

ContourGT-K

Optical Profiler

- Facility Specification

ContourGT-K Facility Specification

Note: Configurations and specifications are subject to change without notice.

Manufacturer Information

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Introduction

This document provides details on the facility specifications required to obtain the best performance of the ContourGT-K series optical profiler. Please follow the guidelines described to achieve the best performance.

Physical Integration

Facility Attributes

Table 1 summarizes the critical attributes that the facility must provide to enable installation and use of the ContourGT-K system. Note that compressed air is required for the integrated vibration isolation system option in the system stand, and that the system ships with power cords suitable for the destination region.

Facility Attribute	Requirements
Temperature	Operating range, 15° – 30°C (50° – 86°F) Rate of change, < 2°C (3.6°F) per hour
Clean Room	Not required (Class 1000 or better recommended)
Relative Humidity	Less than 80%, non-condensing
Input Voltage	115/230 VAC, 50/60 Hz, Conditioned
Power Demand	120 VA typical (Manual GT-K), 270 VA typical (Automated GT-K)
Warm-up Time	15 min for maximum stability
Compressed Air	205 – 275 kPa (30 – 40 psi) Table Top or Integral Air Isolation System 275 – 551 kPa (40 – 80 psi) Standard Air Isolation Table
Acoustics	Not to exceed 80 dB (c) across the frequency spectrum, 73 dB (c) or less recommended for optimal performance

Table 1: Facility Requirements

System Attributes

Figure 1 shows dimensions of the manual ContourGT-K system, Figure 2 shows dimensions of the automated ContourGT-K system. Table 2 summarizes certain key system attributes; all figures are the maximum of the system (dimensions listed as width x depth x height).

Profiler Dimensions	492 mm x 533 mm x 707 mm (19.4 in x 21.0 in x 27.8 in)
Profiler Mass	60.3 kg (133 lb)
Tabletop Isolation System Dimensions	559 mm x 762 mm x 87 mm (22 in x 30 in x 3.44 in)
Tabletop Isolation System Mass	29.5 kg (65 lb)
Air table Dimensions	762 mm x 762 mm x 813 mm (30 in x 30 in x 32 in)
Air table Mass	235 kg (517 lb)
Heat Load	270 W (921 BTU/h)

