STable (©)

Active Pneumatic
Vibration Isolation Table

User Manual

SUPERTECH Instruments

Keeps You STable

Technical Specifications of the STable (©) Active Pneumatic Vibration Isolation Tables

Vibration attenuators: 2nd-order, linear phase pneumatic filters built into the cylinders. Using a 2nd-order vibration damping filter is a unique feature of only the STable (©) Active Pneumatic Vibration Isolation Tables.

Corner frequency of the high-cut isolators: 10 Hz

Flatness error: +/- 0.25 mm per meter as maximum, along any straight line, anywhere on the top plate.

Horizontality error of the top plate on a working vibration isolation table (in other words the hysteresis of the height control): +/- 1.5 mm as maximum, measured between two opposite corners of the top plate, in worst case

Gas supply: any kind of non-toxic, non-flammable, non-aggressive, non-corrosive gas (e.g. Nitrogen, compressed air). We recommend using a Quiet Air Compressor (see below) as the simplest, cheapest and most secure gas supply. Please read the notes and warning below about using local air supply.

Working pressure ranges of the gas supply:
- 2.0 to 2.2 Bar for the "small" tables
- 5.0 to 7.0 Bar for the "large" tables

The absolute pressure limits of the gas supply:
- 2.5 Bar for the "small" tables
- 7.5 Bar for the "large" tables

Color of the leg system: RAL 5019. "You can order any color as long as it is dark blue" (like T-model was black)

Membrane material in the working cylinders: fine and durable silicone

Height of the table top surface from the floor: 82 cm or more, depending on the thickness of the top plate

Weight of the leg system: approximately 120 kg

Weight of the top plate depends on the size. For rough estimation (based on the surface, width x depth): 170 kg / m^2

Earthquake-proof. There is no greater test than an unexpected circumstance life throws in our way. In the afternoon on 18th January, 2017 there was an earthquake, magnitude of 5.7 in Italy. Two pieces of STable (©) Active Pneumatic Vibration Isolation Tables were operating approximately 120 km far away from the epicenter. Super resolution imaging processes was running on both tables (N-SIM on the first table and N-STORM on the other). We could feel the building shaking, but the imaging process was not disturbed, the picture quality remained excellent.

The internal structure of the top plate is a trussed rectangular crossbar structure (patented) made of welded carbon steel by default. As an option fully (even the internal structure) stainless steel top plate can also be ordered.

Rigidity of the top plate: the deformation of a 180 x 149 cm top plate, if 2 kN concentrated force load is applied to its middle point: 12 microns (0.47 mil). We carried out the same measurement on a SmartTable UT top plate, too. The rigidity of STable (©) top plate was two times better.

Deformation of the top plate for temperature change: the deformation of a 180 x 149 cm top plate, measured in the middle, if mass load was not modified, but we increased the temperature with 10 Centigrade: 8 microns (0.3 mil). We carried out the same measurement on a SmartTable UT top plate, too. The self-deformation of STable (©) top plate for temperature change was nearly three times better (three times smaller deformation).

The unit weight (the weight referring to the same size) of STable (©) top plates is approximately two times bigger compared to SmartTable UT top plates. But we will keep manufacturing of welded steel structure top plates, because we focus on the better performance instead of the lighter weight.

Top plate is covered by dull stainless steel surface with no magnetic capability (optional magnetic fixing adapters are available). There are metric M6 threaded holes drilled on the top plate in 100 x 100 mm pattern by default. If you do not need this default hole pattern on the top plate, in other words you need a top plate without holes, you should specify it in the order. There is an orderable option: "Optical" hole pattern, what means M6 threaded holes in 25 x 25 mm pattern on the top plate. Other, custom-specified hole arrangements, or special shaped, even big holes (e.g. for bottom or base port) can be ordered, as well.

You can order any size of table. Custom size of table does not mean harder price, only longer manufacturing time is necessary (because they are not on stock as the frequently sold models). The smallest available size is 98 x 66 cm.

Active Pneumatic Vibration Isolation Tables (Small Size)

In our terminology "small" size means, if the top plate is smaller than or equals to 1.5 m^2.

Thickness of the top plate: 110 or 170 mm (depending on the size).

Height of the top surface of the top plate from the floor depends on the thickness of the top plate. To compensate the flatness error of the floor, each legs are adjustable by +/- 2 cm. Below you can see the nominal heights:

Top plate thickness	Height of the top plate
110 mm	82 cm
170 mm	88 cm

For a "small" table, optionally, you can order Impala granite top plate. This is a very resistant and smart material, but it is a very difficult procedure to make holes on the surface of the granite plate. However we accept requirements for a few holes. The specification blueprint of the fixing holes on the granite plate should be received before starting the manufacturing process.

Maximum mass load of the legs: 4 kN, including the top plate.

Active Pneumatic Vibration Isolation Tables (Large Size)

In our terminology "large" size means, if the top plate is bigger than 1.5 m^2.

Thickness of the top plate: 170 to 350 mm (depending on the size)

Height of the top surface of the top plate from the floor depends on the thickness of the top plate. To compensate the flatness error of the floor, each legs are adjustable by +/- 2 cm. Below you can see the nominal heights:

Top plate thickness	Height of the top plate
170 mm	88 cm
210 mm	92 cm
250 mm	96 cm
280 mm	99 cm
310 mm	102 cm

Maximum mass load of the legs: 8 kN, including the top plate.

The Parts of the STable (©) Vibration Isolation Table

The Active Pneumatic Vibration Isolation Table has got four legs and a top plate. The legs are assembled together with strong horizontal beams. In every leg there is a pneumatic working cylinder on the top of the leg. These working cylinders form a virtual surface, on which the top plate is floating. The actual height of the pistons in the working cylinders are controlled by pneumatic control systems built on the valve assemblies. Physically the Active Pneumatic Vibration Isolation Table has got four legs, but logically it is a table with three legs. This feature gives an excellent stability on the three base points. This trick is realized on that way that the two legs on the front have got their own control systems each. But the two legs on the rear side of the Active Pneumatic Vibration Isolation Table are internally connected parallel and controlled by only one control system. This arrangement forms a virtual middle-position leg between the two rear legs.

Protection Rules

There are a few simple, but very important security rules to protect the Table. It is indispensable to keep them!

