

Basic Room Requirements M-GAIT

1 General

1.1 Objective

The purpose of this document is to check whether the selected room meets the basic requirements for the M-GAIT system.

1.2 Scope

This document provides the general room requirements for the M-GAIT system.

2 References

Document	Description

3 Revision History

The history of the document is logged by the Version Control System.

4 Room requirements

4.1 Dimensions

The recommended required room dimensions to facilitate the M-GAIT system depends mainly on the chosen projection configuration:

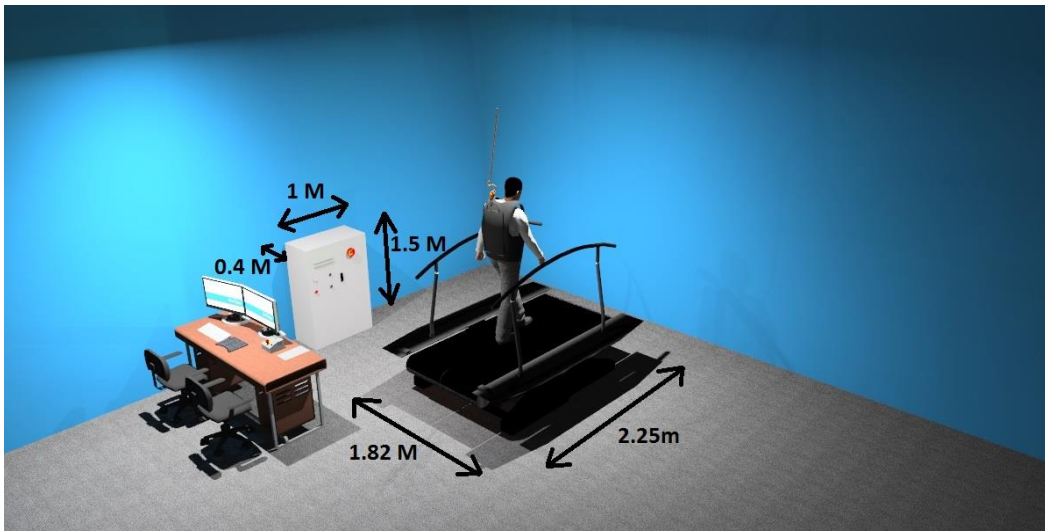


Figure 1; M-GAIT base configuration. 0.4m (15.7'), 1m (39.4'), 1.5m (59.1'), 1.82m (71.7'), 2.25m (88.6').

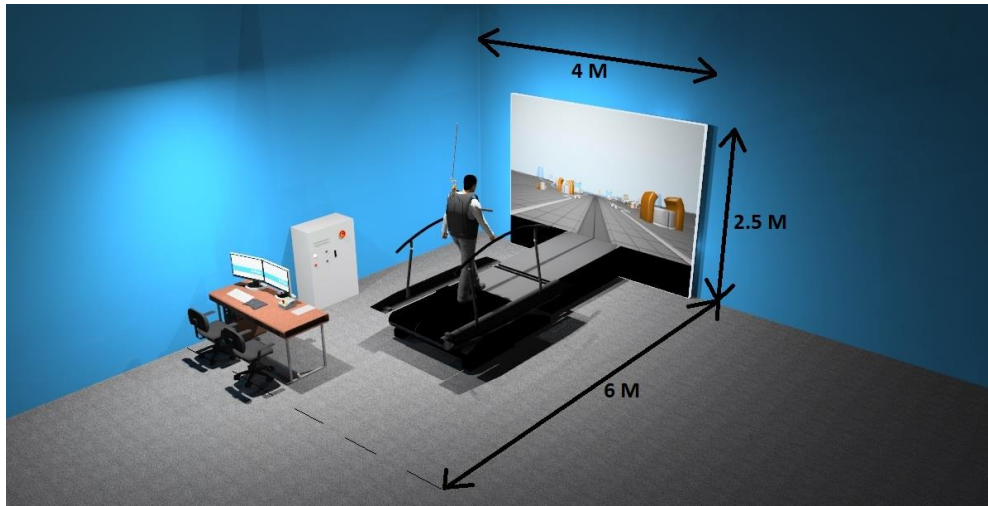


Figure 2; M-GAIT Flat projection screen configuration. 4m (13.1ft'), 2.5m (8.2ft'), 6m (19.7ft').

