



PTP602, PTP603 PTH602, PTH603
NTP502, NTP503, NTH502, NTH503

Passive Isolating
Optical Table Supports

User Guide



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Chapter 1 Safety

1.1 Safety Information

For the continuing safety of the operators of this equipment, and the protection of the equipment itself, the operator should take note of the **Warnings, Cautions** and **Notes** throughout this handbook and, where visible, on the product itself.

The following safety symbols may be used throughout the handbook and on the equipment itself.



 **Shock Warning** 
Given when there is a risk of injury from electrical shock.

 **Warning** 
Given when there is a risk of injury to users.

 **Caution** 
Given when there is a risk of damage to the product.

Note
Clarification of an instruction or additional information.

1.2 General Warnings

 **Warnings** 

Do:

- Ensure that the system is securely positioned prior to any work being undertaken.
- If using the system with any electrical equipment, incorporate appropriate earthing and/or other safety circuitry as required by national standards to protect the operator.
- When lifting or moving components, ensure that the proper posture is maintained. Do not lift loads in excess of nationally recognized safe working limits (25kg per operator in Europe). If in doubt use an appropriately designed lifting device.
- Before lifting the table top, ensure it is unpopulated.
- Exercise particular caution if moving the system on a sloping surface.
- Ensure all fixings are secure prior to use.
- Ensure that proper airflow is maintained to any electrical equipment installed on the system.

Do not:

- Use the system outdoors. The system is designed for indoor use only.
- Get into any position where you can be trapped between a wall, door frame or other immovable object and the system.
- Go underneath the system when the unit is being moved.
- Move the system when the table is floating on its supports.
- Tow the system with any powered device.
- Ride on the system.
- Move the system over uneven ground.
- Sit on the system.

Chapter 2 Operation

2.1 General Description

Thorlabs passive isolators are designed to remove floor vibrations in the critical 10Hz to 50Hz frequency range. The passive air mount design is ideal for most general optical table uses, providing low frequency isolation coupled with excellent stability in both horizontal and vertical directions. The thick wall construction assures maximum safety and overload protection with an economical design. The air mount continues to support and isolate even with no air pressure.

Two load capacities are available to match a particular application and a choice of height allows any of the standard Thorlabs table tops to be mounted at a nominal working height of 910mm (36 in.) above the floor.

2.2 Damping System

Each isolator consists of a cylindrical reinforced rubber air mount in the top of a cylindrical steel leg. The rubber mount is bolted to a base plate which is fixed to the leg by 3 anchors. The table top rests on a steel plate which is bolted to the air mount. The height of the table top is adjusted by admitting or releasing air into the mount via a standard Schraeder valve, situated on the side of each isolator. Height adjustment is restricted by 4 steel bolts which connect the top plate to the base plate. Under normal operation, these bolts hang loose beneath the base plate as shown in Fig. 2.1, but if the mount is inflated sufficiently, the lower stop nuts butt against the base plate. If the pressure in the air mount is removed, the sleeves on the restrictor bolts prevent the load from pushing the top plate into the leg, thereby avoiding damage to the air mount.

