MagTrack - 3D Single-Particle-Detection

Adaptive 3-dimensional real-time-localization of magnetic marked particles

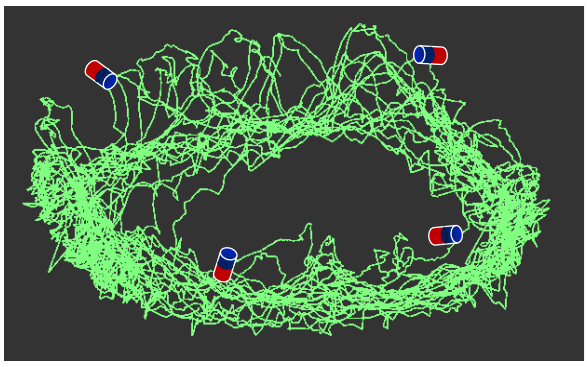
The MagTrack System is based on the magnetic marker monitoring and was developed for the recording of the motion sequences in closed systems, in order to analyze und if possible to optimize them. With the MagTrack it is possible to detect the absolute 3D-position in a defined space and the rotation of the magnetic marked particles. The MagTrack system has a modular design and can be adjusted to any equipment and system.

Application background

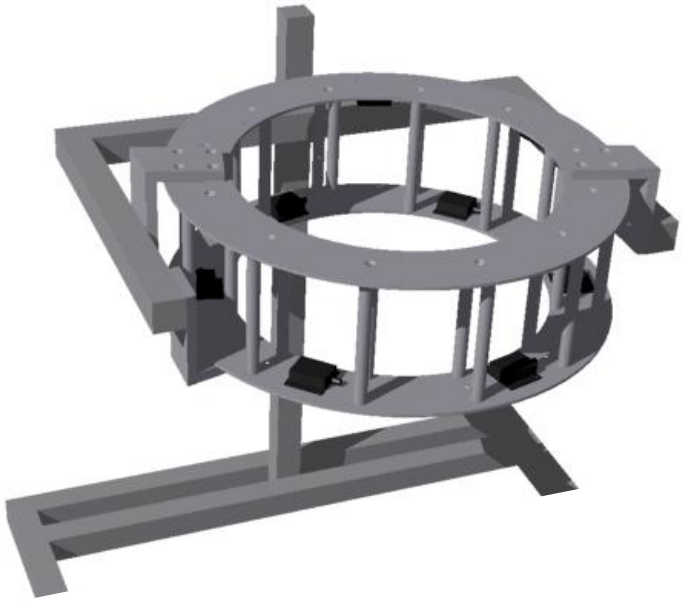
The optimization of motion sequences in mixing, coating and drying processes requires a continuous tracking of, at least, one particle. Through the analysis of the motion of a single particle the process parameters are adjusted and therefore the overall system is monitored and operated effectively, and at last the costs may drop down.

The on MagTrack based measurement process is a 3D localization of a magnetic marker. Already the real-time measurement realize the tracking of the motion of a magnetic marked object. The comprehensive, and fast evaluation of the particle trajectory is done offline, so that precise und statistical reliable conclusions about the overall process can be made.

The essential advantages of MagTrack measurement, compared with any other method, are lack of contact, vision, and ionizing radiation, besides the trajectory the particle orientation can be recorded too.



Localization result in a rotor system model



Evaluation assembly for a rotor system. Each of 12 Sensor modules with 3 highly sensitive magnetic field sensors.

Technical Features:

- Sensors: AMR (up to 60 sensors)
- Measurement data: 3D-position, orientation
- Measurement frequency: 200 Hz, synchronous
- Mag. marker: 8 mm³ to 1,000 mm³
- Accuracy: up to 0.1 mm
- Control: IBM compatible PC
- Software: measurement & evaluation software
- Interface: USB 2.0
- Power supply: 80-260 VAC / 47-63 Hz

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