

# Doubler Table System Installation

## Receiving and Inspecting the Table System

After receiving your table system carefully inspect the table crates for any shipment damage or mishandling and document any potential issues with notes and photos. Newport Table crates are specially designed to protect the contents even if the crate is cosmetically damaged or mishandled. If the crate will be in storage before installation be certain it is protected from harsh environments.



Use proper lifting and maneuvering techniques to move the table to its unpacking location. This includes lifting the crate from the bottom and only pushing against designated areas when necessary.



**Under no circumstances should you attempt to use a forklift or other blunt tool to push or lift the crate along its sidewall or top as this may result in damage to the table.**

Also inspect isolator or support leg packaging for damage. It is recommended that the support legs be moved to the installation location first so they can be set-up to support table sections during assembly.

Be sure to contact your facilities team to plan for the receipt and installation of your table system. Depending on the size of the table, lab accessibility and facility capabilities you may need to consult with an equipment moving company to assist with installation. Contact Newport for references to reliable equipment movers if needed.



## Unpacking the Table System

Optical table crates are constructed of a bottom skid and a reinforced cover bonnet. To remove the top bonnet use a power tool to remove the fasteners located around the bottom perimeter of the bonnet.

After the fasteners are removed the bonnet can be carefully lifted off the bottom skid. Be sure to use safe lifting techniques and wear gloves when removing the bonnet and safely store bonnet away from the table installation area.



Using a forklift or pallet jack positioned under the skid, slowly lift the skid approximately 6" off the ground. Carefully use your foot or have an assistant help press down on one end of the skid to safely create a space between the table and skid and place 2x4's or other reliable spacers within that space. Repeat this on the other sides. This is used to distance the table from the skid to properly lift the table. If the table section and skid are too small to allow for bending of the skid you may need to manually push the table off the skid several inches to allow lifting forks to lift the bottom of one corner of the table to create access to insert spacer blocks.



**Under no circumstances should you attempt to use a forklift or other blunt tool to push or lift the table along its sidewall or top skin as this may result in damage to the table.**



Slowly lower the skid back to the floor and remove protective wrapping around table.

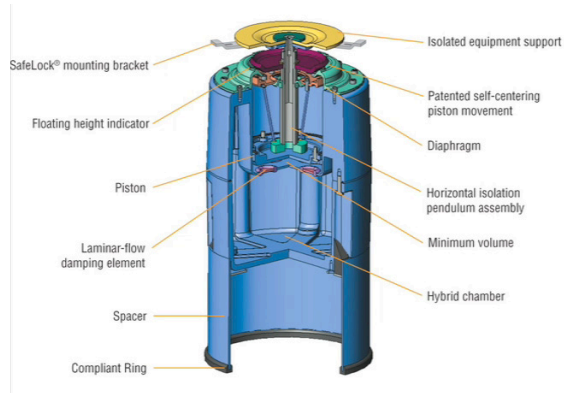
Carefully position lift forks underneath the table to safely lift the table off the skid and move to the installation area. If the final installation location is not accessible using standard lifting equipment you may need to consult with a qualified equipment mover. Only qualified and equipped technicians should attempt to flip tables upright and in those situations tables should be uniformly supported along the edges of their top and bottom steel skins.



### Setting-up the Base Unit

Refer to Newport's Isolator or leg assembly instructions to set-up one section of the doubler system to serve as the base unit. It is recommended to use a minimum of four legs to support the base unit initially and if necessary relocate the other support legs after final table assembly.

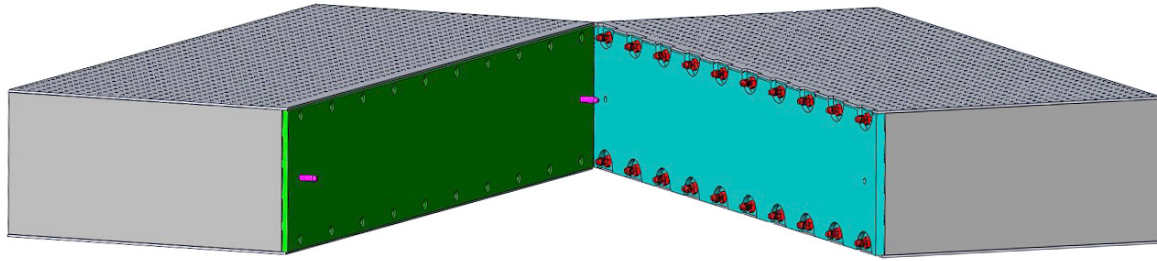
Be sure to properly install the leg system so that the table and legs are both level. Newport isolators feature a compliant ring along the bottom to compensate for minor irregularities in floor flatness. In some installations additional measures like shims or grout may be needed to correct for gross irregularities. If you are using air filled isolators DO NOT float the system until the entire table system assembly is complete. It is also recommended that you adjust the height of the base unit legs to its mid-point to allow the next section enough adjustability for both sections to become level.