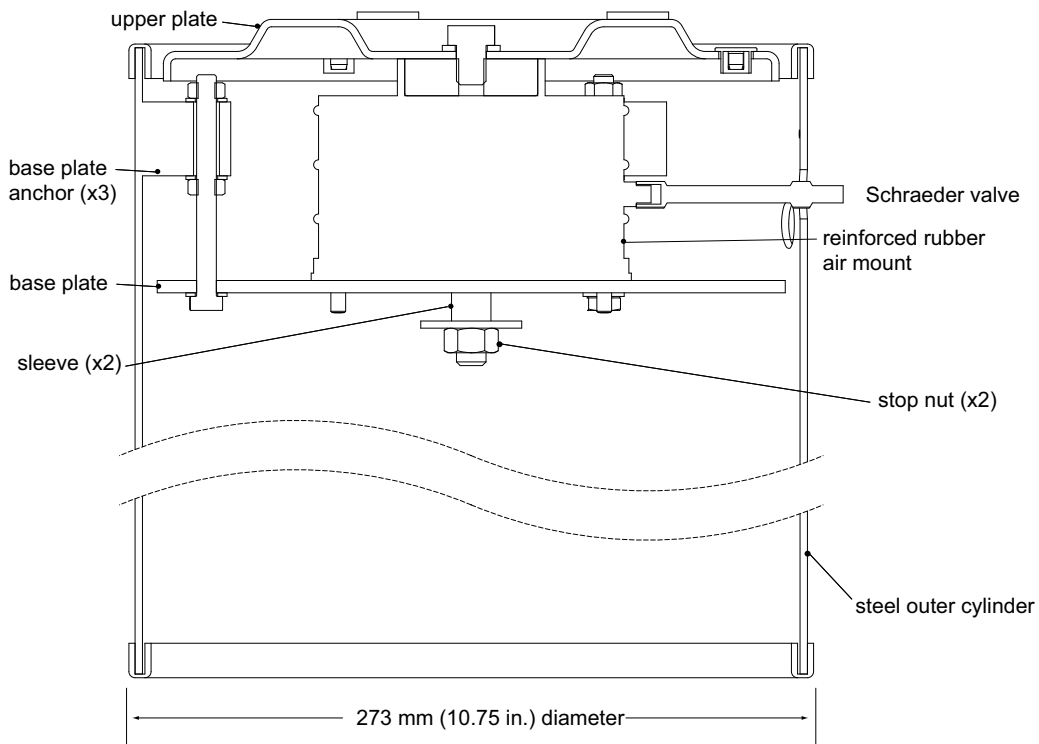


Fig. 2.1 Passive isolator section

Chapter 3 Installation

3.1 General

3.1.1 Parts List

Isolators	Height mm (in.)	Load Capacity kg (lb)	Part Number
	600 (24)	1100 (2425)	PTP502
	700 (28)	1100 (2425)	PTP503
	600 (24)	2200 (4850)	PTH502
	700 (28)	2200 (4850)	PTH503

The following items are supplied as standard:

4 passive isolators

2 lifting handles

8 plastic plugs

3.1.2 Preparation

Ensure that the floor of the installation site is flat and horizontal to within 13 mm, (i.e. +/- 6.5 mm).

3.2 Installation

3.2.1 Positioning the Isolators

1) Fit the lifting handles into the tapped holes on each side of the outer cylinder of the isolator – see Fig. 3.1.

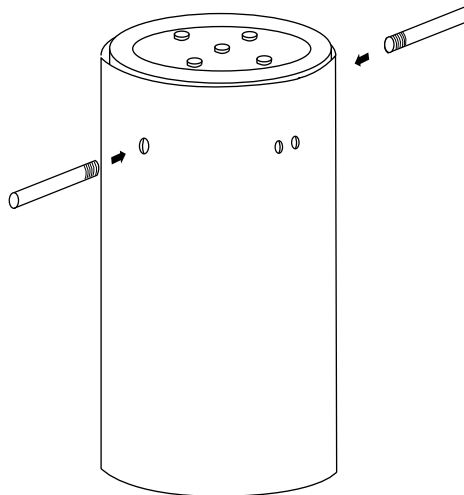


Fig. 3.1 Fitting the lifting handles

Note

During item 2, two people, one on each side, should be employed in positioning the supports.

- Position the isolators in approximately the correct position for the table – see Fig. 3.2 for dimensions. Note the position of the Schraeder valves and orientate the isolators as shown. Remove the lifting handles.

