

## Centrifuge Series AC1135-TC\_



System Assembly AC1135

### Description

The Centrifuge System, Model AC1135-TC\_ is designed for the test and calibration of inertial measurement packages in rate, relative position and centrifugal force, G. The system is equipped with a dual purpose boom arm. In the centre of the boom arm a defined hole pattern permits the user to locate the Unit Under Test (UUT) and use the system as a conventional rate and positioning table. The hole pattern of the boom arm extends to the extremities of the arm allowing the user to install the UUT at the end of the arm. The system can then be used as a centrifuge.

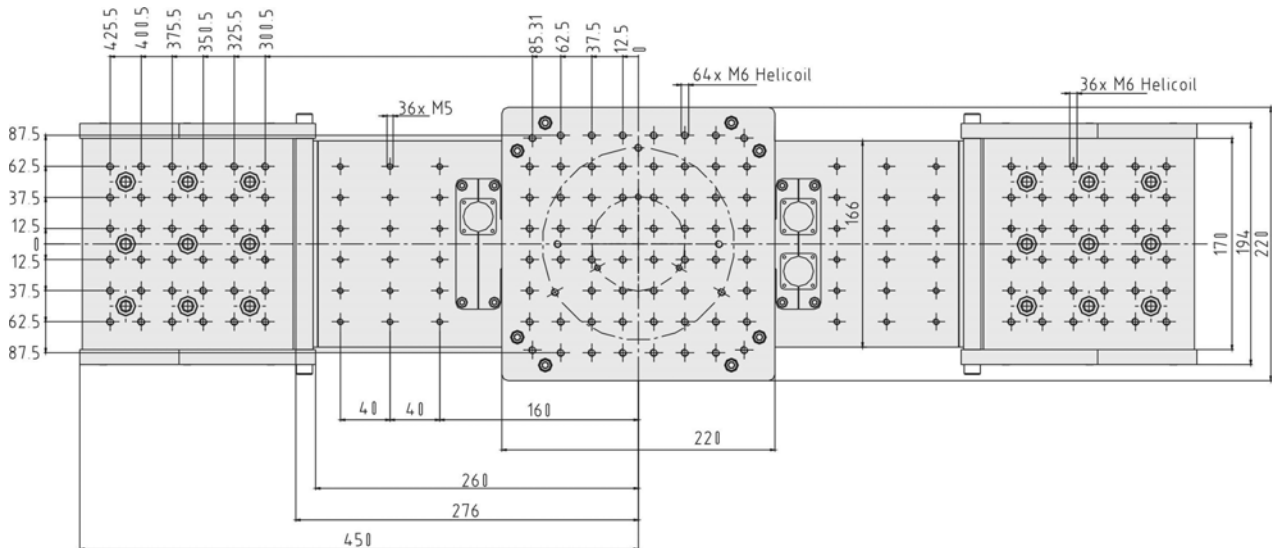
Control and readout functions are performed by the advanced ACUTROL® Model ACT3000 motion control and display system.

In order to allow UUT environmental test, the boom rotates within a unique temperature chamber. The temperature chamber construction is such that it is also used as a mechanical safety shield.

Cooling is realised with the expansion of LN<sub>2</sub> or CO<sub>2</sub> (TCG) or with a closed circuit mechanical refrigeration (TCM) heating is electrical.

The Model AC1135-TC\_ provides precise relative positioning, accurate rates of up to 4000 deg/s and, in its centrifuge mode –radial accelerations up to 200g. The axis is directly driven by a brushless torque motor. Electrical access to the UUT is handled through a slipring package terminating in connectors on the boom and on the base of the instrument. Acutronic slipring designs incorporate four-brushes per circuit for signal lines to avoid micro interruptions which could corrupt digital signals. The digital controller ACUTROL® has a touch sensitive Operator Interface Panel.

An Input-Output panel provides scalable analog input/output of position, rate or acceleration and the possibility to configure TTL event pulses for calibration and performance verification.



Typical Boom Arm Customer Interface Series AC1135 (Dowel pins can be added 0.005mm accy)

## Specification Summary

## Model AC1135-TC

### Design Concept

One axis rate table, positioning table and centrifuge combined. With shroud or TC\_

### Controller:

ACUTROL ACT3000 Amplifier & Power Amplifiers Series 600 AC Drive

### Dimensions

#### Table

Height, max (mm) 1'705  
Size of shroud (mm) 1220W x 1220D

#### Control/Power Cabinet

2,2 meters high x 760mm deep x 415 wide

#### 19" Cabinet

### Unit under Test (UUT)

#### Centrifuge (UUT Mounted on radius)

#### Rate Table (UUT mounted in center)

Payload, maximum (balanced)

1'000 kg G e.g. 200G with a 5 kg load

20kg

Clearance envelope (mm)

150L x 150W x 80H

200L x 200W x 108H

Location pin accuracy (mm)

0.005 (measured under controlled temperature)

(Customer specified)

Electrical lines to UUT (Standard)

30 circuits for customer use  
Rated at 2 Amp, 120V RMS

### Mechanical Performance

Wobble

<2 arc sec

Positioning accuracy

1 sec peak to peak

### Dynamic Parameters

#### Centrifuge

#### Rate Table

Range

0,5 to 200G

4'000 ° /s

Resolution

0.00001°/s

0.00001° /s

Rate Stability

0.0001% over 360°

0.0001% over 360°  
0.001% over 10°  
0.01% over 1°

Rate Accuracy

2 ppm

Bandwidth

>80Hz

Boom effective radius

400mm

### Temperature chamber

Cooling concept

TCN: Gas refrigeration  
by expansion of LN<sub>2</sub>

TCC: Gas refrigeration  
by expansion of CO<sub>2</sub>

TCM: Mechanical refrigeration  
sealed system with R23 in  
evaporator

Cooling Gradient

Max 7°C per min

> 7°C per min

Max 5°C per min

Range

-60° C to +125° C

-50°C to +125°C

Stability

+/- 1° C

### Options

- Slipping capsules according to customer requirements
- Digital interface in addition to the std. IEEE-488 and Ethernet (TCP/IP) optional available are: RS-232 VMIC and SCRAMNet

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