POSITIONING SYSTEMS FOR EMC BUSINESS

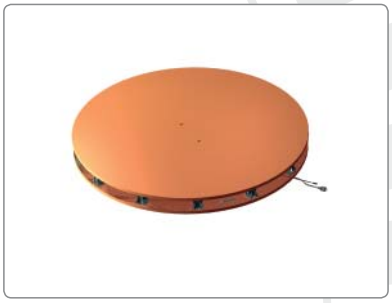
PRODUCT OVERVIEW

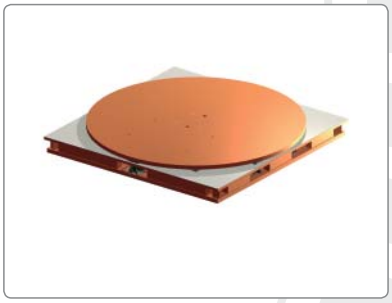
INNCO systems

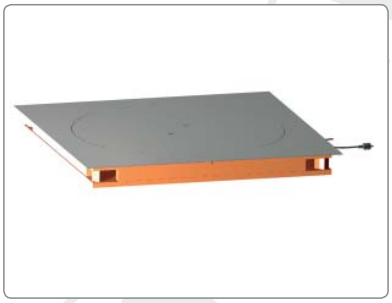
TABLE OF CONTENTS

TURNTABLES

CT	0.5…1.0 m	50…150 kg	■■■
DS-HA	1.2…2.0 m	300…500 kg	■■■
DS-HE	1.2…2.0 m	300…500 kg	■■■
DS-S	1.2…2.5 m	500…1,500 kg	■■■
DT	2.0…12 m	1,000…100,000 kg	■■■



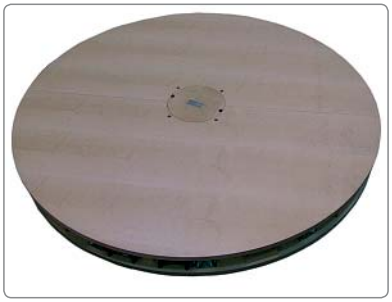


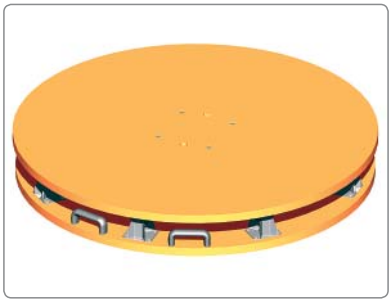


Compact Table CT0800

- Diameter: 0.5 m 0.8 m 1.0 m
  Load: 75 kg 75 kg 75 kg
- Material of carrier plate: Kömacell
- EUT connection: ø 45 mm centre hole
- Compact drive unit
- Positioning accuracy: better then ±1°

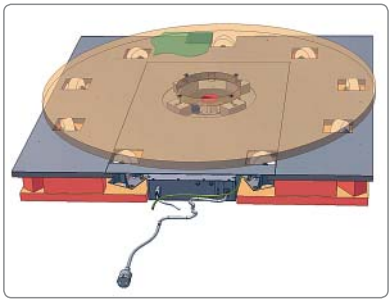
Turndisc DS1200HA…2000HA

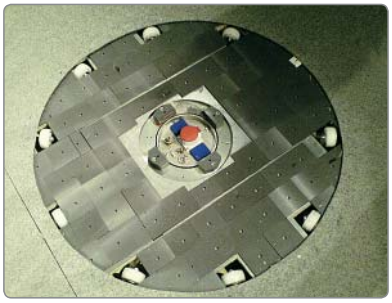




- Diameter: 1.2 m 1.5 m 2.0 m
  Load: 300 kg 500 kg 500 kg
- Material of carrier plate: wood (multiplex plate)
- EUT connection: centre of turntable
- Compact drive unit
- Positioning accuracy: better then ±1°
- Handling aids
- Optional: movable by installed rollers

Turndisc DS1200HE…2000HE





Covered With Ferite Tires Under Top Plate

- Diameter: 1.2 m 1.5 m 2.0 m
  Load: 300 kg 500 kg 500 kg
- Material of carrier plate: wood (multiplex plate)
- EUT connection: centre of turntable
- Compact drive unit
- Positioning accuracy: better then ±1°

STANDARD / CUSTOM TURNTABLES

Turndisc DS1200S…DS2000S

- Diameter: 1.2 m 1.5 m 2.0 m
  Load: 300 kg 500 kg 750 kg
- Material of carrier plate: stainless steel
- EUT connection: centre of turntable
- Compact drive unit
- Positioning accuracy: better then ±1°

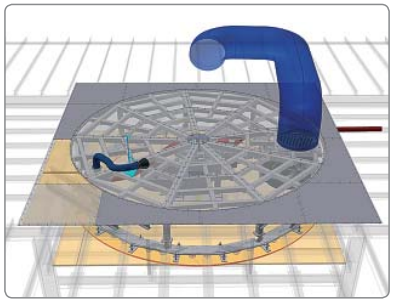
Turndisc Customizing

- Customized CP
- Energy chain
- Exhaust system
- Load increasing
- Indoor / outdoor
- Optional: MIL execution

Example: Turntables

- Diameter: 2.0 m…
  Load: 1 to
- Material of carrier plate: stainless steel
- EUT connection: centre of turntable external connection possible
- Gear motor with PWM
- Positioning accuracy: better then ±1°

Example: DT5000-5t-EC-EG



- Diameter: 5.0 m
  Load: 5 to
- EUT connection: CP Ø 300 mm
- Prepared for using of RPS-F incl.
- Separate CP
- Exhaust system
- Fan system with air hose: better then ±1°

