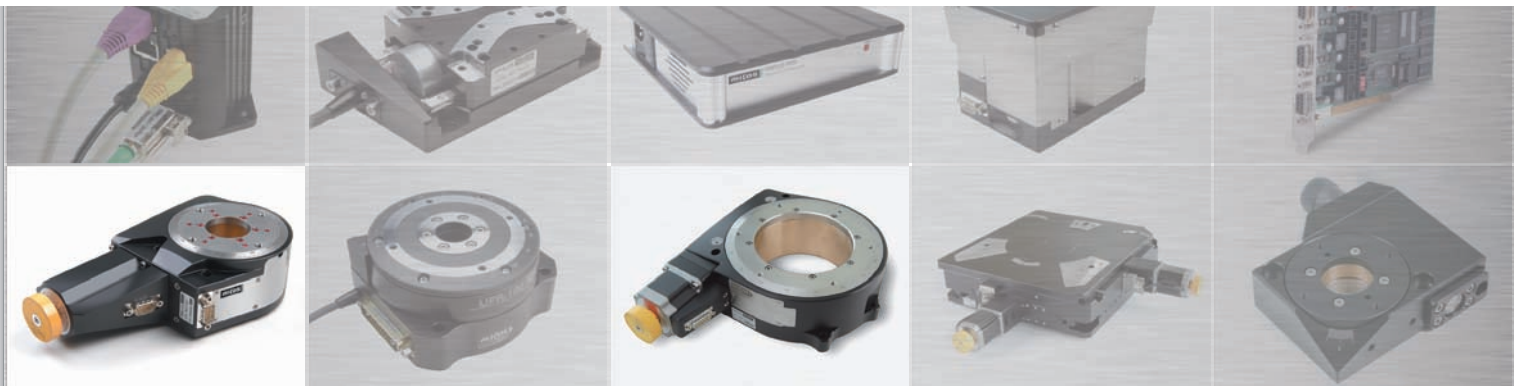


MAC

PhotonX[®]
powered by MICOS

MOTION
CONTROL



precision made in germany

micos[®]

MOTION CONTROL

Engineered Systems,
Controllers, Robotics,
Linear Stages,
Rotation Stages,
Manual Stages,



MAC | PhotonX

Optical bench systems
Moskito and Albatros,
Campus,
Breadboards,
Optics, Specials

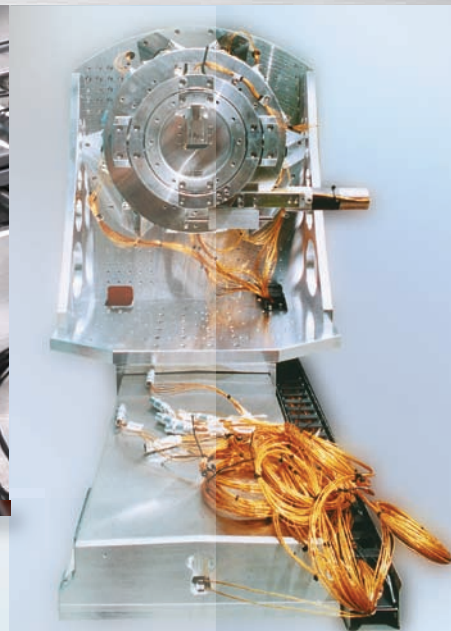
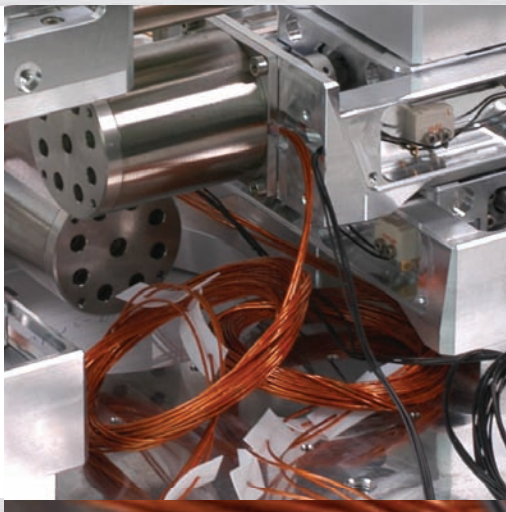


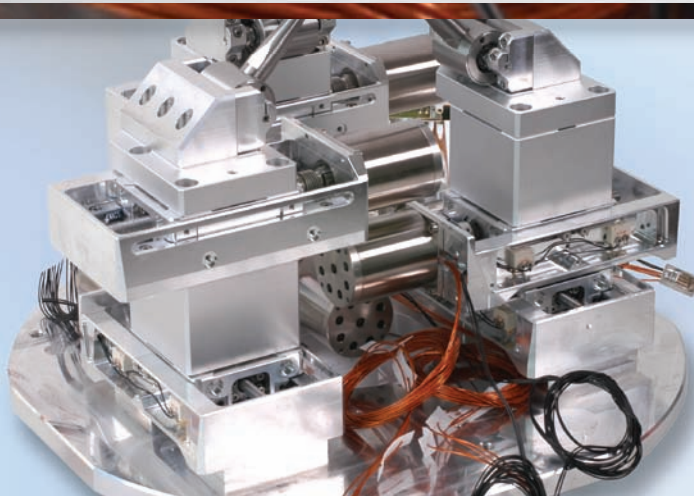


ENGINEERED SYSTEMS

VACUUM

Vacuum applications are becoming more essential due to technologies that can only be applied in vacuum. For over 12 years, **micos** has applied its extensive vacuum to the motion technology field. We supply components and systems for vacuum levels from 10^{-3} mbar to 10^{-11} mbar. Most of our standard products are designed with vacuum applications in mind allowing us to easily convert our broad range of stages to be vacuum compatible. We also apply our vacuum expertise to complete turn-key system solutions.





Custom made **Space FAB** version for vacuum 10⁻⁷ mbar.

VACUUM

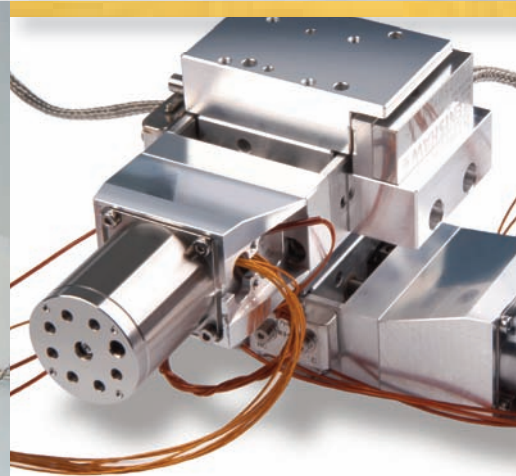


VACUUM

X-Ray Diffraction and Topography Positioning System for High-VACUUM 10^{-7} torr.

The 4-axes positioning system was especially developed for the vacuum 10^{-7} torr. The system has a common pivot point. In all components vacuum suitable grease is used. The manipulators are driven by vacuum motors of PHYTRON. The aluminum parts are not anodized.

The system is controlled by the 4-axes positioning controller **SMC-Corvus**.



CRYO




OEM Application for UHV Precision
Rotation Stage **PRS-110**

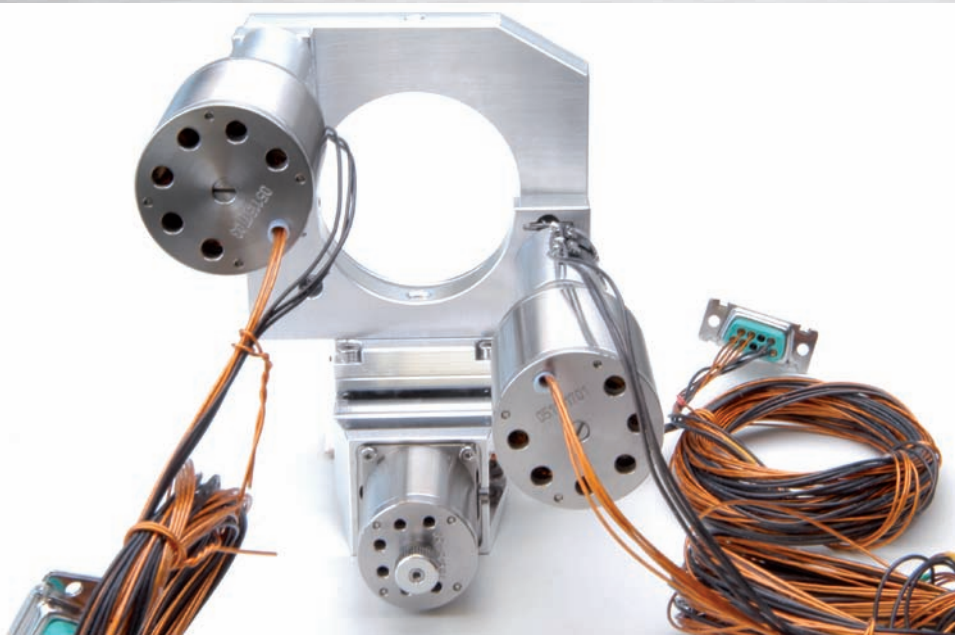
MOVING IN ABSOLUTE 77K



VACUUM



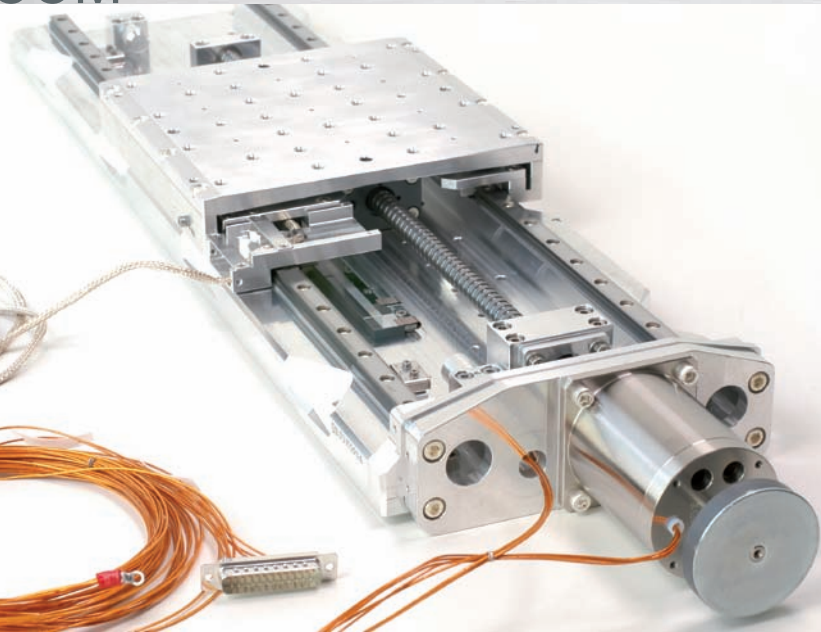
All axes are equipped with high-quality vacuum motors. Drives, guides and bearings are lubricated with special lubricants for vacuum applications. All parts are manufactured from vacuum compatible materials such as stainless steel and ceramics.



Depending on the application, parts are left un-anodized.

For vacuum levels below 10^{-7} mbar, all cavities are vented to eliminate out-gassing and components are assembled using special, clean-room compatible screws (Class 100). All stages can be equipped with vacuum compatible encoders and limit switches.

VACUUM



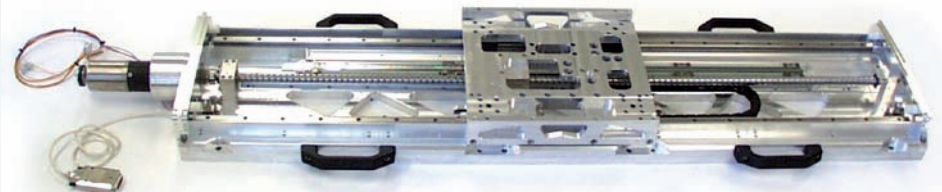
Linear stage **LS-180** equipped with a Heidenhain linear scale for vacuum in 10^{-11} mbar. The guides and ball screw are made from stainless steel and with dry lubricant applied.

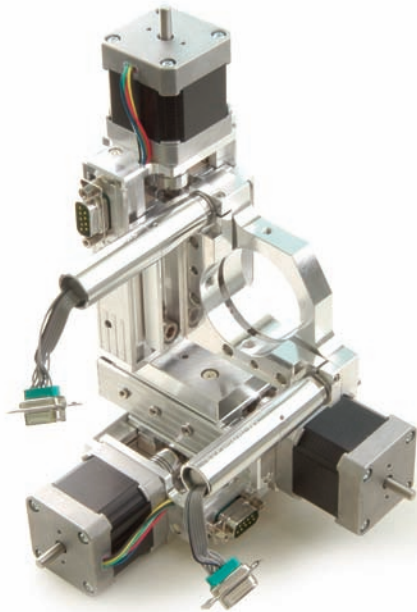


ENGINEERED
SYSTEMS

CONTROLLERS

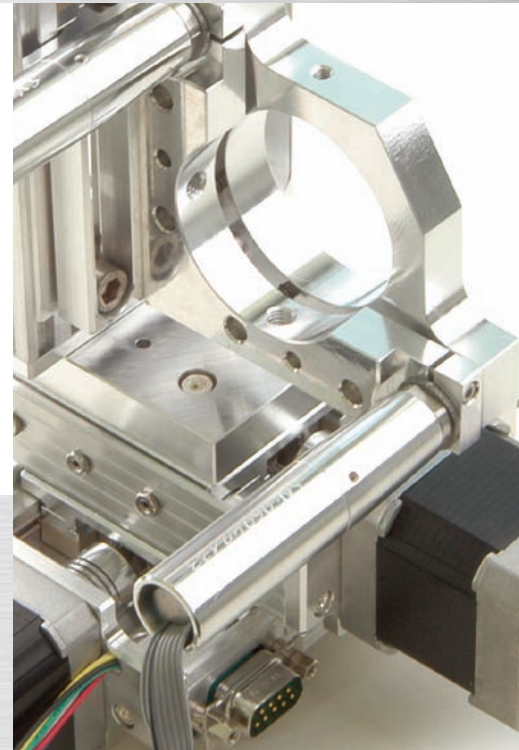
ROBOTICS

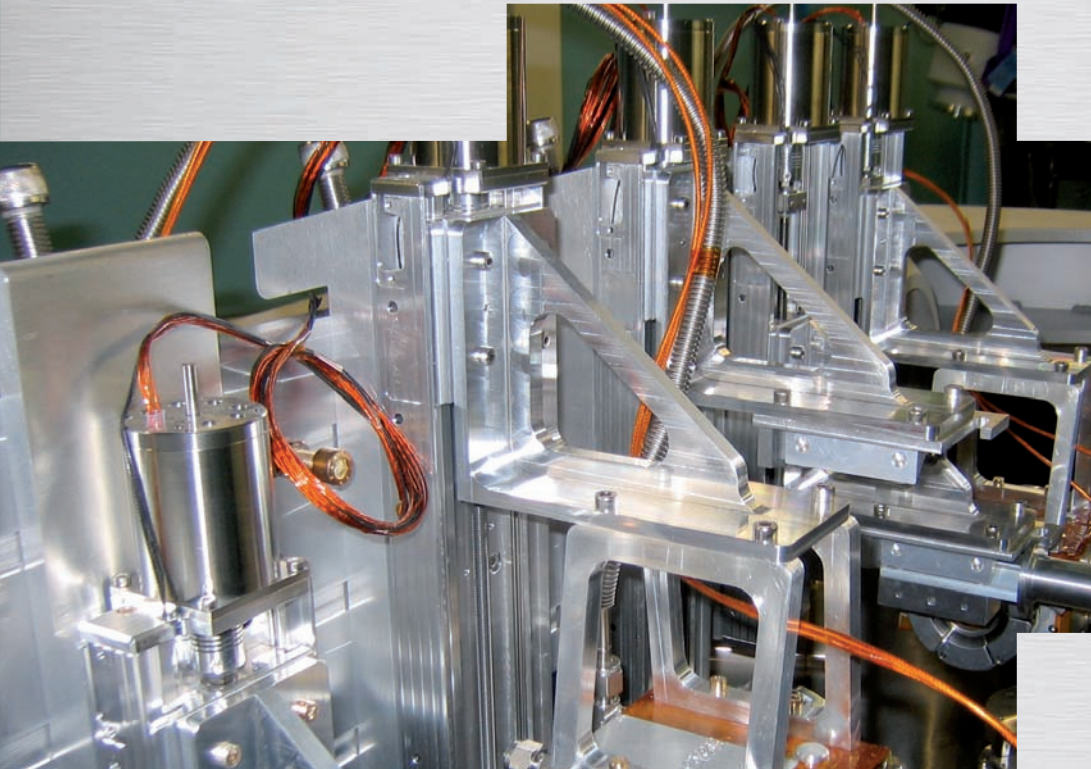
LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX



VACUUM

5-axis system using 3 **VT-80** linear stages and a motorized **ASJ-65** mirror mount for vacuum in 10^{-3} mbar.