The disposable fixing tapes or rubber rings on the height sensing levers (see the text later and Figure 3.) should be installed during the transportation periods only! These disposable fixing tapes or rubber rings are used to fix the height sensing levers to their security bumpers. Never apply a gas supply to the Table, if the fixing tapes or rubber rings are put onto the height sensing levers, because if the height sensing levers cannot move, it will blow up the silicone membranes of the working cylinders immediately!

Never disconnect any internal pneumatic connectors, because it will result a continuous loss of the gas supply and fault in the Quiet Air Compressor.

The working cylinders must not be disassembled, and they must not be pulled out from the legs. The working cylinders are calibrated and put into their places in the factory.

You should never disassemble or open any screws of the valve assembly in any case. All positions of the screws are fine calibrated and fixed on the valve assembly by the factory. They must be kept in their original position always, except the height sensing springs (see Figure 3.). Height sensing springs are the only parts which can be adjusted by the user.

With the height sensing springs of the valve assemblies (see the description later) you CAN NOT adjust the horizontal level error of the top plate. Several other manufacturers of vibration isolation tables use the pneumatic system on the top of the vibration isolation for the leveling purpose, as well. That method simplifies the construction of the legs, but worsens the vibration isolation features. In our Tables the pneumatic system deals with the vibration suppression function only. The pneumatic system is adjusted to its optimal work point for the best vibration attenuation. The adjustment of the horizontal level error is a simple mechanical task. In our Tables it is carried out by the leg system. You can find the description later in this User Manual, how to adjust the horizontal level error of the leg system.

If you want to move the Table, it is practical to remove the top plate from the leg system, because the top plate is very heavy and it is easier to move it independently.

The leg system should be moved as one unit. The legs must not be disassembled and the working cylinders must not be removed from the legs.

It is strictly forbidden to tilt the leg assembly at an extreme angle (more than 30 degrees), because the working cylinders would fall out! The leg system must be moved top side up. The working cylinders always have to be on the top, because only gravity keeps them inside the leg system.

Before removing the top plate from the leg system, the gas supply should be switched off and its tube should be disconnected from the Table.

There are only two tasks necessary to do before removing the top plate from the leg system:

1) Switch the gas supply off, and disconnect its tube.

2) New disposable fixing tapes or rubber rings should be installed (see the text later and Figure 3.) to fix the height sensing levers to their security bumpers. The fixing tapes or rubber rings should be installed during the transportation periods only! Never apply a gas supply to the Table, if the fixing tapes or rubber rings are put onto the height sensing levers, because if the height sensing levers cannot move, it will blow up the silicone membranes of the working cylinders immediately!

If you want to relocate a Table, you can find more important advices in the downloadable document titled "Precautions for Moving or Relocating a Previously Working STable (©) Active Pneumatic Vibration Isolation Table".

Unpacking and First Time Installation

There is a detailed description in the following sections, how to install a new STable (©) Active Pneumatic Vibration Isolation Table. But you can find another, dedicated Table Installation Manual with pictures downloadable from our website. We suggest studying it before starting the installation.

First you should remove all the packing materials and packing assemblies. Free the leg system, the top plate, the Quiet Air Compressor, the armrest, the armrest screws and the table-leg chocks (holding mats) independently. In this phase the disposable fixing tapes or rubber rings should be left on the height sensing levers to fix them to their security bumpers (as this is the transport position set by the factory). Put the leg system to its final place and refine its position. After final positioning of the leg system the adjustment of the horizontal level of the leg system is necessary (see the next paragraph for this topic). After adjusting the legs you can put the top plate on the legs, and you must remove the disposable fixing tapes or rubber rings from the height sensing levers. Now you can connect and apply the gas supply. The default position of the height sensing springs are calibrated by the factory and usually no other adjustment is necessary. However if you would like to refine it, please see the appropriate section below. Finally you should check the vertical position of the pistons in the working cylinders. The vertical position of the pistons depends on the current position of the top plate compared to the leg system. If any more adjustments are necessary, please see the description later and the explanation of Figure 5.

Positioning and Adjustment of the Legs

See Figure 1. Put the table-leg chocks (holding mats) under each leg between the floor and the height adjusting screws. The height adjusting screws are very strong screws with 2 inches in diameter. There are turning holes drilled through the height adjusting screws. You can turn them with an appropriate rod tool put through the turning holes of the height adjusting screws. Never turn the height adjusting screws by hand, because the thread is sharp and it can cause a serious injury of your fingers. Put a spirit level on the lower horizontal joint beams, on the top sides of the beams. You can adjust the leg system into an accurate horizontal level position with the height adjusting screws. It is an iterative procedure. You should put the spirit level on the front-to-back beams on both sides, and the rear beam, repetitively. During the measurements you can fine adjust the horizontal level position of the complete leg system.

As we mentioned earlier in this User Manual, with the height sensing springs of the valve assemblies (see their description later) you CAN NOT adjust the horizontal level error of the top plate. The adjustment of the horizontal level can be carried out only in this phase with the height adjusting screws. This is a delicate feature of STable (©) Active Pneumatic Vibration Isolation Tables. The legs of other manufacturers are more simplified. Our pneumatic control system deals with keeping the optimal work point of the pistons in the working cylinders only. To understand the aim and function of the pneumatic control system see Figure 2. and Figure 4. and their explanations.

Finally when you have found the horizontal level position of the leg system perfect according to the spirit level, you should check the out-turning (clockwise turning from top looking) torque of the four height adjusting screws. The four out-turning torques should be approximately equal to each other. This is a fancy trick, how to measure forces by measuring torques. This is the only verification method to test the really stable position of the legs on the floor, because if the four out-turning torques are equal, than the mass forces on the four legs are equal and the leg system will not waggle.

The Parts of the Working Cylinder

See Figure 2. In the figure you can see all the key elements of the working cylinder. After the installation, and periodically during the lifetime of the Table the position of these parts should be checked. Figure 2. shows the piston in a slightly wrong position. The piston is shown in a bit too high position (see later the explanation of Figure 4.). The reason, why the piston is shown in an inadequate position in Figure 2. is that the silicone membrane can be seen in this (too high) position of the piston only. The working position of the piston is determined by the height sensing spring (which can be seen in Figure 3.).