Turntable Customizing

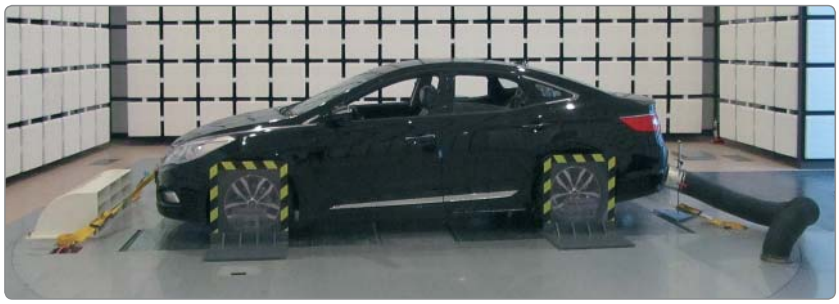
- Energy chain
- Customized CP
- Exhaust system
- Fan
- Preparation for roller bench
- Dual turntable
- Limit switch system
- Load increasing
- Indoor / outdoor
- Position scala
- Optional: MIL execution

Pre Installed Cables

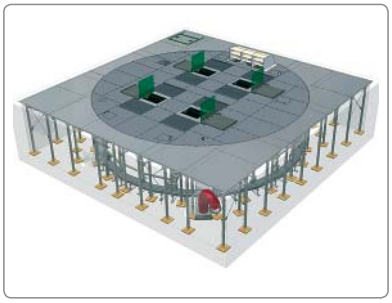
- "Smart energy chain" (integrated in the base frame)
- Reduced costs
- No extra time needed on site

TURNTABLES WITH DYNAMOMETERS

Integrated and Free Standing Dynamometers



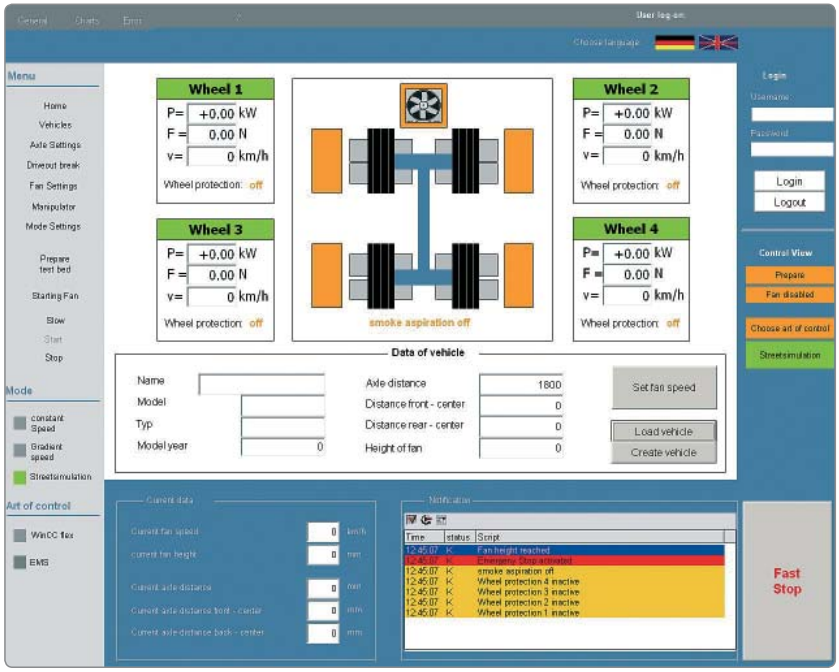
Ex.: DT6500-4t-RPS40-100-1



Data Overview

Turntable diameter	6,500 mm
Turntable max. load	4,000 kg
Dynamometer axle load	2,000 kg
Quantity of active axles / roller pairs	2 / 4
Installed power per tire	20 kW
Voltage	400 V
Needed current max.	210 A
Stainless steel env.	7,500 m
Max. axle distance	3,200 mm
Min. axle distance	1,800 mm
Nominal acceleration	10 m/s^2
Up to	100 km/h
Max. speed	100 km/h
Inner roler edges	900 mm
Outer roller edges	2,100 mm
Roller diametres	240 mm
Fan section capacity	39,500 m^3/h
Fan outlet dim.	1,250 x 500 mm
Air speed	63 km/h
Exhaust connection in turntable ground plane	2
Nominal dimension of exhaust connection	200 mm
Installation time on site (approx.)	8 weeks

Dynam Pro Control Software



- Constant speed mode
- Gradient speed mode (ABS/ESP test)
- Street (road) simulation mode
- Up/downhill mode for hybrid or EV-vehicle
- Torque/speed analyzer function
- File storage for vehicle and test cycles
- Optional driving robot system
- Optional ignition key actuator
- Communication by only one fibre optic cable
- Real time communication below 1 ms cycle time
- High performance PLC and motor driver
- Extendable and customizable

RPS-F 40-100-0.5

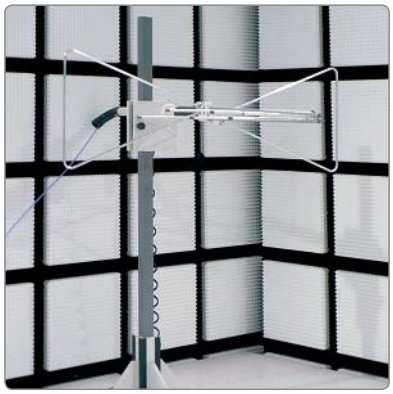
Data Overview

Axle load	2,000 kg
Quantity of active axles / roller pairs	2 / 4
Installed power per tire	15 kW
Voltage	400 V
Needed current max.	210 A
Nominal acceleration	0.5 m/s²
Up to	100 km/h
Max. speed	100 km/h
Inner roller edges	900 mm
Outer roller edges	2,100 mm
Roller diametres	240 mm

