

AT

Optical antivibration tables



Fig. 1. Photo of exemplary AT optical table

BASIC INFORMATION

The primary goal of a well designed optical table is to eliminate relative motion between components of test system located on the surface of the optical table because such motion can generate measurement errors.

AT is a series of stationary optical tables manufactured by Inframet and optimized for use with Inframet test systems. The tables are built from two main blocks: 1) a support frame, 2) tabletop. The support frame is made as a steel frame combined with rubber isolation absorbers. The tabletop is made of a cold-rolled stainless ferromagnetic steel top skin, and a 3-6 mm thick bottom skin, both bound under high pressure to a honeycomb core, using a special epoxy resin. Typical sizes of AT tables are up to 200 cm times 600cm. Bigger sizes are optionally possible.

The tests have shown that even in heavy industry buildings AT tables reduce vibrations to level not noticeable by even vibration sensitive test systems (like ORI test stations for testing optical objectives) and make measurement results not sensitive to acoustic vibrations in air, vibrations generated by moving mechanical parts in test system (like MRW 8 rotary wheel) or to vibrations transmitted from the building to the optical table through the table support.

CODING

A code that consists of a number and a letter is used to describe properties of AT tables. The number gives information about size of table in tens of centimetres: AT612 means table of size 60 x 120cm.

PARAMETERS

Table 1. Parameters of typical AT optical table

| | |
|-------------------------------------|--|
| Tabletop dimensions | vary from 0.5x0.5m to over 2x6m |
| Blocks | 1) support frame, 2) tabletop |
| Support frame design | steel frame combined with rubber isolation absorbers |
| Tabletop design | cold-rolled stainless steel with honeycomb core |
| Flatness | $\pm 0.15\text{mm}$ at 1m^2 |
| Pattern | M6 holes spaced by 25mm |
| Vertical transmissibility at 10Hz | average: 27dB (30db at L version) |
| Horizontal transmissibility at 10Hz | average: 29dB (32db at L version) |
| Athermalized design | Yes |
| Working temperature range | optimal: $+5^{\circ}\text{C} \div +35^{\circ}\text{C}$ maximal: $-5^{\circ}\text{C} \div +45^{\circ}\text{C}$ |
| Working humidity range | up to 90% (non-condensing) |
| Optimal load | < 220 kg for table on four leg frame < 330 kg for table on six leg frame |
| Approximate mass | AT812 – 100kg; AT1212 – 160kg; AT1018 – 200kg; AT924 – 240kg; AT1030 – 330kg |

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