The Parts of the Valve Assembly

See Figure 3. The valve assembly is a quite difficult part of the Table. The reason, why it is assembled on a removable base plate independently from the leg, that there are many parts on the valve assembly, which are fixed, fine adjusted and calibrated in the factory. They must not be modified under any circumstances. If there is any trouble with the control system, the complete valve assembly can be changed with the two fixing screws. It is a very easy repairing procedure. You can find a downloadable document on our website, how to change the valve assembly. After changing the valve assembly, only the proper adjustment of the height sensing spring is necessary. There is a precise protection mechanism of the valve realized on the valve assembly. The valve is a very sensitive part. The role of the security bumper is to protect the valve against the huge force appearing in that cases, when no gas supply is applied and the height sensing lever is pressed down by the mass force of the top plate. The height sensing spring is a special construction. Under normal working circumstances (when the Table is working) it works as a solid stick, because the spring is quite strong compared to the working force of the height sensing lever. When the gas supply is switched off, the height sensing lever is pushed onto the security bumper and the height sensing spring is shortened by the huge mass load of the top plate. The actual position of the piston in the working cylinder is determined by the adjustment of the height sensing spring. Always take care of the disposable fixing tapes or rubber rings. They should be installed during the transportation periods only! Never apply a gas supply, if the disposable fixing tapes or rubber rings are installed, because if the height sensing levers cannot move, it will blow up the silicone membranes of the working cylinders immediately!

Adjustment of the Optimal Position of the Pistons

Supertech Instruments manufactures any size of Tables. The Tables are categorized into two groups; there are Small and Large Tables. In these two categories of Tables we use different working cylinders. The adjustment procedure of the optimal position of the pistons in the working cylinders are the same either for the Small or the Large Tables. The appearances of the two versions of the working cylinders are different. That is, why you can find two drawings in the end of this User Manual. Figure 4. shows the working cylinder of a Small Table and Figure 6. shows the working cylinder of a Large Table, respectively.

The total vertical moving distance (stroke length) of the piston in the working cylinder is approximately 20 mm. The task of the height sensing spring is to determine the optimal position of the piston. That is the optimal point, when the piston is located on the halfway of its total stroke length. It would be quite difficult to measure this position, but there is a more simple method. You can check the position of the piston visually. It is drawn in Figure 4. and in Figure 6., respectively. The optimal positions are shown in the middle drawings of the figures.

Vertical Angle Adjustment of the Pistons

See Figure 5. The adjustments written in this section are applicable for the Small Tables only. The pistons of the Large Tables have a self-adjustment mechanism to assure their optimal vertical angle.

Before carrying out these adjustments, the optimal positions of the pistons should be adjusted as described in the previous section. When the optimal positions of the pistons are perfect, you should check the vertical angle positions of each piston each by each. When there is no gas supply applied to the Table (after installation or repositioning of the top plate) the holding mats find an undefined position on the bottom surface of the top plate. When the Table is working, you can see, if the vertical angle position is good or not. If it is not good, the top surface of the piston, and the top surface of the respective working cylinder form different surfaces with an angle between them. However the height of the piston is good, this parallel relation of the surfaces is not perfect. This situation can be seen on the upper drawing in Figure 5. The good vertical angle position can be seen on the lower drawing in Figure 5. If you want to modify the vertical angle position of the piston (with moving the holding mat horizontally on the bottom surface of the top plate), you should lift the top plate a little bit. It is quite heavy. Be careful! You should minimize the angle shown on the upper drawing in Figure 5. If you try to modify, move the holding mat with small distances. One millimeter movement of the holding mat on the bottom surface of the top plate results approximately two degrees in the angle difference of the surfaces (between the piston and the respective working cylinder).

Quiet Air Compressor

There is a very popular and comfortable accessory of STable (©) Active Vibration Isolation Tables: the Quiet Air Compressor. This compressor requires no adjustment or maintenance, but it can work for decades. The Quiet Air Compressor has got its internal pressure regulator circuit optimized to supply our Vibration Isolation Tables. The working actions of the compressor make no pneumatic or mechanical disturbances for the table.

If there are no externally forced mechanical transients on the top plate of the STable (©) Active Vibration Isolation Table, the compressor starts itself a few times a workday. A usual STable (©) Active Vibration Isolation Table has got such a level of air leakage what starts the Quiet Air Compressor one or two times a day. If the Quiet Air Compressor starts itself more than five times a day, please call the repair service.

Technical Data of the Quiet Air Compressor:

Default pressure range for the "small" tables:
- Low (switch on) pressure: 2.0 Bar
- High (switch off) pressure: 2.5 Bar

Default pressure range for the "large" tables:
Low (switch on) pressure: 5.0 Bar
High (switch off) pressure: 7.0 Bar

The default pressure ranges are optimized for STable (©) Active Vibration Isolation Tables manufactured by Supertech Instruments. Other pressure range can also be specified in the order, because we manufacture Quiet Air Compressors for any user defined specification.

Volume of the internal air buffer tank: 3 dm^3

Supply voltage: 230 VAC (unfortunately 115 VAC versions cannot be manufactured)

Current consumption in the working periods: 1.6 A

Peak current in the starting periods (approximately 2 seconds): 12 A

Noise level: 40 dB (A). It is equal to the noise level of a usual household refrigerator.

Weight: 20 kg

Important Notes about the Quiet Air Compressor

Quiet Air Compressor must always stand top side up! Quiet Air Compressor must not be tilted, because the internal lubricant oil would flow out on the tube connectors.

Quiet Air Compressor is not dangerous equipment, but you should inspect it. If you recognize, that your Quiet Air Compressor starts more than three times a day, or even it works continuously, please stop it at once and do not switch it on again! In such a case please call the repair service immediately! A normally working Active Vibration Isolation Table starts the Quiet Air Compressor three times per day as maximum. The total worktime of the motor built into the Quiet Air Compressor is 1000 hours. It results, that the lifetime of the Quiet Air Compressor under normal conditions will be approximately 30 years. But if the motor works continuously, the 1000 hours means 41 days only! After spending the lifetime of the motor the Quiet Air Compressor can even catch fire!

If the motor stops, but the supply voltage is applied (it is the situation when a fault appears), the current of the motor is increased dramatically, resulting a very high temperature. There is an internal thermal protector fuse, what normally breaks the current in such a case. But this fuse can also become faulty in worst case, resulting a fire in your lab, and the building! That is, why you should inspect the Quiet Air Compressor periodically.

The starting current of the Quiet Air Compressor is approximately 12 A. It is decreased to the nominal 1.6 A in a few seconds after starting the motor, but it is

necessary to connect the Quiet Air Compressor into a wall plug capable to provide 12 A of current.

