

MICOS

MOTION CONTROL & OPTICS **USA**

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Page

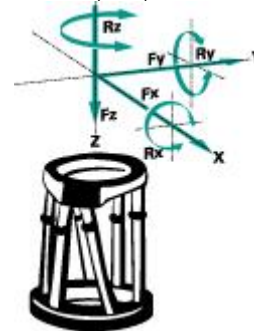
◀◀ 1.online ▶▶ **NanoPod NPS-series**

Systems



Key features

- Increased repeatability over stacked stage serial kinematic structures
- Simplified programming with tool center point (TCP)
- Ability to rotate (TCP) repeatably about a virtual point in space
- Coordinated 6 axis of motion at TSP
- System resolution versus summation of individual stage resolution
- Virtual elimination of stacked stage cosine and sine errors
- Open architecture Windows operating system and intuitive GUI for application development
- C++, Visual Basic and LabVIEW compatible
- Available in standard, clean room and vacuum (HV)10-7mbar, (UHV)10-10mbar



FACTS

| Technical data | NPS-150P | NPS-300 P | NPS-400 P | NPS-400 PD |
|----------------------------|----------|-----------|-----------|------------|
| Stroke, cube (mm) | 15 | 28 | 60 | 105 |
| Range Pitch, Yaw, Roll (°) | +/- 20 | +/- 18 | +/- 20 | +/- 20 |
| Stroke Z (mm) | 20 | 55 | 105 | 175 |
| Force (N) | 48 | 192 | 384 | 768 |
| Velocity (mm/sec) | 200 | 200 | 200 | 200 |

| | | | | |
|--------------------------|-------|-------|-------|-------|
| Encoder resolution (µm) | 0.05 | 0.05 | 0.05 | 0.05 |
| Repeatability (µm) | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Stage Base (D/mm) | 204 | 330 | 475 | 762 |

DESCRIPTION

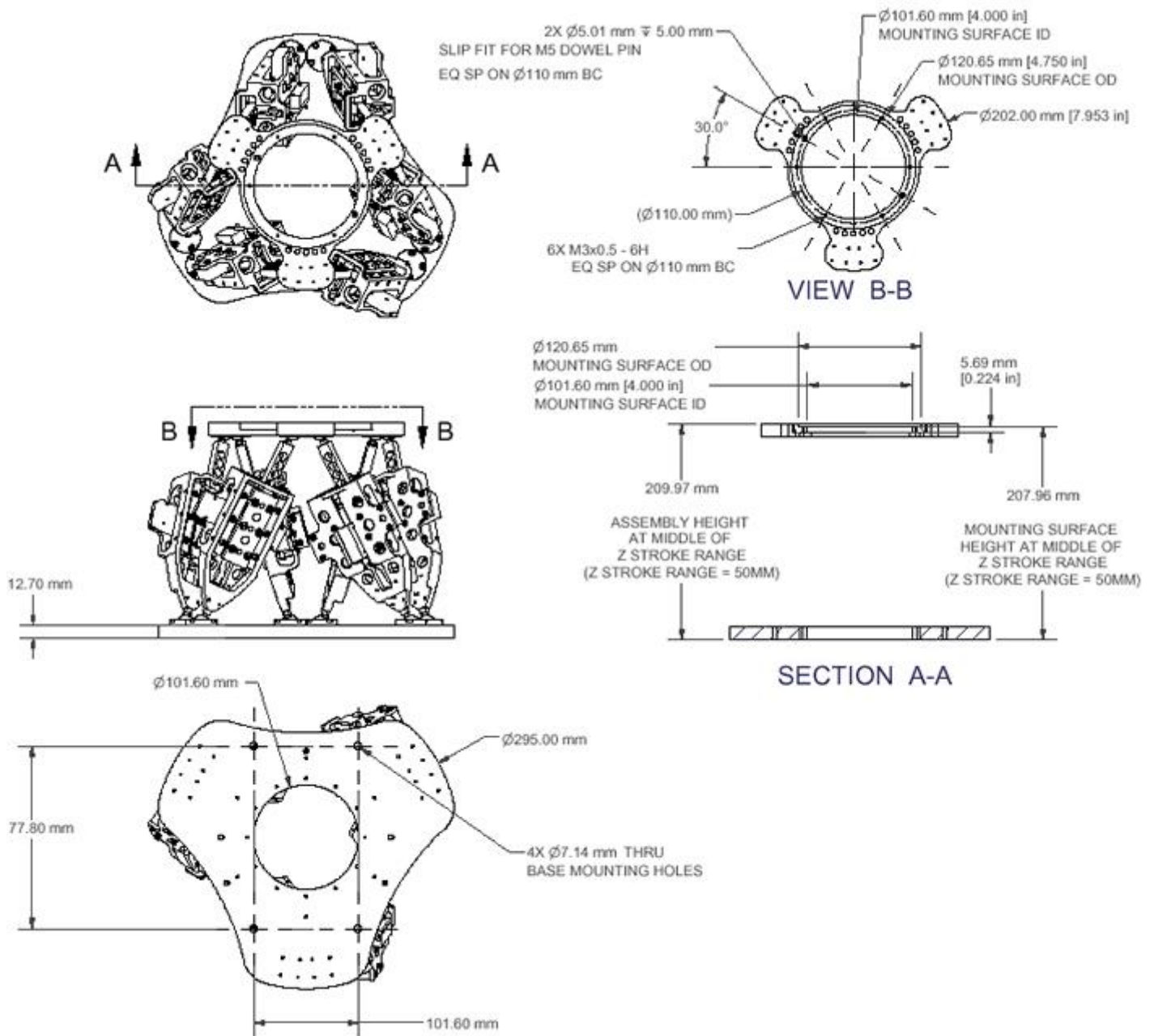
MICOS presents NEW **NanoPod NPS-series** (parallel kinematic robotic) promise to revolutionize the manufacturing processes of products requiring nanometer resolution and repeatability. With 5 nanometer resolution around a virtual point in space (Pivot point) coupled with speeds of up to 110mm/sec these Hexapods form the basis of the next generation of automated nano-positioning systems for the most demanding applications in photonics, packaging, test, micro machining, defense systems, measurement, medical and semiconductor manufacturing. The inherent nature of the design means that settling times after a move are less than 2ms with no servo dither. In addition, the frictional force between the linear motor and the motion linkage means no hysteresis or loss of position if the power is lost. Hexapods with additional preparation can meet class 10 clean room standards. MICOS can also provide systems that will work in vacuum chambers 10 to the minus 10 Torr. Plus the robotic systems have no electromagnetic generation. To assure performance of complex forward and inverse kinematic equations in a parallel structure the controller system is critical therefore MICOS has chosen Delta Tau.

