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Optical table supports

1TS-AP

User manual



Standa
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1. General information

1.1. Introduction

Passive air leveling vibration isolators are pneumatic elastomeric mounts, ideal for applications requiring higher deflection isolators. The ITS-AP's mechanical bond design incorporates a positive locking system to ensure performance and safe operation.

A specification of passive air leveling vibration isolator is presented in fig. 1.

| Specification | Value |
|----------------------------------------------------|---------------------------------|
| <i>Natural frequency</i> | 3-5 Hz |
| <i>Natural frequency pressure-relieved approx.</i> | 8 Hz |
| <i>Load range per 1 isolator</i> | |
| <i>ITS-AP-200</i> | 7,5-65 kg (max. pressure 5 bar) |
| <i>ITS-AP-500</i> | 35-180 kg (max. pressure 5 bar) |
| <i>ITS-AP-1000</i> | 55-280 kg (max. pressure 6 bar) |

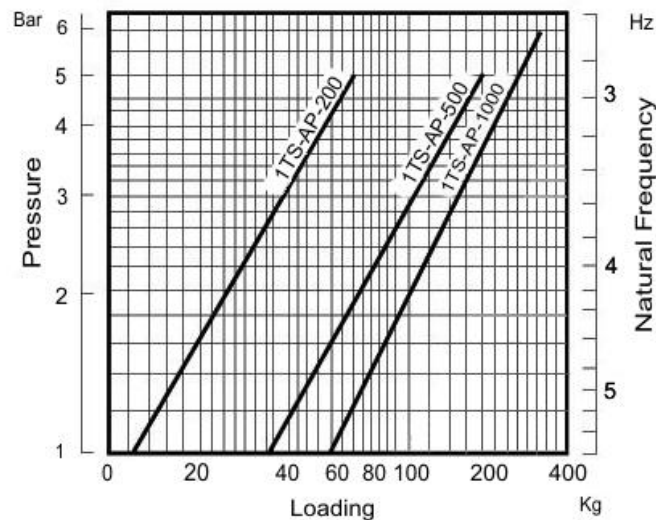


Fig. 1. Specification of ITS-AP

1.1.1 Safety

This manual uses certain terms that are important for your safety.

Warning

Used to denote a danger that may result in injury.



Attention

Used to denote a situation that may result in damage to components of the system.