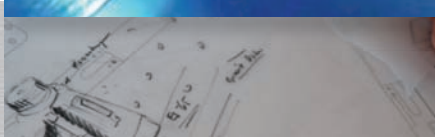
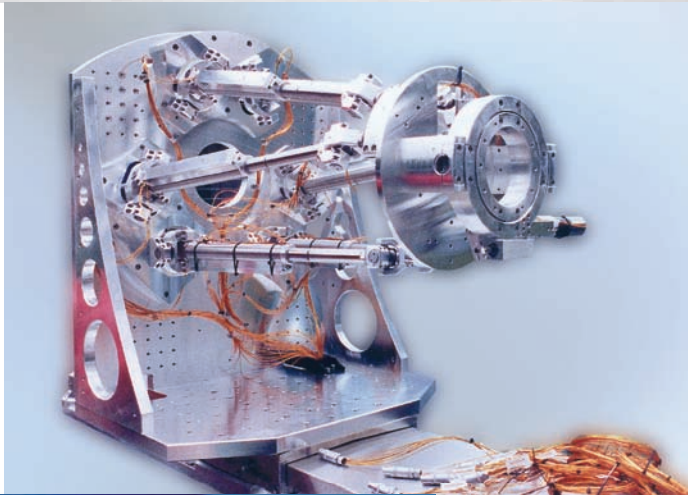
VT-80 linear stages being used in a vacuum chamber with 10^{-7} mbar.

HEXAPOD FOR HV

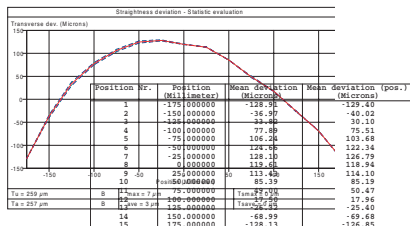
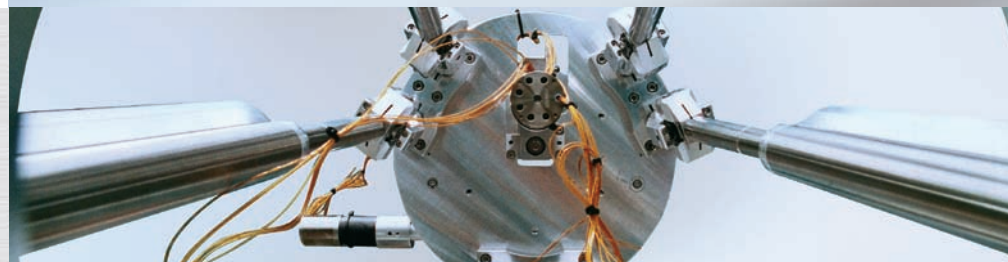
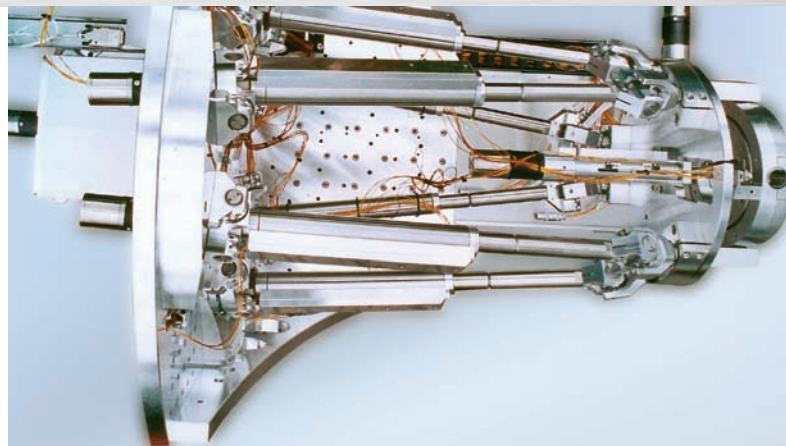
Hexapod for Vacuum

This system consists of a hexapod, a linear stage, and an additional tilting platform. This special arrangement was chosen to achieve a maximum of travel range within the limited space of the high vacuum chamber. The application is an angle-dependant characterization of superconducting high-frequency detectors (far infrared, FIR) for astronomy.

The travel range in x and y is +/- 180 mm with an angular range of +/- 20° at any position.



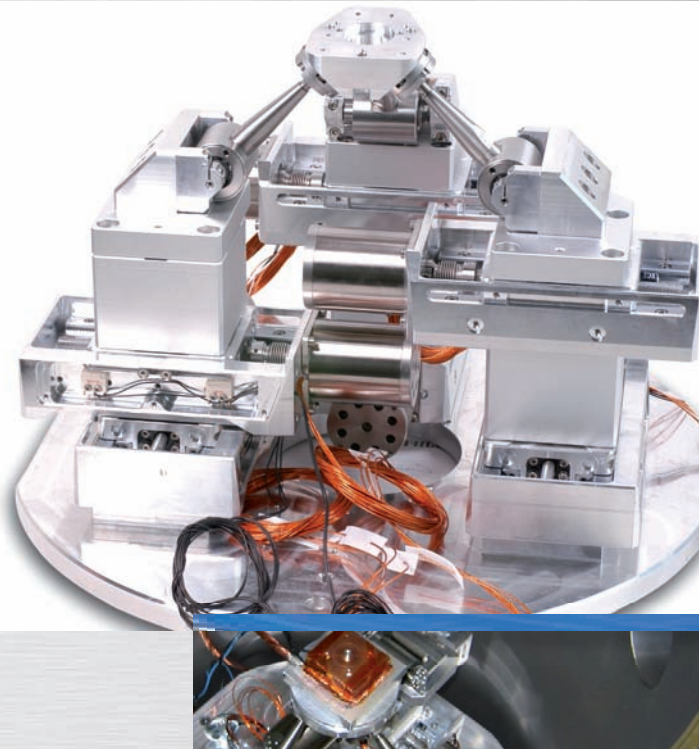
The absolute positioning errors of the **hexapod** have been measured (see figure), and special compensation software is able to reduce these errors by a factor of 20.



SPACEFAB HV

Customized **SpaceFAB** for vacuum 10^{-7} mbar.
6 degree of freedom.

With the **SpaceFAB SF-3000 BS** (vacuum) all six degrees of freedom of motion can be moved without additional positioning elements. The low weight of the moving platform allows highly-dynamic positioning processes. Using no preload, the design can easily carry up to 2 kg (center mounted).



SpaceFAB HV

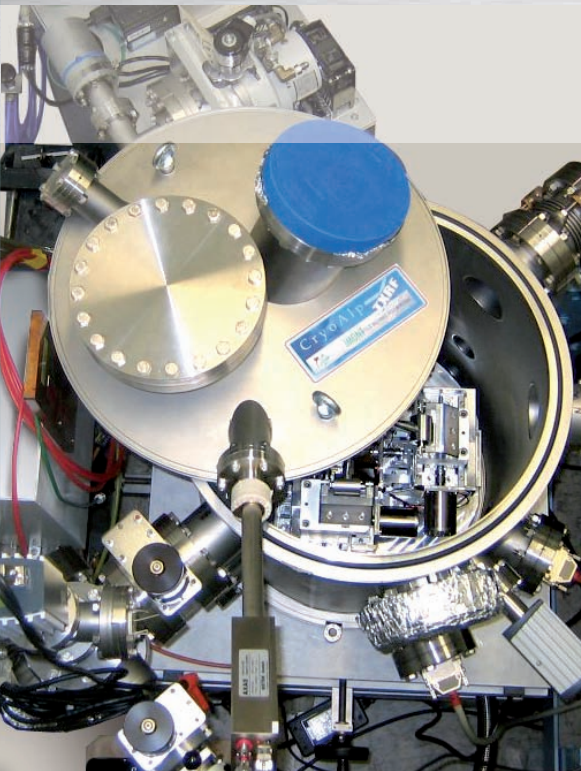


Foto: Marcelli

HIGH RESOLUTION X-RAY SPECTROMETER

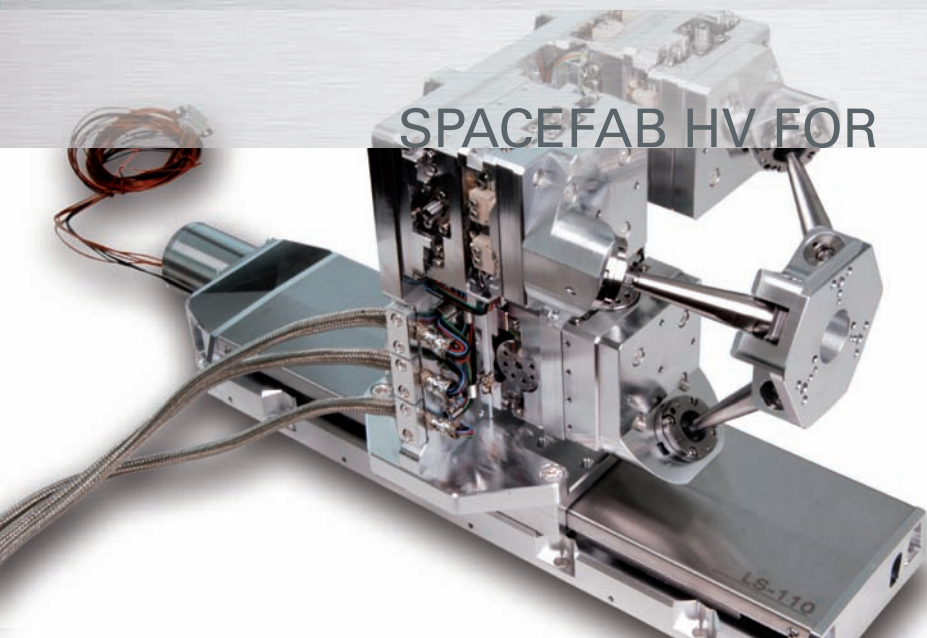
A 5 m long spectro meter for soft x-rays used in a synchrotron radiation beamline for resonant x-ray emission spectroscopy and resonant inelastic x-ray scattering in the 400–1600 eV energy range.

5 AXES advanced x-ray emission spectro meter is mounted on a rotating platform allowing to vary the scattering angle from 25° to 130°. The spectro meter will be operational at the ADRESS advanced resonant spectroscopy beam-line of the Swiss Light Source from 2007.

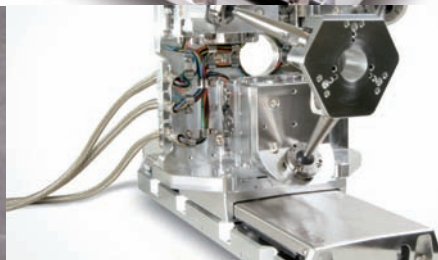


This positioning system was designed for a custom application. The system uses the linear stages **LS110** and the **PLS-85** in addition to two goniometers (**WT-100** and **WT-85**) within a vacuum level of 10^{-7} mbar

SPACEFAB HV FOR

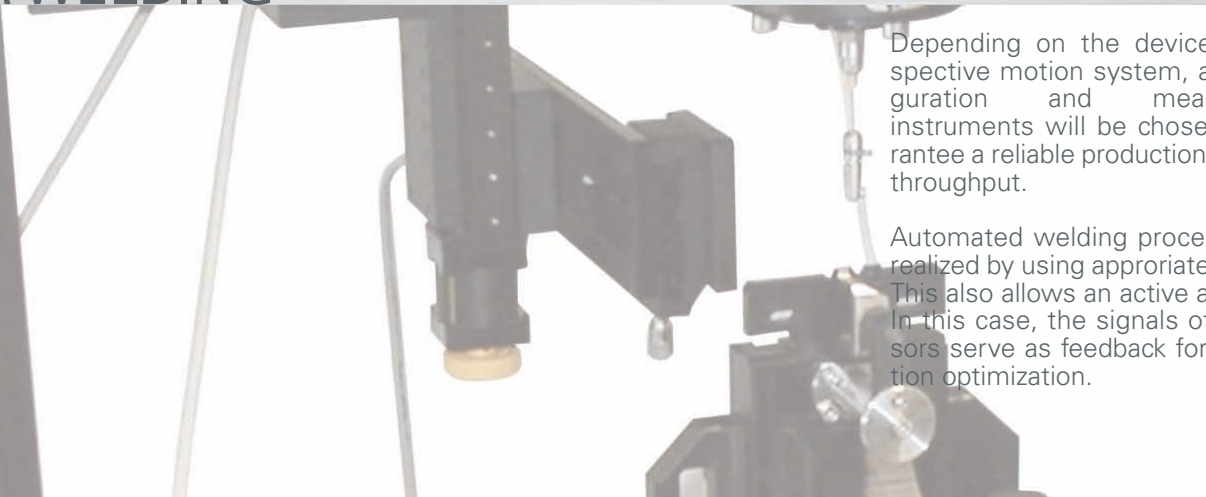


This 7 axes potioning system consists of a **LS-110** and a custom designed **SpaceFAB** and is used for dynamic measurement. To achieve the required precision required excpetional stiffness and repeability.



SYNCHROTRON

FIBER WELDING



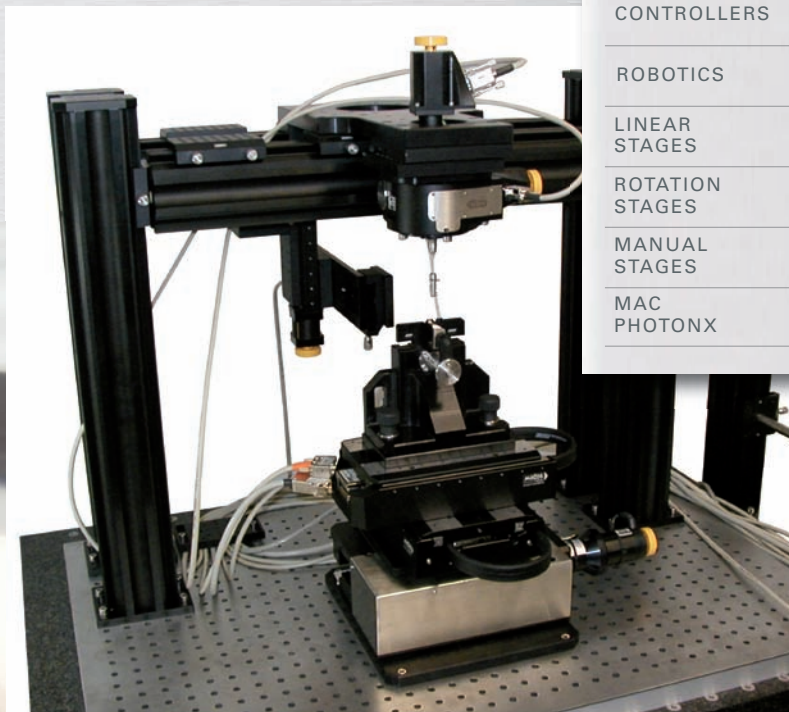
Depending on the device, the respective motion system, axis configuration and measurement instruments will be chosen to guarantee a reliable production with high throughput.

Automated welding procedures are realized by using appropriate sensors. This also allows an active alignment. In this case, the signals of the sensors serve as feedback for the position optimization.

ENGINEERED
SYSTEMS

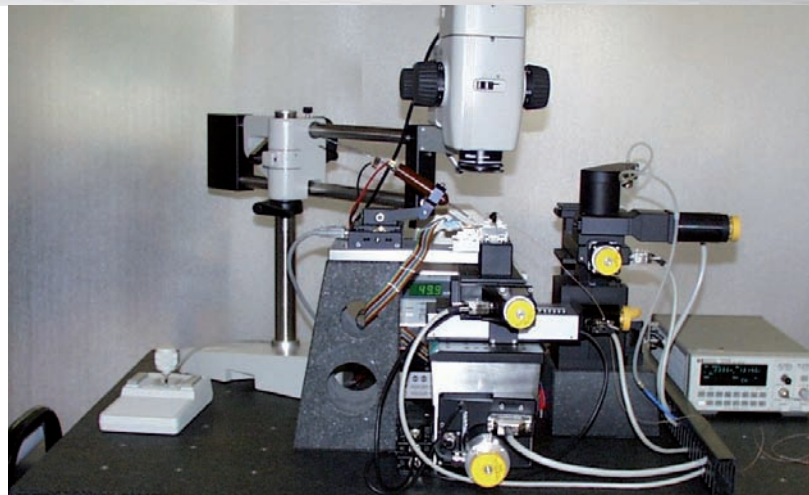
CONTROLLERS

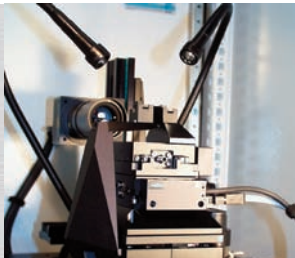
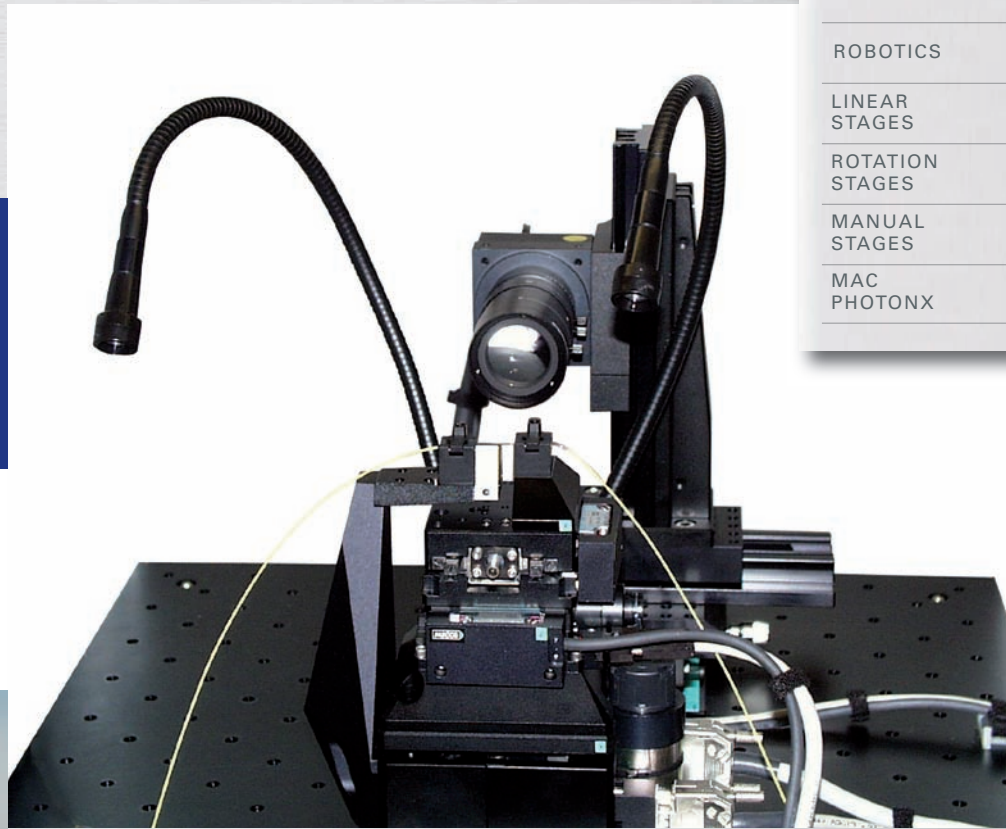
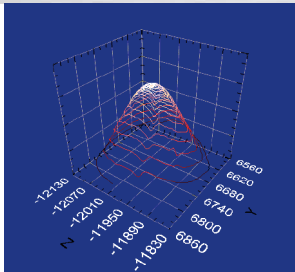
ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

FIBER ALIGNMENT

6 axes fiber alignment system controlled with a PXI controller and **LabVIEW**.