Using Central Air Supply

It is much more secure to operate an Active Vibration Isolation Table from a Quiet Air Compressor, because the output pressure of the Quiet Air Compressor is controlled by its internal pressure regulator. It must never be higher than the absolute pressure limits of the gas supply (given at the Technical Specifications paragraph). On every output connection point of the central air supply of the building there is always a pressure regulator installed. But that regulator is manually adjustable and can be turned up accidentally up to 8 or 10 Bar. The silicone rubber membranes of the table will immediately blow up above 2.5 Bar (or 7.5 Bar for the "large" tables)! We suggest you to use the Quiet Air Compressor as air supply in the system for the sake of the Table.

If you even decide to use the central air supply, please specify this fact in the order and we will provide the necessary safety adaptor for you.

"Optical" Hole Pattern and "Optical" Breadboards

"Optical" hole pattern means: there are M6 threaded holes in 25 x 25 mm pattern on the top plate. It is an optional feature of the top plates. It is useful, if many small optical elements (such as lenses, mirrors, lasers, etc.) should be positioned strongly and precisely. The "Optical" hole pattern can only be drilled in our workshop during the manufacturing process of the top plates.

If you order an "Optical" hole pattern for the full surface of the top plate, we calculate the total area of the top plate as drilled area. The reason of this calculation method is that the widths of the borders on the edges of the top plate depend on the size of the top plate, but the borders are surely smaller than 25 mm. If you order an "Optical" hole pattern only on a specified, smaller area, we calculate the size of the drilled area as the area of the rectangular defined by the centers of the M6 holes in the corners.

"Optical" breadboard means: an additional thin plate containing M6 threaded holes in 25 x 25 mm pattern. This "optical" breadboard can be placed on the top plate of the Vibration Isolation Tables. It is covered by dull stainless steel surface with special magnetic feature. The default thickness of the "Optical" breadboard is 40 mm.

It must be emphasized, that a breadboard alone has no good enough bending and torsional rigidity. It is intended to be used on a stable surface (like top plate of a vibration isolation table). Basically the rigidity is the difference between a top plate and a breadboard.

Attenuation Diagram of the STable (©) Vibration Isolation Tables

In the end of this booklet you can see the worst case attenuation diagram of the STable (©) Active Pneumatic Vibration Isolation Tables, measured on the vertical axis. In the diagram the relative attenuation is shown as a function of the frequency. During the measurements a vertical excitation was applied at the floor standing the Table on. The spectral characteristic of the excitation was a white noise. The measurements were carried out in the time domain, and then they were transformed off-line to the frequency domain.

This attenuation diagram was measured on an empty (nothing on the top plate) 98 x 66 cm Table. This is why the diagram shows the worst case situation. This statement means that in most of the real situations better performance can be measured than what this diagram shows. The corner frequency of the vibration isolator working cylinder is reciprocally proportional to the mass load on the working cylinder. On the one hand the bigger tables have heavier top plates. On the other hand there is always some equipment installed on the top plate, increasing the total weight. The bigger mass results a lower corner frequency and as a result it gives better vibration attenuation performance above the corner frequency.

Warranty

We give you full warranty service, including rest parts for the period of 3 years by default. Longer warranty periods can also be defined and agreed (the actual conditions should be discussed before placing the order). Usually and basically we repair the faulty equipments in our workshop. The expense of the shipment should be covered by our customers.

The warranty does not cover the faults made by the user.

If the installation was not carried out on a workmanlike manner, the warranty ceases. We provide many resources to help you to install the product correctly: user manual, installation manual, repair manual, free helpdesk on the phone and in email. With this background the workmanlike installation is easy. However if you are not sure you can do it, you can involve our product specialist.

Since the STable (©) Vibration Isolation Tables and Quiet Air Compressors are heavyweight equipments, in case of a fault they cannot be transported by the simple methods to our workshop. If a repair action is needed, there are two possible alternate solutions:

1) The product specialist of Supertech Instruments travels from the Factory to the location of the Table, and repairs on site. In this case the expense of the repair task (spare parts, and the labor costs) is paid by Supertech Instruments, but the traveling costs (to there, and back, too), and the accommodation expenses (if necessary, if the distance is far) are paid by the customer. In such cases Supertech Instruments counts

the real pure travel costs (without applying any profit on it), because to support the perfect repairing is our interest, too.

2) Supertech Instruments provides all the necessary spare parts and background support (technical documentation, email, phone and videophone consultation, etc.) for the repair action for free. The customer provides a qualified and practiced professional who repairs on site. This way the travel costs (mentioned in the previous paragraph) can be spared by the customer. In such cases the customer should choose the appropriate specialist, and the customer has all the responsibilities for the professional quality of the chosen specialist. The first action what the local specialist must do is to read and follow every step of the Table Fault Locating Guide issued by Supertech Instruments. After completing the steps of the Table Fault Locating Guide the local specialist can (and should) consult (on the phone, via email or IP videophone) the product specialist of Supertech Instruments and must follow his instructions. This way the local specialist can efficiently repair on site by the full support of the product specialist.

Further Information Sources

On the Download page of our website you can find many more useful documents for installation, checking, fault locating, repairing, moving, etc. of STable (©) Active Pneumatic Vibration Isolation Tables. Please check the list of the available documents.

Technical hotline via email (all of them work):

office@superte.ch
office@supertechinstruments.co.uk
office@super-tech.eu

International technical hotline on the phone: +36 20 9234 386

For further technical information please visit our websites. Supertech Instruments continuously uses several websites with the same content. Please use that one, which is the easiest for you to remember:

www.superte.ch
www.supertechinstruments.co.uk
www.supertech-instruments.co.uk
www.supertech-instruments.com
www.super-tech.eu

