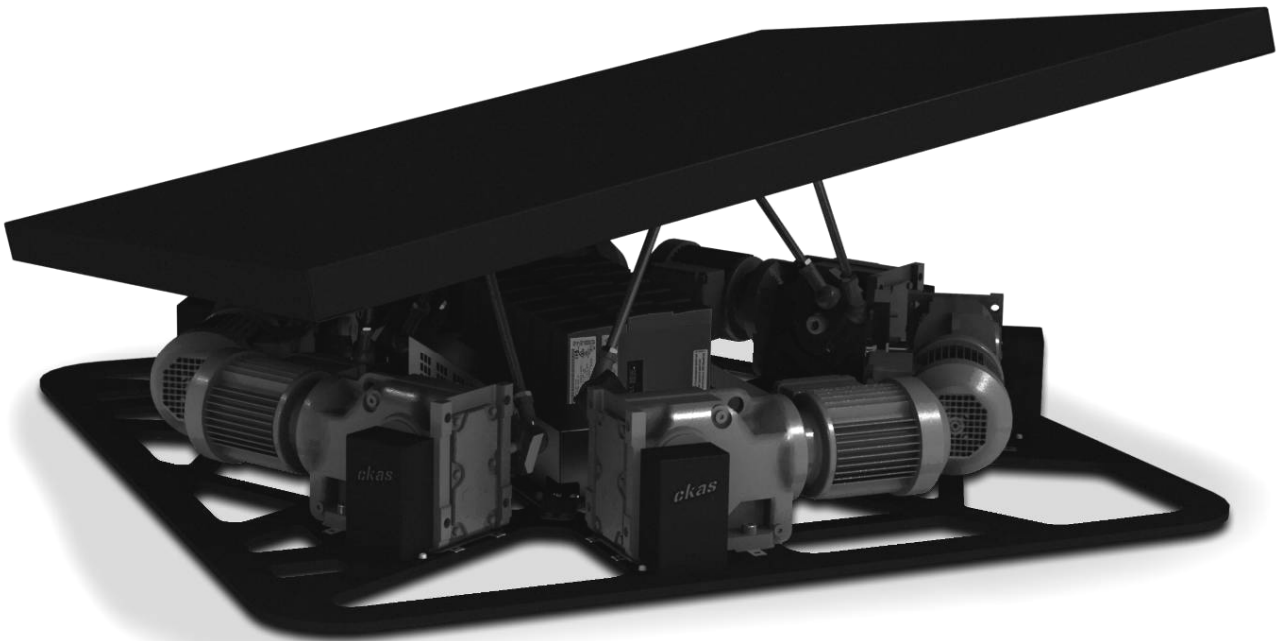


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## CKAS W3s 6DOF Motion System (300kg / 660lb Payload)



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### Introduction

The CKAS W3s 6DOF Motion System is specifically directed at **low cost high fidelity small scale motion simulator applications**, such as commercial and industrial simulators, next generation consumer coin-operated arcade entertainment simulators or hi fidelity home built flight and racing entertainment simulators.

### Target Applications

- **Small Scale Low Cost Hi fidelity Flight Training Applications**
- **Small Scale Hi fidelity Commercial Vehicle and Truck Driver Training Simulators**
- **Small Scale Hi fidelity Mining Equipment Simulators and Heavy Earth Moving Equipment Simulators**
- **Small Scale Hi fidelity Train Driver Simulators**
- **Next Generation Unsupervised Coin-operated Motion Simulator Arcade Machines**
- **Home Built Hi fidelity Flight Simulators**
- **Home Built Hi fidelity Car Racing Simulators.**

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## General Description and Capabilities

The CKAS W3s 6DOF Motion System is Ideal for OEM manufacturers of existing simulator products or home builders who are looking for a cost effective method to instantly add high fidelity full 6DOF motion to an existing or new design. This unit is pre-built to CKAS standards, and is USB plug and play straight out of the box. The only assembly required is to bolt on whatever goes on top of the motion system.

The CKAS W3s 2DOF Motion System features a mere 200kg total weight, 1160mm total width, and sits only 360mm high when parked, therefore eliminating the need for any specialised stair or gangway for stepping up onto it. CKAS has used the technology it has developed for the heavier motion systems to design this unit, incorporating industry leading electronics, encoders and actuators.

The expected life of the W3s is extremely high for its price point, and the maintenance requirements are minimal, especially important in commercial or consumer based applications.