ELECTRONIC INSPECTION

Rapid-prototyping system designed with **LS-180**, **ES-100** and **PLS-85**.

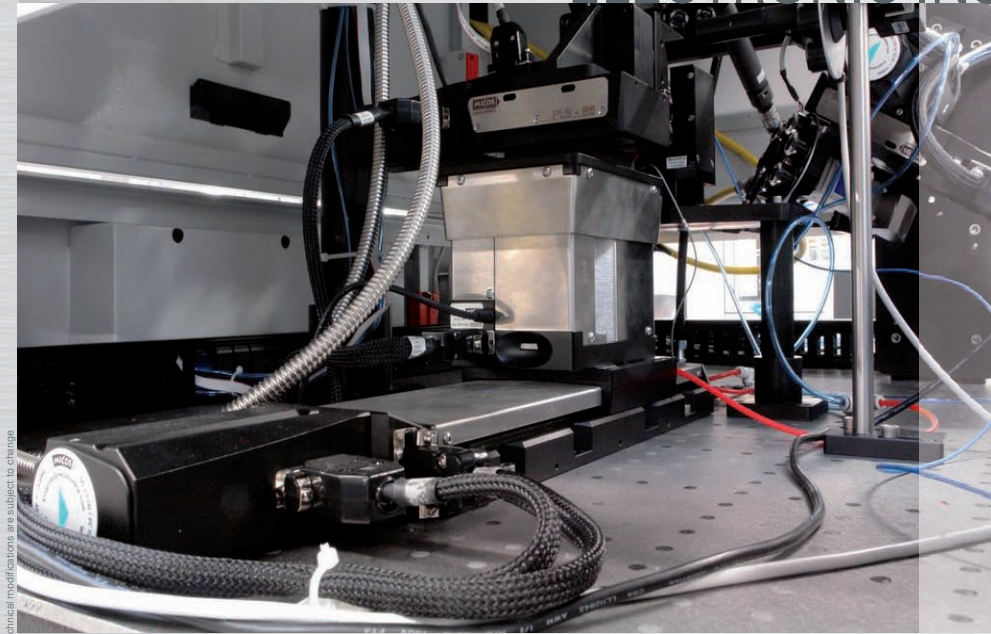
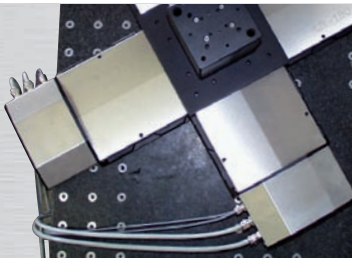
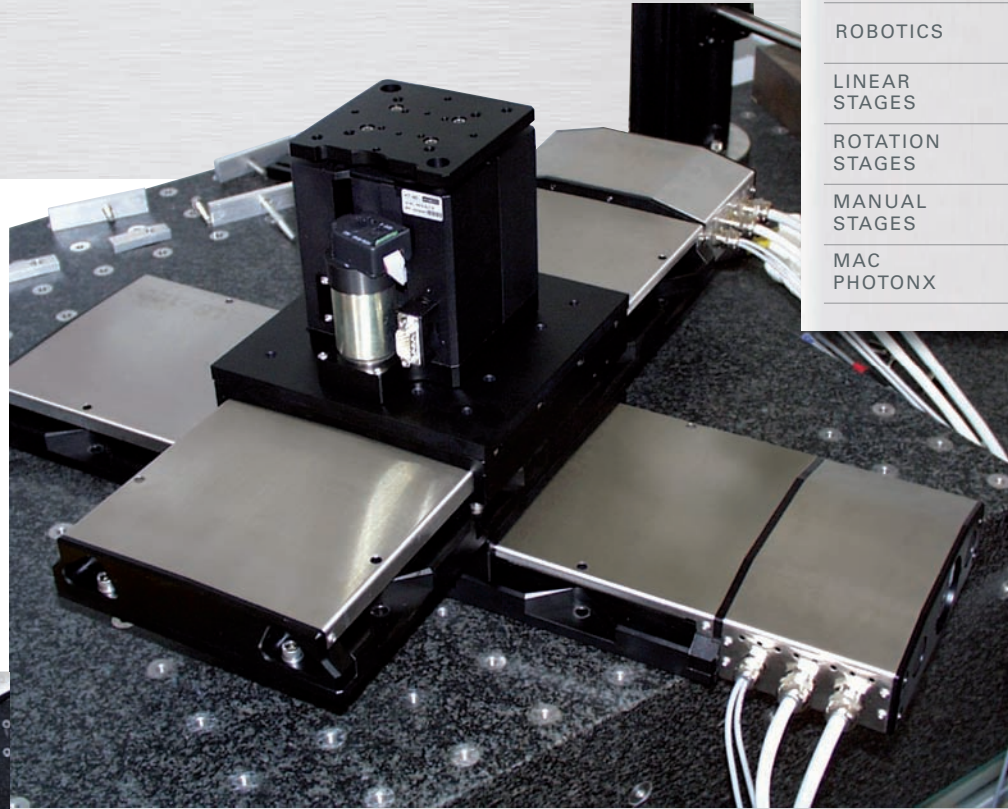


Foto: Luigi Mitezzo

Low profile, high speed, linear motor stages **LMS-180** for -X-Y high resolution vertical stage **HT-90** for electronic inspection.

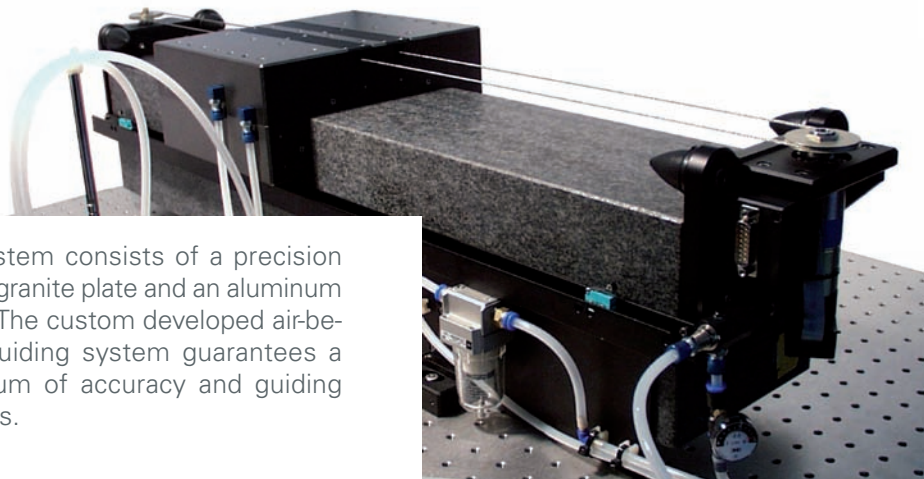


AIR BEARING

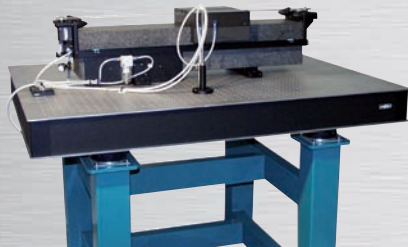
Test and Calibration Systems Air bearing linear axis with a travel range of 600 mm.

Used for the measurement of high precision linear scales, this system requires a positioning stage with optimized accuracies.

(minimal pitch, yaw and roll angle).



The system consists of a precision lapped granite plate and an aluminum carrier. The custom developed air-bearing guiding system guarantees a maximum of accuracy and guiding stiffness.



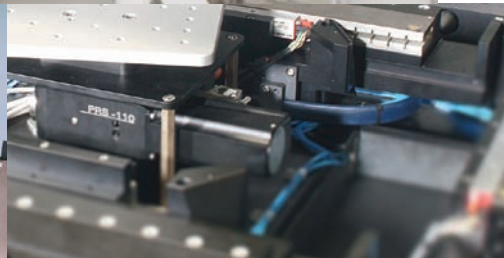
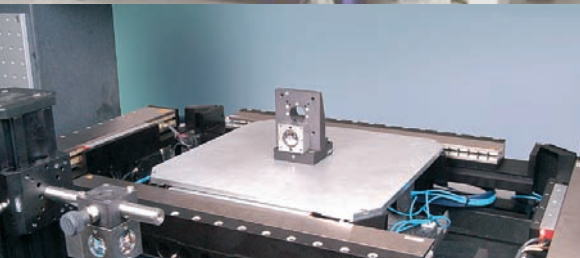
RAPID PROTOTYPING



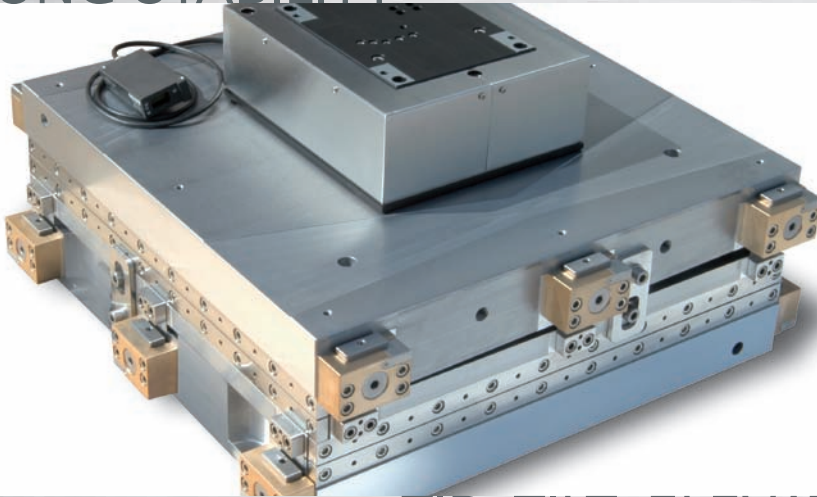
Depicted is a laser work station for manufacture of micro-structures for medical applications was developed in cooperation with ILT-Achen.

It consists of a laser, a manufacturing cell and a wave guide. The positioning system consists of a ultra-precision, linear motor driven XY- air-bearing stage and a lift stage and a rotary stage. Using this approach, we were able to achieve accuracies of less than 100nm over a travel range of 300 mm x 300 mm.

Fotos: Martin Wehner



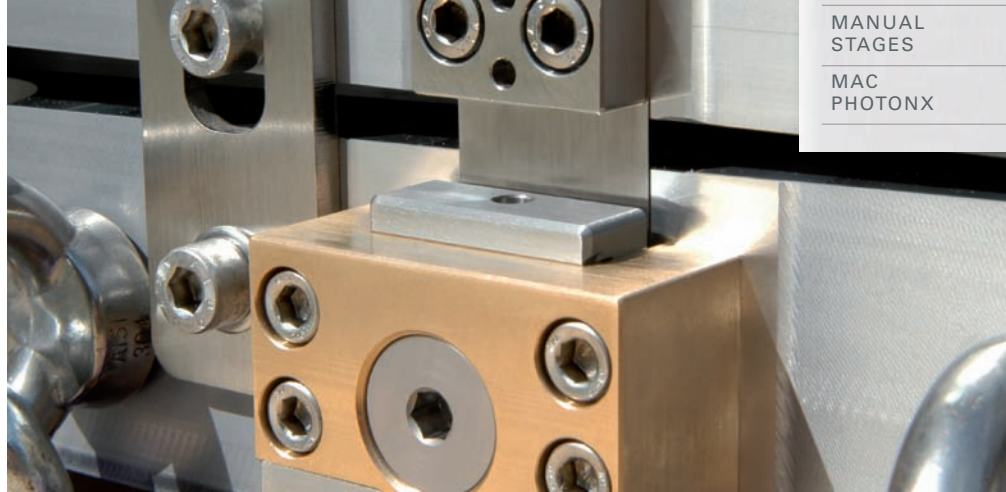
LONG STABILITY



TIP -TILT ELEVATION SYSTEM



Tip-Tilt Elevation System with **NPE-200**. This 3-axis system is used for manufacture of optical parts and requires a high degree of long-term stability.

ENGINEERED
SYSTEMS

CONTROLLERS

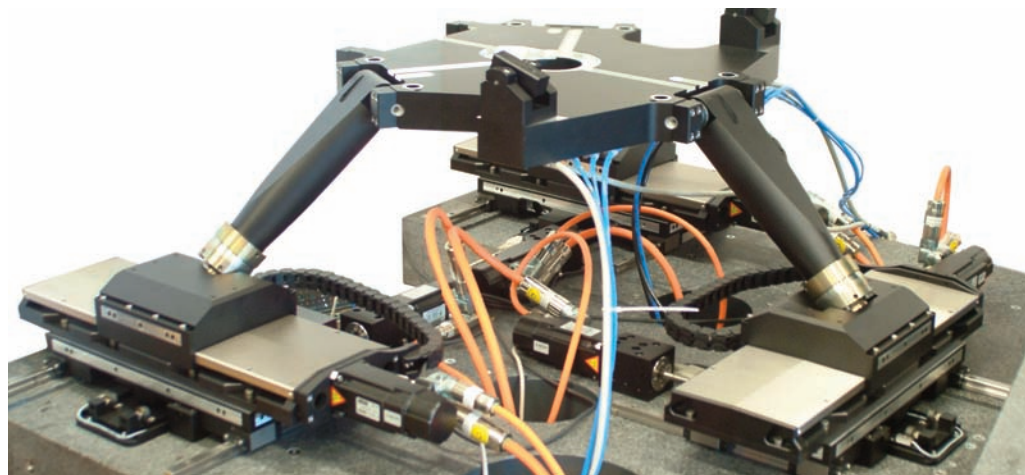
ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

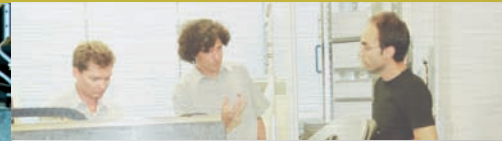
SpaceFAB

Tomography manipulator for alignment and rotation of x-ray samples

The sample needs to be positioned using all 6 degrees of freedom with high repeatability and long-term stability. After the sample is aligned in space, it needs to be rotated by 360 degrees. To achieve the required precision, an air-bearing stage with a large clear aperture was developed.