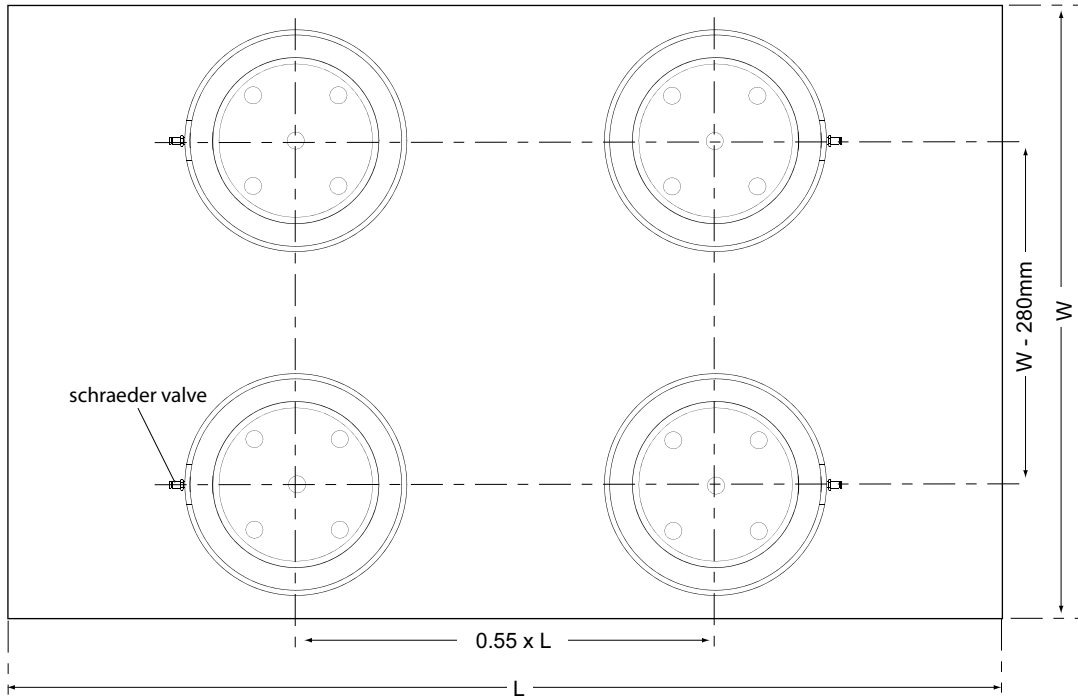


Fig. 3.2 Isolator positions

- Fit the plastic plugs into the exposed lifting handle attachment holes.

3.2.2 Mounting the Table on the Isolators

- Raise the table on a fork-lift truck, ensuring that the fork distance is set such that the forks can pass between the isolators when the table is lowered into position – See Fig. 3.3.

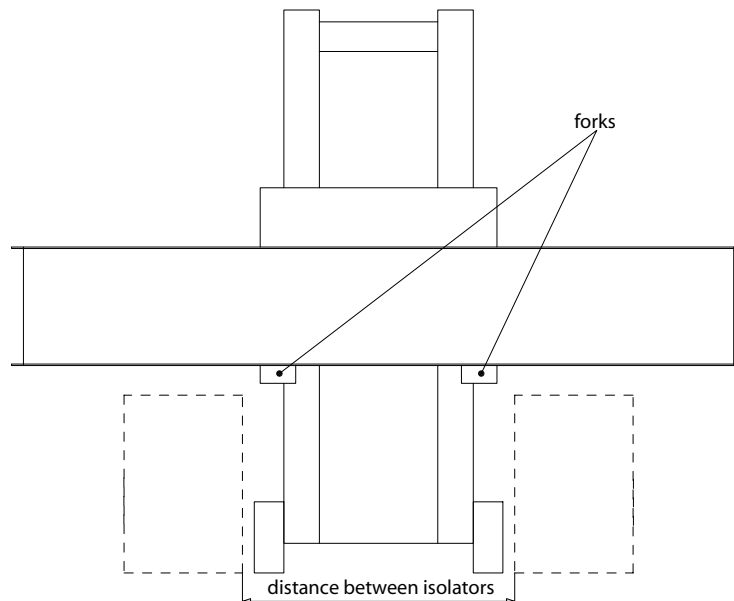


Fig. 3.3 Distance between forks

- Manoeuvre the fork-lift truck until the table is over the isolators. Carefully lower the table until it is around 20mm above the isolators.