### Preparing the Table Sections for Assembly

Before moving the other table section into position carefully inspect all doubler plate surfaces, 5/8"-12 bolts, alignment pins and tapped holes for any signs of damage, deformation or debris that may interfere with assembly. Newport doubler plates are matched sets that are fastened together during the table construction process to assure that they mate together during final assembly. Also, be certain that the matched sets are being assembled correctly for multi-section table systems. Contact Newport if there are any components that may look damaged for repair instructions.

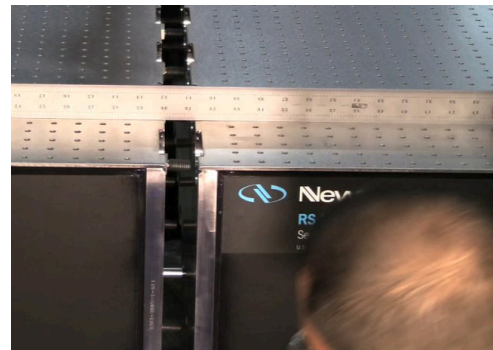




Refer to the recommended bolt torque sequence in the installation guide and if needed note the recommended sequence on the table surfaces using a pencil prior to joining the sections. This will help guide the order in which the bolts should be torqued after initial hand-tightening to ensure uniform mating and reduce the risk of improper alignment.

Position the other set of table isolators or legs near their final installation position to temporarily support the table section. It is recommended that this set of legs also be adjusted to slightly below their mid-height position to allow adequate height adjustment range for final system leveling. Using a mobile lift, carefully locate the other table section in front of the base section paying special attention to aligning the dowel pins to their mating holes in the doubler plates.

Next, locate a set of adjustable rolling supports to help level and support the table section during assembly which will also allow the bolts to pull the table sections together easily.



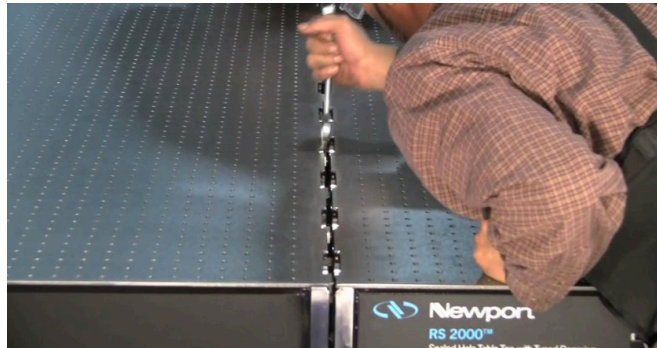
Carefully move the two sections together close enough so they can be leveled and aligned to allow the guide pins and bolts to mate to their respective holes. Be very careful of any potential pinch points as the sections come together. It is recommended to use a 48" or longer level across the joint, to assure both table sections are at equal heights and level.

### Moving the Table Sections Together

Carefully move the tables together so that the guide pins insert into their mating holes. This should allow the initial engagement of the 5/8" connecting bolts on both the top and bottom of the table by hand.



Be careful not to over-torque the bolts initially as this may cause binding of the other bolts and mis-alignment of the table sections. Once all of the bolts have been started, begin tightening the bolts by 1/2 to 1 turn using the supplied 7/8" open end wrenches or comparable tools in a sequential order around the circumference of the table to slowly draw the two table sections together. This is an iterative process to assure the two table sections are drawn together as parallel as possible along the top and bottom. This gradual tightening will also help prevent damage to the threads and prevent the bolts from binding. Continue hand tightening the bolts until the two faces come in contact with each other. Continually inspect the gap between the table sections to verify uniform closure of the table sections. Also, be certain that the bolt heads remain centered between the table sections. If any bolt heads are touching either doubler plate it may cause binding or mis-alignment.