ANTENNA STANDS AND MASTS

AS-PP	0.8…3.0 m	6…15 kg	■■■
AS-EP	0.8…3.0 m	6…15 kg	■■■
MM-PP	1.0…4.0 m	6 kg	■■■
MA-EP / PP-ET	1.0…6.0 m	10…15 kg	■■■
TW-EP / PP-ET	1.0…10.0 m	15…25 kg	■■■

AS2000PP / AS2000PP-15 kg



- Antenna height adjustable: 0.7…2.0 m
- Antenna weight:
  AS2000PP max. 6 kg
  AS2000PP-15 kg max. 15 kg
- Polarisation: pneumatic

AS1500 EE / AS2000EP-H

- Antenna height
  AS1500E fix 1.5 m
  AS2000EP-H 0.7…2.0 m
- Antenna weight: max. 6 kg
- Polarisation: electric

Custom Antenna Stands

- Antenna height fix: 1.5 m
- Antenna weight: max. 20 kg
- Polarisation: manually

(designed for AR antennas)

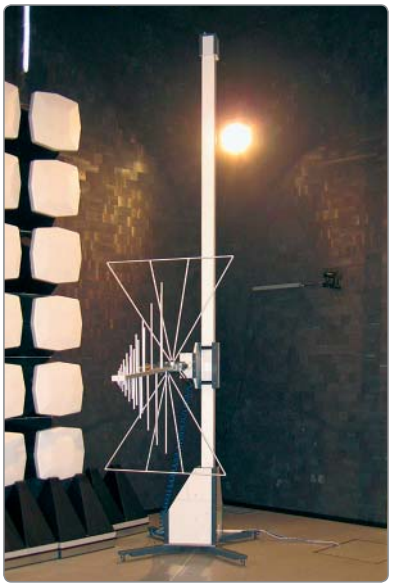
- Antenna height: min. 193 cm
  (Antenna center) max. 316 cm
- Height adjustment by hand crank
- Antenna weight: max. 50 kg
- Polarisation: manually
- Tilt angle: 0°…30°

ANTENNA MASTS

MM4000-PP

- Antenna scan height: 1.0…4.0 m
- Antenna weight: max. 6 kg
- Polarisation: pneumatic
- Mast standard speed: 15 cm/sec
  max. possible speed: 20 cm/sec

MA4000-EP or PP



- Antenna scan height: 1.0…4.0 m
- Antenna weight: max. 10 kg
- Polarisation: electric or pneumatic
- Mast standard speed: 12 cm/sec
  max. possible speed: 25 cm/sec
- Optional: MIL execution

MA4000-XP-ET

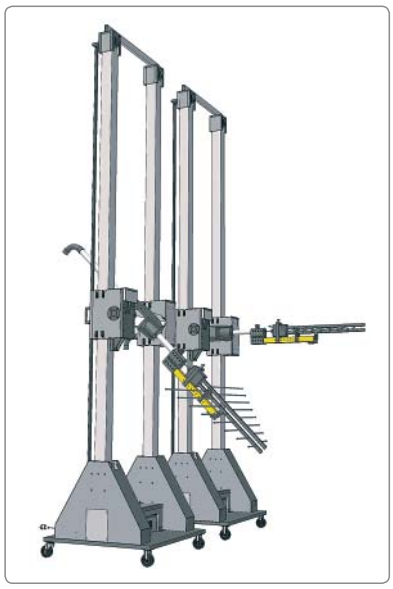
- Antenna scan height: 1.0…4.0 m
- Antenna weight: max. 10 kg
- Tilt angle adjustable: 0°…45°
- Mast standard speed: 12 cm/sec
  max. possible speed: 20 cm/sec

TW4000-EP/PP / TW10000-EP-O

- Antenna scan height: 1.0…4.0 m
- Antenna weight: max. 20 kg
- Polarisation: electric or pneumatic
- Mast standard speed: 12 cm/sec
  max. possible speed: 25 cm/sec

- Antenna scan height: 1.0…10.0 m
- Antenna weight: max. 20 kg
- Polarisation: electric
- Mast standard speed: 12 cm/sec
  max. possible speed: 25 cm/sec

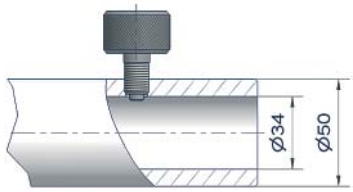
TW4000-PP-T



- Antenna scan height: 1.0…4.0 m
- Antenna weight: max. 15 kg
- Polarisation: pneumatic
- Tilt angle adjustable: 0°…45°
- Mast standard speed: 12 cm/sec
  max. possible speed: 25 cm/sec

Antenna Adapters

All for one:



Type	Test Application	EUT Weight	
DE3330-RH	CABLE AND WIRING	4 kg	
DE3600-RH	MOBILE PHONE	4 kg	
DE3700-RH DE3750-RH	LAPTOP AND SAM HEAD	10 kg	
DE3800-RH	MOBILE PHONE, LAPTOP AND SAM HEAD	15 kg	
DE3900-RH	TIRE PRESSURE SENSOR MEASUEREMENT	50 kg	

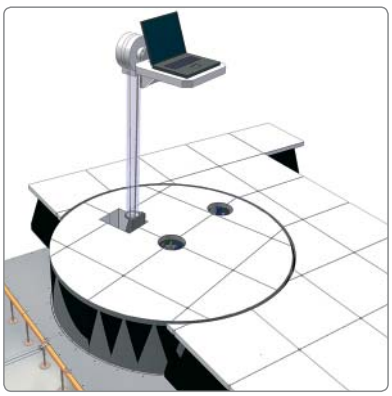
Turn Device DE3600-RH

- Max. weight of EUT: 2 kg
- Rotation speed: 5.31 rpm
- Material of the head:
  Rohacell 110 IG (87.4 vol %)
  POM (11.4 vol %)
  PTFE (1.0 vol %)