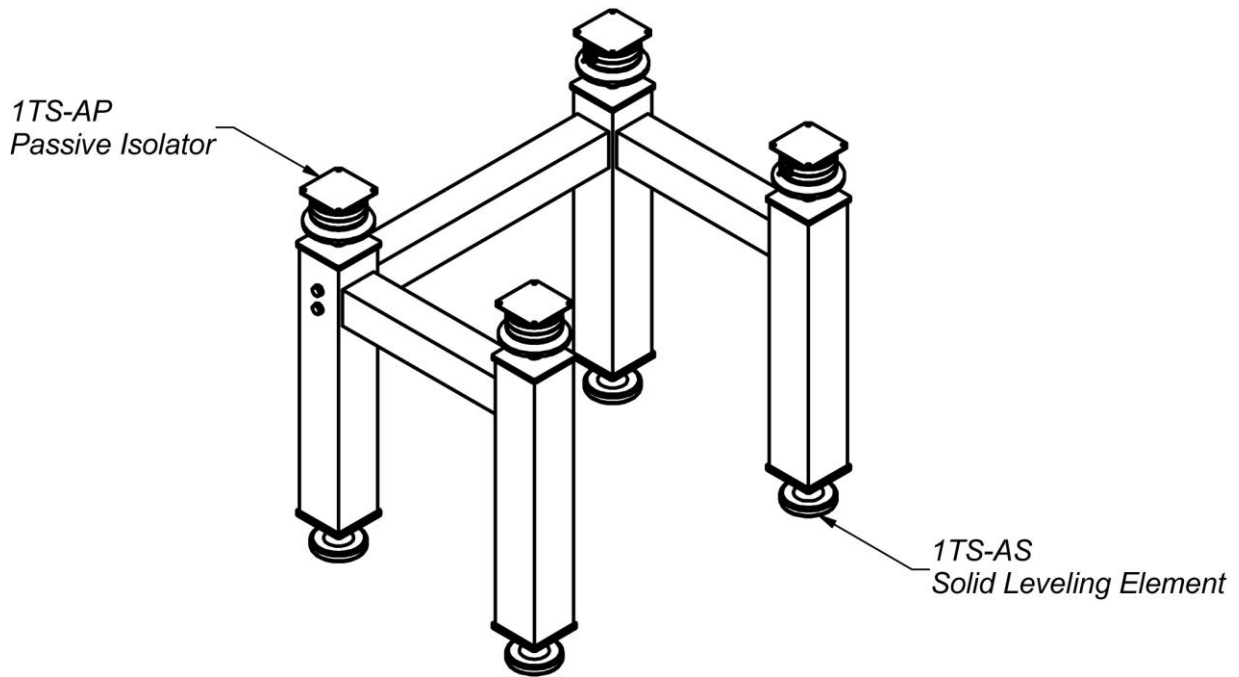
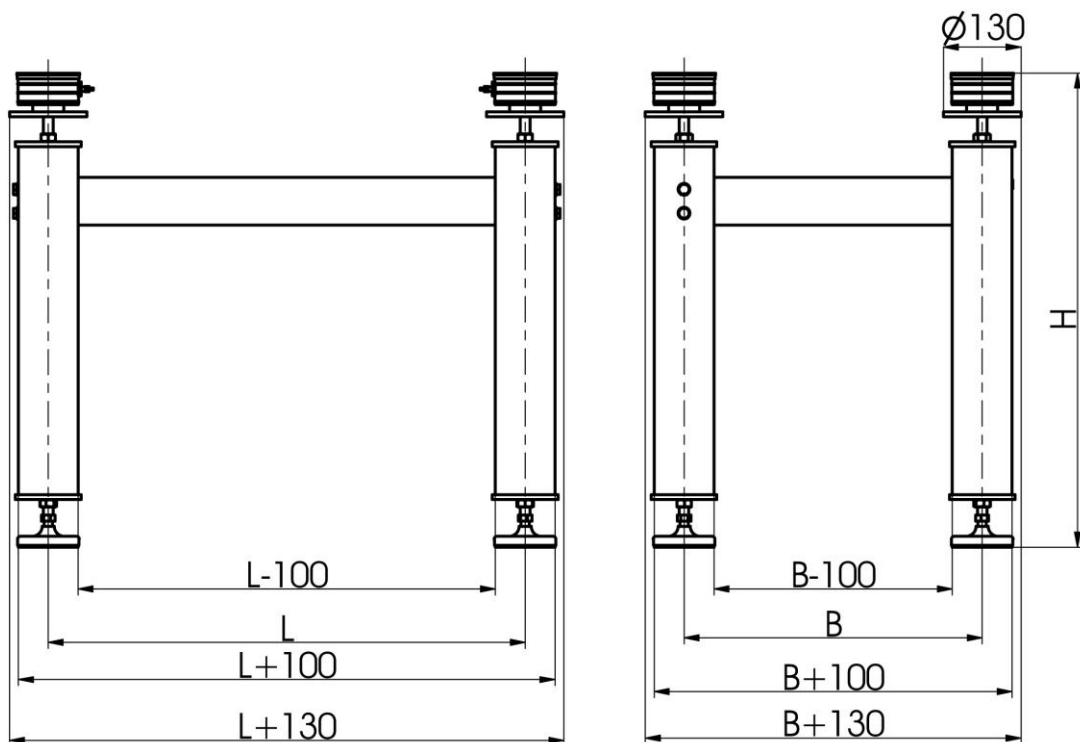