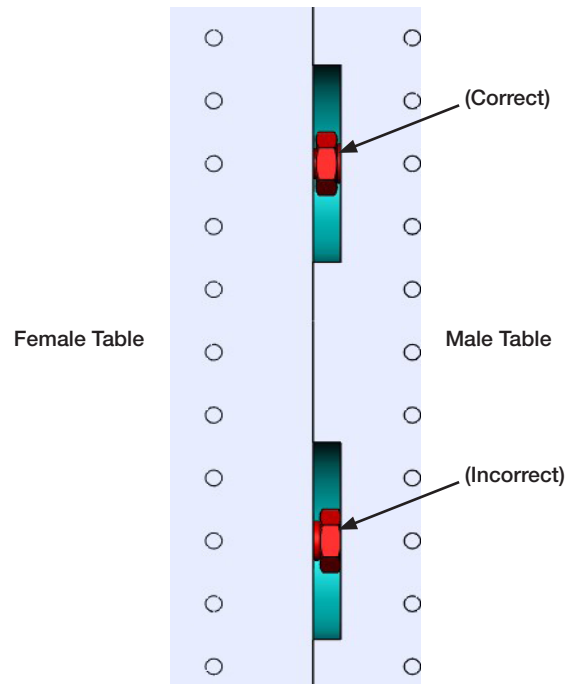
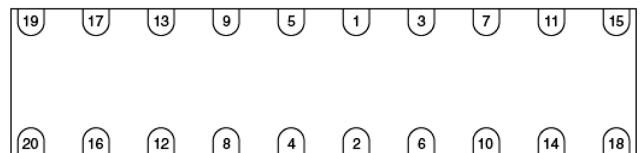
After all the bolts are uniformly engaged and table sections are in full contact use the recommended staggered tightening sequence to apply a final torque of 60 ft-lbs (80Nm) to all bolts. This sequence helps ensure uniform torque loading and proper mating of the plate. It is important that this sequence be followed carefully.



### Engage Final Isolator Supports or Legs

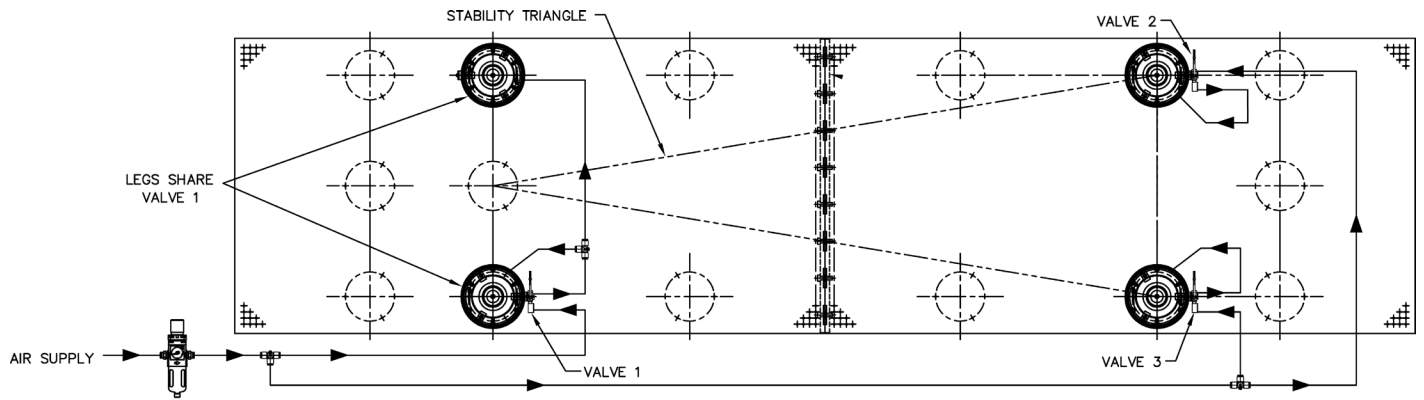
After the table sections are fully assembled, use a level to adjust the height of the isolators or support legs so that they fully support the table before removing the wheeled supports. After table is fully supported and level, remove wheeled supports and install any air lines, mounting clips and leveling valves according to the leg installation guidelines.

Final support leg and leveling valve locations are determined by table system shape and load distribution. As a reference, here are a few of the most popular custom table configurations and their recommended leg and valve locations.