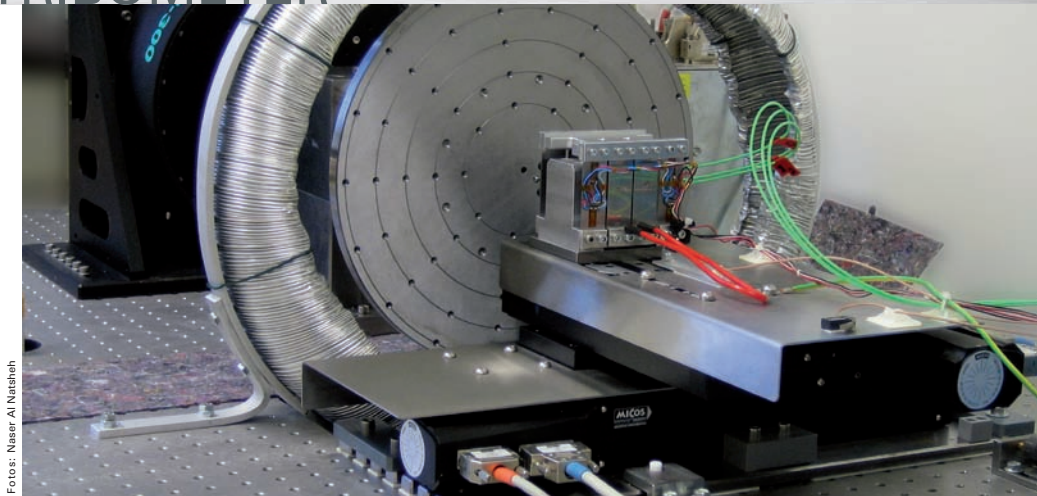
TOMOGRAPHY MANIPULATOR



PRECISION SPIRALTRIBOMETER

XY-system using the **UPM-160** linear stage for precision measurement of disc-brakes.

This application required extremely high stiffness and tight speed control.

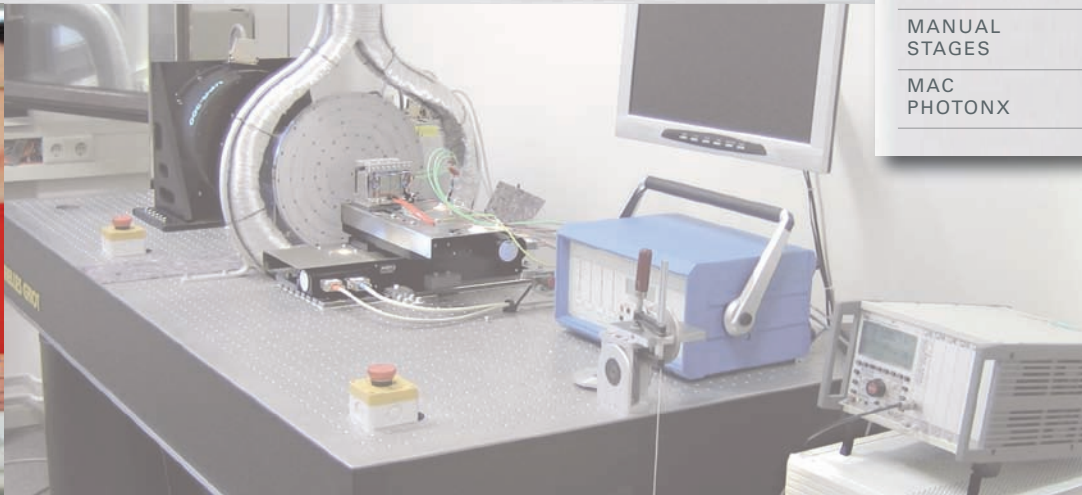


Fotos: Naser Al Nataneh

ENGINEERED
SYSTEMS

CONTROLLERS

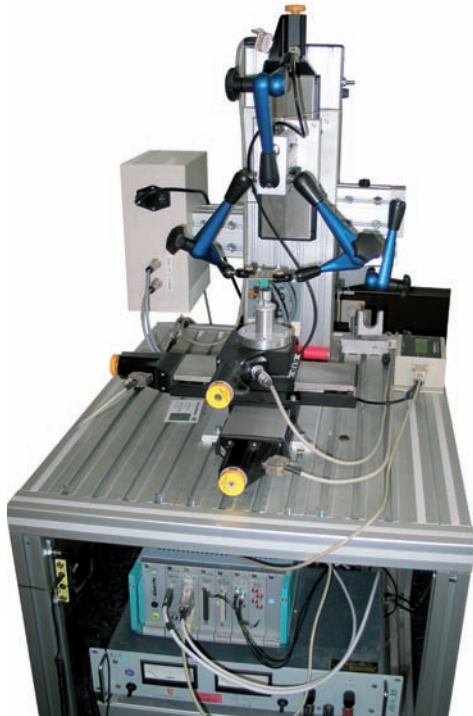
ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

MEASUREMENT OF MAGNETIC FIELDS

Metrology system for magnetic field sensors





Fotos: Marcus Meyer

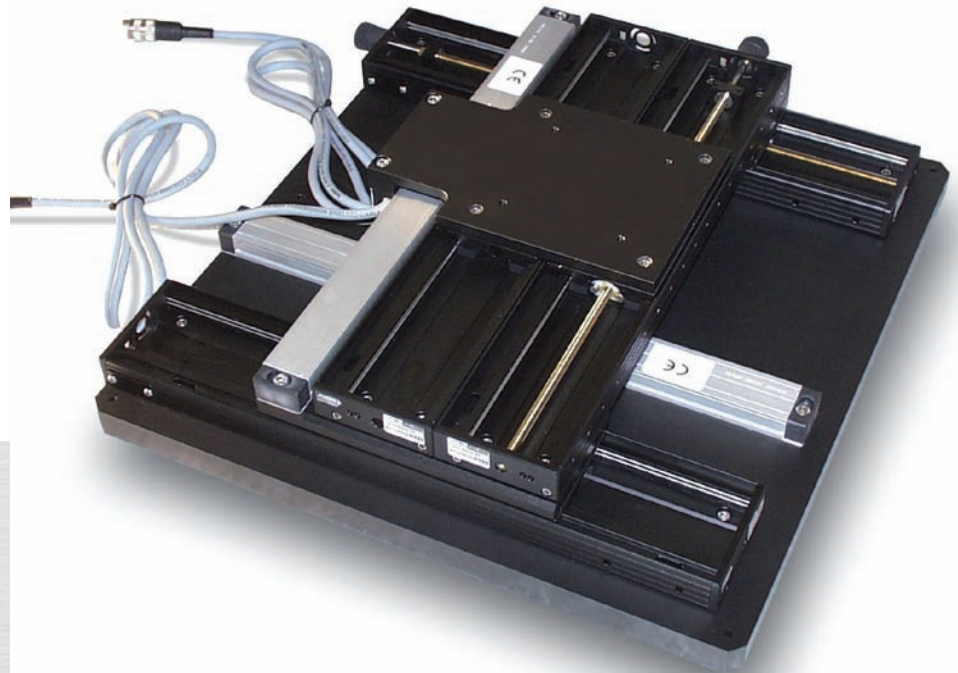


3 **LS-110** linear stages are used in XYZ configuration to position the sensor. Mounted on the XY axes is a

DT-65 rotary stage which rotates a magnet. The system is controlled using a **SMC-controller**. This system has been deployed multiple times.

MULTIAXES STANDARD COMBINATION

Manual **VT-80** stage with linear scale.





Elevation stage **HT-90**, two goniometers **WT-100** and **WT-85** plus a **DT-65** rotary stage with a common center of rotation.

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

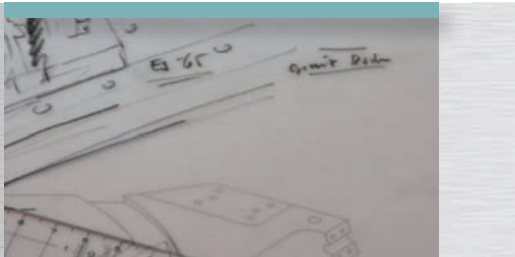
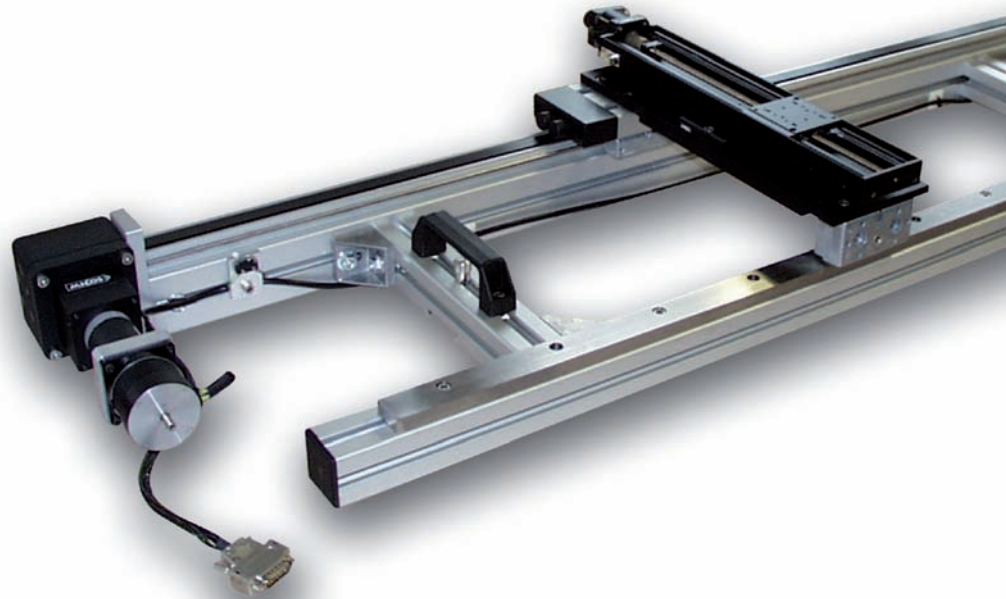
SENSOR MEASUREMENT

Sensor Measurement System

This 2-axis system has been developed for a customer involved in sensor engineering.

The system allows the control of optical sensors with respect to their hysteresis and angles of dispersion.

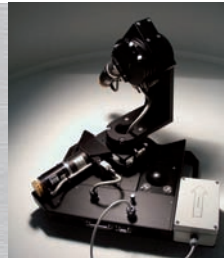
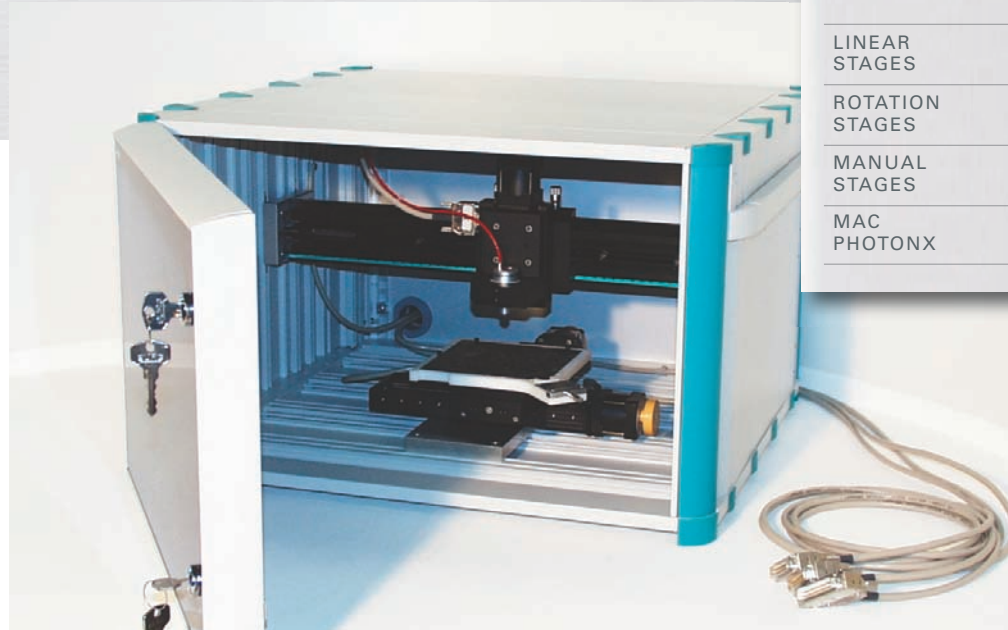
It is mainly used for quality control and testing of these sensors.



SURFACE TOPOGRAPHY

Surface Topography of Solar Cells

The 3-axes positioning system works in an opaque chamber. The substrate can be positioned 102 mm in X and Y. The travel range of the sensor is 25 mm. All positioning axes offer high resolution of less than 1 μm with a repeatability is 0.5 μm .



The solar cells are precisely positioned and held stationary. A SMC-Corvus controller is used for control with customized command and interpretation software.



CONTROLLERS

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGES

ROTATION
STAGES

MANUAL
STAGES

MAC
PHOTONX

SMC corvus

Serial / GPIB / Ethernet • Point to point Motion • Motion Server
• Linear or Rotation Feedback

- Desktop controller for 2 or 3 axes of 2-phase stepper motors
- High resolution microstep, RS232, IEEE or Ethernet
- Venus interpreter, string-based commands for all common software
- Linear interpolation, Velocity-range 0.1 $\mu\text{m/s}$ - 40 mm/s (pitch 1), phase current < 3 A
- Options: brake, closed loop for quadrature encoders (RS-422) and sin-cos encoders (1Vpp), joystick, 19" chassis, Dig. I/O, Position-Compare, Output $\leq 2\text{kHz}$, Position-Capture (upto 1000 3 axis coordinates)

SMC corvus eco

Serial / USB • Point to point Motion • Motion Server
• New Product • Linear or Rotation Feedback

- 2 or 3 Axes Microstep-Controller System
- High-Resolution-Microstep, RS232, USB interface
- Linear interpolation, Velocity-range <0.1 $\mu\text{m/s}$.. 15 rev/s (standard) 25 rev/s (with speed upgrade) (200 step motor)
- Options: closed loop for quadrature encoders (RS-422) and sin-cos encoders (1Vpp), joystick internal/ external, Dig. I/O, Position-Compare, Output $\leq 2\text{kHz}$, Position-Capture (upto 1000 3 axis coordinates)

SMC corvus pci

• PCI-COM bridge • Point to point Motion • Motion Server
• Linear or Rotation Feedback

- 2 or 3 Axes Microstep-Controller System
- High-Resolution-Microstep, PCI-COM bridge
- Linear interpolation, Velocity-range <0.1 $\mu\text{m/s}$.. 15 rev/s (standard) 25 rev/s (with speed upgrade) (200 step motor)
- Options: closed loop for quadrature encoders (RS-422) and sin-cos encoders (1Vpp), joystick, Dig. I/O, Position-Compare, Output $\leq 2\text{kHz}$, Position-Capture (upto 1000 3 axis coordinates)

SMC pollux



Serial • Point to point Motion • Motion Server
• Linear or Rotation Feedback

- Single axis controller for 2-ph. stepper motors, network up to 16 axes
- High resolution microstep, RS232 – 19200 Baud
- Venus interpreter, string-based commands for all common software
- Velocity-range 1 $\mu\text{m/s}$... 13mm/s (pollux I & pitch 1),
1 $\mu\text{m/s}$... 25mm/s (pollux II & pitch 1), 1 $\mu\text{m/s}$... 40mm/s (pollux III & pitch 1)
- phase current < 1.2 A ■ Synchron Motion start commands ■ Speed Mode
- Options: motor modules with controller, Closed-Loop 1Vpp interface

SMC taurus/pegasus



Point to point Motion • Serial • Linear or Rotation Feedback
• Torque and Linear Motor / 2/3 Phase Motor • Linear Motor • Motion Server

- 19" controller for 1 to 30 axes for 2 phase stepper motors,
2 and 3 phase linear- and torque motors
- High resolution microstep, RS232, Taurus single axis controller
Venus2 interpreter, string-based commands for all common software
- Lin. Interpol., 0.1 $\mu\text{m/s}$ - 40 mm/s (pitch 1) – 2 m/s linear motor, I < 10 A
- Options: brake, closed loop, joystick, Dig. I/O, hand wheel

MoCo dc



Serial • Point to point Motion
• Linear or Rotation Feedback • Motion Server

- Single axis controller for DC servo motors, network up to 16 axes
- Analog I/O, digital I/O, RS232, display for address no.
- string-based commands for all common software
- Position Compare Output (<=1 kHz)
- Linear interpolation, 12 - 24 VDC, up to 3 A
- Options: OEM version, power supply, embedded versions

SM-series SM-32



- New Product • PCI-card • Point to point Motion • Linear Interpolation
- 3 Axes Microstep Controller System
- Microsteps down to 1/64 (software configuration)
- Plug in PC card for PCI slot
- Amplifier on board, 12 V bus voltage, external max 24 V
- 36 W max. power, 1,5 V per axis
- Trajectory generation with on board processor
- Fast PCI bus communication
- DLL's for all Windows (TM) versions, DOS

DMC controllers

- PCI-card • Serial / Ethernet • Point-to point Motion • Linear & Circular Interpolation
- Motion Server



- PCI-card or Ethernet&RS232 interface, controller for 1 to 8 axes for all motortypes
- High performance, PCI, 62.5 μ s update rate
- All available motor-types with appropriate **micos** MPA
- Modes of motion: jogging, point-to point positioning, linear and circular interpolation, electronic gearing and cam, and contouring
- Options: Handwheel, brake, closed loop, mixed amplifiers

Flex Motion-series Controllers

- PCI /PXI-card • Point-to point Motion • Linear & Circular Interpolation
- Linear or Rotation Feedback • All available motor-types with appropriate **micos** MPA



- PCI/PXI-card controller for 1 to 8 axes for all motor-types
- High performance, PXI or PCI, 62.5 μ s update rate
- NI-Max, LabView, C++, external amplifier MPA
- Linear&circular interpolation, Dig. I/O, analog I/O, trigger
- Options: Desktop with FireWire, brake, closed loop, mixed amplifiers

MPA power amplifiers



- Amplifier • Torque Motor • Linear Motor
- PC-card

- For the several PC-Slot controllers like FlexMotion, DMC **micos** offers power-amplifiers, which fit very well to micos stages. The design of the system bases on standardized 19" rackmount housings, with all necessary devices integrated. All available signals of the controllers are broken out to per axis specific DSub-connectors which fits to our motorcables.