Specifically for the STable (©) Vibration Isolation Tables you can find a few more websites with the same content, too:

www.airtable.eu
www.opticaltable.eu
www.vibrationisolation.eu

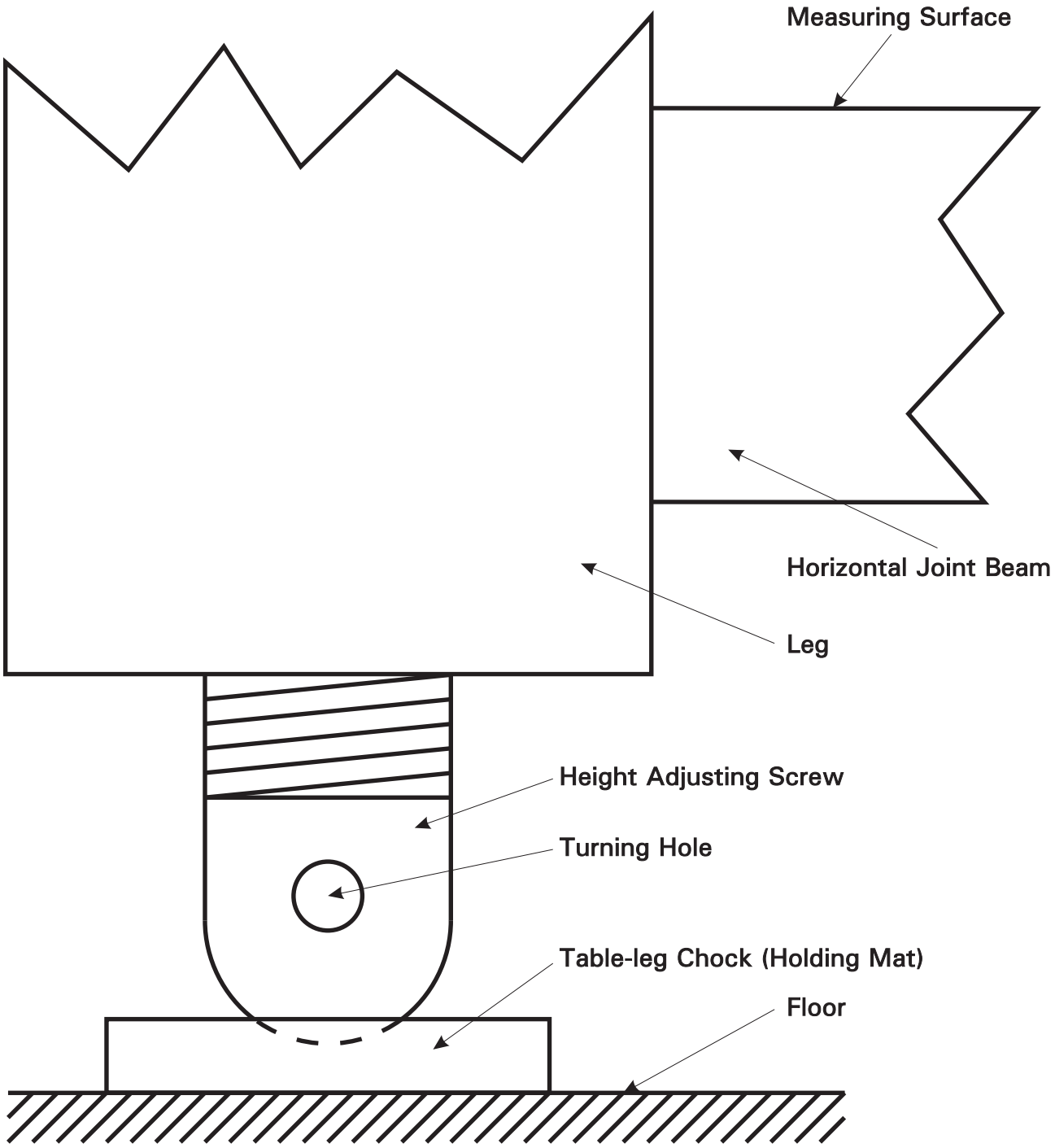


Figure 1. Horizontal level adjustment of the leg system

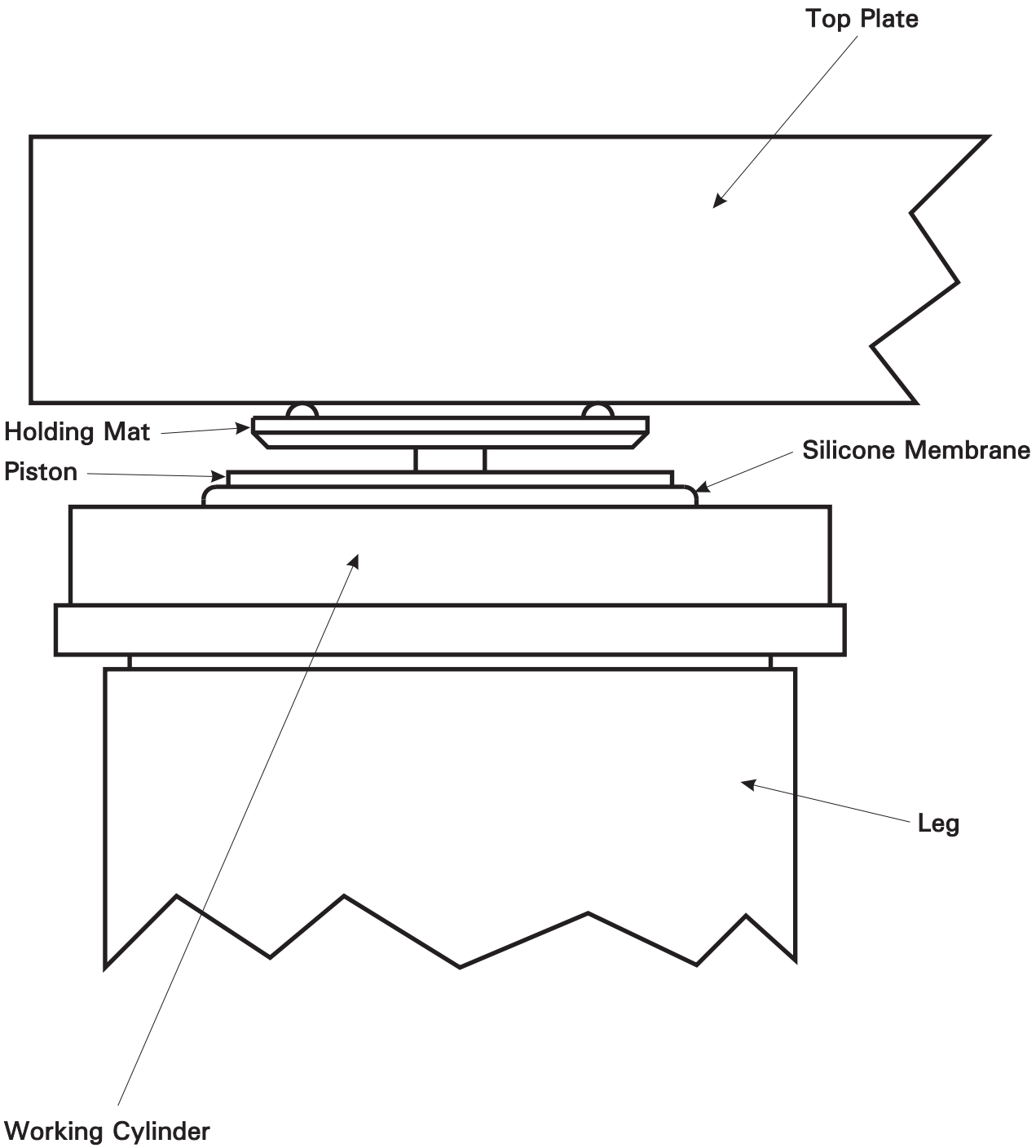
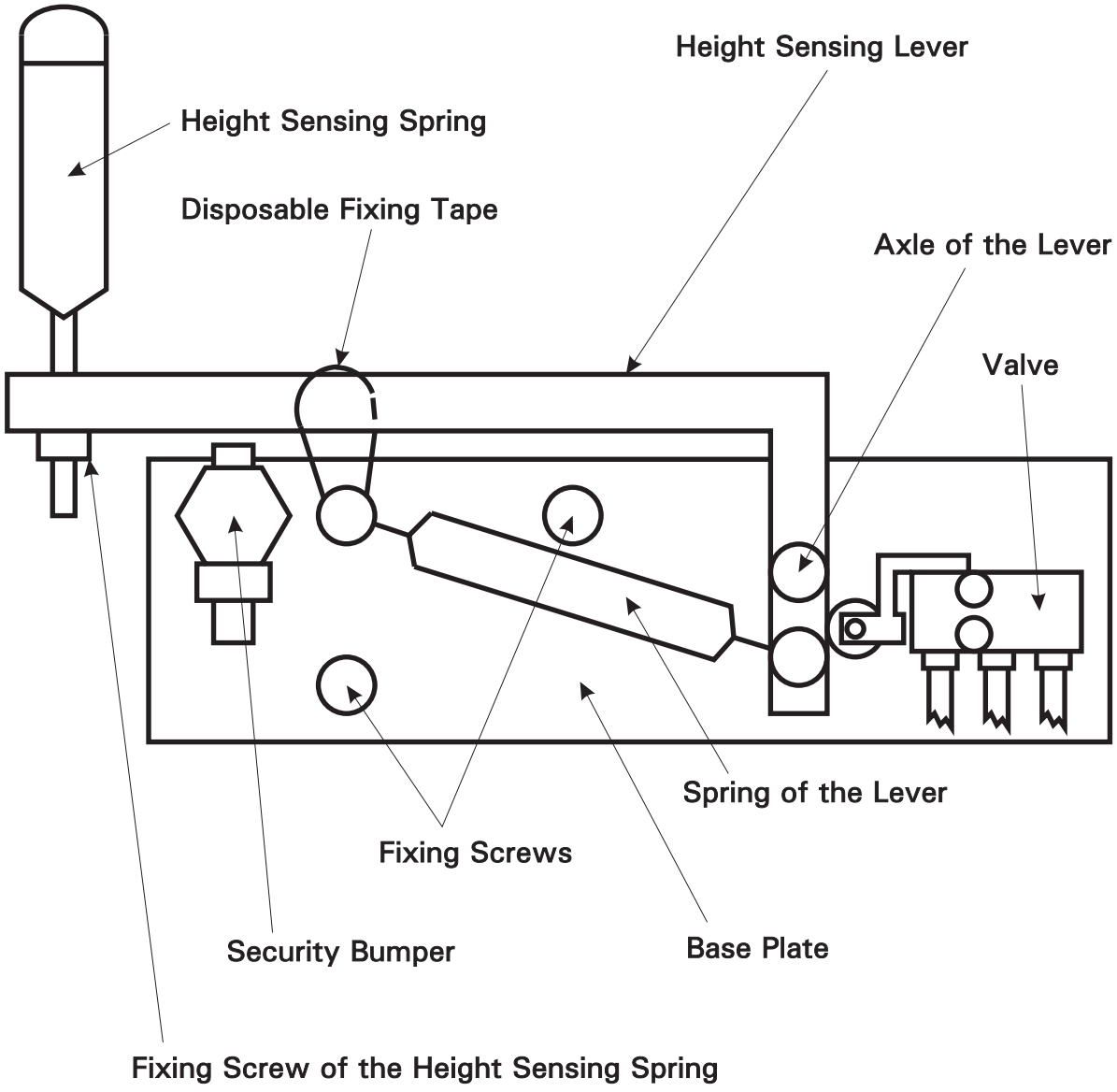


Figure 2. Parts of the Working Cylinder (Small Table)



If there is any adjustment seems to be necessary, only the Fixing Screw of the Height Sensing Spring should be opened, and the Height Sensing Spring should be turned into another position. After making the modification the Fixing Screw should be closed again.

Modification of any other parts of this Valve Assembly is prohibited, because serious damage of the Silicone Membrane and/or the Valve can happen.

