Technical Data

- Volume: up to 32 ml or 120 ml
- Dispensing time: ~3 seconds
- Reload time: ~2 seconds
- Mixing ratio: software-controlled
- Dimensions: 145 × 89 × 400 mm
- Weight: 5.9 kg

2C Mixing Head
Precision in Every Drop. Confidence in Every Cycle.

For two-component (2C) materials, consistency isn't optional — it's the key to quality. The marco 2C Mixing Head delivers precise, repeatable results even under demanding conditions, such as with highly viscous, abrasive, or filled media.

Compact and modular by design, the system adapts to a wide range of tasks — from potting and bonding to sealing and foaming — including 3D contours or uneven surfaces. Built for integration into flexible and automated processes, it combines control, reliability, and ease of maintenance in one unit.

The result: reduced material waste, fewer rejects, and higher process stability – giving you the confidence to scale, adjust, and optimize without compromise.

What makes the marco 2C Mixing Head unique

- **Volumetric displacement**
  Each stroke is driven by precise piston movement, not pressure - precise dispensing independent of viscosity or backpressure
- **Dot-on-position dispensing**
  Accurate material placement exactly where you need it – ideal for grooves, fine structure or 3D contours
- **24V trigger inputs**
  Digital high-speed inputs for precise, real-time synchronization and immediate dispense activation within industrial environments
- **Modbus interface**
  Advanced data communication via expandable registers – allowing for flexible parameterization and seamless integration into higher-level PLC systems

Engineered for flexibility

At marco systems, modularity is more than a concept — it's our approach to design. All key components of our 2C dispensing systems are designed in-house, using standardized interfaces for maximum compatibility. Whether adapting volumes, materials, heating zones, or robotic setups — we tailor systems to your exact needs.

And when your process needs something special, we don't stop at modularity:
We modify, combine, or develop components to match your application.

Core features & benefits

- **Modular drive unit**
  Stepper-driven spindle with linear encoder
  Precise volume displacement with full stroke control
- **Valve & seal system**
  Pneumatic ball valves and spring-loaded FFKM sealing
  Clean switching and high-pressure resistance up to 50 bar
- **Quick-access assembly**
  Four-screw concept for tool-free maintenance
  Easy to clean, reconfigure, or inspect
- **Thermal control option**
  Heater module and insulation cover
  Stable media temperature and reduced viscosity variation

Compatible liquids

- Two-component adhesives, sealants, potting and casting compounds (e.g. polyurethane, epoxy, silicone)
- Filled or abrasive media
- Chemically aggressive or reactive fluids
  Wetted parts can be adapted to your formulation
- Viscosities up to 20,000 mPas
- Dispensing pressure up to 25 bar

Consistent 2C output with static mixing

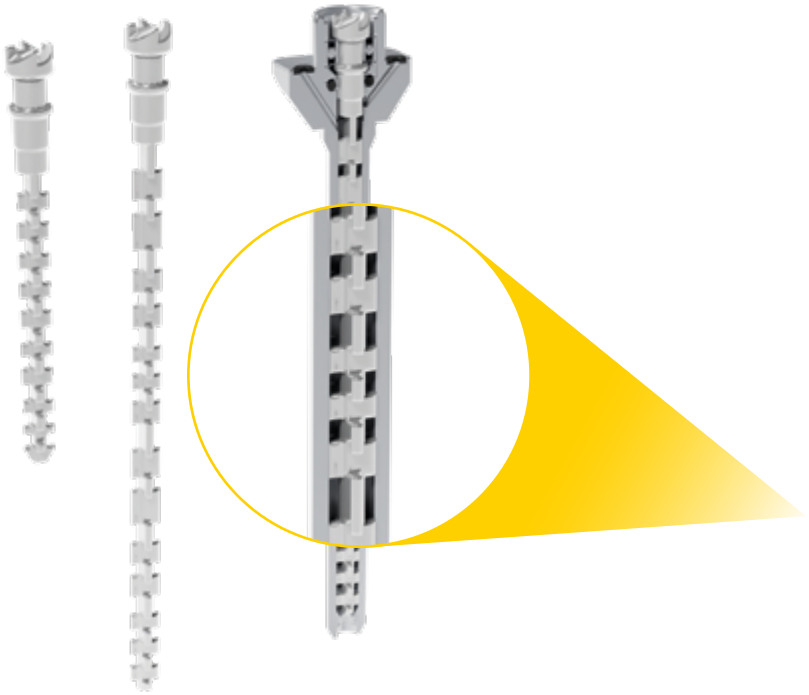
Real-world test confirms minimal volume deviation and stable mixing ratios.