Motion Server version 2.16



- The **micos** Motion Control Server is a software which simplifies the communication with the hardware controller • It works with all controllers available from **micos**.

- Complete separation of the application from the motion hardware
- Mixed operation of several controllers from different manufacturers
- Axes of several controllers can be grouped to virtual controllers
- Virtual controllers for any number of axes
- Manual Control window for operating the axes even without an application software
- TCP/IP connection between application and Motion Server

ROBOTICS

ENGINEERED
SYSTEMS

CONTROLLERS

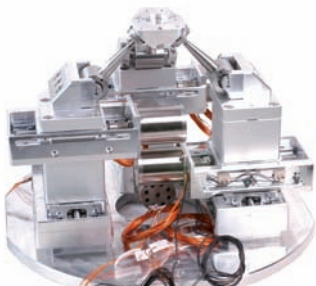
ROBOTICS

LINEAR
STAGES

ROTATION
STAGES

MANUAL
STAGES

MAC
PHOTONX

SpaceFAB BS-3000 Vacuum

• New • Motion Server • LabVIEW™ • Vacuum option • Linear Circular Interpolation

- Six axes micro robot system available in:
- Up to UHV ■ 77 Kelvin ■ CLEAN ROOM Class 1000
- Travel ranges linear 50x12.7x100 mm (depends Travel)
- Travel ranges rotary Rx, Ry, Rz 10°
- Load capacity 2 kg center mounted
- Automatic alignment
- Calculation of motion path with collision detection
- Pivot point can be set by the customer
- Graphic display of the robot from any view
- Digital display of position and orientation
- Control by Macro-language stored in own editor
- Control by 3D-space-mouse possible
- Jog mode

SpaceFAB BS-3000

• New • Motion Server • LabVIEW™ • Vacuum option • Linear Circular Interpolation

- Six axes micro robot system
- Compact, low profile system, ballscrew
- Travel ranges linear 50x12.7x100 mm ■ Travel ranges rotation Rx, Ry, Rz 10°
- Load capacity 2 kg center mounted
- Automatic alignment
- Alignment routines for arrayed fibers and components
- High dynamic
- Pivot point can be set by the customer
- User friendly software
- Can be used by any modern programming language
- Including software, controller and amplifiers

SpaceFAB LS-3000

- New • Motion Server • LabVIEW™ • Vacuum option
- Linear Cicular Interpolation
- Six axes micro robot system
- Compact, low profile system, leadscrew
- Travel ranges linear 50x12.7x100 mm
- Travel ranges rotation Rx, Ry, Rz 10°
- Load capacity 1 kg center mounted
- Automatic alignment
- Alignment routines for arrayed fibers and components
- High dynamic
- Pivot point can be set by the customer
- User friendly software
- Can be used by any modern programming language
- Including software, controller and amplifiers

Hexapod PAROS

Point to point Motion • Serial / GPIB / Gurarantee / USB / Ethernet • Linear or Rotation Feedback • Torque Motor • Linear Motor • Motion Server

- Six axes PArallel Robot Operating System
- Up to UHV
- Travel ranges linear 350x350x80 mm
- Travel ranges rotation Rx, Ry 40°, Rz, 100°
- Maximum speed 30 mm/sec (leg speed)
- Repeatability in space +/- 5 µm
- High stiffness
- High dynamic
- Pivot point can be set by the customer
- User friendly software
- Load capacity central 150 kg
- Including software, controller and amplifiers

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

LINEAR STAGES

LINEAR STAGES

Ultra Precision Stage UPS-150**Key features**

- Linear Motor
- Travel range up to 305 mm (12")
- Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
- Maximum speed 600 mm/sec
- Load capacity up to 15 kg
- Integrated limit switches
- Integrated linear scale (center mounted)
- High long-term stability
- Cross-roller bearings
- Option: Vacuum up to FV, XY-mounting

4.010Ultra Precision Linear Stage UPM-160**Key features**

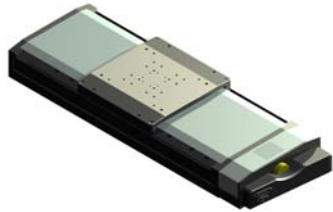
- Travel range up to 205 mm (8")
- Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
- Maximum speed 100 mm/sec
- Load capacity up to 35 kg
- Integrated limit switches
- Integrated linear scale (center mounted)
- Cross-roller bearings
- Option: Vacuum up to UHV, XYZ-mounting

4.020High Precision Stage HPS-170**Key features**

- Travel range up to 305 mm (12")
- Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
- Maximum speed 90 mm/sec
- Load capacity up to 35 kg
- Integrated limit switches
- Optionally: linear scale (center mounted)
- Cross-roller bearings
- Option: Vacuum up to HV, XYZ-mounting

4.030

Linear Stage LS-270

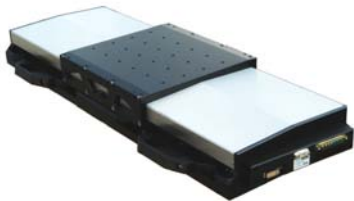


Key features

- Travel range up to 1016 mm
- Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
- Maximum speed 150 mm/sec
- Load capacity up to 150 kg
- Integrated limit switches
- Optionally: linear scale (center mounted)
- Cross-roller bearings
- Option: Vacuum up to UHV, XYZ-mounting

4.040

Linear Motor Stage LMS-300



Key features

- Linear Motor
- Travel range up to 815 mm (32")
- Uni-directional repeatability down to $\pm 0.1 \mu\text{m}$
- Maximum speed 800 mm/sec
- Load capacity up to 100 kg
- Integrated limit switches
- Integrated linear scale (center mounted)
- Linear re-circulating ball system
- Option: Vacuum up to FV, XY-mounting

4.050

Linear Stage LS-300



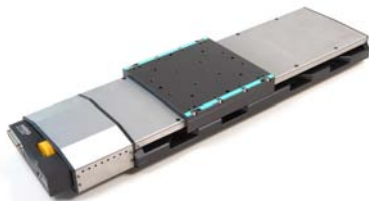
Key features

- Travel range up to 815 mm
- Uni-directional repeatability down to $\pm 0.1 \mu\text{m}$
- Maximum speed 150 mm/sec
- Load capacity up to 100 kg
- Integrated limit switches
- Optionally: linear scale (center mounted)
- Linear re-circulating ball system
- Option: Vacuum up to UHV, XYZ-mounting

4.060

Linear Motor Stage LMS-180**Key features**

- Linear Motor
- Travel range up to 508 mm (20")
- Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
- Maximum speed 500 mm/sec
- Load capacity up to 45 kg
- Integrated limit switches
- Integrated linear scale (center mounted)
- Linear re-circulating ball system
- Option: Vacuum up to FV, XY-mounting

4.070Linear Stage LS-180**Key features**

- Travel range up to 508 mm (20")
- Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
- Maximum speed 200 mm/sec
- Load capacity up to 100 kg
- Integrated limit switches
- Optionally: linear scale (center mounted)
- Linear re-circulating ball system
- Option: Vacuum up to UHV, XYZ-mounting

4.080Linear Motor Stage LMS-120**Key features**

- Linear Motor
- Travel range 40 mm
- Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
- Maximum speed 200 mm/sec
- Load capacity up to 2.5 kg
- Integrated limit switches
- Integrated linear scale (center mounted)
- Linear re-circulating ball system
- Option: Vacuum up to FV, XY-mounting

4.090

Linear Stage LS-120



Key features

- Travel range 40 mm (1.5")
 - Uni-directional repeatability down to $\pm 0.1 \mu\text{m}$
 - Maximum speed 90 mm/sec
 - Load capacity up to 10 kg
 - Integrated limit switches
- Optionally: linear scale (center mounted)
 - Linear re-circulating ball system
 - Option: Vacuum up to UHV, XYZ-mounting

4.100

Linear Stage LS-110



Key features

- Travel range up to 305 mm
 - Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
 - Maximum speed 90 mm/sec
 - Load capacity up to 10 kg
 - Integrated limit switches
- Optionally: linear scale (center mounted)
 - Linear re-circulating ball system
 - Option: Vacuum up to UHV, XYZ-mounting

4.110

Linear Motor Stage LMS-100



Key features

- Linear Motor
 - Travel range up to 1000 mm
 - Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
 - Maximum speed 500 mm/sec
 - Load capacity up to 20 kg
- Integrated limit switches
 - Integrated linear scale (center mounted)
 - Linear re-circulating ball system
 - Option: Vacuum up to FV, XY-mounting

4.120

Linear Motor Stage LMS-80**Key features**

- Linear Motor
 - Travel range 120 mm
 - Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
 - Maximum speed 500 mm/sec
 - Load capacity up to 5 kg
- Integrated limit switches
 - Integrated linear scale
 - Linear re-circulating ball system
 - Option: Vacuum up to FV, XY-mounting

4.130Linear Motor Stage LMS-60**Key features**

- Linear Motor
 - Travel range up to 65 mm
 - Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
 - Maximum speed 500 mm/sec
 - Load capacity up to 3 kg
- Integrated limit switches
 - Integrated linear scale
 - Linear re-circulating ball system
 - Option: Vacuum up to FV, XY-mounting

4.140Precision Linear Stage PLS-85**Key features**

- Travel range up to 102 mm (4")
 - Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
 - Maximum speed 100 mm/sec
 - Load capacity up to 10 kg
 - Integrated limit switches
- Optionally: linear scale
 - Cross-roller bearings
 - Option: Vacuum up to UHV, XYZ-mounting

4.150

Linear Stage LS-65



Key features

- Travel range up to 102 mm (4")
 - Bi-directional repeatability down to $\pm 5 \mu\text{m}$
 - Maximum speed 10 mm/sec
 - Load capacity up to 2 kg
 - Integrated limit switches
- Optionally 0.4 mm pitch
 - Linear re-circulating ball system
 - Option: Vacuum up to UHV, XYZ-mounting

4.160

Micro Stage MTS-65



Key features

- Travel range up to 52 mm (2")
 - Uni-directional repeatability down to $\pm 0.1 \mu\text{m}$
 - Maximum speed 10 mm/sec
 - Load capacity up to 2 kg
 - Integrated limit switches
- Optionally: linear scale
 - Linear re-circulating ball system
 - Option: Vacuum up to UHV, XYZ-mounting

4.170

Micro Stage MTS-70



Key features

- Travel range 10 mm
 - Uni-directional repeatability down to $\pm 0.1 \mu\text{m}$
 - Maximum speed 7 mm/sec
 - Load capacity up to 2 kg
 - Integrated limit switches
- Optionally: linear scale
 - Cross-roller bearings
 - Option: Vacuum up to UHV, XYZ-mounting

4.180

Linear Stage VT-75



Key features

- Travel range up to 650 mm
- Bi-directional repeatability down to $\pm 4 \mu\text{m}$
- Maximum speed 100 mm/sec
- Load capacity up to 5 kg
- Integrated limit switches

- Linear re-circulating ball system
- Option: Vacuum up to FV, XYZ-mounting

4.190

Linear Stage VT-40



Key features

- Travel range up to 100 mm
- Bi-directional repeatability down to $\pm 4 \mu\text{m}$
- Maximum speed 100 mm/sec
- Load capacity up to 1 kg
- Integrated limit switches

- Linear re-circulating ball system
- Option: Vacuum up to FV, XYZ-mounting

4.200

Translation Stage VT-80



Key features

- Travel range up to 300 mm
- Uni-directional repeatability down to $\pm 1 \mu\text{m}$
- Maximum speed 20 mm/sec
- Load capacity up to 5 kg
- Integrated limit switches

- Linear re-circulating ball system
- Option: Vacuum up to UHV, XYZ-mounting

4.210

Linear Stage LS-40



Key features

- Travel range up to 52 mm
 - Bi-directional repeatability down to $\pm 2 \mu\text{m}$
 - Maximum speed 15 mm/sec
 - Integrated limit switches
 - High resolution
- Linear recirculating ball system
 - Option: Vacuum up to UHV, XYZ-mounting

4.220

Micro Stage MT-40

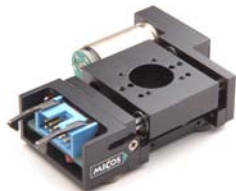


Key features

- Travel range up to 26 mm (1")
 - Uni-directional repeatability down to $\pm 2 \mu\text{m}$
 - Maximum speed 5 mm/sec
 - Load capacity up to 1 kg
 - Integrated limit switches
- High resolution
 - Cross-roller bearings
 - Option: Vacuum up to UHV, XYZ-mounting

4.230

Micro Stage MT-55



Key features

- Travel range 5 mm
 - Uni-directional repeatability down to $\pm 2 \mu\text{m}$
 - Maximum speed 1 mm/sec
 - Load capacity up to 0.8 kg
 - Integrated limit switches
- Center hole 15 mm
 - High Resolution
 - Ball bearings
 - Option: XYZ-mounting, Vacuum up to FV

4.240

Cross Stage **CS-430**



Key features

- Travel range 350x300 mm
- Uni-directional repeatability down to +/- 0.1 μm
- Maximum speed 100 mm/sec
- Load capacity up to 30 kg
- Integrated limit switches
- Optionally: linear scale (center mounted)
- Cross-roller bearings
- Option: Vacuum up to UHV

4.410

Scan Table **MS-8**

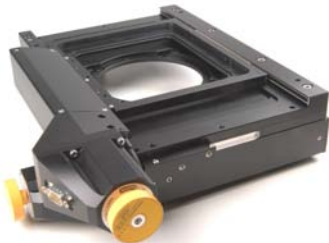


Key features

- Travel range 205 mm (8")
- Uni-directional repeatability down to +/- 0.1 μm
- Maximum speed 90 mm/sec
- Load capacity up to 4 kg
- Integrated limit switches
- Optionally: linear scale
- Clear aperture 205 x 205 mm
- Ball bearings
- Option: Vacuum up to UHV

4.420

Scan Table **MS-4**



Key features

- Travel range 102 mm (4")
- Uni-directional repeatability down to +/- 0.1 μm
- Maximum speed 90 mm/sec
- Load capacity up to 3 kg
- Integrated limit switches
- Optionally: linear scale
- Clear aperture 100 mm
- Ball bearings
- Option: Vacuum up to UHV

4.430

Scan Table **KT-120****Key features**

- Travel range 26 mm (1")
 - Bi-directional repeatability down to $\pm 5 \mu\text{m}$
 - Maximum speed 3.5 mm/sec
 - Load capacity up to 5 kg
 - Integrated limit switches
- Clear aperture 45 mm
 - Cross-roller bearings
 - Option: Vacuum up to FV

4.440Nano Precision Elevation Stage **NPE-200****Key features**

- Travel range 13 mm (1/2")
 - Uni-directional repeatability down to $\pm 0.025 \mu\text{m}$
 - Maximum speed 0.2 mm/sec
 - Load capacity up to 30 kg
 - Integrated limit switches
- Integrated linear scale (center mounted)
 - Cross-roller bearings
 - Option: Vacuum up to UHV

4.610Ultra Precision Elevation Stage **UPL-160****Key features**

- Travel range 26 mm (1")
 - Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
 - Maximum speed 30 mm/sec
 - Load capacity up to 30 kg
 - Integrated limit switches
- Integrated linear scale (center mounted)
 - Linear re-circulating ball system
 - Option: Vacuum up to UHV

4.620

Elevation Stage **ES-100****Key features**

- Travel range up to 26 mm (1")
- Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
- Maximum speed 20 mm/sec
- Load capacity up to 5.5 kg
- Integrated limit switches
- Optionally: linear scale (center mounted)
- Higher load on request
- Linear re-circulating ball system
- Option: Vacuum up to FV

4.630Elevation Stage **ES-70****Key features**

- Travel range 6.25 mm
- Bi-directional repeatability down to $\pm 1 \mu\text{m}$
- Maximum speed 0.14 mm/sec
- Load capacity up to 2 kg
- Integrated limit switches
- Linear re-circulating ball system
- Option: Vacuum up to UHV

4.640Elevation Stage **ES-65****Key features**

- Travel range 26 mm (1")
- Uni-directional repeatability down to $\pm 2 \mu\text{m}$
- Maximum speed 20 mm/sec
- Load capacity up to 2 kg
- Integrated limit switches
- Ball bearings
- Option: Vacuum up to FV

4.650

Nano Pusher **NP-40****Key features**

- Travel range 26 mm (1")
- Uni-directional repeatability down to $\pm 0.1 \mu\text{m}$
- Maximum speed 25 mm/sec
- Load capacity up to 1 kg
- Integrated limit switches
- Optionally: linear scale
- Non rotating tip
- Manual adjustment knob
- Linear re-circulating ball system
- Option: Vacuum up to FV