The CKAS W3s 6DOF motion system comes with the following key features:

- Fully Electric Actuation
- USB 2.0 plug and play
- Washout filters and acceleration onset cueing algorithms for:
  - Microsoft Flight Simulator FSX / 2004
  - Microsoft ESP
  - Lockheed Martin Prepar3D
  - X-Plane
  - rFactor (v1.255 or higher) and rFactor2
  - iRacing
  - Generic UDP interface for custom user program or other systems
- Very high speed update 100Hz motion controller for extremely smooth high fidelity response

## General Specifications

(Subject to change without notification)

Product Name	CKAS W3s 6DOF Motion System
Product Code	W3sMP
Product Number	38.0001.11
Product Description	Small Scale 6 degree of freedom electric motion system
Harmonization Code (HS)	854370 or 854380 or 8543.70.96.50 (depending on Harmonisation system)

## Mechanical Specifications

Architecture	6 Degree of Freedom Modified Stewart Hybrid
Actuation	Fully Electric
Nominal Width (Parked)	1160 mm (45.7")
Nominal Length (Parked)	1160 mm (45.7")
Nominal Height (Parked)	360 mm (14.2")
Approx unit weight	200 kg (440 lb)
Anchoring Specification	Not required for this motion system – Rubber mat recommended

## Performance Specifications

Payload Mass Limit	300 kg (660 lb)
Payload Moment of Inertia	100 kg.m <sup>2</sup> (2,610 lb.ft <sup>2</sup> )
Payload CG horizontal offset	Less than 50mm from Centroid of Flying Platform
Payload CG Vertical offset	Less than 600mm high from top of Flying Platform
Payload Max Floor Size	Diameter 2000mm (79")
Indep. Surge (disp. / vel. / accel.)	±50mm , ±100mm/s , 0.3G
Indep. Sway (disp. / vel. / accel.)	±50mm , ±100mm/s , 0.3G
Indep. Heave (disp. / vel. / accel.)	±50mm , ±100mm/s , 0.3G
Indep. Yaw (disp. / vel. / accel.)	±10° , ±15°/s , ±150°/s <sup>2</sup>
Indep. Pitch (disp. / vel. / accel.)	±10° , ±15°/s , ±150°/s <sup>2</sup>
Indep. Roll (disp. / vel. / accel.)	±10° , ±15°/s , ±150°/s <sup>2</sup>
Max Motion Excitation Frequency	50 Hz

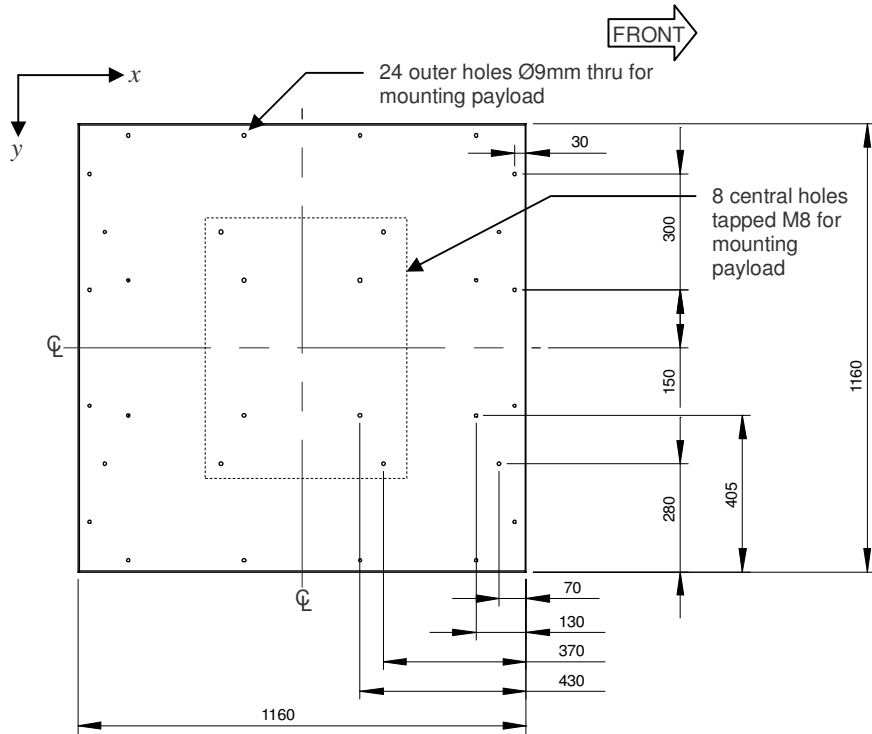
## Electrical Specifications

Power Supply Requirements	200 – 250V AC Single Phase @ 10 Amps
PC Connectivity	USB 2.0
Controller Update Frequency	100 Hz