The UMAC (Universal Motion and Automation Controller) is a modular PMAC system built with a set of 3U- format Eurocards. The configuration of any UMAC system starts with the selection of the Turbo PMAC CPU and continues with the addition of the necessary axes boards, I/O boards, communication interfaces (USB, Ethernet, etc.) and 4096 encoder interpolators. The Turbo PMAC motion controller inside the UMAC system provides the necessary structure to enable the user to easily implement and execute complex kinematic calculations. Kinematic calculations are required when there is a non-linear mathematical relationship between the tool-tip coordinates and the matching positions of the actuator (joints) of the mechanism, typical in non-cartesian geometries. This capability permits the motion for the machine to be programmed in the natural coordinates of the tool-tip, usually cartesian coordinate, whatever the underlying geometry of the machine. The " forward-kinematic " calculations use the joint positions as input, and convert them to tool-tip coordinates.

MOTION CONTROL Systems Positioners MiniPos DirectDrives Controllers ManPos Accessories Vacuum MAC PhotonX M A C

NanoPod System






NanoPod System Ordering information

| NPS-series | Order-No. |
|----------------------|-------------|
| NPS-150 P | 5950-9-2110 |
| NPS-150 P 10-3 mbar | 5950-9-2117 |
| NPS-150 P 10-7 mbar | 5950-9-2118 |
| NPS-150 P 10-10 mbar | 5950-9-2119 |
| NPS-300 P | 5951-9-2110 |
| NPS-300 P 10-3 mbar | 5951-9-2117 |
| NPS-300 P 10-7 mbar | 5951-9-2118 |
| NPS-300 P 10-10 mbar | 5951-9-2119 |

| | |
|-----------------------|-------------|
| NPS-350 P | 5952-9-3110 |
| NPS-350 P 10-3 mbar | 5952-9-3117 |
| NPS-350 P 10-7 mbar | 5952-9-3118 |
| NPS-350 P 10-10 mbar | 5952-9-3119 |
| NPS-400 P | 5953-9-6110 |
| NPS-400 P 10-3 mbar | 5953-9-6117 |
| NPS-400 P 10-7 mbar | 5953-9-6118 |
| NPS-400 P 10-10 mbar | 5953-9-6119 |
| NPS-400 PD | 5954-9-7110 |
| NPS-400 PD 10-3 mbar | 5954-9-7117 |
| NPS-400 PD 10-7 mbar | 5954-9-7118 |
| NPS-400 PD 10-10 mbar | 5954-9-7119 |

An one-day introductory training at MICOS is included in the price.

Founded in 1990, MICOS specializes in the development, manufacturing and marketing of ultra-high precision positioning components and systems for research and industry. We are experts in vacuum, ultra-high vacuum, clean room, and extreme climate environments down to 77 Kelvin. 

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MAC PhotonX = [Moskito](#) | [Albatros](#) | [Campus](#)

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