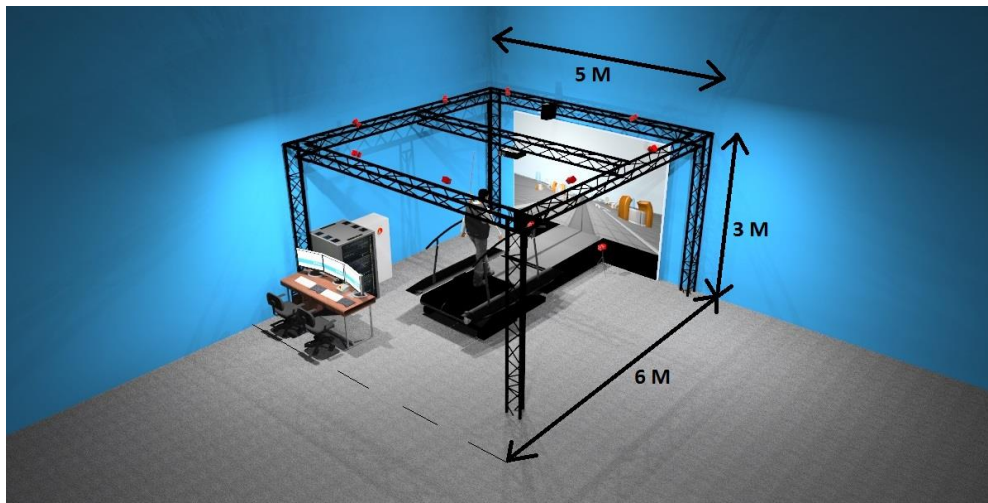


Figure 3; M-GAIT Flat projection screen with truss and mocap. 5m (16.4ft'), 3m (9.8ft'), 6m (19.7ft').

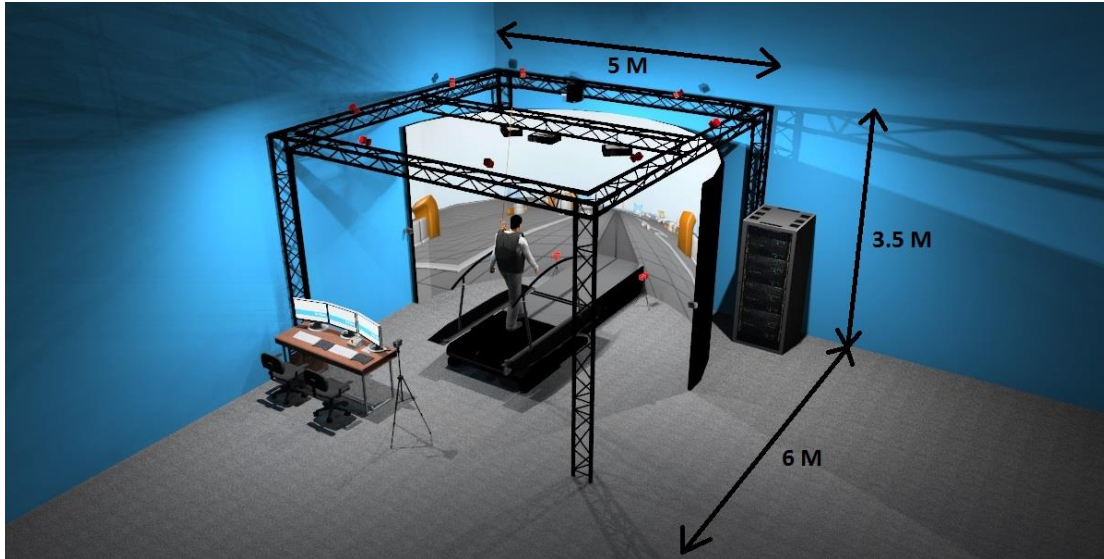


Figure 4; M-GAIT 180° projection screen configuration, screen has an inner diameter of 5m (16.4ft'). 3.5m (11.5ft'), 6m (19.7ft') .

4.2 Overview

M-GAIT systems may consist of the following main components (depending on chosen configuration):

- R-Mill (treadmill) + MIC (electrical cabinet)
- Operator desk
- Screen and projectors
- Server rack
- Motion capture system
- High-speed video system
- Truss

4.3 Floor load R-Mill

Weight R-Mill (with Pitch, Sway):	784 kg	(1728.4 lbs)
Maximum Payload:	130 kg	(286.6 lbs)
Total weight:	8963N	
Footprint:	1.68m x 2.05m = 3.44m ²	(5.51' x 6.72' = 37ft ²)
Average floor load (equally spread):	2606 N/m ²	(243 N/ft ²)

4.4 General room requirements

The M-GAIT system requires the following from its surroundings.