- 3) Ensure that the isolators are positioned correctly as identified by the location marks on the underside of the table – Fig. 3.4.

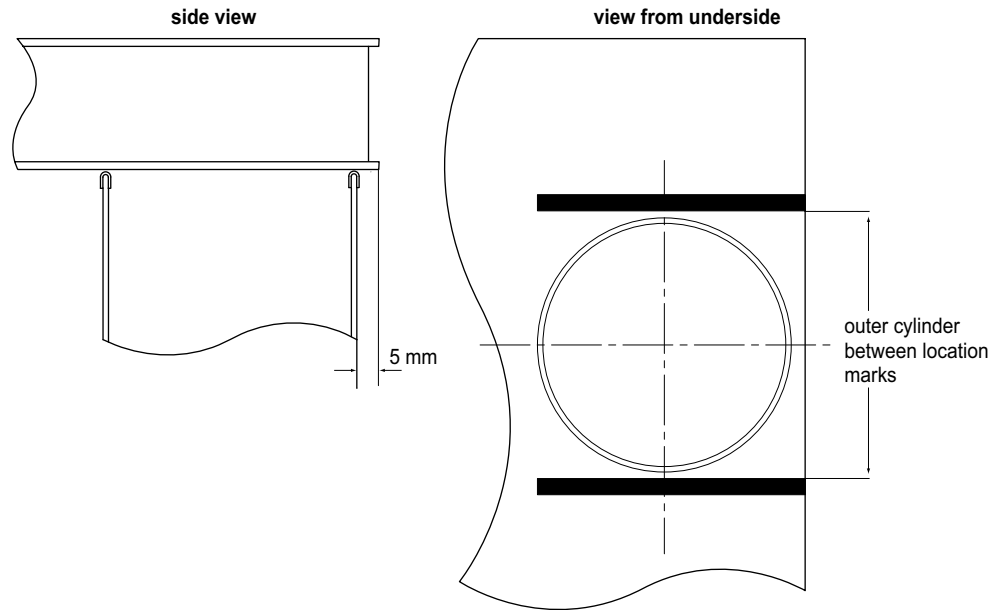


Fig. 3.4 Location marks

- 4) Lower the table onto the isolators.
5) When the table is supported on the outer cylinders of the isolators, remove the fork-lift truck.

3.3 Set-up

- 1) Connect a footpump to the Schraeder valve of one of the isolators and inflate to raise the table by around 5mm.
- 2) Repeat item 1) for the isolator diagonally opposite.
- 3) Repeat items (1) and (2) for the remaining two isolators.
- 4) Repeat items (1) to (3) until all four isolators have a gap of 12 mm between the outer cylinder and the underside of the table – see Fig. 3.5.