## Software Specifications

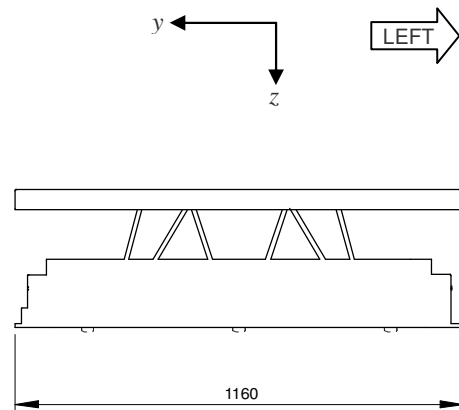
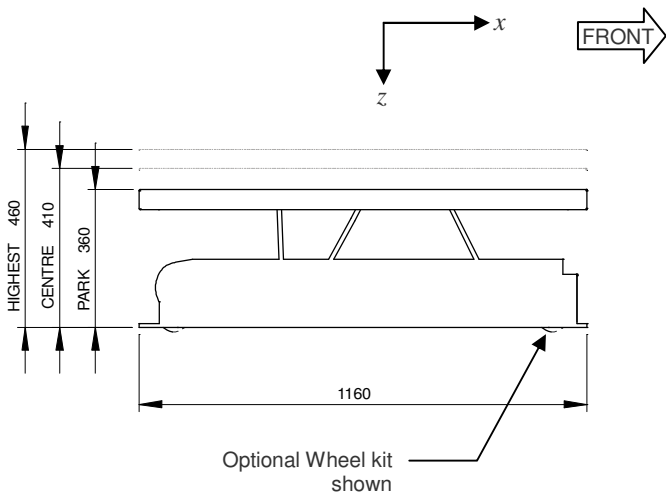
PC Interface Protocol	Serial over USB
Washout Algorithm Drive	Modified Classical Washout System with 2DOF optimisations for: <ul style="list-style-type: none"><li>• Microsoft FSX / FS2004 / ESP</li><li>• Lockheed Martin Prepar3D</li><li>• X-Plane</li><li>• rFactor (v1.255 or higher) and rFactor2</li><li>• iRacing</li><li>• Generic UDP interface for custom user program</li></ul>
Direct Drive	Serial Direct Motor Position Commands