4.710Micro Actuator **MA-35****Key features**

- Travel range 52 mm (2")
- Uni-directional repeatability down to $\pm 0.5 \mu\text{m}$
- Maximum speed 100 mm/sec
- Force max. 200 N
- Integrated limit switches
- High resolution
- Linear re-circulating ball system
- Option: Vacuum up to UHV

4.720Micro Pusher **MP-20 L****Key features**

- Travel range up to 75 mm
- Uni-directional repeatability down to $\pm 0.5 \mu\text{m}$
- Maximum speed 3.5 mm/sec
- Force max. 125 N
- Integrated limit switches
- High resolution
- Including both inserts MP-B & MP-F
- Option: Vacuum up to UHV

4.730

Micro Pusher **MP-20 S**



Key features

- Travel range 12.5 mm
 - Uni-directional repeatability down to +/- 1 μm
 - Maximum speed 3 mm/sec
 - Force max. 20 N
 - Integrated limit switches
- High resolution
 - Option: Vacuum up to UHV

4.740

Micro Pusher **MP-15**



Key features

- Travel range up to 12.7 mm
 - Uni-directional repeatability down to +/- 2 μm
 - Maximum speed 0.16 mm/sec
 - Force max. 10 N
 - Integrated limit switches
- a choice of different interfaces like M6
 - Option: Vacuum up to UHV

4.750

Linear Piezo Stage **LPS-30**



Key features

- Travel range up to 13 mm (1/2")
 - Uni-directional repeatability down to +/- 0.05 μm
 - Maximum speed 2 mm/sec
 - Load capacity up to 0.8 kg
 - Integrated linear scale
- Piezo driven inertia motor
 - Encoder resolution 5 nm
 - Holding force 4 N
 - Ball bearings
 - Option: Vacuum up to UHV

4.810

Piezo Positioner **PP-30****Key features**

- Travel range up to 30 mm
 - Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
 - Maximum speed 2 mm/sec
 - Load capacity up to 1 kg
 - Optionally: linear scale
- Piezo driven step motor, no hysteresis
 - Holding force 4 N
 - Ball bearings
 - Option: Vacuum up to HV

4.820Elevation Piezo Stage **EPS-30****Key features**

- Travel range up to 13 mm (1/2")
 - Uni-directional repeatability down to $\pm 0.05 \mu\text{m}$
 - Maximum speed 1 mm/sec
 - Load capacity up to 0.15 kg
 - Integrated linear scale (center mounted)
- Piezo inertia drive
 - Encoder resolution up to 5 nm
 - Holding force 1.5 N
 - Ball bearings
 - Option: Vacuum up to UHV

4.830

ROTATION STAGES

ROTATION STAGES

Ultra Precision Rotation Stage UPR-270 AIR**Key features**

- Torque Motor
- Uni-directional repeatability down to $\pm 0.1 \text{ m}^\circ$
- Maximum speed 360 $^\circ/\text{sec}$
- Load capacity up to 40 kg
- Integrated reference switches
- Integrated angular scale
- High precision air bearings
- Flatness and eccentricity $< 0.1 \text{ }\mu\text{m}$
- Wobble $< 2.5 \text{ }\mu\text{rad}$
- Option: Clean room

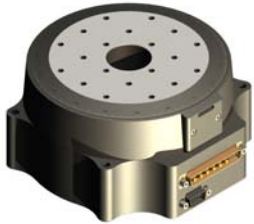
5.010Ultra Precision Rotation Stage UPR-270**Key features**

- Torque Motor
- Uni-directional repeatability down to $\pm 0.1 \text{ m}^\circ$
- Maximum speed 360 $^\circ/\text{sec}$
- Load capacity up to 80 kg
- Integrated reference switches
- Integrated angular scale
- High-precision ball bearings

5.020Ultra Precision Rotation Stage UPR-160 AIR**Key features**

- Torque Motor
- Uni-directional repeatability down to $\pm 0.1 \text{ m}^\circ$
- Maximum speed 360 $^\circ/\text{sec}$
- Load capacity up to 20 kg
- Integrated reference switches
- Integrated angular scale
- High precision air bearings
- Free center hole 35 mm diameter
- Flatness and eccentricity $< 0.1 \text{ }\mu\text{m}$
- Wobble $< 2.5 \text{ }\mu\text{rad}$
- Option: Clean room

5.030

Ultra Precision Rotation Stage UPR-160**Key features**

- Torque Motor
- Uni-directional repeatability down to $\pm 0.1 \text{ m}^\circ$
- Maximum speed $360 \text{ }^\circ/\text{sec}$
- Load capacity up to 40 kg
- Integrated reference switches
- Integrated angular scale
- Free center hole 35 mm
- High-precision ball bearings

5.040Ultra Precision Rotation Stage UPR-100 AIR**Key features**

- Torque Motor
- Uni-directional repeatability down to $\pm 0.1 \text{ m}^\circ$
- Maximum speed $360 \text{ }^\circ/\text{sec}$
- Load capacity up to 1.5 kg
- Integrated reference switches
- Integrated angular scale
- High precision air bearings
- Free center hole 20 mm diameter
- Flatness and eccentricity $< 0.2 \text{ } \mu\text{m}$
- Wobble $< 5 \text{ } \mu\text{m}$
- Option: Clean room

5.050Ultra Precision Rotation Stage UPR-100**Key features**

- Torque Motor
- Uni-directional repeatability down to $\pm 0.1 \text{ m}^\circ$
- Maximum speed $360 \text{ }^\circ/\text{sec}$
- Load capacity up to 3 kg
- Integrated reference switches
- Integrated angular scale
- Free center hole 20 mm diameter
- Option: Vacuum & Clean room

5.060

Torque Rotation Stage **TRS-65****Key features**

- Torque Motor
 - Travel range 45°
 - Uni-directional repeatability down to $\pm 0.25 \text{ m}^\circ$
 - Maximum speed 360 °/sec
 - Load capacity up to 0.5 kg
- Integrated reference switches
 - Integrated angular scale
 - Ball bearings

5.070Precision Rotation Stage **PRS-200****Key features**

- Uni-directional repeatability down to $\pm 0.25 \text{ m}^\circ$
 - Maximum speed 120 °/sec
 - Load capacity up to 50 kg
 - Integrated reference switches
 - Optionally: angular scale
- Clear aperture 120 mm
 - Preloaded worm drive for zero backlash
 - Cross-roller bearings

5.080Rotation Stage **DT-120****Key features**

- Uni-directional repeatability down to $\pm 1 \text{ m}^\circ$
 - Maximum speed 50 °/sec
 - Load capacity up to 40 kg
 - Integrated reference switches
 - Optionally: angular scale
- Clear aperture 120 mm
 - Preloaded worm drive for zero backlash
 - Ball bearings
 - Option: Vacuum up to UHV

5.090

Precision Rotation Stage **PRS-110****Key features**

- Uni-directional repeatability down to $\pm 0.2 \text{ m}^\circ$
- Maximum speed $200 \text{ }^\circ/\text{sec}$
- Load capacity up to 10 kg
- Integrated reference switches
- Optionally: angular scale
- Clear aperture 35 mm
- Preloaded worm drive for zero backlash
- Precise, smooth continuous 360° motion
- Ball bearings
- Option: Vacuum up to UHV

5.100Rotation Stage **DT-65 N****Key features**

- Uni-directional repeatability down to $\pm 2 \text{ m}^\circ$
- Maximum speed $60 \text{ }^\circ/\text{sec}$
- Load capacity up to 3 kg
- Integrated reference switch
- Clear aperture 25 mm
- Preloaded worm drive for zero backlash
- Ball bearings
- Option: Vacuum up to UHV

5.110Rotation Stage **RS-40****Key features**

- Uni-directional repeatability down to $\pm 5 \text{ m}^\circ$
- Maximum speed $7 \text{ }^\circ/\text{sec}$
- Load capacity up to 2 kg
- Integrated reference switch
- Clear aperture 20 mm
- Worm gear drive
- Precise, smooth continuous 360° motion
- Ball bearings
- Option: Vacuum up to UHV

5.120

Rotation Stage DT-80



Key features

- Uni-directional repeatability down to $\pm 10 \text{ m}^\circ$
 - Maximum speed $45 \text{ }^\circ/\text{sec}$
 - Load capacity up to 2 kg
 - Integrated reference switch
 - Clear aperture 40 mm
- Rotation range 360° , endless
 - Ball bearings
 - Option: Vacuum up to UHV

5.130

Rotation Stage DT-80 R



Key features

- Uni-directional repeatability down to $\pm 10 \text{ m}^\circ$
 - Maximum speed $1100 \text{ }^\circ/\text{sec}$
 - Load capacity up to 2 kg
 - Integrated reference switches
 - Clear aperture 40 mm
- Rotation range 360° , endless
 - Ball bearings

5.140

Rotation Stage DT-50

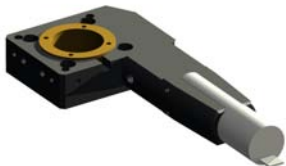


Key features

- Uni-directional repeatability down to $\pm 15 \text{ m}^\circ$
 - Maximum speed $3600 \text{ }^\circ/\text{sec}$
 - Load capacity up to 1 kg
 - Integrated reference switch
 - Clear aperture 20 mm
- Rotation Range 360° , endless
 - Ball bearings

5.150

Rotation Stage DT-25

**Key features**

- Maximum speed 1.5 °/sec

5.160

Rotation Stage Pollux RSP-200

**Key features**

- Uni-directional repeatability down to $\pm 50 \text{ m}^\circ$
- Maximum speed 1440 °/sec
- Load capacity up to 2 kg
- Integrated reference switches
- Single-axis microstepping motor & controller combination
- Stand-alone system with integrated 2-phase stepper motor
- Serial Interface RS-232 19200 Baud
- 24 VDC power supply and RS-232 cable included
- Ball bearings

5.170

Goniometer WT-120

**Key features**

- Uni-directional repeatability down to $\pm 0.22 \text{ m}^\circ$
- Maximum speed 60 °/sec
- Load capacity up to 20 kg
- Integrated reference switches
- Optionally: angular scale
- Hardened worm gear drive
- Precise, smooth continuous 90° motion
- Ball bearings
- Option: Vacuum up to UHV, pair with WT-90 / PRS-110

5.310

Goniometer **WT-90****Key features**

- Uni-directional repeatability down to $\pm 0.5 \text{ m}^\circ$
 - Maximum speed $30 \text{ }^\circ/\text{sec}$
 - Load capacity up to 8 kg
 - Integrated reference switches
 - Optionally: angular scale
- Precise, smooth continuous 90° motion
 - Together with WT-120 one centre of rotation
 - Ball bearings
 - Option: Vacuum up to FV, pair with WT-120 / PRS-110

5.320Goniometer **WT-100****Key features**

- Uni-directional repeatability down to $\pm 0.09 \text{ m}^\circ$
 - Maximum speed $15 \text{ }^\circ/\text{sec}$
 - Load capacity up to 2 kg
 - Integrated reference switches
 - Optionally: angular scale
- Clear aperture $60 \times 25 \text{ mm}$
 - Precise, smooth continuous 10° motion
 - Ball bearings
 - Option: Vacuum up to UHV, pair with WT-85 / DT-65

5.330Goniometer **WT-85****Key features**

- Uni-directional repeatability down to $\pm 0.12 \text{ m}^\circ$
 - Maximum speed $15 \text{ }^\circ/\text{sec}$
 - Load capacity up to 2 kg
 - Integrated reference switches
 - Optionally: angular scale
- Clear aperture 30 mm
 - Precise, smooth continuous 10° motion
 - Ball bearings
 - Option: Vacuum up to UHV, pair with WT-100 / DT-65

5.340

Filter Wheel **AFW-65****Key features**

- Maximum speed 360 °/sec
- Integrated reference switches
- Option: Vacuum up to FV

5.360Slit **ASS 5E****Key features**

- Uni-directional repeatability down to +/- 0.1 μm
- Maximum speed 0.8 mm/sec
- Integrated limit switches
- Clear aperture 5 mm
- High resolution
- Ball bearings
- Option: Vacuum up to FV

5.370

MANUAL STAGES

MANUAL STAGES

Linear Stage AVT-65



Key features

- Travel: 5 mm
- Slides: dove tail
- Screw: fine pitch
- Pitch: 0.25 mm
- Aperture: 30 mm
- Sensitivity: 2 μ m

- Load: Fx: 30 N, Fy: 20 N, Fz: 40 N

6.010

Cross Stage AKT-65



Key features

- Travel: 5 mm xy
- Slides: dove tail
- Screw: fine pitch
- Pitch: 0.25 mm
- Aperture: 30 mm
- Sensitivity: 2 μ m

- Load: Fx: 30 N, Fy: 20 N, Fz: 40 N

6.011

Cross Stage AKT-120



Key features

- Travel: 25 mm
- Slides: cross-roller bearings
- Screw: micrometer
- Resolution: 10 μ m
- Aperture: 45 mm
- Sensitivity: 5 μ m

- Load: Fx: 20 N, Fy: 20 N, Fz: 40 N

6.020

Elevation Stage **AHT-65****Key features**

- Travel: 25 mm
- Slides: linear ball bearings
- Screw: micrometer
- Resolution: 10 μm
- Aperture: 25 mm
- Sensitivity: 5 μm

- Load: F_x : 30 N, F_y : 30 N, F_z : +30/-0 N

6.021Linear Stage **APT-65****Key features**

- Travel: 25 mm
- Slides: dove tail
- Screw: fine pitch
- Pitch: 0.25 mm
- Sensitivity: 2 μm
- Load: F_x : 140 N, F_y : 150 N, F_z : 300 N

6.030Linear Stage **APT-38****Key features**

- Travel: 5 mm
- Slides: dove tail
- Screw: fine pitch
- Pitch: 0.25 mm
- Aperture: 15 mm
- Sensitivity: 2 μm

- Load: F_x : 30 N, F_y : 10 N, F_z : 50 N
- Weight: 0.09 kg

6.031ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

Linear Stage AVT-54



Key features

- Travel: 25 mm
- Slides: ball guided system
- Screw: (AVT-54F) fine pitch, 0.25 mm
- Screw: (AVT-54M) micrometer, 0.5 mm
- Resolution: (AVT-54M) 10 μm
- Sensitivity: (AVT-54F) 2 μm
- Sensitivity: (AVT-54M) 5 μm
- Load: Fx: 10 N / 4 N, Fy: 4 N, Fz: 10 N
- Option: Vacuum up to FV

6.040

Linear Stage AMT-120



Key features

- Travel: 25 / 50 mm
- Slides: cross-roller bearings
- Screw: micrometer
- Pitch: 0.5 mm
- Resolution: 10 μm
- Sensitivity: 5 μm
- Load: Fx: 100 N, Fy: +80 / -10 N, Fz: 200 N
- Weight: 1.4 kg
- Option: Vacuum up to HV

6.041

Linear Stage AMT-65 C



Key features

- Travel: 25 mm
- Slides: cross-roller bearings
- Screw: micrometer
- Pitch: 0.5 mm
- Resolution: 10 μm
- Sensitivity: 5 μm
- Load: Fx: 70 N, Fy: +80 / -10 N, Fz: 160 N
- Weight: 0.5 kg

6.050

Linear Stage AMT-65 S



Key features

- Travel: 25 mm
- Slides: cross-roller bearings
- Screw: micrometer
- Pitch: 0.5 mm
- Resolution: 10 μm
- Sensitivity: 5 μm
- Load: Fx: 70 N, Fy: +80 / -10 N, Fz: 160 N
- Weight: 0.5 kg

6.051

Rotation Stage ARS-65

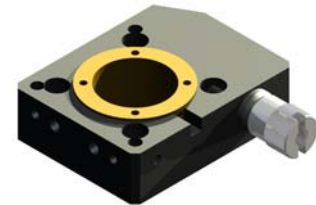


Key features

- Drive: preloaded driveworm, backlash free four point bearings
- Range: 360° endless
- Aperture: 25 mm
- Gear: 180:1
- Load: Fx: 15 N, Fz: 30 N
- Weight: 0.5 kg

6.060

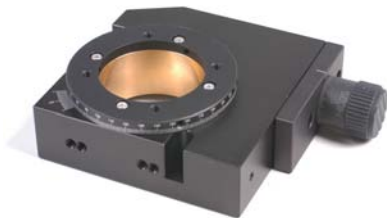
Rotation Stage DT-25 M



Key features

- Drive: driveworm
- Range: 360° endless
- Aperture: 12.5 mm
- Gear: ~74:1
- Load: Fx: 2 N, Fz: 5 N

6.061

Rotation Stage **ARS-80****Key features**

- Drive: spring prestressed screw worm-gear, double row ball bearings
- Range: 360° endless
- Aperture: 40 mm
- Gear: 180:1
- Load: Fx: 10 N, Fz: 20 N
- Weight: 0.45 kg

6.070

micos

MOSKITO | ALBATROS | CAMPUS

MAC | PhotonX



V09.2007



MAC
powered by **micos**
PhotonX

precision made in germany

micos®

EDUCATION SCIENCE RESEARCH

for more information see: www.micos.ws | info@micos.ws | fon: +49-(0)7634-50 57 230 | fax: +49-(0)7634-50 57 393

micos

MAC I PhotonX

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGES

ROTATION
STAGES

MANUAL
STAGES

**MAC
PHOTONX**

- Moskito
- Albatros
- Campus
- Lab Equipment

Flat Rail



- Length: 25, 50, 100, 200, 300, 500 mm
- Width: 25.4 mm, height: 10 mm
- Fixing with M4 – M6 screws
- Option: other length