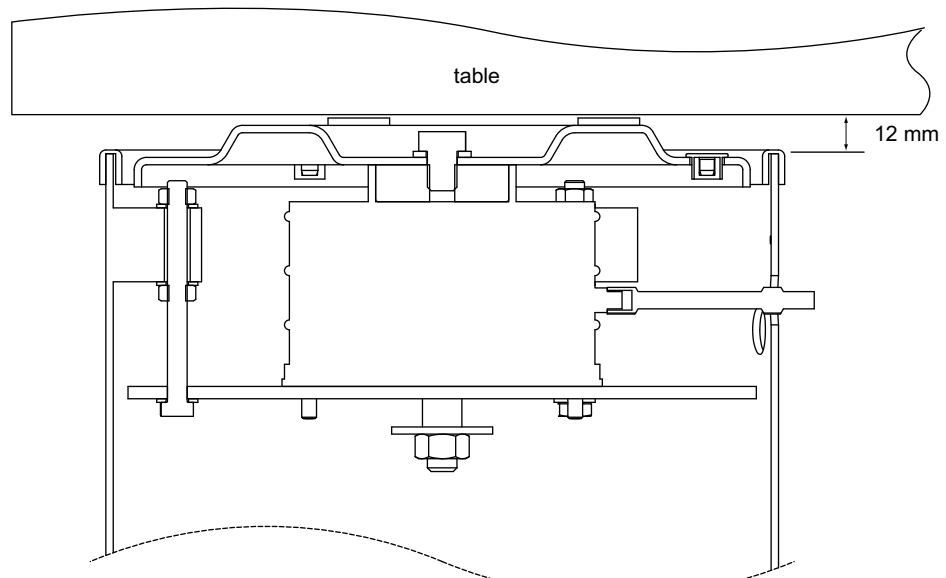


Fig. 3.5 Levelling the system

- 5) Check that the table top is level. If the floor is uneven, the gap between the table and each isolator may not be the same. If this is the case, identify the isolator with the smallest gap. Set this gap to 12mm and then adjust the remaining isolators such that the table is level. Use a levelling device as necessary.

3.4 System Stability

The location and height of a load placed on a table top can dramatically affect the stability of the table system. To ensure optimum effectiveness of the isolators, it is important to avoid any instability due to the system centre of mass being misplaced. In order to avoid dynamic instability and oscillation due to excessive rocking, the center of mass, including that of the table, should be within the pyramid defined by connecting the center point of each isolator with an apex point, whose vertical height is equal to $1/2$ the shortest distance between isolators— see Fig. 3.6.

Since the table top tends to be the heaviest component, to ensure the system is within the stability zone the system center of mass should be near the center of the table or below the table top surface. It may be necessary to lower the center of mass by relocating equipment on the table or by using accessory shelves situated below the table surface.

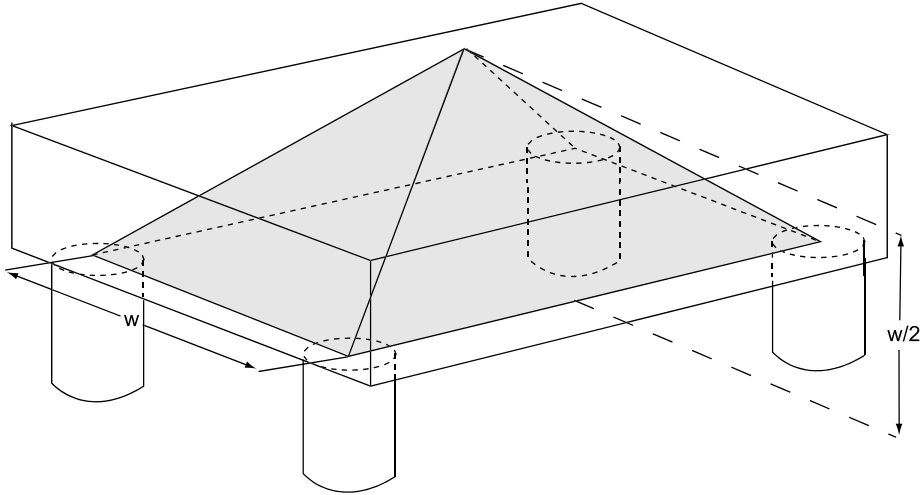


Fig. 3.6 System stability zone

Chapter 4 Joined Systems

The location and pneumatic connections for a joined system will depend on the configuration of the system. Some typical examples are shown below. Please contact your local tech support office for more details.

4.1 Smaller Systems

Although single tables require four isolators, smaller joined systems may require only six rather than eight isolators. The number of isolators required will depend upon the joiner configuration and the size of the tables. Contact tech support for detmore details of a specific system attangement.