**View of Base Mounting Holes from TOP**



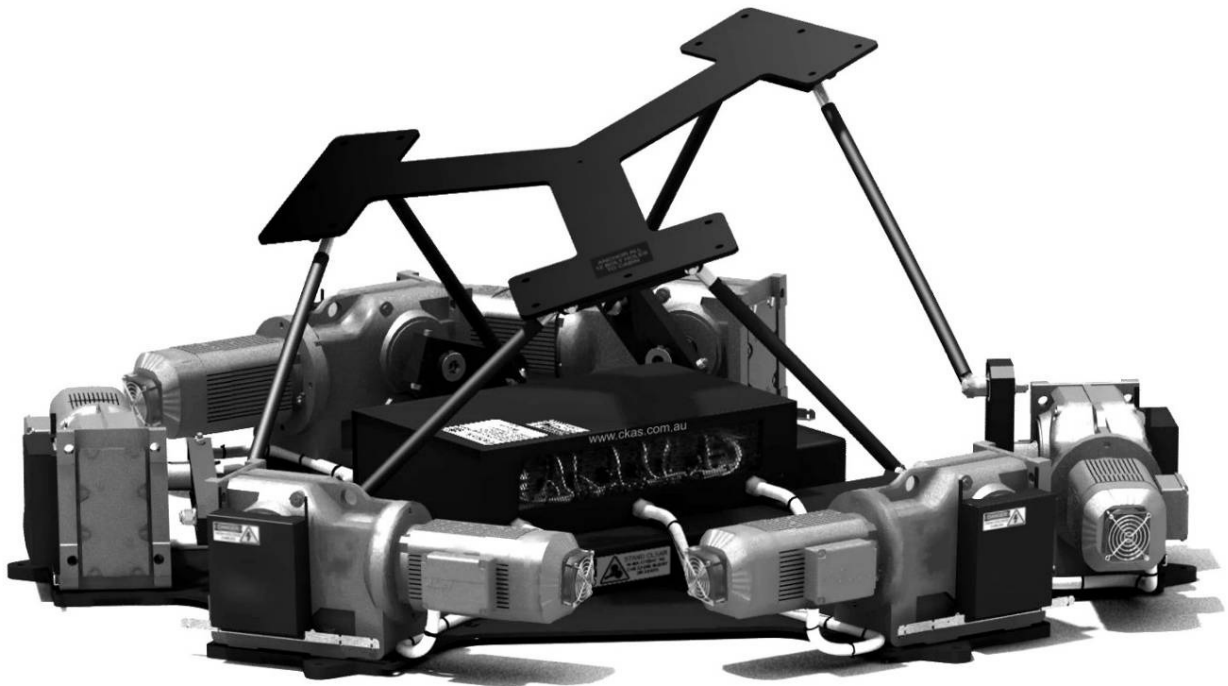
**View of Motion System from RIGHT**

**View of Motion System from FRONT**



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## CKAS W15 6DOF Motion System (1500kg / 3300lb Payload)



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### Introduction

The CKAS W15 6DOF Motion System is specifically directed at **medium-heavy weight professional motion simulator applications**, such as commercial and industrial simulators, bus simulators, truck simulators or custom built flight simulators which require the **highest level of fidelity** available.

### Target Applications

- **Medium-Large Scale Professional Fidelity Flight Training Simulators for up to 5 people**
- **Medium-Large Scale Military Training Simulators for up to 5 people**
- **Medium-Large Scale Professional Fidelity Commercial Vehicle and Truck Driver Training Simulators**
- **Medium-Large Scale Mining Equipment Simulators and Heavy Earth Moving Equipment Simulators**
- **Medium-Large Scale Professional Fidelity Train Driver Simulators for up to 5 people**
- **Medium-Large Scale Professional Fidelity Research Platforms**

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## General Description and Capabilities

The CKAS W15 6DOF Motion System is Ideal for OEM manufacturers of existing simulator products or home builders who are looking for a cost effective method to add professional motion to an existing or new design. This unit is built to CKAS standards, and is USB plug and play straight out of the box. The only assembly required is to bolt on whatever goes on top of the motion system.

The CKAS W15 6DOF Motion System is full motion unit, features a heavy plate frame structure, can carry 1500kg, can swing 18° in any axis, make an excursion of 150mm in any direction, and a high enough architecture to take a 3.0m size payload. The technology used on this professional 6DOF system is “best in class”, incorporating industry leading electronics, encoders and actuators.

The expected life of the W15 is extremely high, and the maintenance requirements are minimal, especially important in commercial or military based applications.

The CKAS W15 6DOF motion system comes with the following key features:

- Fully Electric Actuation
- USB 2.0 plug and play
- Washout filters and acceleration onset cueing algorithms for:
  - Microsoft Flight Simulator FSX / 2004
  - Microsoft ESP
  - Lockheed Martin Prepar3D
  - X-Plane
  - rFactor (v1.255 or higher) and rFactor2
  - iRacing
  - Generic UDP interface for custom user program or other systems
- Very high speed update 100Hz motion controller for extremely smooth high fidelity response

## General Specifications

(Subject to change without notification)

Product Name	CKAS W15 6DOF Motion System
Product Code	W15MP
Product Number	19.0001.11
Product Description	Medium-Large Scale 6 degree of freedom electric motion system
Harmonization Code (HS)	854370 or 854380 or 8543.70.96.50 (depending on Harmonisation system)

## Mechanical Specifications

Architecture	6 Degree of Freedom Modified Stewart Hybrid
Actuation	Fully Electric
Nominal Width (Parked)	2500 mm (98.4")
Nominal Length (Parked)	2150 mm (84.6")
Nominal Height (Parked)	750 mm (29.5")
Approx unit weight	1100 kg (2400 lb)
Anchoring Specification	6 places 18mm holes distributed to be anchored with 12-16mm fasteners

## Performance Specifications

Payload Mass Limit	1500 kg (3300 lb)
Payload Moment of Inertia	1500 kg.m <sup>2</sup> (35,600 lb.ft <sup>2</sup> )
Payload CG horizontal offset	Less than 100mm from Centroid of Flying Platform
Payload CG Vertical offset	Less than 800mm high from top of Flying Platform
Payload Max Floor Size	Diameter 3000mm (118")
Indep. Surge (disp. / vel. / accel.)	±150mm , ±300mm/s , 0.5G
Indep. Sway (disp. / vel. / accel.)	±150mm , ±300mm/s , 0.5G
Indep. Heave (disp. / vel. / accel.)	±150mm , ±300mm/s , 0.5G
Indep. Yaw (disp. / vel. / accel.)	±18° , ±30°/s , ±300°/s <sup>2</sup>
Indep. Pitch (disp. / vel. / accel.)	±18° , ±30°/s , ±300°/s <sup>2</sup>
Indep. Roll (disp. / vel. / accel.)	±18° , ±30°/s , ±300°/s <sup>2</sup>
Max Motion Excitation Frequency	50 Hz