Turn Device DE3700-RH

- Max. weight of EUT: 10 kg
- Rotation speed: 5.31 rpm
- Material of the head:
  Rohacell 110 IG (57.8 vol %)
  Fibre glass
  POM (21.26 vol %)
  PTFE (20.94 vol %)

Turn Device DE3750-RH

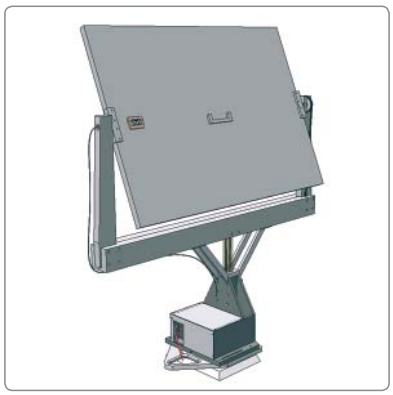


- Drive unit in turntable integrated
- Max. weight of EUT: 10 kg
- Rotation speed: 5.31 rpm
- Material of the head:
  Rohacell 110 IG (57.8 vol %)
  POM (21.26 vol %)
  PTFE (20.94 vol %)

Turn Device DE3800-RH

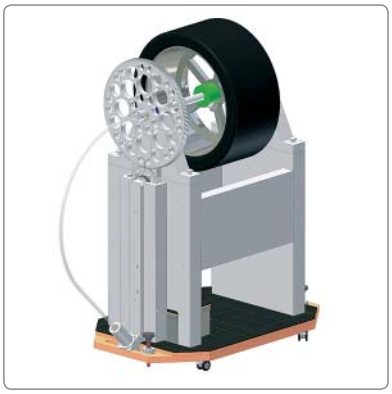
- Max. weight of EUT: 15 kg
- Rotation speed: 2.50 rpm
- Material of the head:
  Rohacell 110 IG (95 vol %)
  POM (3.0 vol %)
  PTFE (2.0 vol %)

Turn Device DE3330-RH



- Max. weight of EUT: 4 kg
- Rotation speed: 2.30 rpm
- Material of the head:
  Fibre glass (3.5 vol %)
  POM (11.0 vol %)
  PTFE (0.8 vol %)

Turn Device DE3900-RH



Turn device DE3900-RH
(for tire pressure sensor measurement)

- Max. weight of EUT: 50 kg
- Rotation speed: 0.30…1.00 rpm
- Rotary joint for compressed air supply
- Material of positioner:
  Rohacell 51 IG

Gantries

Typical data:

- Max. antenna weight: 10 kg (22 lb)
- Radius: 7, 7.5, 8, 8.5 or 9 m
- Elevation height: 1…2.5 m
- Angle of movement: 0…180°
- Positioning speed: 1.2°/sec
- Positioning accuracy: ±1°

VARIOUS POSITIONERS

SINGLE AXIS POSITIONERS

DUAL AXIS POSITIONERS

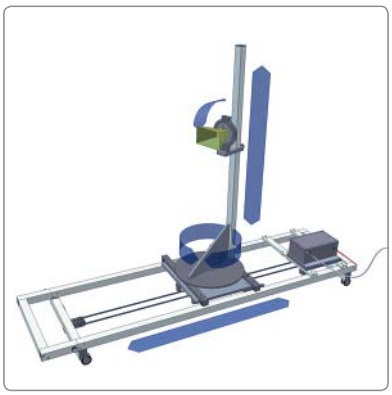
TRIPLE AXIS POSITIONERS

CUSTOMIZED POSITIONERS

FSM2315

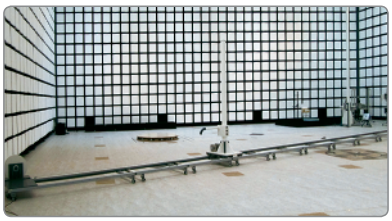
- Vertical sensor position: 0.8…2 m
- Horizontal moving range: 1.5 m
- Sensor weight: max. 2 kg
- Positioning accuracy: ± 1 cm

VSWR1500-MP



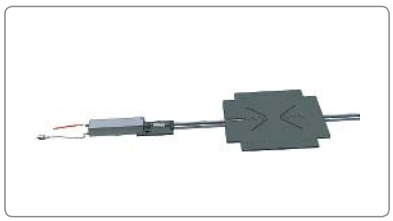
- Movement range: 1.5 m (electric)
- Antenna height: 0.8…2.3 m (manual)
- Polarisation: manually
- Mast rotatable: 0…360° (manual)
- Antenna weight: max. 3 kg
- Positpositioning speed: 1…12 cm/sec
- Positioning accuracy: ± 3 mm

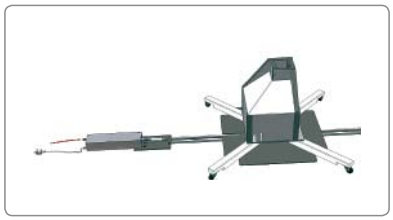
VSWR15000-MP



- Movement range: 15 m (electric)
- Antenna height: 0.8…2.3 m (manual)
- Polarisation: manually
- Mast rotatable: 0…360° (manual)
- Antenna weight: max. 6 kg
- Positioning speed: 1…12 cm/sec
- Positioning accuracy: ± 3 mm