Octa Rails



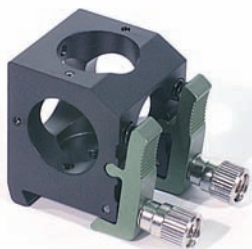
- Length: 25, 50, 100, 200, 300, 500 mm
- Width: 33.4 mm
- Flexible compact arrangement in 45° intervals
- Option: other length, base plate, right angle adaptor

Carriers



- Width: 41.5 or 32.5 mm for clamping
- Opening: 16 mm for holding optics, thickness 6 or 10 mm
- Fixing with M2 screws
- Option: Nanobench adaptor

Cubes



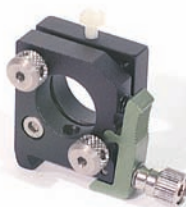
- Four mounting holes to build f.e. a lamp housing
- Opening: 16 mm for holding optics and inserts
- Fixing with M2 screws
- Option: left, right and neutral version, adaptor ring for inserts

Kin. Mount



- Kinematic mirror mount
- Adj. Range: 14°
- Sensitivity: 15 arcsec
- Opening: 16 mm for holding optics and inserts, 0.25 mm pitch
- Option: left or right version, micrometer or fine pitch spindle

Kin. Mount



- Kinematic mirror mount, disc springs for reliability
- Adj. Range: 4°
- Sensitivity: 15 arcsec
- Opening: 16 mm for holding optics and inserts, 0.25 mm pitch
- Option: left or right version

Kin. Mount



- Kinematic mirror mount, to be mounted on MC or MCB
- Adj. Range: 8°, adjustment from the top
- Sensitivity: 20 arcsec
- Opening: 8 mm for holding optics, 0.25 mm pitch spindle

Flip Mirror



- Flip mirror mount for 0.5" mirrors
- Adj. Range: 8°, flip angle: 45°
- Sensitivity: 25 arcsec
- Opening: 12.7 mm for holding mirrors, 0.25 mm fine pitch spindle
- Option: left or right version

Rotation Car



- Rotation Carrier
- Adj. Range: > 360°
- Sensitivity: 0.5°, lockable
- Opening: 16 mm for holding optics and inserts
- Option: left or right version

Rotat. Stages



- Rotation stages to be mounted on MC carriers or MCB cubes
- Adj. Range: > 360°, fine adj.: 18°
- Sensitivity: 30 arcsec, 0.25 mm pitch
- Opening: 7 mm for holding optics
- Option: left or right version, micrometer or fine pitch screw

XY-Rot-Adjust



- XY-Adjustment with rotation
- Adj. Range: 1 mm each, > 360°
- Sensitivity: 10 µm, 1°
- Opening: 16 mm for holding optics and inserts, aperture 10 mm

Trans. Stages



- X or XY- stages to be mounted on MC carriers
- Adj. Range: 2.5 mm each
- Sensitivity: 5 µm
- Opening: 16 mm for holding optics and inserts, aperture 10 mm
- Ball bearings, fine pitch spindle with 0.25 mm pitch

Optic Holders



- Optic Holders for carriers and adjustments
- Aperture: 8 mm, outer diameter 16 mm
- Option: for prism or mirrors by glue

Lens Cells



- Lens cells for holding lenses
- Lens dia: 5-7.5/8-10.5/11-13.5/13-15.5/15-17.5 mm
- Aperture: 0-14 mm, outer diameter 16 mm
- Option: for optics with dia 5- 17.5 mm

Mirror Cells



- Mirror cells for holding mirrors
- Mirror dia: ¼", ½", 1"
- Mirror thickness: 1 or 6 mm
- Outer diameter 16 mm
- Option: vacuum

Optic Inserts



- Optic inserts for carriers and cubes
- Adj. Range: 8° or 2° with disc springs
- Sensitivity: 1 arcmin
- Aperture: 5 mm, outer diameter 25.4 mm, holding:16 mm
- Option: for prism or mirrors dia 10 or 10x10 mm, option MMC

Post adaptors



- Adaptors for post mounting
- Carrier with 8H7 opening for post
- Adaptors for optical table, rotating plate, height set ring
- Option: specials custom designed

Mount Posts



- Mounting posts for Moskito components
- Top: M4 outer thread
- Bottom: M6 inner thread
- Diameter: 8 mm, stainless steel
- Option: adapters, length 25, 50, 75 or 100 mm

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

- Moskito

- Albatros

- Campus

- Lab Equipment

Post holders



- Post holders for mounting posts
- Top: dia 8 H7 mm
- Bottom: M6 inner thread
- Diameter: 20 mm, black anodized aluminium
- Option: length 25, 50, 75 or 100 mm

Focus Zoom



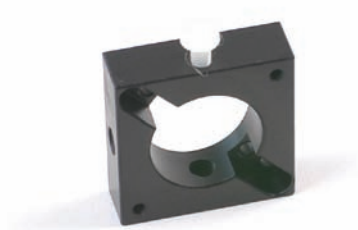
- Adjustable focus to be mounted on MC carriers or on xy stages
- Adj. Range: 13.5 mm
- Sensitivity: 10 μ m
- Opening: 16 mm socket: combination with xy for xyz, aperture 13 mm
- Grip ring with 0.75 mm pitch

Iris diaphragm



- Iris diaphragm with 0.8 to 5.5 mm
- Model C with carrier for Moskito rail
- Model D with socket 16 mm for cube, xy-stage or carriers
- Option: pure iris

Special comp



- Variuos components for adapting other components
- Model MAP to combine Moskito plates
- Model MDR for setting rails in the Albatros system height 65 mm
- Model MMO for combination with objectives by RMS(W0.8x1/36)
- Option: custom design

Basic Set



- Basic Set MBS in case
- A collection of rails, carriers, adjustments and holders to be
- Familiar with the system and to set up simple experiments
- Stored in a case
- Option: custom collection

ENGINEERED
SYSTEMS

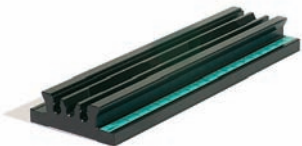
CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

- Moskito
- Albatros
- Campus
- Lab Equipment

Flat Rail



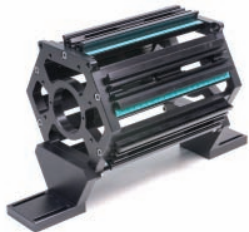
- Length: 200, 300, 500, 600 or 1000 mm
- Width: 67 mm, height: 22.5 mm, par. 30 µm/m
- Fixing with M6 screws
- Scale on one side in mm, two clearance grooves for racks
- Option: other length, levelling platform ALP

Rail Racks



- Length: 100, 200 or 300 mm
- Fixing with cylindrical key in rail grooves
- With carrier ACLD precise moving of optics and mounts
- Option: other length

Rail Mount 6



- Mounting plates for hexagonal setups
- For combining several rails in 3- dimensional setup
- Orientation 60 °, maximum 6 rails
- Option: mounting angle AHX MA for optical bench

Rail Connect



- Connectors for T or Cross setup or articulated
- AAC as articulated connector
- ATC as T-connector
- ACC as cross connector

Carrier special



- Carriers with special features
- ACLD 40 with rack and pinion drive for linear adjustment on rack rails
- ACR ALS for mounting of cross stages ALS 5XY
- ACRI 65 with integrated rotatable insert, height 51 mm with rail
- Option: modification for other applications

Carriers



- Width: 20, 30, 40 or 65 mm with click mount, height 32.5 with rail
- Spring loaded click mount guarantees precise moving along axis
- Fixing of components with M4 in distance 25 or 34 mm
- MOSKITO adapter available, compatible to other bench systems

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

- Moskito

- Albatros

- Campus

- Lab Equipment

Platform



- Width: 100 or 200 mm with click mount, height 32.5 with rail
- Spring loaded click mount guarantees precise moving along axis
- Rigid carrier platform for big or heavy setups
- Without threads or as 100P with M6 in 12.5 mm grid
- Option: special threads for your application

Cube



- Six mounting holes to build f.e. a lamp housing
- Opening: 45 mm for holding optics and inserts
- Fixing with M4 in 50 square for carrier, in dia 55 mm for inserts
- Dimension: 65x65x65 mm
- Option: combination for cube-setups

Kin. Mount



- Kinematic mirror mount for mirrors and beamsplitter plates
- Adj. Range: 10°
- Sensitivity: 3 arcsec
- Opening: 45mm for holding optics and inserts, 0.25 mm pitch
- Option: UV preparation, ALMA closed version

Gimbal Mount



- Gimbal mirror mount for mirrors
- Adj. Range: 8°
- Sensitivity: 8 arcsec, 0.25 mm pitch
- Opening: insert with M14x0.75 mm
- Option: vacuum

X or XY Stage



- X or XY- stages ALS 65
- Adj. Range: 5 mm each
- Sensitivity: 5 μ m
- Opening: 30 mm for holding optics and inserts
- Dovetail, fine pitch spindle with 0.25 mm pitch, load: 30 N

Elev. Stage



- Elevator stage to be mounted on a carrier or single use
- Adj. Range: 25 mm, very rigid
- Sensitivity: 2 μ m, micrometer with 0.25 mm pitch, motorized possible
- Opening: 25 mm, load: 30 N
- Option: combination with XY stage for xyz in optical height 65 mm

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

- Moskito
 - Albatros
 - Campus
 - Lab Equipment

Linear Stages



- Linear stage to be mounted on carriers or single use
- Adj. Range: 5 mm, xyz for optical height 65 mm is possible
- Sensitivity: 5 μm
- Opening: 15 mm, width: 38 mm, load: 30 N
- Dovetail, fine pitch spindle with 0.25 mm pitch

Linear Stages



- Linear stage to be mounted on carriers or single use
- Adj. Range: 25 mm, xyz setup is possible (height > 65 mm)
- Sensitivity: 2 μm
- Dimension: 65x102x25 mm, load: 30 N
- Micrometer with 0.25 mm pitch, side-mounted micrometer version S

Rot. Stages



- Rotation stages to be mounted in optical axis 65 mm
- Adj. Range: > 360°
- Sensitivity: 20 arcsec, gear 180:1
- Opening: 25 mm (ARS65) or 40 mm (ARS80)
- Option: motorized as DT80 or DT65N, vacuum

Rot. Holder



- Rotation Holder
- Adj. Range: > 360°
- Sensitivity: 0.5°, lockable
- Opening: 45 mm for holding optics and inserts

Optic Holder



- Width: 20 mm
- Opening: 45 mm for holding optics or inserts
- Fixing with M4 screws
- Option: Microbench adapter or Sys40 adapter

Adapt. Inserts



- Various adapters with outer dia 45 mm
- Opening 25 or 30 mm for click mounts
- Opening with M16, M30 (for mirror holders) or RMS thread (objectives)
- Option: no hole

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

- Mosquito
 - Albatros
 - Campus
 - Lab Equipment

Adj. Inserts



- Optic insert for mirrors or beamsplitter plates/-cubes
- Adj. Range: 8°
- Sensitivity: 20 arcsec
- Aperture: 20 mm, outer diameter 45 mm
- Option: micrometer or fine pitch spindle

Mirrorholder



- Mirror holders for holding mirrors
- Mirror dia: ½" or 1"
- Mirror thickness: 3 to 7 mm
- Outer diameter M16 or M30 thread for AMAI
- Option: vacuum, protection caps

XY Holder



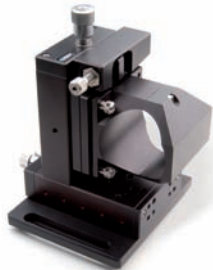
- XY - Mount AFAH
- Adj. Range: 8 mm each, aperture 30 mm
- Sensitivity: 10 µm, fine pitch screws 0.25 mm
- Opening: 30 mm for holding optics
- Option: AMA adaptors for 25, 30 mm or RMS mount

OpticsMount



- Optics click Mounts for holding lenses, mirrors and others
- Mirror dia: 6 – 25.4 mm with retaining rings ATRR (2.2100)
- Can be clicked into the inserts AMAI
- Outer diameter 25 or 30 mm
- OptionClick 25 or 30, closed versions for custom size

Laser Adjust



- 5 axes Laser Adjustment holder for tubes with dia 20 – 50 mm
- Adj. Range: x,y: 25 mm, 14° and 15° and 3° around optical axis
- Sensitivity: < 10 µm, 20 arcsec
- Opening: 25 mm, load: 30 N, long term stability
- Option: optical height 65 mm possible

Iris diaphr.



- Iris diaphragm with 1.2 to 14 mm
- Model C25 with outside 25 mm
- Model C30 with outside 30 mm
- For inserts AMAI
- Option: pure iris or other apertures

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

- Mosquito

- Albatros

- Campus

- Lab Equipment

PrismCarrier



- 3 axes prism stage
- Adj. Range: 6° for all rotation axes
- Sensitivity: 5 µm, 30 arcsec
- Load: 10 N, mounting area 40x40 mm
- Option: total height with rail: 45 mm

Adj. Holder



- 5 axes Mount AAH
- Adj. Range: 2 mm each, 3° each and 360° around opt. axis
- Sensitivity: 10 µm, fine pitch screws 0.25 mm, 1 arcmin
- Aperture 25 mm without insert
- Option: inserts for holding optics/crystals

Slit ASS/ADS 5E



- High precision slit motorized, DC or stepper motor
- Adj. Range: 0 – 5 mm
- Sensitivity: < 5 µm
- Aperture: 12 mm height and 0-5 mm width
- Option: xy mountable for double slit, various materials

Plateholder



- Holder for 3 filters
- For filters with 50 x 50 mm
- Option: mountable on carrier

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

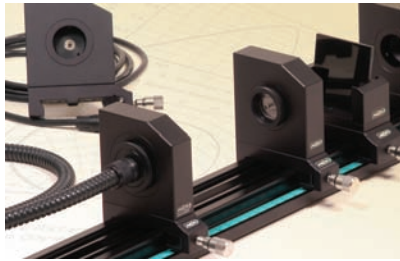
- Moskitto
- Albatros
- Campus
- Lab Equipment

Albatros add



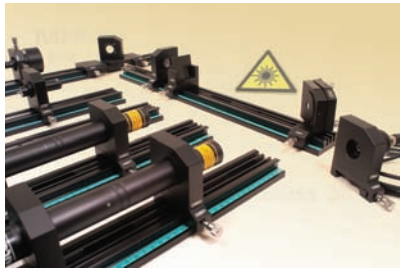
- Various components for completing your experiment
- Optics like lenses, mirrors, beamsplitter, prisms and others
- Breadboards or aluminium plates as a basic tool
- Special mechanical parts, motorized components and others
- Option: custom design

Light Detect



- Experiment: - Detection and measuring light
- Black Body Radiation, White Light Lamp
- Si Photo detector, InGaAs Photo Detector
- Thermoelectric Photo Detector, Photometer
- Spectral Characterization, Monochromator

Laser Safety



- Experiment: - Laser safety and classification
- Laser Intensity, Divergence of a Laser Beam
- Maximum Permissible Radiation
- Minimum Safety Distance, Damaging Effects
- Pulsed Lasers, Laser Classification, Safety Goggles

Photometry



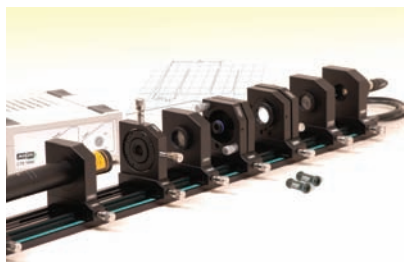
- Experiment: - Radio- and Photometry
- Light, Black Body Radiator
- Thermal Light, Cold Light
- Sensitivity of Human Eye, Photometric Units
- Calibrated Lamp, Lock-In Amplifier

Emi&Absorpt



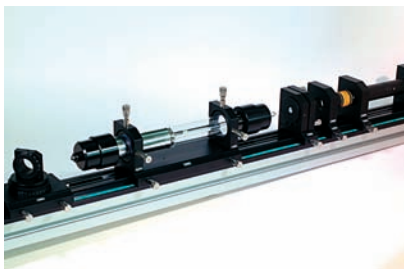
- Experiment: - Emission and Absorption
- Black Body Radiation, Cavity Resonator
- Einstein Coefficients, Lifetime of Exited States
- Diode Laser, Nd:YAG Crystal,
- Interference Filter

Fabry Perot



- Experiment: - Fabry Perot Resonator
- Two Beam Interference, Multiple Beam Interference
- Free Spectral Range & Finesse, Visibility & Coherence Length
- Ideal & Real Fabry Perot, Stability Criterion
- Spectral Analysis of a HeNe Laser

HeNe-Laser



- Experiment: - HeNe-Laser
- Energy Levels of HeNe, ABCD Law & Resonator
- Jones Matrix Formalism, Gain
- Mode & Line Selection, Birefringent Filter
- Littrow Prism, Single Mode Etalon

ENGINEERED
SYSTEMS

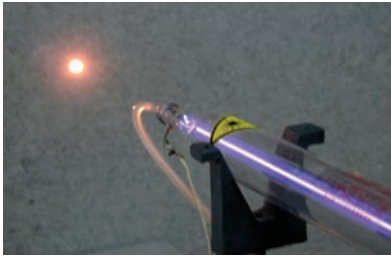
CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

- Moskito
 - Albatros
 - Campus
 - Lab Equipment

CO2 Laser



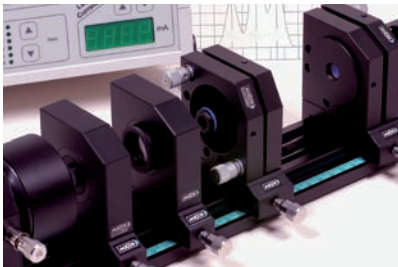
- Experiment: - CO2- Laser
- Basics of CO2 Lasers
- Type of CO2 Lasers
- Optimization of Output Power
- Computer Controlled Material Processing

Diode



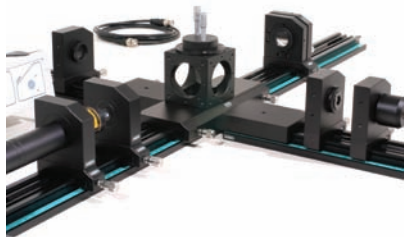
- Experiment: - Diode Laser
- Molecular Bindings, Fermi Distribution
- Inversion in Semiconductors, Types of Laser Diodes
- Beam Properties & Spectral Properties
- Beam Shaping, Polarization Properties

Nd:YAG Laser



- Experiment: - Nd:YAG- Laser
- Properties of Laser Diodes, Optical Pumping
- Rate Equation Model, Static & Dynamic Behaviour
- Output Power, Resonator Properties
- Stability Criterion, Laser Spiking

Laser Interf.