## Electrical Specifications

Power Supply Requirements	200 – 250V AC Single Phase @ 30 Amps <b>hard wired (no RCD)</b>
Safety Interlocks	External User Park and Current Position Freeze on Power Fail
PC Connectivity	USB 2.0
Controller Update Frequency	100 Hz

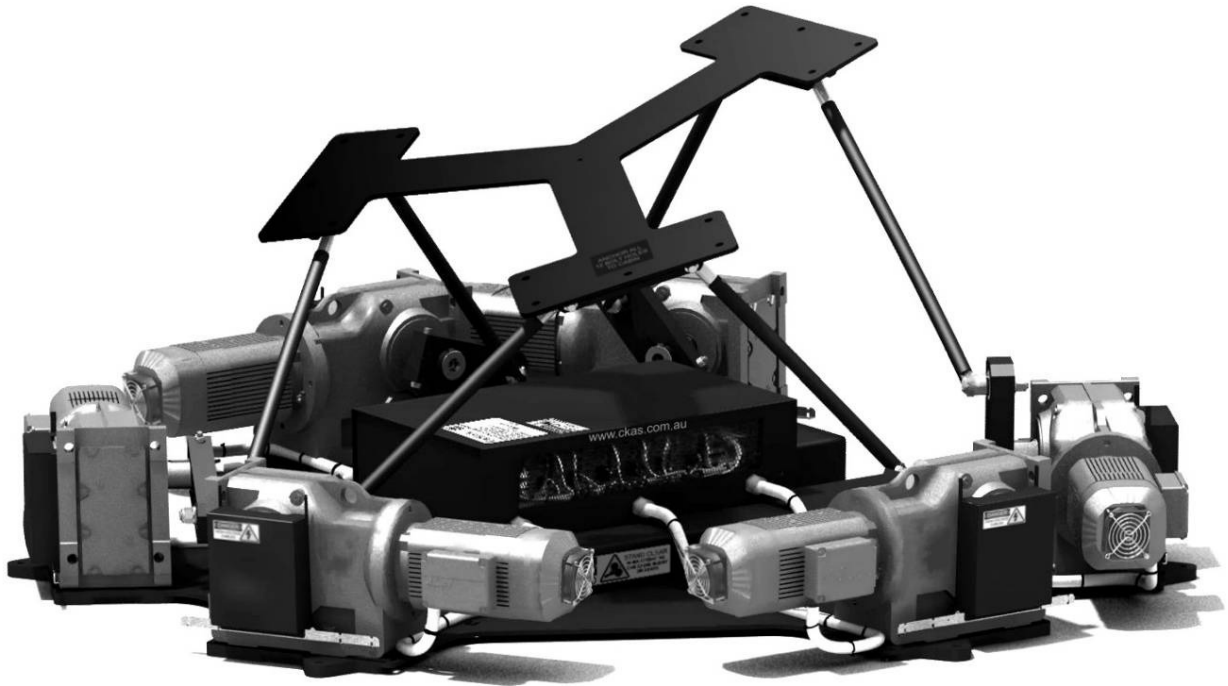
## Software Specifications

PC Interface Protocol	Serial over USB
Washout Algorithm Drive	Modified Classical Washout System with 2DOF optimisations for: <ul style="list-style-type: none"><li>• Microsoft FSX / FS2004 / ESP</li><li>• Lockheed Martin Prepar3D</li><li>• X-Plane</li><li>• rFactor (v1.255 or higher) and rFactor2</li><li>• iRacing</li><li>• Generic UDP interface for custom user program</li></ul>
Direct Drive	Serial Direct Motor Position Commands



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## CKAS W25 6DOF Motion System (2500kg / 5500lb Payload)



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### Introduction

The CKAS W25 6DOF Motion System is specifically directed at **medium-heavy weight professional motion simulator applications**, such as commercial and industrial simulators, bus simulators, truck simulators or custom built flight simulators which require the **highest level of fidelity** available.