Figure 3. Parts of the Valve Assembly

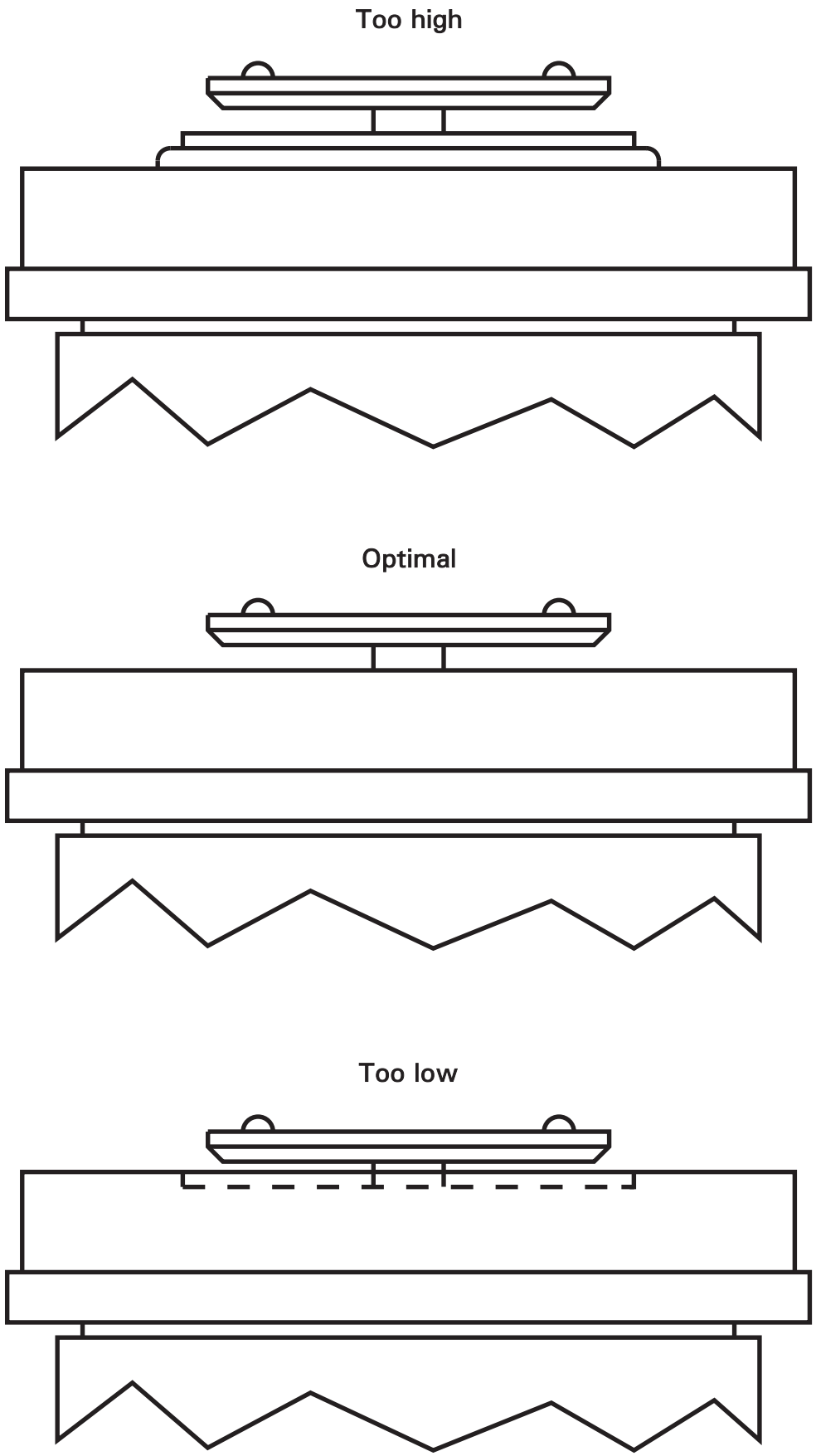


Figure 4. Adjusting the height of the Piston in the Working Cylinder of the Small Tables

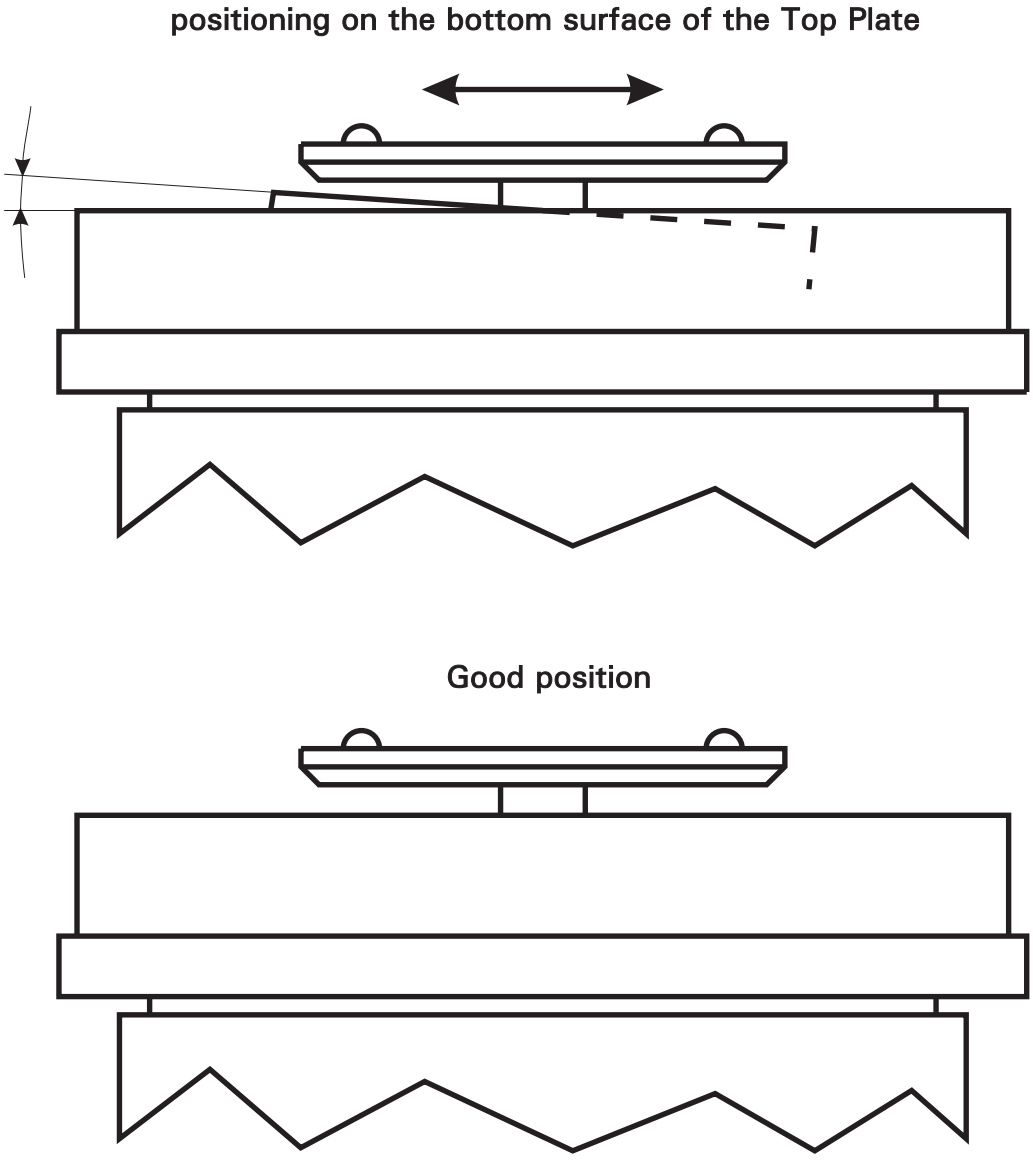


Figure 5. Positioning of the vertical angle of the Piston in the Working Cylinder of the Small Tables