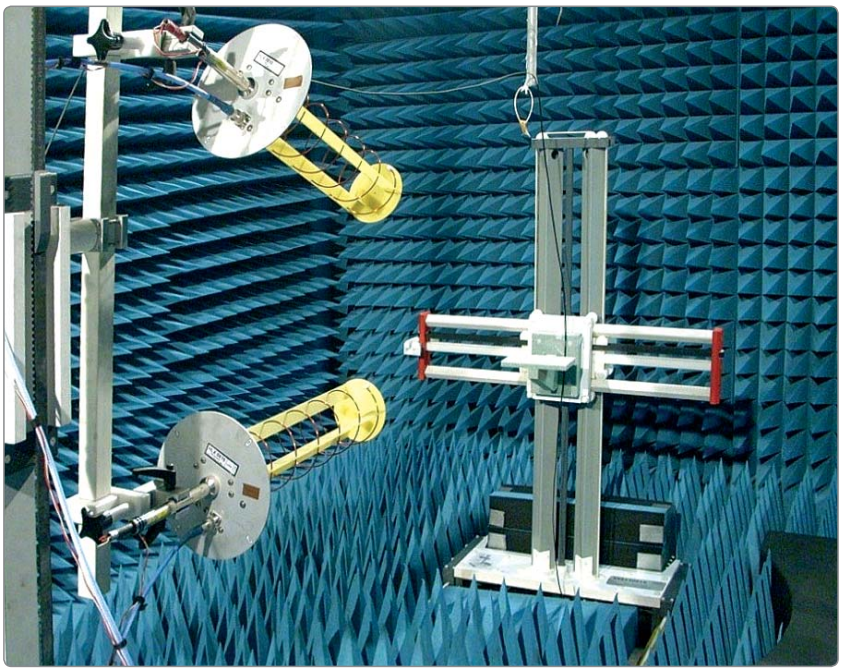
MP2200

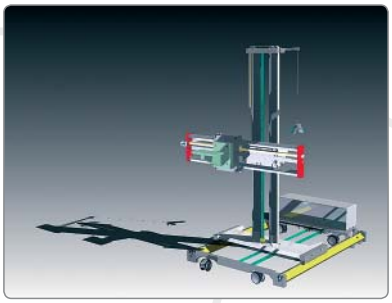




- Movement range: 2,200 mm
- Material: PVC (except the drive)
- Overall length: 3,500 mm
- Max. load: 80 kg
- Positioning speed: approx. 1 cm/sec.

XYZ120815





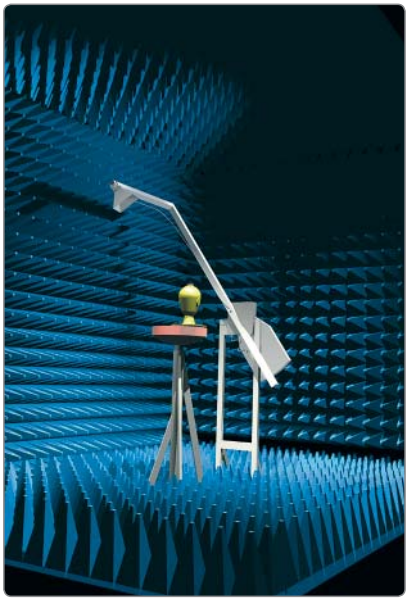
- Moving range: X-Axis 0.7 m
Y-Axis 1.2 m
Z-Axis 1.0 m
- Sensor weight: max. 5 kg
- All 3 axis movable at the same time
- Positioning accuracy: better ± 5 mm

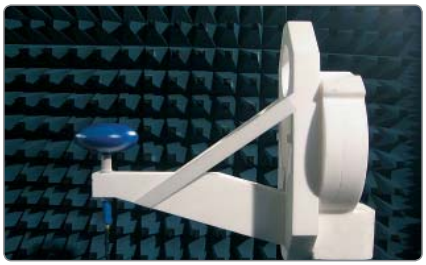
KMS5300 / KMS6000

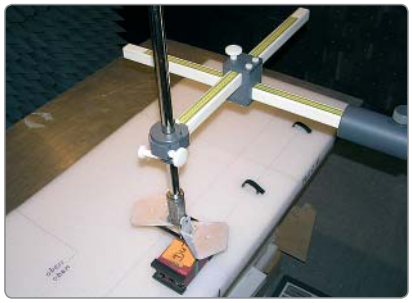
- Measuring length: 5.4 m / 6.1 m
- Measuring hight: 0.8 m
- Positioning speed min. 2.5 cm / sec
- Positioning speed max. 20 cm / sec
- Positioning accuracy: ± 0.5 cm
- Manually moveable and lockable
- Manually moveable clamp support

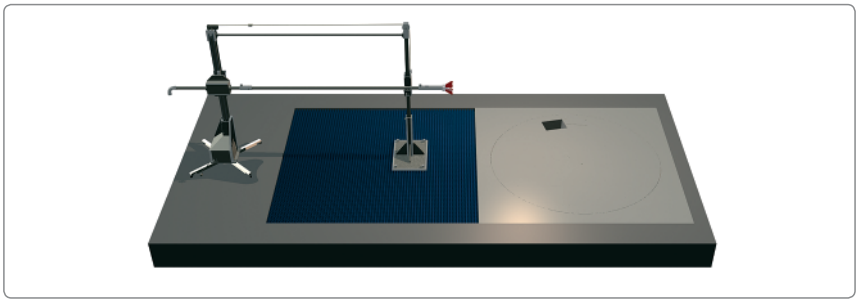
VARIOUS POSITIONERS

On Clients Request









Aircraft Positioning System

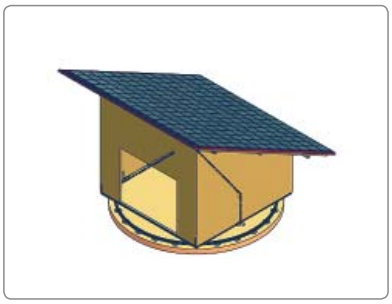
Aircraft Lift

- Load capacity: 75 tons
- Height max: 13 m
- Force of hydraulic cylinders: 350 tons
- Beam angle to the horizontal: 65 degrees
- Elevation angle: ± 35°