Table 2: System Attributes

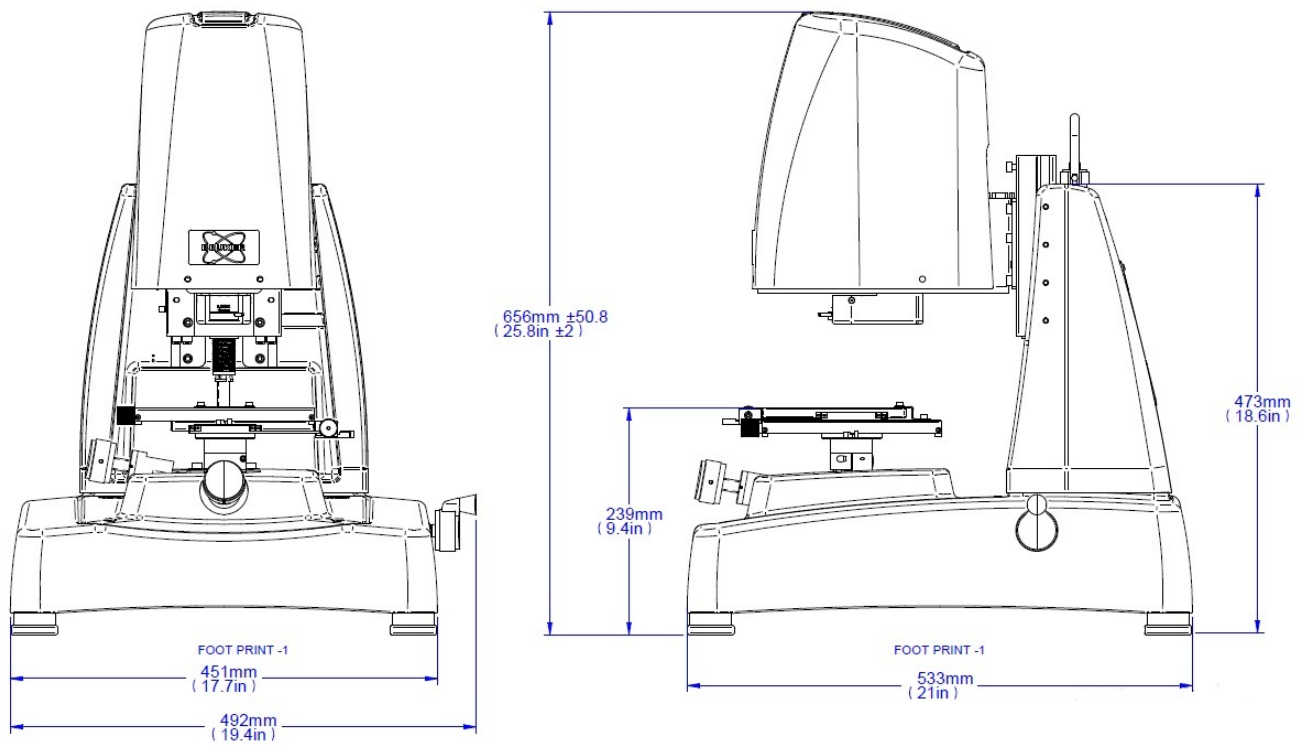


Figure 1: Dimensions GT-K Manual - Front and Side View, Standard Footprint

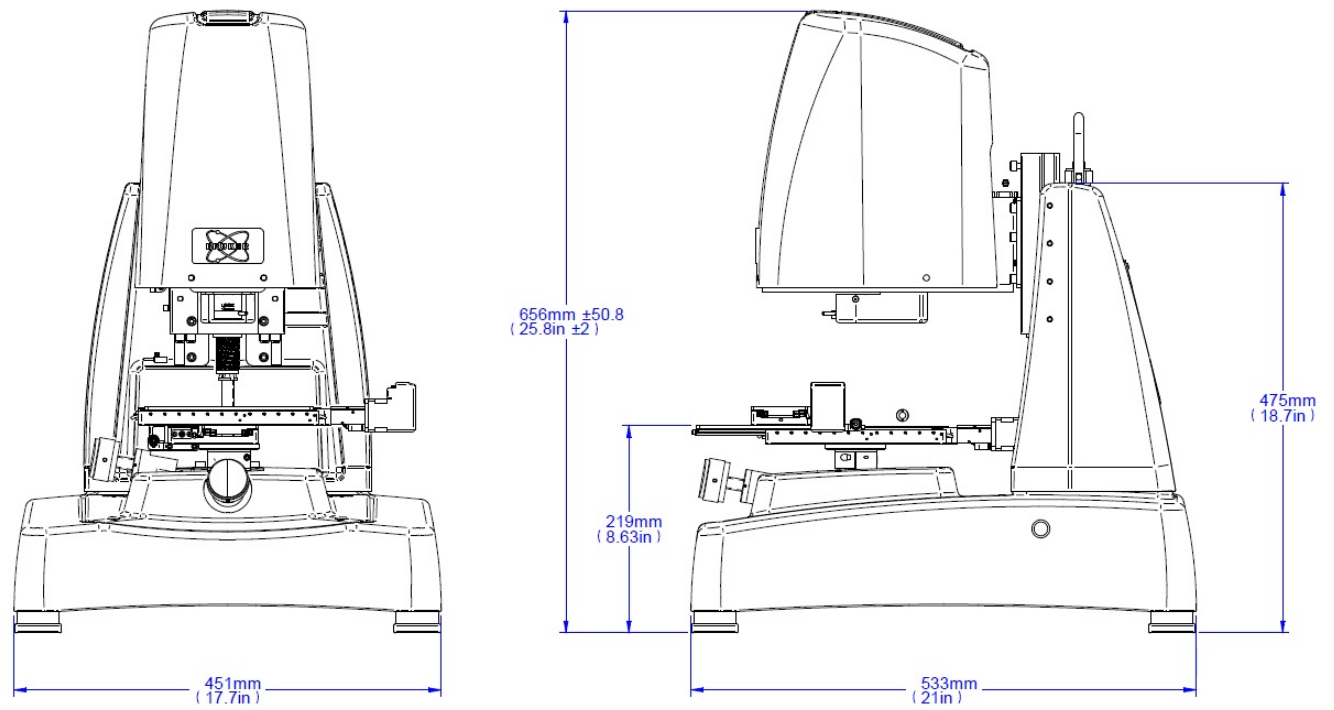


Figure 2: Dimensions GT-K Automated - Front and Side View, Standard Footprint

Installation Considerations

The ContourGT-K is shipped in a single shipment of five palletized boxes. Table 3 summarizes the box contents, their sizes and mass. Full installation instructions are provided in the “ContourGT-K Installation and Maintenance Manual”.

Box	Dimensions mm (in) width x depth x height	Mass kg (lb)
# 1 Computer	585 x 585 x 381 (23 x 23 x 15)	23 (51)
# 2 Monitor	483 x 407 x 178 (19 x 16 x 7)	6 (14)
# 3 Profiler stand with stage and interface box	635 x 635 x 635 (25 x 25 x 25)	51 (112)
# 4 OMM, objective(s) and turret (if ordered)	585 x 585 x 356 (23 x 23 x 14)	25 (55)
# 5 System cover, power supply, camera cable, and USB cable	381 x 381 x 381 (15 x 15 x 15)	4 (9)

Table 3: Approximate Shipping Dimensions and Mass

System Location, Environment and Service Access

The profiler must either be placed on a sturdy and flat table or work surface if equipped with the integral or table top air isolation system, or placed on a Bruker-supplied or customer provided vibration isolation table. The floor supporting the optical profiler system must be level, rigid, and capable of supporting the combined weight of the complete ContourGT system. Ideally, the system should be installed on a ground floor.

Do not position the system near sources of vibration (such as fans or motors) or in excessive air flow (such as that from a cleanroom air duct). For optimum performance, place the system in an area with minimal foot traffic and low acoustical noise.

