

RTMROBOT[®]

EVO4.0

RTM-ROBOT[®] EVO 4.0

The sensor-based, fully automated RTM system for the manufacturing of integral components in a one-shot process



NO LIMITS IN SHAPE & DESIGN



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Join the composite evolution

With the RTM-ROBOT® EVO 4.0, 1C Composite Engineering GmbH presents the evolution of the sensor-based 2-component dosing system RTM-ROBOT®. Over 10 years of experience with our patented RTM-ROBOT® process (European patent: 2588297), pending in 2010, have gone into the development and construction of the RTM-ROBOT® EVO 4.0. The result: new standards in the field of fully automated manufacturing of integral components in a one-shot process. The systems main area of application is the production of composite components using the RTM method. The machine processes all common RTM epoxy systems or can be customized specifically to your own material and requirements.

Complex components, simply by recipe

Fully automatically, the RTM-ROBOT® EVO 4.0 repeats a process routine that has been set up once. Components can thus be injected with the infusion material without operator intervention. Various rinsing functions are available to the user for this purpose. The routine is set up in on a component-specific basis by the user during manual injection of the prototype. If the component quality is correct, the process routine is saved as a recipe. Process changes can be added to the recipes if wanted, and should unexpected problems occur, the user can intervene manually. Despite all the intelligence, the system can also be used as a classic RTM system in manual mode.



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RTM-ROBOT EVO 4.0 – Intelligence „on demand“

The fully automated production is only made possible by the intelligent sensor technology of the system. In addition to numerous sensors for pressure, fill level, temperature, and flow monitoring on the RTM-ROBOT® EVO 4.0, the tool molds are also equipped with sensors. In the new system molds can be connected with up to 16 resin outputs, 10 temperature sensors and 10 pressure sensors. Monitoring of pressure, temperature and flow is additionally combined with specially developed resin outputs. Determining process parameters such as the flow rate, the mixing ratio, the resin output, the purging processes, the temperatures of the media and the mold, the injection pressure of the medium as well as cavity pressure can thus be controlled and documented via the system. To meet the requirements of digitalization in industrial production, the sensors of the RTM-ROBOT® EVO 4.0 communicate as far as possible via „IO-Link“.

Quality in itself

Highest quality was not only emphasized for all installed components. For each injection, the process-relevant manufacturing parameters are documented and automatically visualized in a QA log. Consistently high component quality and complete documentation for quality assurance are thus guaranteed. This makes the RTM-ROBOT® EVO 4.0 particularly interesting for component series that require complete documentation.

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Standard equipment

- Mobile base frame made of high-quality stainless steel
- 50 l stainless steel material pressure tank for A- and B-component
- Integrated material agitator and level control for A- and B-component
- Prepared for automatic refilling
- Material evacuation incl. thin film degassing for A-component
- B- component is stored under dried air
- Precision gear metering pumps with connection plates for pressure monitoring at pump inlet/outlet
- Material circulation of component A fully temperature controlled
- Material recirculation up to the metering pumps for component A and B
- Control of mixing ratio and discharge quantity via flow sensor at the pump outlet
- Integrated vacuum pumps for plant and production mold
- Integrated heaters for plant and mold
- Static 2K mixing system with separate material feed
- Pneumatic needle metering valves on A and B components
- Intermediate adapter for integration of a check valve at the mixing head
- 22" Panel PC with touch screen in industrial quality for comfortable system operation
- Profinet, USB and 230 V connection conveniently installed on the system
- LED Smartlight traffic light with 10 segments for displaying the statuses
- UPS emergency power supply
- Remote maintenance via LAN or WLAN



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Optional equipment

- Automatic tank refilling for A- and B-component
- Temperature control and thin film degassing for B-component
- Adaptation of pump sizes
- Dynamic mixing unit
- Additional pneumatic needle metering valves at the mixing head for automatic mixing head cleaning
- Distance sensor in the mold to detect the distance between the mold halves
- Tilt sensors on the mold to detect the mold position
- Solenoid valves/ejectors for pneumatic ejection of the component
- Solenoid valves/seal for inflating a hollow silicone seal
- Read & write RFID integration for part and mold recognition
- Operation and or remote maintenance via smart device
- further options on request

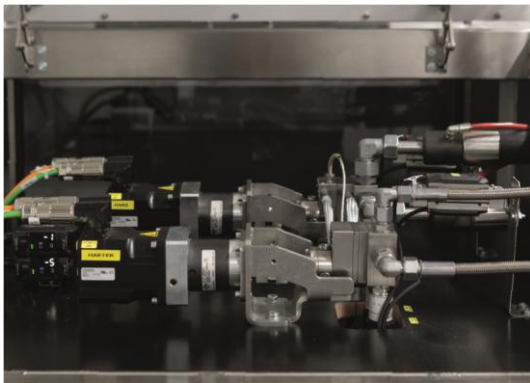
The sensor-based, fully automated RTM system for the manufacturing of integral components in a one-shot process.



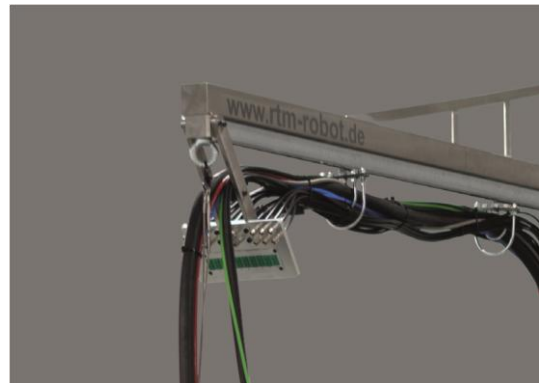
maximum use of space due to cube shape



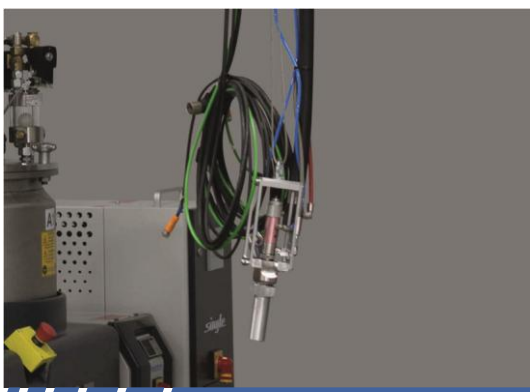
retractable PC with Touchscreen



sensor controlled pump unit



connection terminal for sensors



mixing head at working height



main elements on smallest space

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Technical data:

| | |
|------------------------------|-----------------------------------------|
| Material discharge* | approx. 0.5 - 8 g/s |
| Mixing ratio* | approx. 100/1 to 100/100 |
| Mixing system | Static, with plastic mixing tube |
| Material supply | 2 heated storage tanks with 50 l volume |
| Viscosity range | approx. 25 - 4500 mPa*s |
| Operating voltage | 400 V / 3 / 50 Hz |
| Compressed air supply | 6 bar max. |

*dependent on viscosity, mixing ratio and hose length

RTM[®]ROBOT

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*Let's talk about how we can support you with your project. You can easily reach us by phone at **+49 2638 927470** or by mail at **info@1C.de**.*



**We are certified according
DIN EN ISO 9001:2015**

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