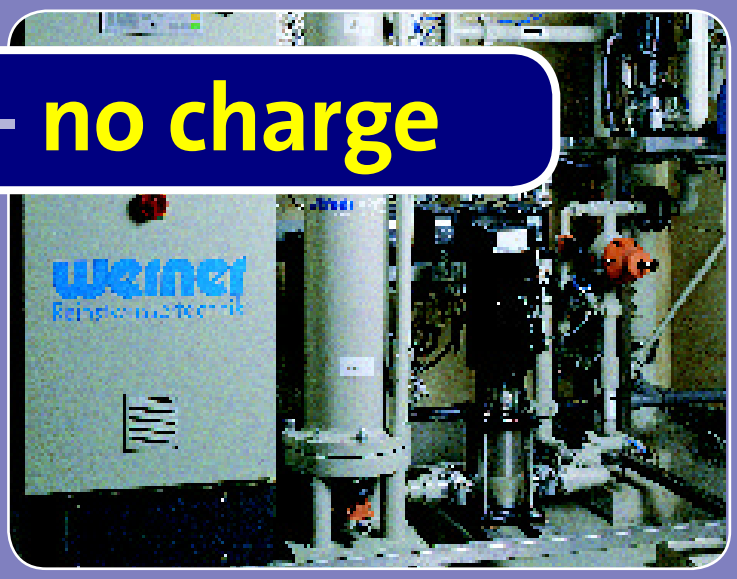
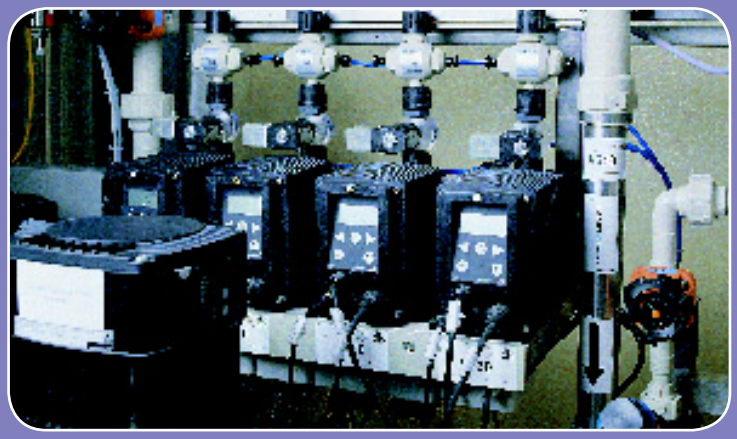
Top quality - no charge





Electrostatic charges affect product quality

In the electronics industry, pure water is absolutely crucial for use in the delicate cleaning processes associated with the grinding, sawing and slicing of sensitive wafer elements. With water of normal purity levels of 18.2 Mega Ohm x cm, undesirable static electricity charges can arise. This causes the effectiveness of the cleaning to fall significantly, and the quality and reliability of the product decline correspondingly.

Lowering resistance

In order to help prevent any electrostatic charge, it is possible to lower the electrical resistance of the water by dosing it with measured quantities of CO_2.

The conventional approach is to use a membrane-diffusion process. This has the drawback of slow reactions to any changes in the water consumption if the flow diminishes, and produces an undesirably high deviation of results in the most commonly used operating band-1 Mega Ohm x cm.

Antistatic Pure Water System (APWS)

Founded in 1956, Wilhelm Werner GmbH in Leverkusen, Germany, is a leading specialist in water treatment systems, especially systems for ultra-pure water. All the water treatment systems developed and provided by the company are ultra-precise, custom-built installations that utilise the very latest technology.

The patented Werner APWS introduces CO_2 in the form of a solution that can be dosed with a much higher degree of precision than is possible using conventional systems. Until recently, the Werner systems were simply equipped with the traditional diaphragm dosing pumps associated with the particular system.

