

Macro competence in the micro sector: MA micro automation GmbH

Benefit from our decades of experience in developing and implementing state-of-the-art assembly solutions across all sectors. In addition our wide-ranging expertise in engineering, we are also able to offer you support right from our initial meeting through to the delivery and commissioning of your machine. We can even support you beyond this point if

required: We will help you to optimize your manufacturing processes, accompany your projects and provide a wide range of services to ensure your production line runs smoothly.



Model modular system

The comprehensive MRCcompact® model modular system offers you the highest level of flexibility. You can therefore configure your assembly processes using proven mass-produced components that have been specifically optimized to be easily integrated in your MRCcompact® system.

We can make anything possible for you – and all from a single supplier.

Available modules

Process modules

- LP and BE vision modules
- Precision dispensing
- Dip module

Supply and transport modules

- Input turntable
- Standard pallets 2" / 4"
- Bulk-material conveyor
- Wafer supply module
- Workpiece holder transport system
- Reel-to-reel system

Handling and gripping modules

- Vacuum gripper
- Gripper exchange station

Optional functional modules (depending on customer specification)

- Measurement and testing technology
- Special pallets
- Workpiece holders
- Magazines
- Screwdriving technology
- And many more



MRCcompact® and Commander 6

Precision and flexibility in the smallest of spaces

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A MAX Automation AG company.



Stable base for numerous tasks: MRCcompact®

Discover the possibilities of flexible low-volume production with a compact assembly solution that adapts to your requirements.

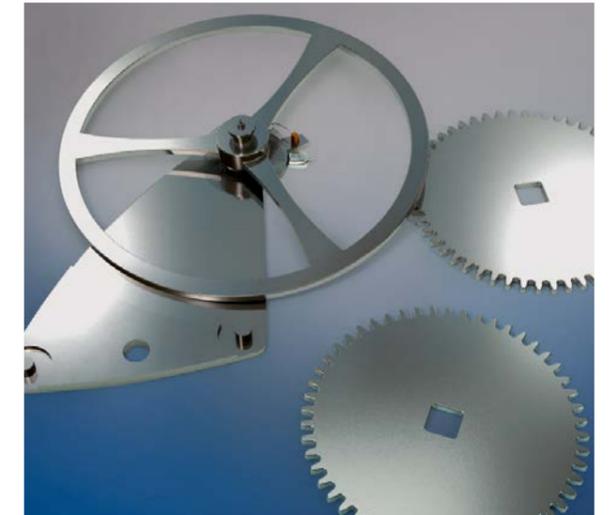
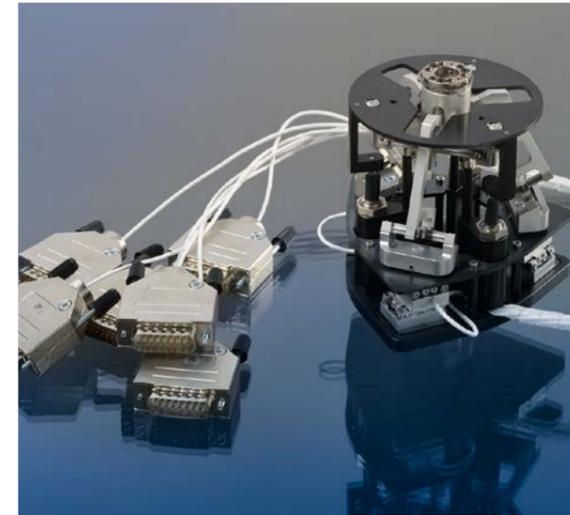
Connect and manufacture – the MRCcompact® is the flexible plug-and-produce factory that you can use to manufacture as economically as possible. From semi-automated processes (hybrid assembly), such as manufacturing prototypes or pilot series, through to fully automated processes on your assembly line – the MRC provides you with great scope for varying your production.