Turntable

- Diameter: 18 m
- Height: 2.2 m
- Load capacity: 100 tons
- Accuracy: ± 0.1°
- Turning angle: ± 225°
- Turning time: 5 to 60 min

Photo-Voltaic Pos. System



- Sun-sensor for highest efficiency
- Diameter: 12 m
- Load capacity: 25 tons
- Drive motor: frictional wheels

INNCO systems

SINGLE AXIS CONTROLLER

MULTIPLE AXIS CONTROLLER UP TO 4 DEVICES

MULTIPLE AXIS CONTROLLER UP TO 8 DEVICES

HAND CONTROL UNIT

PC CONTROL

CO3000 (New)

- Control up to eight devices (turntables, masts, turndevices…)
- Fibre optic cable connection
- GPIB, TCP/IP & USB interface
- Drivers will be supported by software from:
  Rohde & Schwarz
  Agilent Technologies
  TDK
  TOYO Corporation
  DARE!!
  Schwarzbeck Mess-Elektronik
  Schaffner

CO2000

- Control up to four devices (turntables, masts, turndevices…)
- Fibre optic cable connection
- GPIB interface
- Drivers will be supported by software from:
  Rohde & Schwarz
  Agilent Technologies
  TDK
  TOYO Corporation
  DARE!!
  Schwarzbeck Mess-Elektronik
  Schaffner

CO1000

- Control one single axis device (turntable, slide bar…)
- Fibre optic cable connection
- GPIB interface
- Drivers will be supported by software from:
  Rohde & Schwarz
  Agilent Technologies
  TDK
  TOYO Corporation
  DARE!!
  Schwarzbeck Mess-Elektronik
  Schaffner

Hand Control Unit

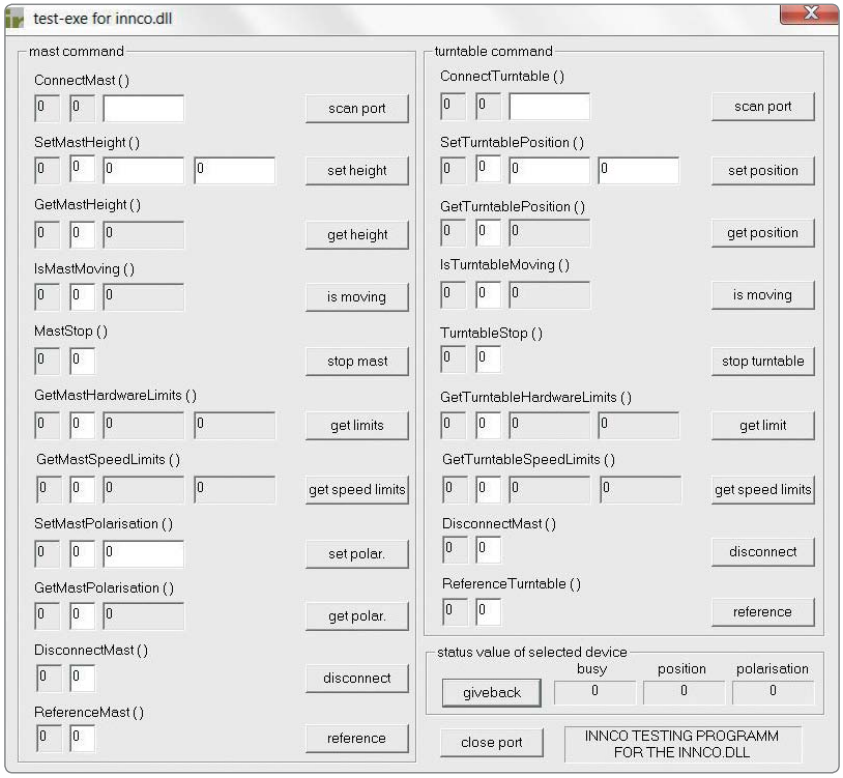
- Control up to three devices (turntables, masts, turndevices…)
- Fibre optic cable connection
- EMC shielded, auto off
- Works with CO2000 and CO3000 controller

GPIB Control for Antenna Stand

- Control one polarisation axis of antenna stand (EP & PP)
- Fibre optic cable connection
- GPIB interface

- Drivers will be supported by software from:
  Rohde & Schwarz
  Agilent Technologies
  TDK
  TOYO Corporation
  DARE!!
  Schwarzbeck Mess-Elektronik
  Schaffner

PC-Control by innco.dll

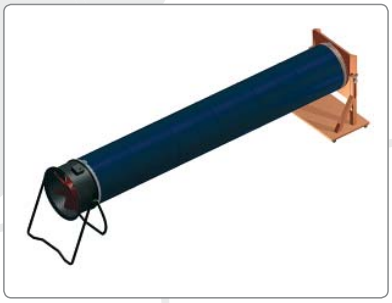


- innco.dll file for C++ MFC project or
- inncoVB.dll file for Visual Basic
- Incl. demo program
- Incl. USB-RS232 converter without external power supply
- Up to 921600 bits/s and status LEDs
- Available for all innco devices