2C accuracy under real conditions static test confirms repeatability and mixing ratio stability

Static or dynamic mixing – optimized for every formulation

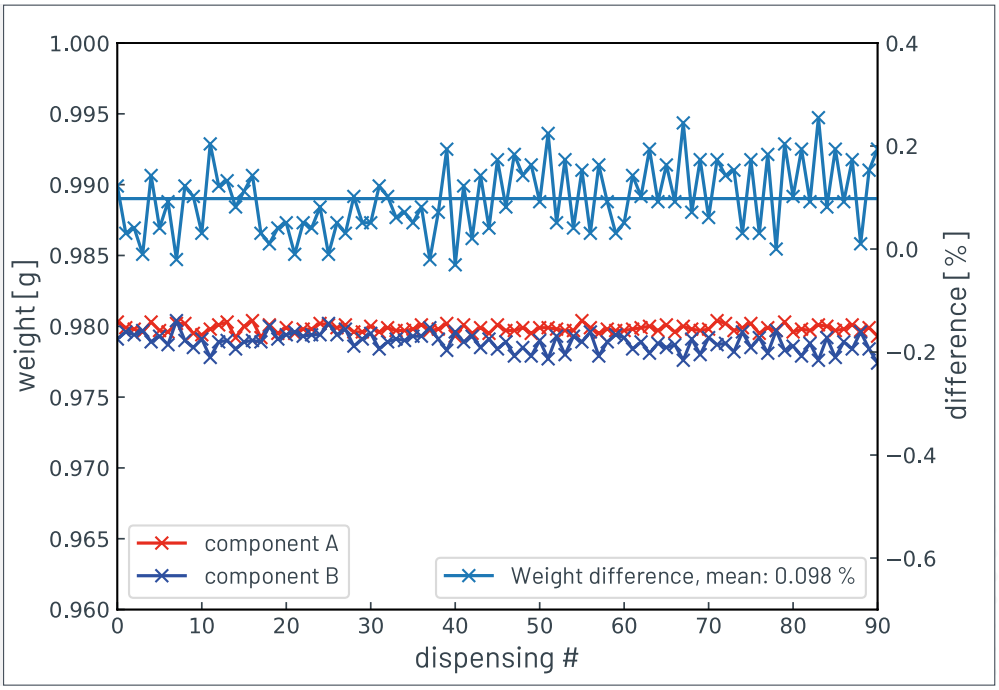
Static mixer

- **Ideal for high volumes and simple dispensing applications**
  Provides reliable mixing for standard applications with low to moderate complexity
- **Compatible with standard helical and X-grid nozzles**
  For easy integration
- **Disposable tips**
  No cleaning and no contamination risk
- **Best for low-viscosity fluids**
  Quick cycle applications and minimal down time