The modular principle also allows the system to be quickly adapted to numerous requirements: The changeable MicRohFlex assembly plates, for example, provide the shortest possible set-up/changeover times and the wide-ranging functionality of proven standard process modules.

Max. speed	1000 mm/s
Acceleration	2 G
Repeat accuracy	<2 µm (3 dimensional)
Workspace	510 x 450 x 80 mm
Cell dimensions	1200 x 1000 x 2100
Part dimension	0.5 x 0.5 x 0.1 mm to 20 x 20 x 12 mm (other dimensions on request)
Diagnostics tools	MDE, BDE
Vision system	1 component and 1 gantry camera
Subject to technical alternations.	

Providing precision and flexibility

Equipped with a high-precision, torsion-resistant xyz-granite axis system, an innovative image analysis concept and its own control unit, the MRCcompact® provides placement accuracy of < 2 µm.



Precise positioning – Commander 6

The Commander 6 (C6) micromanipulator ensures that optical components are positioned precisely and can be adjusted in up to six degrees of freedom. This is particularly important for components that need to be aligned with one another at several angles and positioned spatially with great precision.

Multi-dimensional applications

The C6 can be specially adapted to meet your specific requirements. It can bear a load of up to 0.5 kg – which far exceeds the weight of a microcomponent. It can also be used face-down as a tool or vertically as a precise positioning table.

Sophisticated mechanical design for utmost precision

The movable platform is controlled by linear piezo-driven positioning elements with nanometer resolution. The kinematics of the C6 are based on flexure hinges, using which the smallest of steps can be transferred to the end effector without loss. This makes it possible to produce translational steps in the nanometer range and angled steps of a few microrad. In addition to point-to-point movements and continuous paths, movement ranges can also be scanned in increments or the virtual pivot point can be freely positioned in the available space.

MRCcompact®

Maximum precision

xyz-granite axis system for precise results to the nearest µm.

Small space requirements

The individual cell covers an area of approx. 1 m² or it can be integrated into an assembly line.

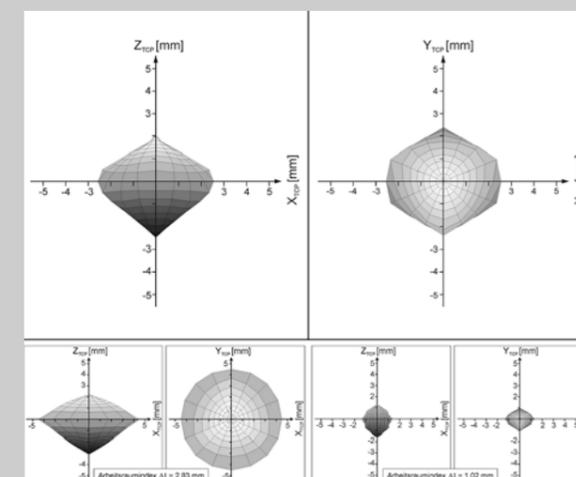
Wide-ranging flexibility

Changeable assembly plates and standard process modules for short set-up/changeover times.

In the production of optical components, such as miniature optical systems, the combination of a stable MRC basic machine and the Commander 6 micromanipulator provides maximum precision and the smallest steps in six degrees of freedom.



The figure shows the processing area of the C6 in all rotational axes. (Source: Fraunhofer Institute)



Commander 6

- Six degrees of freedom
- Compact design < 110 x 110 x 115 mm³
- Large travel ranges: > ±1.5 mm, > ±5°
- Step resolution < 10 nm
- Bi-directional repetition accuracy < 70 nm
- Single-side repetition accuracy < 30 nm
- Can be adapted flexibly in relation to the working area, load and processing area for the:
 - Adjustment of Fast Axis Collimation (FAC) lenses for laser diodes,
 - Assembly of pump optics for solid-state lasers,
 - Series production of optical systems for (medical) analyses,
 - Series production of optical systems and camera modules for driver assistance systems