Fig. 2. General view of support ITSXX-XX-XX-AP for the optical table



| <i>Model</i> | <i>B, mm</i> | <i>L, mm</i> | <i>H, mm</i> |
|----------------------|--------------|--------------|--------------|
| 1TS05-07-05-AP-200 | 500 | 700 | 700±15 |
| 1TS05-07-05-AP-500 | 500 | 700 | 700±15 |
| 1TS05-07-05-AP-1000 | 500 | 700 | 700±15 |
| 1TS05-07-06-AP-200 | 500 | 700 | 800±15 |
| 1TS05-07-06-AP-500 | 500 | 700 | 800±15 |
| 1TS05-07-06-AP-1000 | 500 | 700 | 800±15 |
| 1TS05-12-05-AP-200 | 500 | 1200 | 700±15 |
| 1TS05-12-05-AP-500 | 500 | 1200 | 700±15 |
| 1TS05-12-05-AP-1000 | 500 | 1200 | 700±15 |
| 1TS05-12-06-AP-200 | 500 | 1200 | 800±15 |
| 1TS05-12-06-AP-500 | 500 | 1200 | 800±15 |
| 1TS05-12-06-AP-1000 | 500 | 1200 | 800±15 |
| 1TS065-12-05-AP-200 | 650 | 1200 | 700±15 |
| 1TS065-12-05-AP-500 | 650 | 1200 | 700±15 |
| 1TS065-12-05-AP-1000 | 650 | 1200 | 700±15 |
| 1TS065-12-06-AP-200 | 650 | 1200 | 800±15 |
| 1TS065-12-06-AP-500 | 650 | 1200 | 800±15 |
| 1TS065-12-06-AP-1000 | 650 | 1200 | 800±15 |
| 1TS065-18-05-AP-200 | 650 | 1800 | 700±15 |
| 1TS065-18-05-AP-500 | 650 | 1800 | 700±15 |
| 1TS065-18-05-AP-1000 | 650 | 1800 | 700±15 |
| 1TS065-18-06-AP-200 | 650 | 1800 | 800±15 |
| 1TS065-18-06-AP-500 | 650 | 1800 | 800±15 |
| 1TS065-18-06-AP-1000 | 650 | 1800 | 800±15 |
| 1TS065-22-05-AP-200 | 650 | 2200 | 700±15 |
| 1TS065-22-05-AP-500 | 650 | 2200 | 700±15 |
| 1TS065-22-05-AP-1000 | 650 | 2200 | 700±15 |
| 1TS065-22-06-AP-200 | 650 | 2200 | 800±15 |
| 1TS065-22-06-AP-500 | 650 | 2200 | 800±15 |
| 1TS065-22-06-AP-1000 | 650 | 2200 | 800±15 |
| 1TS08-12-05-AP-200 | 800 | 1200 | 700±15 |
| 1TS08-12-05-AP-500 | 800 | 1200 | 700±15 |
| 1TS08-12-05-AP-1000 | 800 | 1200 | 700±15 |
| 1TS08-12-06-AP-200 | 800 | 1200 | 800±15 |
| 1TS08-12-06-AP-500 | 800 | 1200 | 800±15 |
| 1TS08-12-06-AP-1000 | 800 | 1200 | 800±15 |

Fig. 3. Dimensional drawing of optical table support 1TSXX-XX-XX-AP

1.2. Location of the table

To ensure optimal operation of the system, it must be installed on a surface that satisfies certain requirements. The surface must be even.

It is important that an appropriate location for the system is chosen. The system must be installed in the vicinity of bearing walls or columns, where the impact of low-frequency oscillation is smaller. Furthermore, it is advisable to avoid placing the system in the vicinity of other sources of vibration such as elevators, ventilation systems, industrial equipment, and airflows.

Warning

The system is a metal-made current conductor. If used together with electrical devices, the table must be earthed.



2. Assembly of the system

2.1. Safety

Weight of the optical table could reach 100 kg or more. For this reason, to prevent injuries during assembly of the system, lifting mechanisms (a loader) and technological supports must be prepared in advance.

2.2. Assembly of the frame

Assembly of the frame is shown in fig. 4.