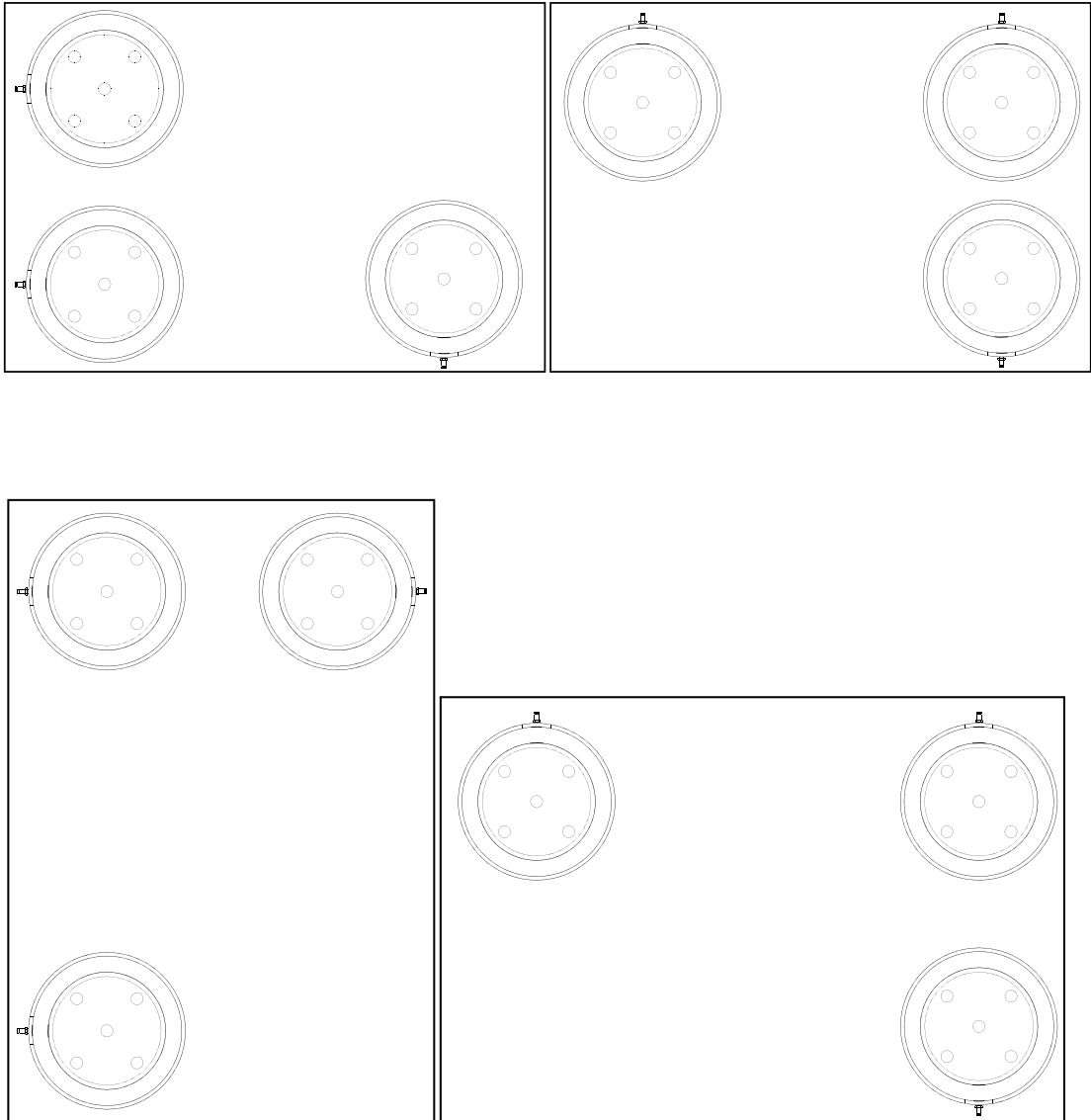


Fig. 4.1 Isolator positons and pneumatic connections - small systems

4.2 Larger Systems

Depending on the configuration of the joiner, larger systems may require eight or more isolators as shown below.