### Target Applications

- **Medium-Large Scale Professional Fidelity Flight Training Simulators for up to 12 people**
- **Medium-Large Scale Military Training Simulators for up to 12 people**
- **Medium-Large Scale Professional Fidelity Commercial Vehicle and Truck Driver Training Simulators**
- **Medium-Large Scale Mining Equipment Simulators and Heavy Earth Moving Equipment Simulators**
- **Medium-Large Scale Professional Fidelity Train Driver Simulators for up to 12 people**
- **Medium-Large Scale Professional Fidelity Research Platforms**

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## General Description and Capabilities

The CKAS W25 6DOF Motion System is Ideal for OEM manufacturers of existing simulator products or home builders who are looking for a cost effective method to add professional motion to an existing or new design. This unit is built to CKAS standards, and is USB plug and play straight out of the box. The only assembly required is to bolt on whatever goes on top of the motion system.

The CKAS W25 6DOF Motion System is a full motion unit, features a heavy plate frame structure, can carry 2500kg, can swing 18° in any axis, make an excursion of 150mm in any direction, and a high enough architecture to take a 3.0m size payload. The technology used on this professional 6DOF system is “best in class”, incorporating industry leading electronics, encoders and actuators.

The expected life of the W25 is extremely high, and the maintenance requirements are minimal, especially important in commercial or military based applications.

The CKAS W25 6DOF motion system comes with the following key features:

- Fully Electric Actuation
- USB 2.0 plug and play
- Washout filters and acceleration onset cueing algorithms for:
  - Microsoft Flight Simulator FSX / 2004
  - Microsoft ESP
  - Lockheed Martin Prepar3D
  - X-Plane
  - rFactor (v1.255 or higher) and rFactor2
  - iRacing
  - Generic UDP interface for custom user program or other systems
- Very high speed update 100Hz motion controller for extremely smooth high fidelity response

## General Specifications

(Subject to change without notification)

Product Name	CKAS W25 6DOF Motion System
Product Code	W25MP
Product Number	20.0001.11
Product Description	Medium-Large Scale 6 degree of freedom electric motion system
Harmonization Code (HS)	854370 or 854380 or 8543.70.96.50 (depending on Harmonisation system)

## Mechanical Specifications

Architecture	6 Degree of Freedom Modified Stewart Hybrid
Actuation	Fully Electric
Nominal Width (Parked)	2500 mm (98.4")
Nominal Length (Parked)	2150 mm (84.6")
Nominal Height (Parked)	750 mm (29.5")
Approx unit weight	1100 kg (2400 lb)
Anchoring Specification	6 places 18mm holes distributed to be anchored with 12-16mm fasteners

## Performance Specifications

Payload Mass Limit	2500 kg (5500 lb)
Payload Moment of Inertia	3500 kg.m <sup>2</sup> (83,000 lb.ft <sup>2</sup> )
Payload CG horizontal offset	Less than 100mm from Centroid of Flying Platform
Payload CG Vertical offset	Less than 800mm high from top of Flying Platform
Payload Max Floor Size	Diameter 3000mm (118")
Indep. Surge (disp. / vel. / accel.)	±150mm , ±300mm/s , 0.5G
Indep. Sway (disp. / vel. / accel.)	±150mm , ±300mm/s , 0.5G
Indep. Heave (disp. / vel. / accel.)	±150mm , ±300mm/s , 0.5G
Indep. Yaw (disp. / vel. / accel.)	±18° , ±30°/s , ±300°/s <sup>2</sup>
Indep. Pitch (disp. / vel. / accel.)	±18° , ±30°/s , ±300°/s <sup>2</sup>
Indep. Roll (disp. / vel. / accel.)	±18° , ±30°/s , ±300°/s <sup>2</sup>
Max Motion Excitation Frequency	50 Hz

## Electrical Specifications

Power Supply Requirements	200 – 250V AC Single Phase @ 50 Amps <b>hard wired (no RCD)</b>
Safety Interlocks	External User Park and Current Position Freeze on Power Fail
PC Connectivity	USB 2.0
Controller Update Frequency	100 Hz

## Software Specifications

PC Interface Protocol	Serial over USB
Washout Algorithm Drive	Modified Classical Washout System with 2DOF optimisations for: <ul style="list-style-type: none"><li>• Microsoft FSX / FS2004 / ESP</li><li>• Lockheed Martin Prepar3D</li><li>• X-Plane</li><li>• rFactor (v1.255 or higher) and rFactor2</li><li>• iRacing</li><li>• Generic UDP interface for custom user program</li></ul>
Direct Drive	Serial Direct Motor Position Commands