The system must be located with sufficient work area in front to allow adequate working space for the operator. The rear of the system need not be accessed except for performance of certain service procedures (described in the “ContourGT-K Installation and Maintenance Manual”). Access clearance of 610 mm (24 in) during servicing operations is recommended.

Considerations for Optimal Performance

ContourGT-K series optical profilers are deployed in diverse environments ranging from clean rooms to R&D labs to machine shops. In all cases good performance is achieved. However, measurement capability degrades as the level of floor and acoustic vibration increases so the highest possible levels of performance are achievable only when the floor vibration and acoustic characteristics of the operating environment are reasonably well controlled. The system should meet the factory performance specification when installation location’s vibration falls below the VC-B curve and the ambient background noise is less than 73 dB(c).

The degree of performance degradation experienced by the system is a function the magnitude and frequency of the perturbing vibration, the measurement type and the measurement camera frame rate. The system is sensitive to vibrations around frequencies f_s , calculated using the formula:

$$f_s = (n \times \text{FrameRate}) + (0.5 \times \text{FrameRate})$$

where FrameRate is in Hz and $0 \leq n \leq 4$. The measurement is most sensitive when $n = 0$ (almost 5 times more sensitive than when $n = 1$) and barely impacted for $n = 4$. The system is quite resistant to perturbations when they occur around f_r , calculated using the formula:

$$f_r = (n \times \text{FrameRate})$$

If the ContourGT-K system will be installed in an ‘extreme’ environment (one where background noise greater than 80 dB(c) is present, or where you can physically feel floor or wall vibrations), please contact Bruker to discuss your specific performance requirements.