- Climate controlled

the system typically produces a maximum of 9kW of heat, mainly produced by the projectors and the server rack. The system is designed for the following conditions:

Operating:
 Temperature: 10 deg C (50 deg F) - 30 deg C (86 deg F)
 Relative Humidity: 20% - 95% (non-condensing)

Non-operating:
 Temperature: 0 deg C (32 deg F) - 50 deg C (122 deg F)
 Relative Humidity: < 95% (non-condensing)

- Vibration free

especially the motion capture and projection system are sensitive to vibrations
- Shielded against incoming light
- Reflection free

during operation it must be possible to completely darken the room for the optical motion capture system, all parts in the room must have a reflection free finish (e.g. bolts, cable trays etc.)
- Noise free

prevent disturbing sounds and prevent the audio disturbing somebody else.
- Low EMC level

the system should not be under the influence of large EMC emitting sources such as elevators, air conditioners, etc.
- Stable power supply
- Drilling zone

no power surges or drops of more than 10% are allowed
 The floor areas underneath the R-Mill and the projection screen need to be free of obstructions to allow drilling of anchoring holes
- Cable tray

A flush cable tray with a lid is required to run the multicable from the MIC to the R-Mill. The removable lid is required for maintenance purposes. The cable tray needs to host a 5x3cm cable (1.97ft' x 1.18ft'), which cannot make sharp corners.
- Floor mounting

The anchors (adhesive or wedged) will be placed in drilled holes in the concrete floor. As such, the floor areas underneath the R-Mill and the projection screen need to be free of obstructions to allow drilling of these holes. The R-Mill requires 4x M12 holes, the screen 2x M6
- EMC/Noise

Regarding other equipment/activities nearby the system, it should be taken into account that the system will yield EMC and produces noise
- Entrance dimensions:

In order to transport the R-Mill into the designated room, a crate of 85x205x235cm (33.5'x80.7'x92.5ft) needs to be able to fit through all the doors/lifts on the route. There are two options in transporting the crate, please see the next page for an example of these two.

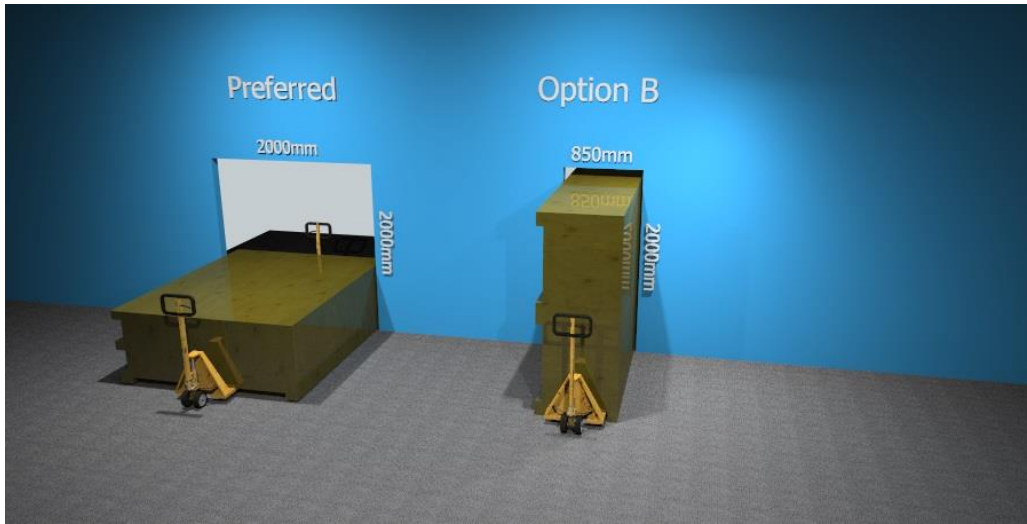


Figure 5; Entrance requirements. 2000mm (78.7ft'), 850mm (33.46ft')

Appendix A Electrical and Heat M-GAIT

Item	Units	Location	USA		Europe		Max Power/unit	Max Heat disp/Unit	Max Heat/unit	Comments
			Voltage	Max Curr/unit	Voltage	Max Curr/unit				
	[PCS]		[VAC]	[A]	[VAC]	[A]	[W]	[W]	[BTU/h]	
Treadmill control (MIC)	1	Room	400	32	400	32	22170	1200	4096	3-phase, female plug provided by client
Computers	1 *	Server rack/ Room	110	6	230	3	850	872	2975	
KVM	1 *	Server rack/ Room	110	2	230	1	230	235	805	
Switch	1 *	Server rack/ Room	110	2	230	1	230	235	805	
Amplifier	1 *	Server rack/ Room	110	3	230	1.5	350	359	1225	
Monitors, etc.	1 *	Room	110	1	230	0.3	72	41	140	
Projectors	1 *	Room	110	4	230	2	500	483	1650	
Subject	1	Room						440	1500	
Operator	1	Room						205	700	

Figure 6; Electrical and heat table M-GAIT

** amount depending on choosen configuration*

Notes:

- the power supply needs to be stable and free of surges or drops of more than 10% nominal; if this cannot be guaranteed, UPS's must be installed
- due to local deviations, the power plug for the 3 phase 400 VAC must be provided by the client