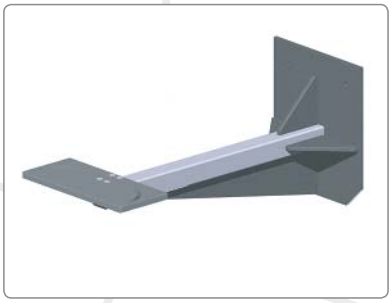
VARIOUS SYSTEMS

PROJECTION SCREENS

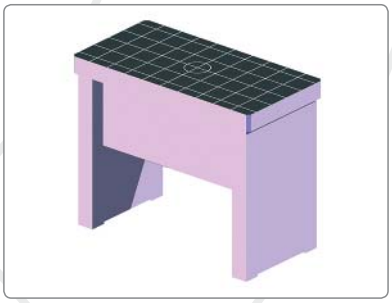
COMPACT COOLING FANS



WALL MOUNTING BRACKETS

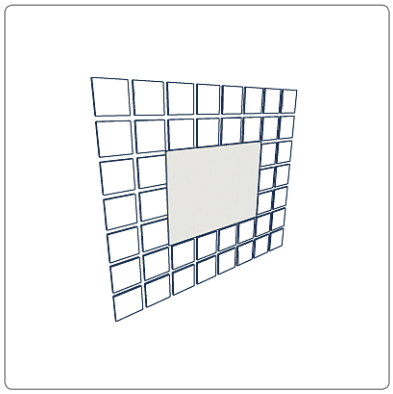


LOW REFLECTIVE EUT TEST TABLES



MODE STIRRER

Projection Screen

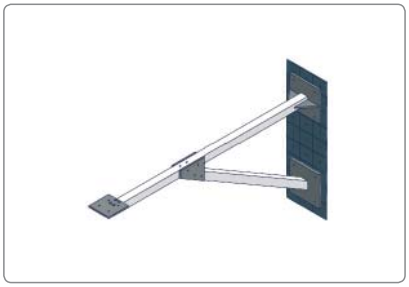


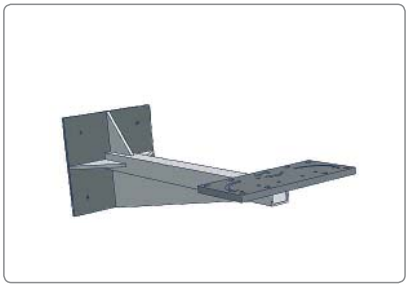
- For white caps and as "stand alone"
- In 100" and 120"

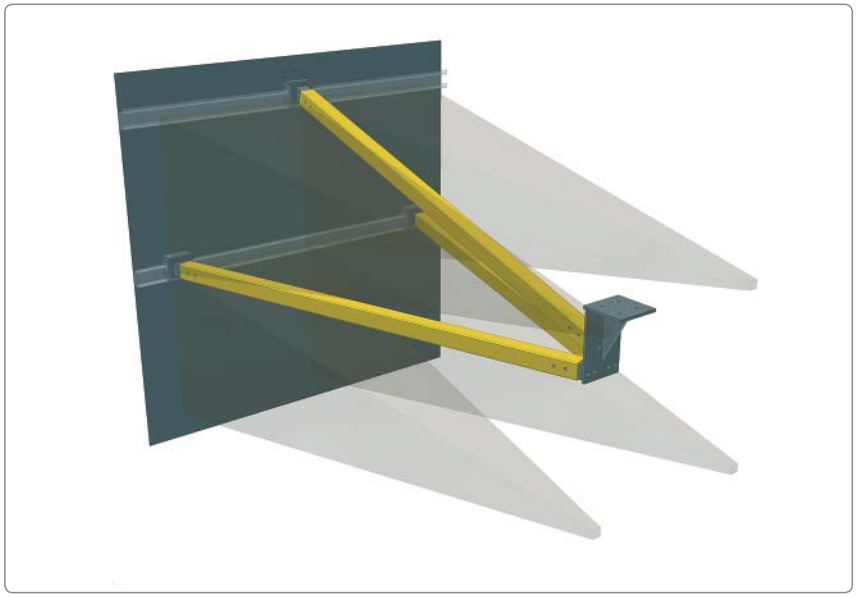
Compact Cooling Fan

- Wind speed: 50 km/h
- Air stream: 10,000 m^3/h
- Operating voltage: 230 V
- Current consumption: 6 A
- Material: wood and PVC

Wall mounting brackets

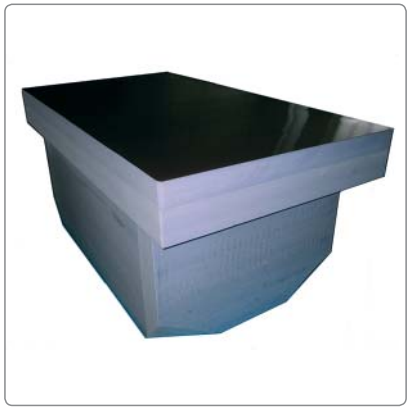






- Custom made and standard
- For any weight and absorbertype

Low Reflective EUT Test Table -SD and -RH



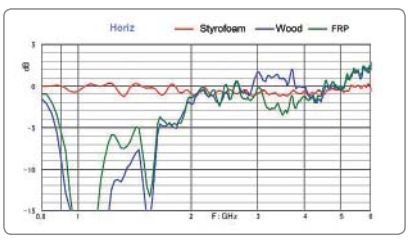
- Height 0.8 m
- Table Top Ø 1.2 or 1.5 m
  1.2 m x 0.8 m or
  1.5 m x 1.0 m or
  1.8 m x 1.0 m
- Load capability 100, 120 or 150 kg

-SD

- Material: Styrofoam
- Dielectric constant ε at 1 MHz: 1.2
- Table Top: Perdinax t=1 mm
- Dielectric constant ε at 1 MHz: 1.6