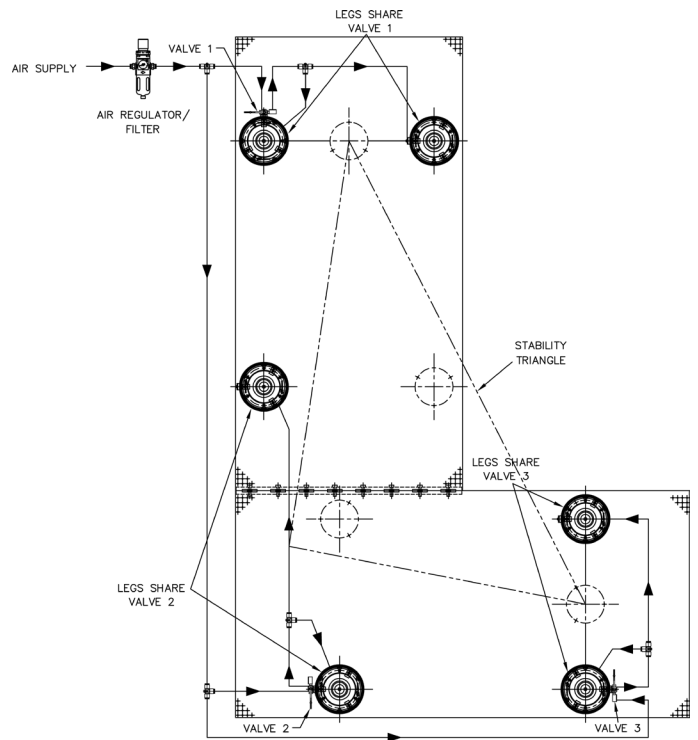


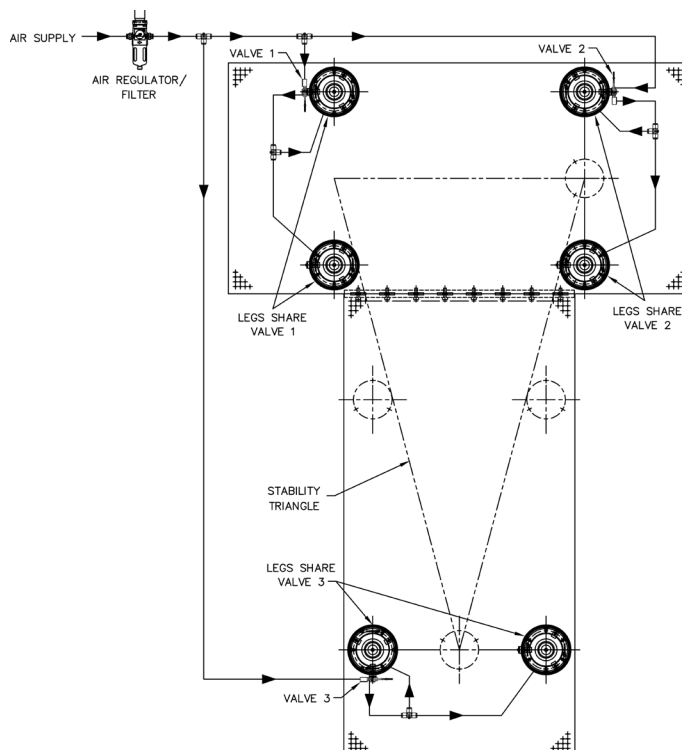


In this first example, an “end-to-end” doubler system is shown being supported by four S-2000 isolators which have a 2000lb load capacity for each isolator. The lab air supply line is connected to an Air Regulating Filter or ARF that regulates the air into the isolation system and also helps keep the supply air clean. The output of the ARF is delivered to the three leveling valves that are used to define the plane of the table. The two isolators on the left share the output of Valve 1 while the isolators on the right are controlled by individual valves, valves 2 and 3 shown. This three-valve configuration is standard, regardless of how many legs are supporting the system. Including more than three valves in a system can cause instability and make it very difficult to properly level the table system. What is also indicated is the “stability triangle” which is formed by the placement of the control valves. Individually controlled legs form corners of the triangle and the other corner is located between the isolators that share a leveling valve. It is within and around this area that the majority of the system load should be located to provide optimal performance. If a larger load triangle is desired the system legs should be located further apart.”



In this next example an “L-shaped” doubler system is shown being supported by six S-2000 isolators, three for each section. Again, the output of the ARF feeds three leveling valves for the system but because there are six legs in total each valve is used to control two legs. The two legs at the top of the doubler are controlled by Valve 1. The two legs at the far right are controlled by Valve 3 and the remaining two legs are controlled by Valve 2. This design creates the largest stability triangle possible. In these more complex systems, it is critical that the design of the stability triangle be carefully considered so that the system can be properly leveled and stabilized.





In this final example a “T-Shaped” doubler system (shown on page 7) is shown being supported by six S-2000 isolators. As in the previous example each leveling valve controls two isolator legs and in this configuration the pairs of legs at the outermost sections of the table are controlled by Valves 1,2 and 3. This creates the largest stability triangle possible for this system shape.

Regardless of the size or shape of the table system the basic components are the same. The main air supply should be passed through some type of Air Regulating Filter, the ARF should feed only three leveling valves and those leveling valves should be configured to supply the optimal number of isolators to create the largest stability triangle.

Also be sure that pneumatic legs are floating at the proper height and are level for maximum performance and if needed adjust the leveling valves or supply pressure according to the isolator installation guidelines.

For additional assistance with leveling valve locations or air line configurations please refer to your isolator installation manual, on-line support or contact Newport technical support at [tech@newport.com](mailto:tech@newport.com).

Your new table system is now ready for use.