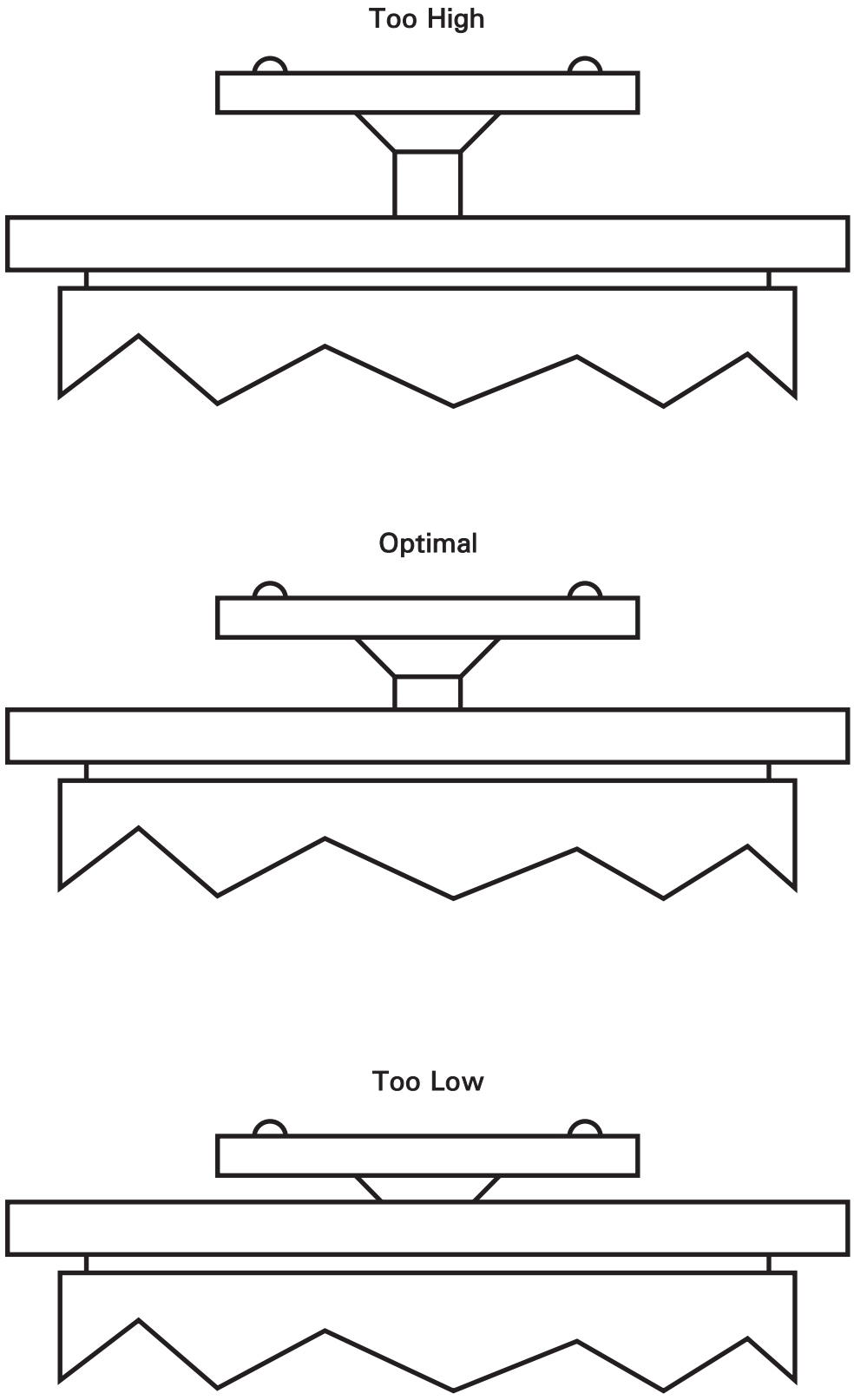
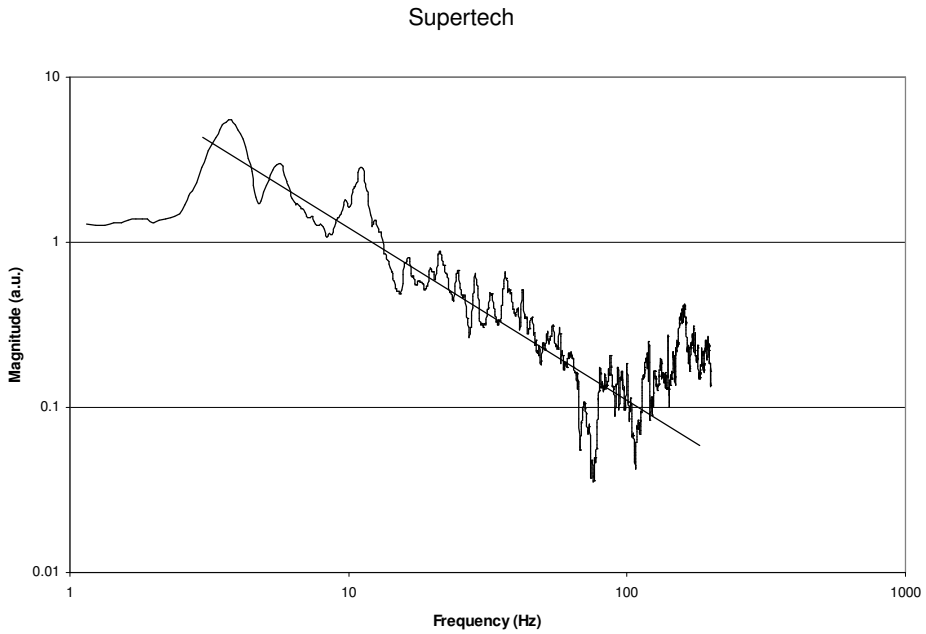


Figure 6. Adjusting the height of the Piston in the Working Cylinder of the Large Tables

Attenuation of the 980 x 660 mm Pneumatic Vibration Isolation Table Manufactured by SUPERTECH Instruments



This graph shows the worst case attenuation, because it was measured on the smallest vibration isolation table SUPERTECH Instruments manufactures. The bigger sized tables have better attenuation, proportional to their size.