Dynamic mixer

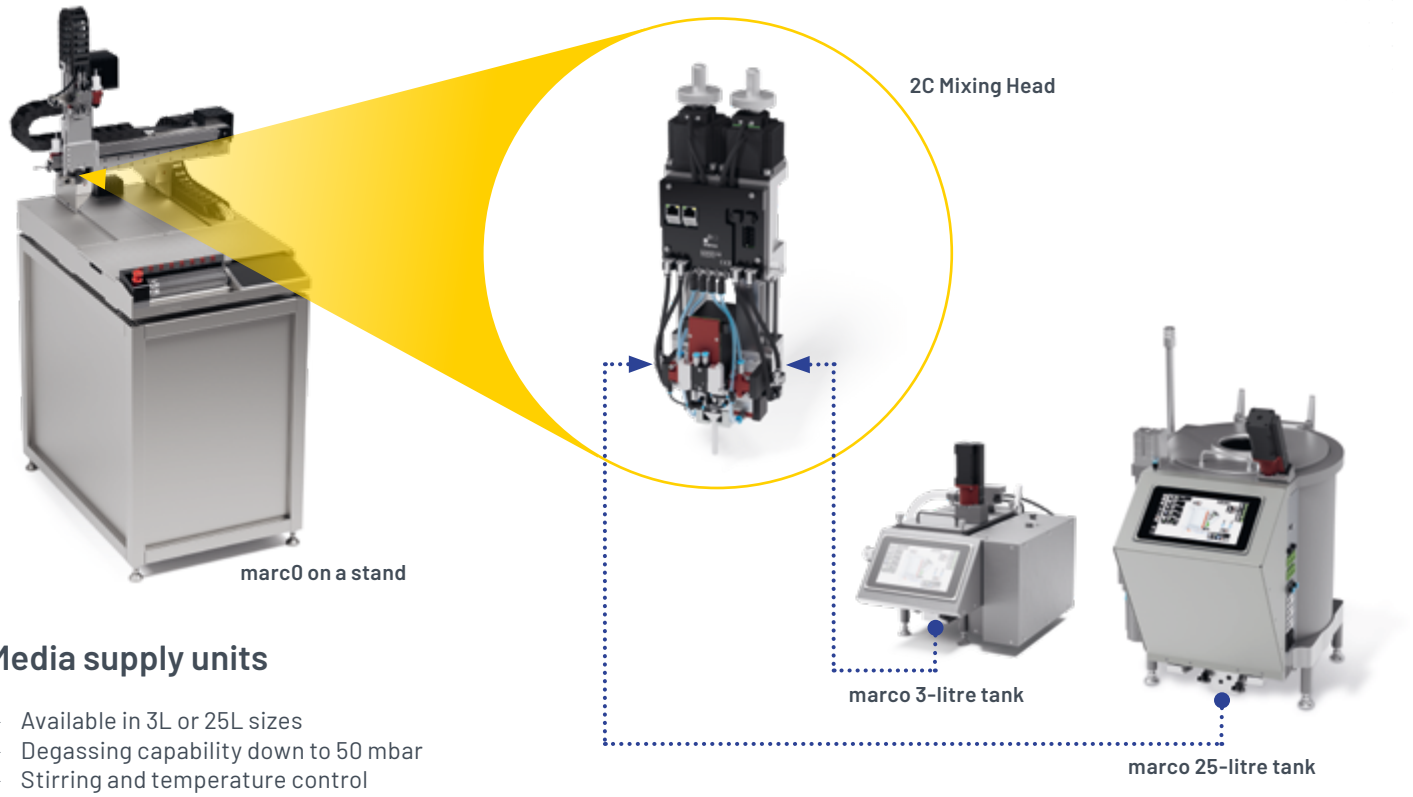
- **Suitable for very precise volumetric dispensing, independent of mixing ratio and viscosity**
  Achieves a very high degree of mixing, even with significantly unbalanced component ratios.
- **Speed up to 12,000 rpm**
  Adjustable to flow rate
- **The number of blades can be adapted**
  Chaotic, efficient mixing, ideal for filled, viscous, or fast-reacting liquids
- **Minimal blade-housing gap**
  No bypass flow, full homogenization
- **Fully dismountable**
  For cleaning and inspection



One System. One Partner. Fully Integrated.

The 2C Mixing Head is just one part of a complete, harmonized system. Combined with our media supply units and gantry systems, it forms a scalable platform simplifies the set-up process and ensures consistency across your entire process.

The following graphic shows how the 2C Mixing Head, media supply, and gantry system work as one integrated solution.



Media supply units

- Available in 3L or 25L sizes
- Degassing capability down to 50 mbar
- Stirring and temperature control
- Optional nitrogen inerting and UV protection
- Output: approx. 18 ml per pump stroke

Gantry systems – integrated dispensing and motion control

From tabletop setups to inline automation: our marco gantry systems offer a scalable solution for a wide range of 2C mixing and dispensing tasks. Each system combines advanced robotic motion with precise dispensing control – engineered to work seamlessly with the 2C Mixing Head, as they are specially designed to carry even heavy dispensing units while maintaining high precision.

Thanks to their lightweight yet torsion-resistant frame design and precise drive technology, the gantry systems ensure accurate dispensing paths – whether integrated into compact workstations or full production lines.

Whether for prototyping, small batches or full-scale manufacturing – you'll have the right platform for your process and production environment.

We don't just sell components. We engineer solutions – together with you.
From the first idea to the final configuration, we work as one team to build the system that fits your 2C process.

Get in touch with our team today.

marco Systemanalyse und Entwicklung GmbH
Head Office
Hans-Böckler-Str. 2
85221 Dachau
Germany
Phone: +49 8131 5161 0

Talk to us about your 2C application –
and receive a system built around your process.

dispensing@marco-systems.com

marco-systems.com

Scan the QR code
for further information