H) (In./mm)	16 x 17 x 2.3 in. 406 x 531 x 58 mm	20 x 24 x 2.3 in. / 508 x 609 x 58 mm	32 x 24 x 2.3 in. / 812 x 609 x 58 mm
Table Weight (Lbs/Kg)	47 Lbs / 21.3 Kg	73 Lbs / 33 Kg	110 Lbs / 50 Kg
Max. Load Capacity (Lbs/Kg)	150 Lbs / 68 Kg	150 Lbs / 68 Kg	200 Lbs / 91 Kg
Shipping Dimensions (W x D x H) (In./mm)	19 x 21 x 5 in. / 527 x 489 x 133 mm	24 x 31 x 8 in. / 610 x 787 x 203 mm	30 x 38 x 8 in. / 762 x 965 x 203 mm
Shipping Weight	55 Lbs / 25 Kg	82 Lbs / 37 Kg	142 Lbs / 65 Kg
Natural Resonant Frequency (Hz)	Vertical: less than 2.5 at optimal load Horizontal: less than 2.5 at optimal load		
Leveling Type	Manual (M) or Automatic (A)		
Surface Top	Black powder coated steel		
Compliance	ROHS Compliant		

# Troubleshooting

## Manual Leveling Tables

### **Persistent Leak or Table Won't Hold Air for > 2 Days**

The first step in finding a solution for a leaking Onyx table is to determine the origin of the leak. To determine the origin of the air leak in the Onyx table, spray 'soapy' water on the underside of the table near the air tanks (black rectangular tanks), cable fittings (where the cable connects to the tanks and air valves), and front air valves.

If there is a leak in any of these locations, bubbling will occur due to the escaping air interacting with the soapy water. Follow the instructions below once the origin of the leak has been determined.

#### **Air Leak Source:** Fittings/Air Tanks

If the fittings have loosened over time or been jarred loose during shipment, they will need to be tightened to eliminate the air leak. Rotate the fittings clockwise to ensure they are firmly fastened. If there is a leak in the air tank, the table will need to be sent to the factory for repair (Please call: (949) 363-2905 Extn. 307 or email: [support@herzan.com](mailto:support@herzan.com)).

#### **Air Leak Source:** Front Air Valves

If the front air valve pins have loosened due to inflating the isolators regularly, they will need to be tightened to eliminate the leak. The middle valve cap (the valve cap with the two grooves; please see *Figure 4*) is to be used as a valve wrench to tighten and secure the valve pin. Rotate the valve wrench clockwise to tighten the air valves.



Figure 4: Schrader Valve Tightening Wrench

If a persistent leak remains after the fittings and air valves have been tightened, contact the Herzan office to receive further assistance.



## Automatic Leveling Tables

### **Table Oscillates Persistently**

When an auto-leveling Onyx table oscillates persistently, the most common issue is that too much air is being supplied to the isolators. Two things could be causing the issue:

- 1) **Source of Issue:** Air Regulator
  - a. The air regulator is the primary control of air flow entering the isolators. The rate at which it air enters the isolators from the air supply is not defined at the factory and has a higher likelihood of causing the issue.
  - b. *Resolution:* Raise the air regulator knob and turn the knob completely shut (counter-clockwise). Once completely shut, slowly turn the air regulator knob clockwise to introduce air into the isolators. Once the isolators are floating and have the correct amount of air inside them, lower/lock the air regulator knob to secure the correct psi inside the isolators.
  
- 2) **Source of Issue:** Flow Control Valves
  - a. The flow control valves are a secondary control of air flow entering the isolators. The rate at which air enters the isolators from the flow control valves is set at the factory, with a lower likelihood of causing the issue.
  - b. *Resolution:* rotate each flow control valve ¼ turn until the Onyx table stops oscillating. Make sure to rotate each flow control valve sequentially, so the rate at which the air is flowing to the isolators is equal.

### **Performance of the Table Has Worsened Over Time**

When the performance of the automatic leveling Onyx table declines, the most common issue is the amount of air being supplied to the table is incorrect. The table performs optimally when it is floating, whereby the table top will bounce slightly when pressure is applied to the top plate. Too much air will make the table rigid and unable to isolate ground borne vibrations. Too little air will have the same effect, where the table is grounded on the isolators, not floating or benefitting from the passive isolation provided by the table. Ensuring the table is floating is key in having the table perform consistently over time.

For additional troubleshooting information please visit:  
<http://herzan.com/support/troubleshooting/air-based-isolation.html>

## Best Practices

Onyx tables are built to last and continue to operate in labs around the world. Maintaining the longevity of an Onyx table requires minimal, but necessary effort to ensure optimal vibration isolation. Provided below are some best practices when operating an Onyx table.

- Ensure the load capacity of the instrument does not exceed the load capacity of the respective Onyx table. If the weight of the instrument cannot be properly supported, air can begin to leak and prevent the table from isolating vibrations.
- In three isolator configurations (i.e. Onyx-6M/A and Onyx-7M/A), ensure the heaviest portion of the instrument is being supported by the back of the Onyx table as there are two isolators in the back of the table and one in the front.
- Do not over-inflate the system; this can damage the air suspension system. Inflate the system gradually to avoid over-inflation.
- Verify the system is floating once every three weeks.
- Deflate the isolators prior to moving the table or the equipment on top of it.
- Avoid the following when using any air-based isolation system: direct sunlight, ozone environments, volatile solvents, oils, and excessive or unbalanced loading.
- Contact Herzan prior to drilling holes in the Onyx table. There is a danger of puncturing the air suspension system.

## Contact Us

If you have any questions about your Onyx table or would like to speak to a Herzan sales representative about future applications, please don't hesitate to contact us at any time.

### Sales:

- Email: [sales@herzan.com](mailto:sales@herzan.com)
- Phone: (949) 363-2905 Extn. 305

### Support:

- Email: [support@herzan.com](mailto:support@herzan.com)
- Phone: (949) 363-2905 Extn. 307