-RH

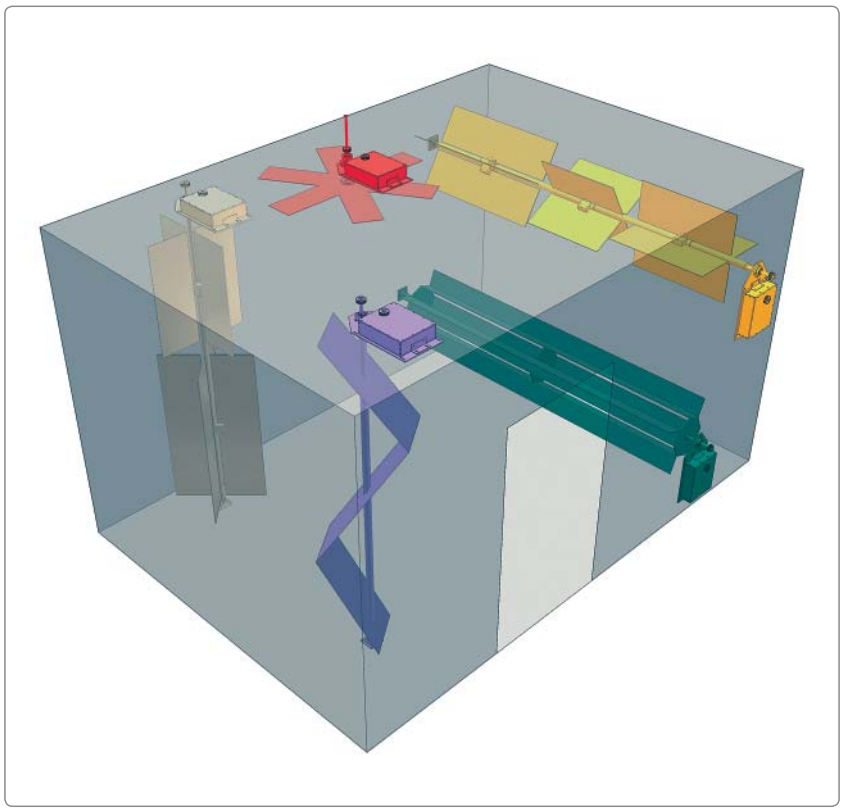
- Material: Rohacell
- Dielectric constant ε at 1 MHz: 1.04
- Table Top: Perdinax t=1 mm
- Dielectric constant ε at 1 MHz: 1.6

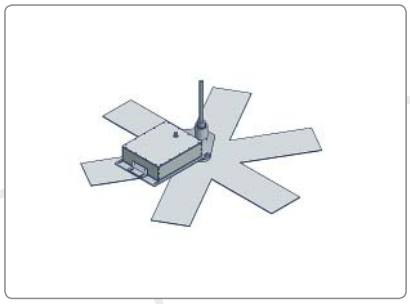


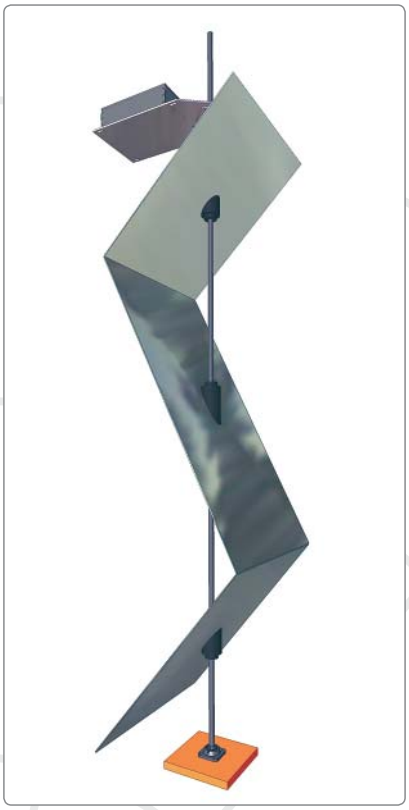
LED Chamber Light LCL-I18

- Length: 2.0 m
- Supporting material: PMMA
- Voltage for power supply:
  115 V / 230 V AC (50/60 Hz)
- Voltage inside chamber: 12 V DC
- AC current: 2.5 A (at 115 V)
  1.2 A (at 230 V)
- Illuminating segments in LCL-I18:
  3 stripes
- Available colour temperature:
  3,500 K / 6,800 K
- Luminous flux per segmen/stripe:
  900 lm / 1,100 lm
- Primary angle of light radiation:
  30…120°
- The LCL-I18 can be combined with other chamber lights in various shapes.

Mode Stirrer (for Reverb Chambers)







RTG IV

- Reaction time test device
- Transportable in case
- Adjustable drive speed
- Adjustable road condition
- Random generator STOP! signal
- Micro processor measurement
- With integrated printer for the test reports

innco Systems GmbH

Innco Systems GmbH is a medium-sized company located in Schwarzenfeld (Germany).

We are one of the world's leading manufacturers of electromagnetic positioning systems for EMV / EMC measurement applications and in the area of HF measuring technology. Special orders according to customer requirements are just as much a part of our product spectrum as standard systems proven over many years.

Our active, direct work on site with customers means we are a competent contact point at any time as an independent supplier for positioning tasks. Short decision paths, customer-orientated suggestions for solutions, and the greatest possible flexibility guarantee high-quality products to give our customers that added value they need to be competitive – globally.

Origin

Innco Systems GmbH was founded in 2008 from a merger of HD-GmbH and Inn-Co GmbH and is therefore the direct successor of both. This ensures that former customers of those two companies also receive uninterrupted service and support for their systems as they need it – without limitation or legal concerns.

innco systems GmbH
Erlenweg 12
92521 Schwarzenfeld
Germany

Phone +49 (0) 94 35 / 30 16 59-0
Fax +49 (0) 94 35 / 30 16 59-99
E-Mail info@inncosystems.com
www.inncosystems.com