Attach the brace into the leg assembly by M10x120 screws through the washers. Screw the solid leveling elements and the passive isolators into the leg assembly.

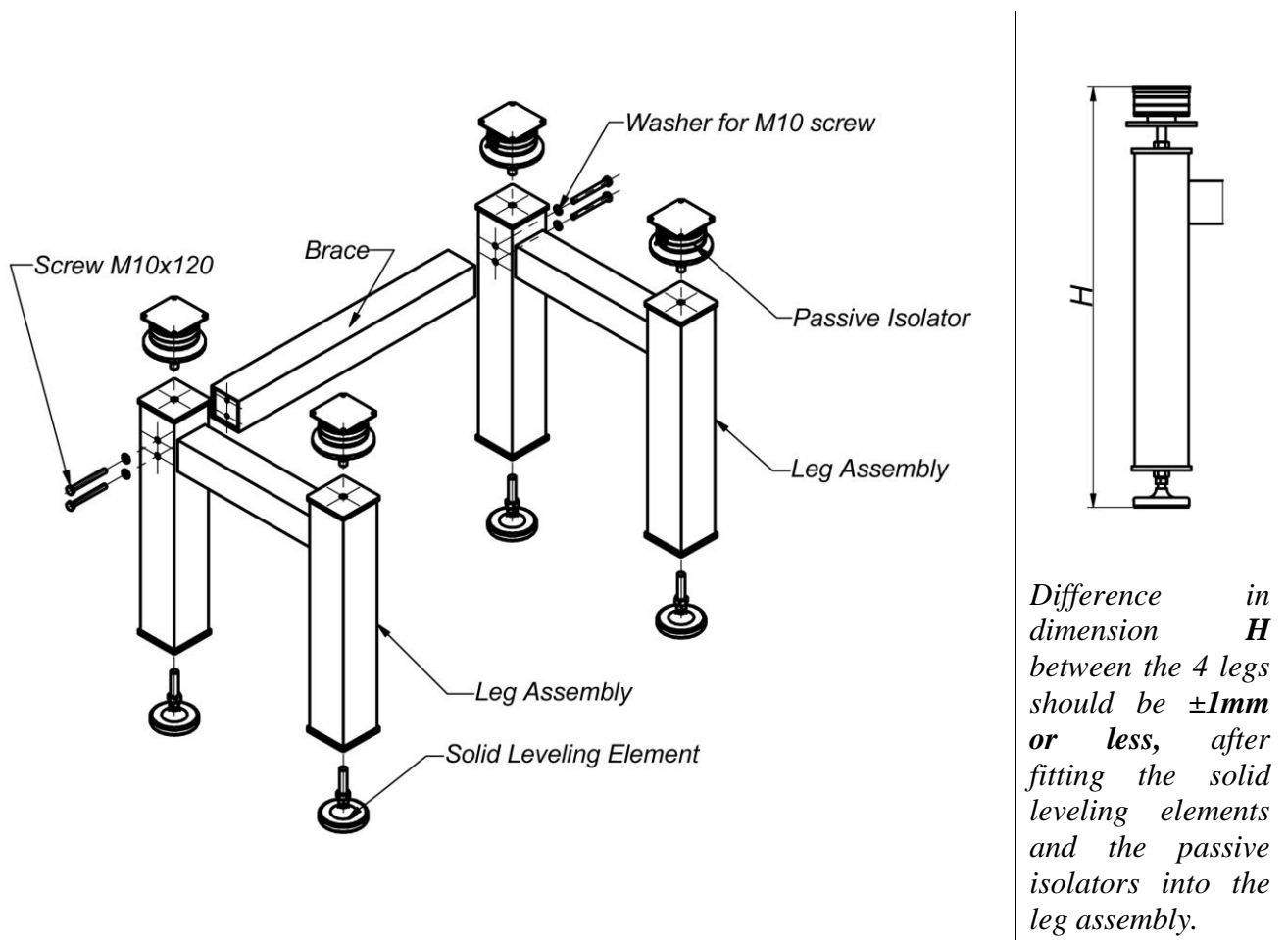


Fig. 4. Assembly of the frame

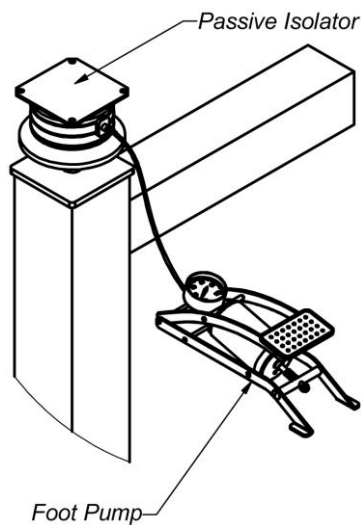
2.3. Installation of passive isolation components

Warning

Always deflate passive isolators 1TS-AP before lifting optical table.



Place the table accurately on top of the passive air levelling vibration isolators. If you need to adjust the location of the table, lift the table over the supports.



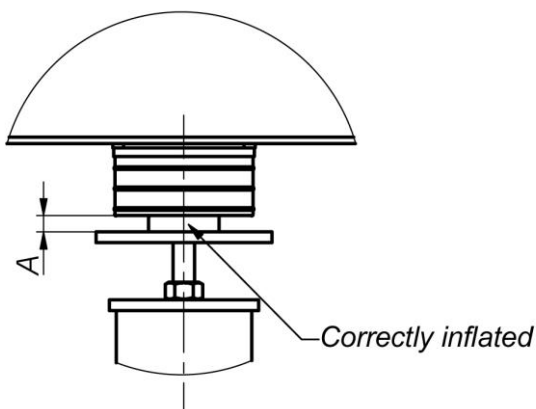
Remove the dust caps from the valves of the passive isolators and connect the foot pump to the valve. Inflate slowly until the isolator will look as shown in fig. 6. (Incorrect inflations are shown in fig. 7.)

Inflate the passive isolator diagonally opposite.