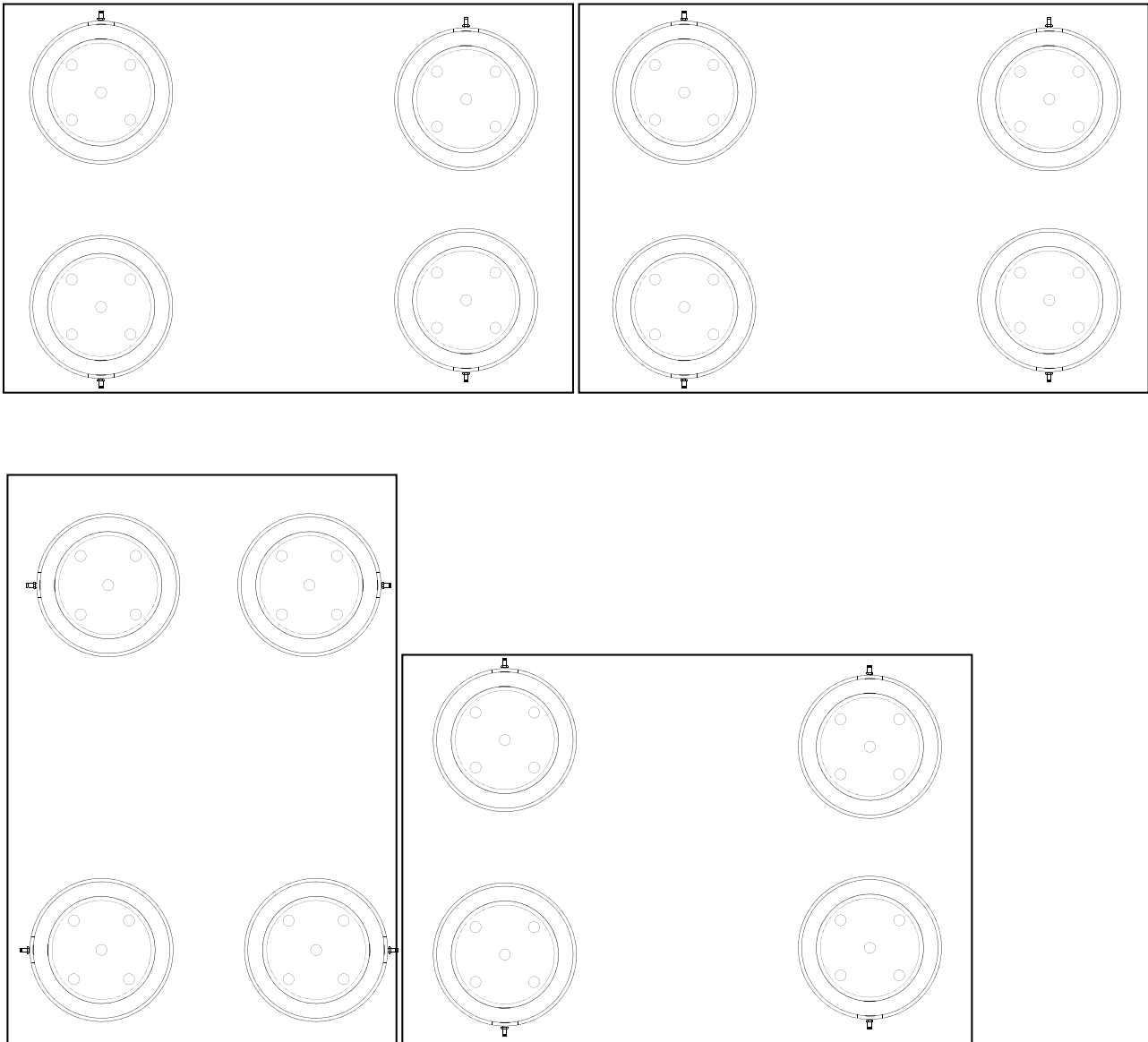


Fig. 4.2 Isolator positions and pneumatic connections - larger systems

Chapter 5 Packing List

Manual HA0206T		Handles QTY 2		Bungs BF0052 QTY 8			
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Signed.....

Countersigned.....

Date.....

Chapter 6 Thorlabs Worldwide Contacts

For technical support or sales inquiries, please visit us at www.thorlabs.com/contact for our most up-to-date contact information.



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