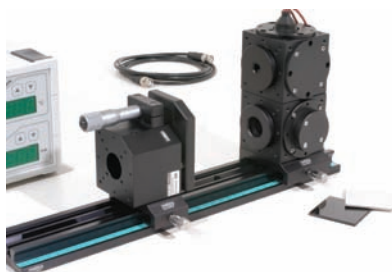
- Experiment: - Laser Interferometer
- HeNe Laser, Contrast, Coherence Length
- Two Beam Interference, Homodyne Interferometer
- Technical Interferometer, Fringe Detection, Counting and Interpolation
- Definition of Length, Calibration of machines

Gyroscope



- Experiment: - Gyroscope
- HeNe Ring Laser, Sagnac Effect
- Ring Laser Modes, Single Mode Etalon
- Interference, Fringe Detection
- Mode Lock-In, Angle Measurement

Triangulation



- Experiment: - Laser Triangulation
- Laser Diode
- Position Sensitive Detector (PSD)
- Distance Measurement
- Optical Detection of Presence

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

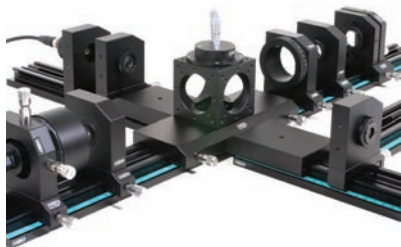
- Moskito
 - Albatros
 - Campus
 - Lab Equipment

Laser Levelling



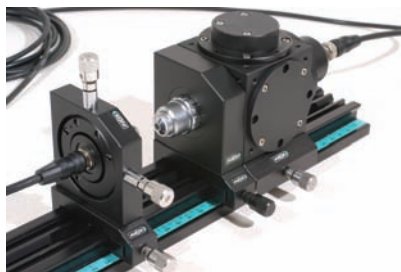
- Experiment: - Laser Levelling
- Laser Beam Properties, Gaussian Beams
- Divergence, Range Measurement
- Line Optics & Line Generation
- Floor Leveling

Laser Range



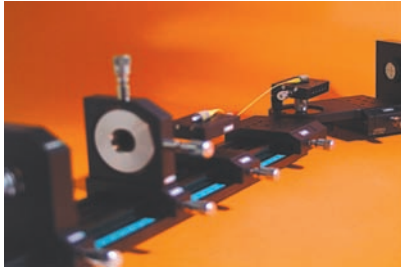
- Experiment: - Laser Range Finder
- Pulsed & CW Laser Diodes
- Beam Shaping & Bending
- Si PIN Detector, Light Echoes
- Time of Flight, LIDAR

PlasticFiber



- Experiment: - Plastic Fiber Optics
- LED Transmitter, LED Modulation
- Si Photodetector Receiver, Dichroic Beam Splitter
- Dual Wavelength Data Transmission
- Plastic Fiber Handling, Plastic Fiber Properties

GlassFiber



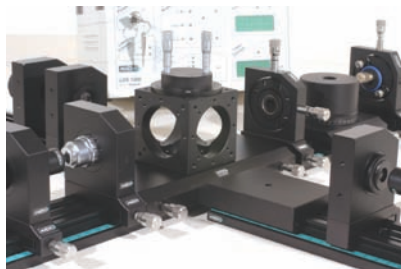
- Experiment: - Glass Fiber Optics
- Characterization of Fibers
- Guiding of Light in Fibers
- Laser Diodes, Photo Detectors
- Coupling Optics, Communication

OTDR



- Experiment: - Optical Time Domain Reflectometry
- Laser Diode Power Modes, Optical Fiber
- Si PIN Photo Detector
- Fiber Handling and Preparation, Coupling Light to Fiber
- Reflected Light Echoes, Speed of Light

EDFA



- Experiment: - Erbium Doped Fiber Amplifier
- Emission and Absorption
- Laser Diodes, Optical Fibers
- Coupling Light to Fibers, Erbium doped Fibers
- Optical Amplification, Optical Pumping

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

- Moskito

- Albatros

- Campus

- Lab Equipment

Data Transm



- Experiment: - Data Transmission via Optical Glass Fiber
- Laser Diodes, Optical Glass Fibers
- Photo Detector, Handling of Fiberoptic Cable
- Modulation of Laser Diodes, Optical Signal Detection
- Video Cameras, Video Signal Transmission

GlassFibre



- Experiment: - Workshop Glass Fiber
- Fiber Connectors
- Fiber Stripping and Breaking
- Fiber Polishing
- Fiber Inspection

CO2-Laser



- Experiment: - CO2 Laser Workstation 100 W
- Sealed CO2 laser, RF Exitation
- Pulsed and CW Mode, Material Processing
- Laser Scribing, Laser Cutting
- Laser Welding, Laser Soldering

ND:YAG Laser



- Experiment: - ND:YAG Laser Workstation 80 W
- Nd:YAG laser, Flash Lamp Pumping
- Pulsed, CW & Q-Switch Mode
- Material Processing, Laser Scribing, Laser Cutting
- Laser Welding & Soldering, Laser Drilling

BarCodeRead



- Experiment: - Bar Code Reader
- Types of Bar Code, Polygon Mirror
- Light Source & Light Detection
- Scanning Systems, Bar Code Detection and Processing
- Computer Processing & Databases

GalvoScanner



- Experiment: - Laser Galvo Scanner
- Laser Light Sources, Scanning Principles
- Operation of Galvo Scanner Units
- Closed Loop Galvo Scanners
- Image Generation, Imaging Optics

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

- Mosquito

- Albatros

- Campus

- Lab Equipment

Breadboards



- Dimension: 200x300x10 up to 1500x3000x100 mm
- M6 x 25 mm or special thread grid
- Black anodized aluplates or honeycombcore with stainless steel plates
- Microscope tables and workstations
- Option: other dimensions, laserport, nonmagnetic

Electr. Instr.



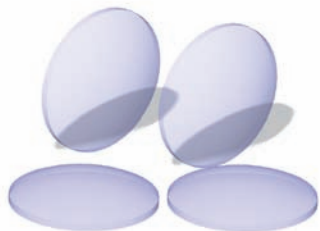
- Equipment for laser experiments like
- Digital Multimeters
- Oscilloscopes
- Laser power measurement, detectors
- Fibers, connectors and adaptors

Tools



- Equipment for mechanical setups like special tools or screw drivers
- Optics cleaning tissues or goggles
- Adaptors to other systems or inch- threads
- Vacuum and cleanroom finish, 77K or VUV layout
- Lasers, objectives, mounts, finepitch screws and micrometer

Lenses



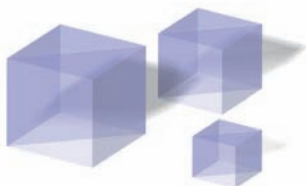
- Plano- and biconvex lenses with focal length from 10 to 5000 mm
- Diameter 8, 10, 12.5, 25, 45 mm and 2 "
- BK7 or fused silica with or without AR-coating, mounted or unmounted
- Option: cylindrical or concave lenses, achromates, ZnSe and others

Mirrors



- Al+SiO₂, UV-enhanced or HR@laser
- Diameter 6.35 to 200 mm or other forms
- BK7 or fused silica
- Especially for MOSKITO or Albatros, but single optics as well
- Option: substrates, other material, windows, holes, custom design

Beamsplitter



- Plates or cubes from UV to NIR
- Dimension: 2x2 to 50x50 mm or plates
- BK7, fused silica, coated or uncoated
- Polarized or unpolarized
- Option: prisms, other material, triple prism, Glan, custom design

ENGINEERED
SYSTEMS

CONTROLLERS

ROBOTICS

LINEAR
STAGESROTATION
STAGESMANUAL
STAGESMAC
PHOTONX

- Moskito
- Albatros
- Campus
- Lab Equipment

Filters



- Interference, neutral density or colour filters
- Dimension: 2x2 to 50x50 mm or plates
- BK7, fused silica or Schott glas, coated or uncoated
- Polarized or unpolarized
- Option: sets, other material, mounted, custom design

Apertures



- Iris diaphragm and pinholes with various diameters
- Opening: 0 or 2 μ m – 200 mm
- High precision slit you can find in Albatros and Motion Control
- Option: shutter, specials

Interferometer



- Miniature Interferometer with 10 nm resolution, stability 1 ppm
- Accuracy: 0.1 μ m/100 mm, max. speed 50 mm/s, distance < 500 mm
- Dimension: dia 17 mm x 95 mm, weight: 65 g
- For positioning, wafer alignment, mask alignment, process control
- CD mastering or measurement of deformation

INDEX

Product	Page
Engineered Systems	106 f
Controllers	200 f
SMC corvus	202
SMC corvus eco	202
SMC corvus pci	202
SMC pollux	203
SMC taurus/pegasus	203
MoCo dc	203
SM-series SM-32	204
DMCcontrollers	204
Flex Motion-series	204
MPApower amplifiers	205
Motion Server	205
Robotics	300 f
SpaceFAB BS-3000 Vacuum	302
SpaceFAB BS-3000	302
SpaceFAB LS-3000	303
Hexapod PAROS	303
Linear Stages	400 f
UPS-150	400
UPM-160	400
HPS-170	400
LS-270	401
LMS-300	401
LS-300	401
LMS-180	402
LS-180	402
LMS-120	402
LS-120	403
LS-110	403
LMS-100	403
LMS-80	404
LMS-60	404

Product	Page
PLS-85	404
LS-65	405
MTS-65	405
MTS-70	405
VT-75	406
VT-40	406
VT-80	406
LS-40	407
MT-40	407
MT-55	407
CS-430	408
MS-8	408
MS-4	408
KT-120	409
NPE-200	409
UPL-160	409
ES-100	410
ES-70	410
ES-65	410
NP-40	411
MA-35	411
MP-20 L	411
MP-20 S	412
MP-15	412
LPS-30	412
PP-30	413
EPS-30	413

Product	Page
Rotation Stages	500 f
UPR-270 AIR	500
UPR-270	500
UPR-160 AIR	500
UPR-160	501
UPR-100 AIR	501
UPR-100	501
TRS-65	502
PRS-200	502
DT-120	502
PRS-110	503
DT-65 N	503
RS-40	503
DT-80	504
DT-80 R	504
DT-50	504
DT-25	505
RSP-200	505
WT-120	505
WT-90	506
WT-100	506
WT-85	506
AFW-65	507
ASS-5E	507
Manual Stages	600 f
AVT-65	600
AKT-65	600
AKT-120	600
AHT-65	601
APT-65	601
APT-38	601
AVT-54	602
AMT-120	602
AMT-65 C	602

INDEX

Product	Page
AMT-65 S	603
ARS-65	603
DT-25 M	603
ARS-80	604
MAC I PhotonX Moskito	700 f
Flat Rail	702
Octa Rails	702
Carriers	702
Cubes	703
Kin. Mount	703
Kin. Mount	703
Kin. Mount	704
Flip Mirror	704
Rotation Car	704
Rotat. Stages	705
XY-Rot-Adjust	705
Trans. Stages	705
Optic Holders	706
Lens Cells	706
Mirror Cells	706
Optic Inserts	707
Post adaptors	707
Mount Posts	707
Post holders	708
Focus Zoom	708
Iris diaphragm	708
Special comp	709
Basic Set	709
Flat Rail	710
Rail Racks	710
Rail Mount 6	710

Product	Page
MAC I PhotonX Albatros	711 f
Rail Connect	711
Carrier special	711
Carriers	711
Plattform	712
Cube	712
Kin. Mount	712
Gimbal Mount	713
X or XYStage	713
Elev. Stage	713
Linear Stages	714
Linear Stages	714
Rot. Stages	714
Rot. Holder	715
Optic Holder	715
Adapt. Inserts	715
Adj. Inserts	716
Mirrorholder	716
XY Holder	717
OpticsMount	717
Laser Adjust	717
Iris diaphr.	718
PrismCarrier	718
Adj. Holder	718
Slit ASS/ADS5E	719
Plateholder	719

Product	Page
MAC I PhotonX Campus	719 f
Albatros add	719
Light Detect	720
Laser Safety	720
Photometry	720
Emi&Absorpt	721
Fabry Perot	721
HeNe-Laser	721
CO2 Laser	722
Diode	722
Nd:YAGLaser	722
Laser Interf.	723
Gyroscope	723
Triangulation	723
Laser Levelling	724
Laser Range	724
PlasticFiber	724
GlassFiber	725
OTDR	725
EDFA	725
Data Transm	726
GlassFibre	726
CO2-Laser	726
ND:YAGLaser	727
BarCodeRead	727
GalvoScanner	727
Breadboards	728
Electr. Instr.	728
Tools	728
Lenses	729
Mirrors	729
Beamsplitter	729
Filters	730
Filters	730
Interferometer	730

micos GmbH
Freiburger Strasse 30
D-79427 Eschbach
Germany

Phone: + 49 763450 57 230
Fax: + 49 763450 57 393
e-mail: info@micosonline.com
home: www.micos.ws



V 0607

micos

Development and marketing
high-quality and precision.
Electronic-optical equipment and
systems for research and industry.

micos Germany
Freiburger Strasse 30
D-79427 Eschbach
GERMANY

Phone: +49(0)7634 50 57 230
Fax: +49(0)7634 50 57 393
e-mail: info@micos-online.com
home: www.micos.ws

micos USA LLC
15375 Barranca Parkway, Ste G101
Irvine, CA 92618
USA

Phone: +1 949 480 0538
Fax: +1 949 480 0538
e-mail: info@micosusa.com
home: www.micosusa.com

micos Motion Link Ltd
Main Street, Chaddleworth
Berkshire, RG20 7EH
UNITED KINGDOM

Phone: + 44-1488 638488
Fax: + 44-1488 638802
e-mail: sales@motionlink.co.uk
home: www.motionlink.co.uk

micos Marwell Laser Systems AB
Dalvägen 51A
18733 Täby
SWEDEN

Phone: +46 8 756 72 45
Fax: +46 8 756 89 42
e-mail: info@marwell.se
home: www.marwell.se

micos INDECO Inc.
1-11-14, Kasuga, Bunkyo-ku,
Tokyo 112-0003
JAPAN

Phone: +81 3 3818 4011
Fax: +81 3 3818 4015
e-mail: ind@indecop.jp
home: www.indecop.jp

micos IBERIA
C/ Carlets 25, 1, 1,
08800 Vilanova i la Geltrú
SPAIN & PORTUGAL

Phone: +34 93 816 03 80
Fax: +34 93 816 03 79
e-mail: thomas.etzkoorn@micos-online.com
home: www.micos.es

micos ITALIA GmbH
Via. S. Protaso, 39
20010 Bareggio (MI)
ITALY

Phone: +39 02 90 36 33 18
Fax: +39 02 90 35 51 86
e-mail: info@micos.it
home: www.micos.it

micos T.S.A. Zae du parc des chataigniers
6, rue Condorcet
95157 Taverny Cedex
FRANCE

Phone: +33 1 30 40 81 30
Fax: +33 1 30 40 81 45
e-mail: info@tsa.fr
home: www.tsa.fr

micos Newroad
11 Ha'amal St., Afek Business Park
Rosh Ha'ayin 48092
ISRAEL

Phone: +972-(0)3-902 8787
Fax: +972-(0)3-902 8788
e-mail: sales@newroad.co.il
home: www.newroad.co.il

micos LASER 21 Pte Ltd
10 Bukit Batok Crescent
#13-05 The Spire
Singapore 658079

Phone: +65 6565 1221
Fax: +65 6563 1221
e-mail: laser21@laser-21.com
home: www.laser-21.com