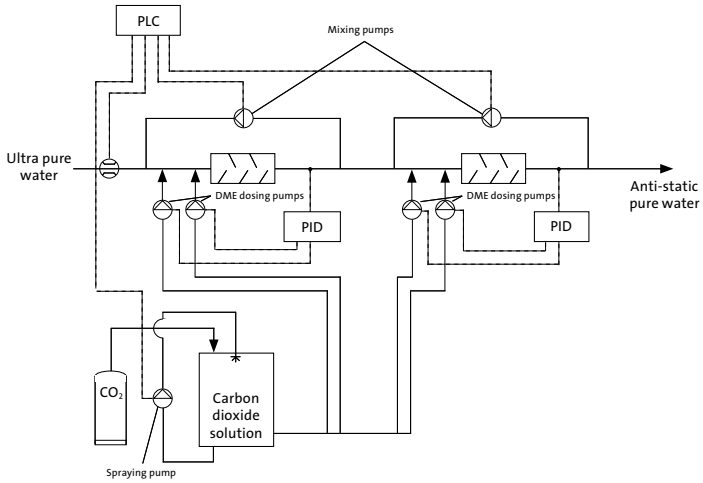
The challenge

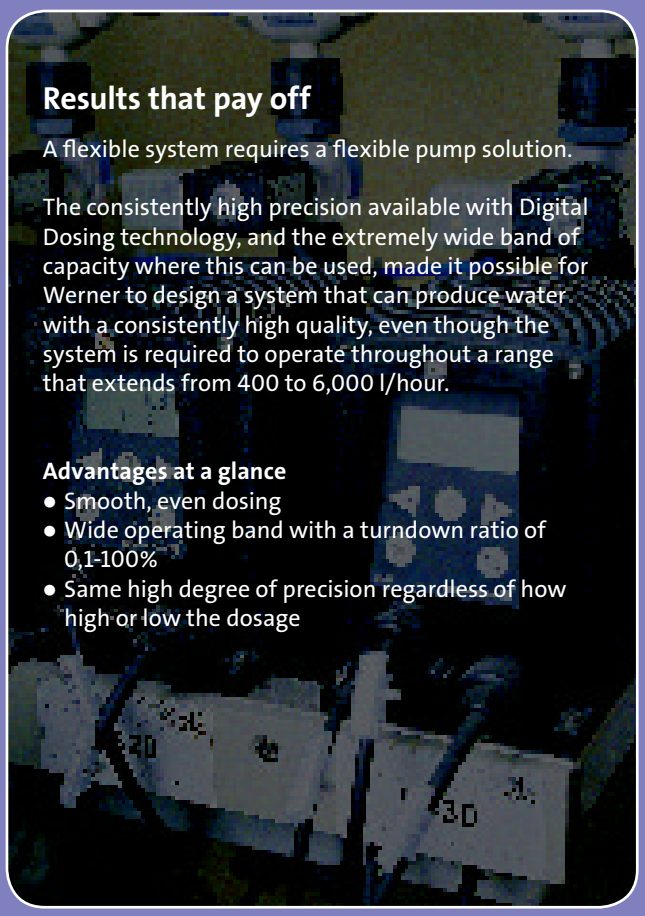
However, a special customer request for a system with a variable capacity extending over the range 400-6,000 l/hour recently presented Werner with a significant challenge. Such a configuration demanded a dosing system capable of providing carbon dioxide solutions as small as less than 2 ml spread over 10 m^3 and up to 100 ml spread over 2 m^3 - all with great precision.

The Grundfos answer

The solution was quickly found in the form of new Grundfos Digital Dosing pumps. These feature an exceptionally wide operating range of 0,1-100%, and exactly the same high degree of precision regardless of how large or small the dosage. In addition, any pressure peaks are virtually eliminated by digital dosing, ensuring a supply that is smooth and even, with no pulsations in the flow.

The configuration decided upon features two redundancy coupled Grundfos Digital Dosing pumps, installed in a cascade control, the first step of which consists of two DME8 Digital Dosing pumps, the exact dosing being provided by two DME2 pumps in the second step.
The pump insertions take place over 2 PID controllers coupled to a bus system, where each controller operates a set of pumps.





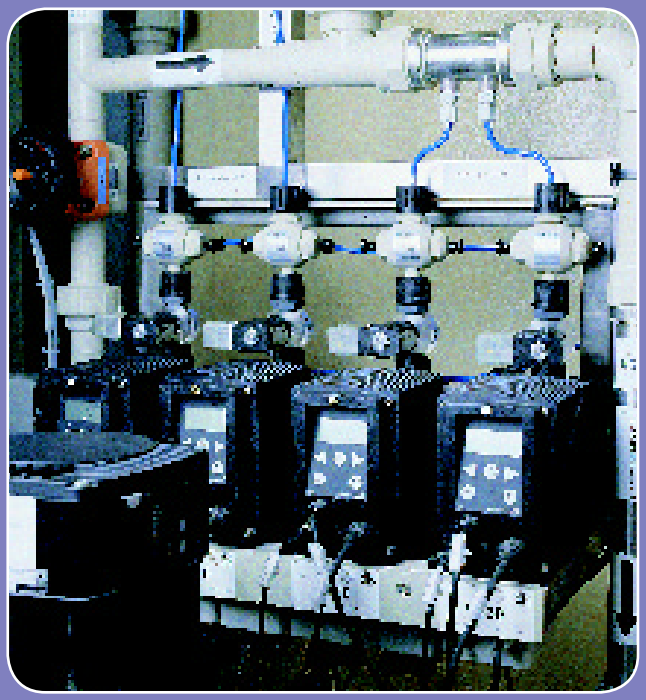
Results that pay off

A flexible system requires a flexible pump solution.

The consistently high precision available with Digital Dosing technology, and the extremely wide band of capacity where this can be used, made it possible for Werner to design a system that can produce water with a consistently high quality, even though the system is required to operate throughout a range that extends from 400 to 6,000 l/hour.

Advantages at a glance

- Smooth, even dosing
- Wide operating band with a turndown ratio of 0,1-100%
- Same high degree of precision regardless of how high or low the dosage



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