Repeat these steps for other isolators.

Fit the caps on the valves.

Fig. 5. Installation of passive isolation components



| Isolator | $\approx A$ (mm) |
|-------------|------------------|
| 1TS-AP-200 | 12 |
| 1TS-AP-500 | 12 |
| 1TS-AP-1000 | 15 |

Fig. 6. Correct inflation of passive isolation components

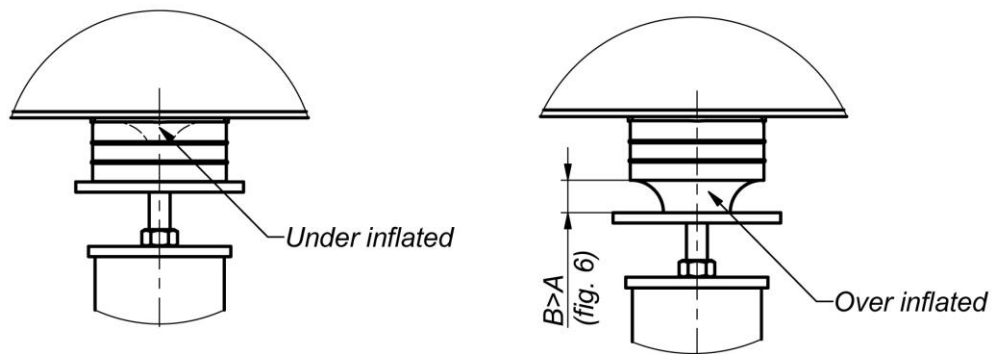


Fig. 7. Incorrect inflations of passive isolation components

3. Management of the system

3.1. Main principles

If operated correctly, the passive air levelling vibration isolators need minimum maintenance. As a rule, if the system is left unchecked, the passive isolators will deflate over time. For correct operation, check the distance (fig. 6.) between breadboard and passive isolators every two weeks and reinflate the system as necessary.

3.2. Cleaning

The table and other parts of the system may be cleaned using a non-abrasive liquid detergent.