

Automatic, Rapid and Accurate Preparation of Cytostatic Drugs

Loccioni humancare research announces APOTECaChemo, the first automation and information system for chemotherapeutic drug compounding in oncology treatment. As the flow of materials, data and tasks is coordinated, the technology becomes the means to a higher end: to benefit people, be they patients, pharmacists, specialists or operators. Every therapy produced is identified and checked. The use of high-precision WM3002 weigh modules by METTLER TOLEDO ensures that the dispensing process fully conforms to pharmaceutical standards.

Ultra high-precision weighing in automated processes

The preparation of anti-cancer drugs in hospitals involves the development of individually tailored chemotherapy treatments for patients. The doses take account of individual characteristics, including the patient tolerance to a certain drug, and are prepared in containers of various shapes. The main critical factor concerns the high toxicity of the drugs; a dosage error can be lethal for the patient and the manipulation of these substances is also a high risk for the hospital operators.

In order to overcome these critical issues, Loccioni humancare developed APOTECaChemo, a robotized system for weighing drugs and solutions, reconstituting powdered drugs, dosing compounds using a mechanical arm and dedicated actuators, preparing syringes, bags and infusion devices, and disposing of used materials in full safety. The patient is protected by the automatic recognition of all the products handled, by a barcode-based system of labelling offering full traceability, and above all by the checks on all the weight measurements using the high-precision WM3002 weigh module made by METTLER TOLEDO. By measuring the dispensed substance and the residual substance (such as that left inside the initial vials), dosage errors are completely eliminated, since 100 % of the hospital production is checked as a matter of routine.



Efficient and extremely accurate preparation

The main feature of the WM3002 high-precision weigh module by METTLER TOLEDO is its ability to make very accurate measurements in a fraction of a second. Complex digital filtration algorithms ensure reliable weight measurements even in environments with vibrations. Preparation times are further optimized by rapid digital data computation and direct data transfer via RS232 or RS422, enabling the measurement quality results to be sent to a PLC. The maintenance of the weighing sensor can be carried out in its installed place, and it can easily be calibrated using the internal calibration device or external weights. Meticulous standard operating procedures are followed to avoid cross-contamination.

Loccioni humancare is part of the Loccioni Group, with 40 years of experience alongside the leading players worldwide, bringing quality of life, comfort, safety and sustainability to the health, home,

environment, mobility, public administration and industrial markets. In its own words, Loccioni humancare develops a unified framework of methods, measurements and innovations deriving from decades of experience in global industry, to address the main issues of our time: health, nutrition and wellbeing. Through the creation of genuine development laboratories with its partners (AOR – United Hospitals of Ancona; IEO – the European institute of Oncology, Milan; and Johns Hopkins USA), Loccioni provides new solutions based on measure and constant dialogue. The human being is the common thread unifying all its scientific, technological and organizational solutions. The comhealth system becomes an ecosystem in its own right, integrating research, diagnosis and technology with the goal of reducing risk, reducing costs and optimizing resources. Every treatment and every episode mediated by a human dimension can be improved through instruments that make it measurable: system design for a more sustainable life is the humancare mission at every level.