

# MTAB

## Mobile optical table



Fig.1. Photo of MTAB97 mobile optical table

### 1 Basic information

MTAB tables are a series of mobile optical tables of regulated height of the platform. These tables are characterized by very good anti-vibration properties (in critical frequency range from 6Hz to 50Hz), high maximum load, wide range of regulated height and mobility of use. The tables can be easily manually moved on a floor due to use of swivelable wheels. The height of the platform can be easily and precisely regulated due to use of a hydraulic lifting system.

The MTAB tables can work as independent platform or can be attached to bigger AT series optical tables to form a large stable platform where can be located both a tested EO system and a test system. The MTAB tables are typically used as platform of EO systems to be tested using Inframet test systems but can be also used as a platform for large test systems.

### 2 Why MTAB is needed?

Tests of electro-optical surveillance systems (thermal imagers, night vision devices, VIS-NIR cameras, laser system, multi-sensor systems) are typically done by capturing using tested EO system an image of a reference target that has been projected by the test system. Temporal changes of angle between optical axis of the test system relative to axis of tested imager generated by vibrations of platforms where tested EO system is located can lead to image blurring and/or image displacement. Both latter effects can lead to errors of measurement of parameters of EO systems if angular vibrations are comparable or bigger than angular size of image pixel of tested EO imager.

There are typically some noticeable vibrations of buildings where tests of EO systems are done. These vibrations can generate temporal angular movements of position of captured reference image projected by the test system if the tested EO system and test system are located on platforms that cannot suppress these building vibrations.

The simplest and most effective way to reduce influence of building vibrations on results of EO tests is to locate both tested EO system and the test system on a single large optical table. However, this solution is not convenient when testing large, heavy EO systems of variable dimensions when there is needed both horizontal and vertical positioning of optics of the EO system to collimator output of the test systems. MTAB tables are targeted as a solution for such situation. In detail, it is proposed to locate test system on an typical stationary optical table (like Inframet AT tables) and to locate tested EO system on the MTAB mobile optical table. The latter table can be used as mobile anti-vibration platform that enables easy precision vertical/horizontal positioning of tested EO system. In order to increase anti-vibration properties the MTAB table can be optionally attached to AT class optical table.

The second main potential application of MTAB table is situation when height of a large test system is to be regulated. Such situation often occurs for example when tested EO system is located in a temperature chamber and its optics must be located exactly at the same vertical position as the window of the temperature chamber.

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### 3 Versions of MTAB tables

MTAB tables can be delivered in form of a series of versions of different size and mass as shown in Table 1. Rules to calculate main dimensions of MTAB tables are shown in Fig.2. Concept of connection of MTAB mobile table with AT table in order to increase stability of both tested EO system and the test system is shown in Fig.3.

Table 1. Dimensions and mass of MTAB tables

Version code	Width [mm] / A /	Length [mm] / B /	Height regulation	Mass [kg]	Grid of M6 holes spaced by 100mm
<b>MTAB-79</b>	700	900	At least 350mm. Minimal height 650mm. Maximal height 1000mm.	320	8 × 6
<b>MTAB-716</b>	700	1600		530	6 × 6
<b>MTAB-724</b>	700	2400		780	6 × 8
<b>MTAB-99</b>	900	900		410	8 × 8
<b>MTAB-916</b>	900	1600		680	8 × 8
<b>MTAB-924</b>	900	2400		960	8 × 8

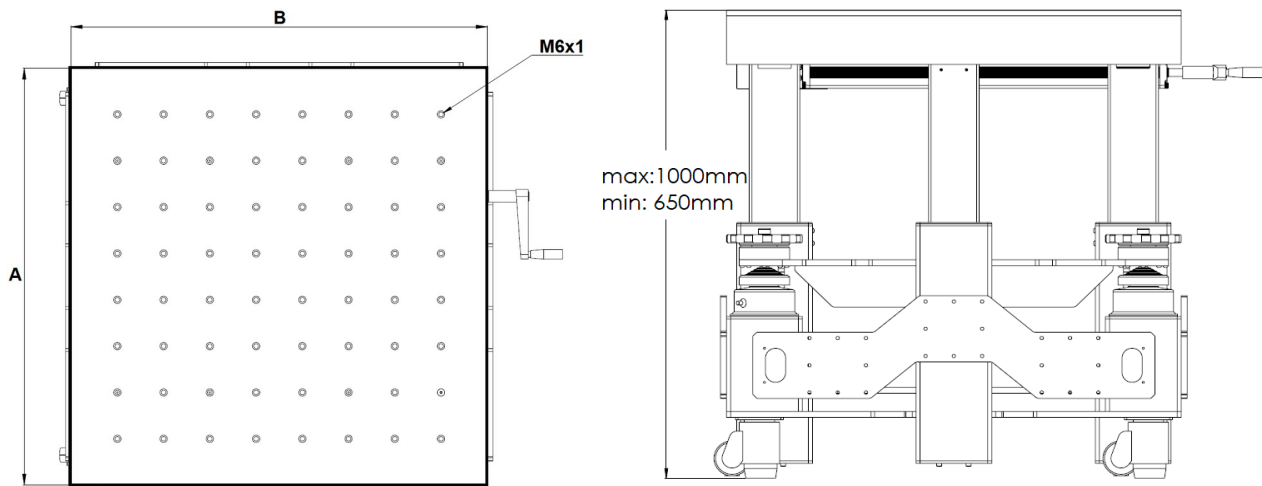


Fig.2. Rules to calculate main dimensions of MTAB tables

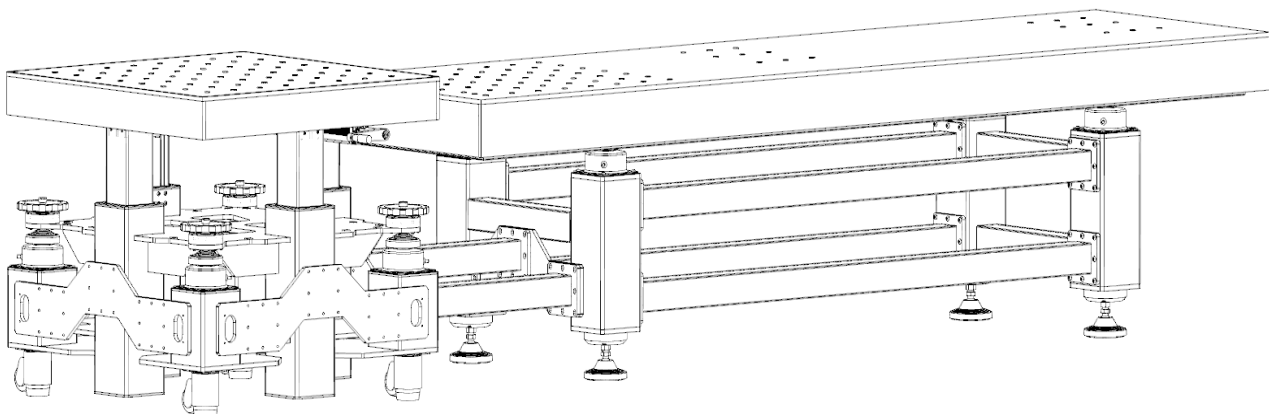


Fig.3. Concept of connection of MTAB mobile table with AT table

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### 4 Technical specifications

Parameter	Value
Available table width	700mm or 900mm
Available table length	900mm, 1600mm or 2400mm
Design	Movable table on wheels and regulated height
Height regulation	35 cm (continuous)
Support frame design	Mechanism of height regulation
Table plate design	Multi-layer artificial granite/fibreboard slab
Flatness	not more than 0.3mm at 1 m length
Range of vibroisolation	from 6Hz to 50Hz
Vertical transmissibility at range from 10Hz to 50Hz	average: 27dB
Horizontal transmissibility at range from 10Hz to 50Hz	average: 29dB
Ability to connect to a stationary optical table	Yes
Athermalized design	Yes
Working temperature range	optimal: 5°C ÷ +35°C maximal: -5°C ÷ +45°C
Working humidity range	up to 90% (non-condensing)
Mass	depends on model
Optimal load	Up to 200 kg

### 5 Summary

MTAB table is a near perfect solution to be used as a mobile platform of regulated height of tested EO system or the test system for testing long/medium range electro optical imaging/laser systems and eliminate building vibrations on test results.

Version 2.3

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