
NEXT-RO: The Story, 1975–2005

For those who are unfamiliar with the historical background of home and office water treatment using Reverse Osmosis technology, this first section will provide sufficient information to put our Next-RO product development into perspective.

The business of supplying high quality drinking water to the world's consumers in their home and workplace has grown into a thriving billion dollar business over the past 40 years. You might instinctively be reminded of all those bottles on the shelves of merchandisers making promises of purity and health but there is a lesser known aspect of the business called Point-of-Use (POU) water treatment. This is a concept whereby a so-called "water purifier" is installed at the consumer's chosen location (i.e., point of use) in lieu of having quality bottled water delivered or picked it up at the local market. These "water purifiers", now referred to as the more politically correct "POU devices", are the subject of this introduction.

Point-of-Use devices take just about as many forms as other kitchen appliances. The decision to install a POU device depends on the consumer's requirements, expectations, technical awareness and budget. In the "early days" of the business, most POU devices were little more than a vessel that was filled with granules of activated carbon (GAC). The water passes through the GAC and exits tasting a whole lot better. Over the years, the product variety, technology and sophistication inched forward to provide the consumer with every possible level of water purity and user friendliness. We now have "drinking water appliances".

One of the more recent and successful product categories is the Point-of-Use Reverse Osmosis drinking water appliances or POU RO, first introduced into the market in the early 1970's.

This product, typically installed under the kitchen sink, provides a separate dispensing tap for the RO treated water. POU RO devices have brought a new level of technology to consumers, allowing them to cope with the growing barrage of impurities in tap water and, for the first time, approximate the superior taste and benefit of bottled water with none of the inconvenience.

This first undersink POU RO device was invented (in 1970) by Don Bray, a recognized scientist in the field of RO membrane technology. Then, RO was the new kid on the block and very few in the business had even heard about it (that is, except for Robert and Jack Slovak and a handful of others). Bray's design is commonly referred to as the "air-on-water" type of POU RO device, owing to the fact that the purified water that is processed by the RO membrane very slowly and is stored in a tank that includes a separate compartment for air. As the processed water enters the tank, it compresses the air which becomes the motive force to dispense the water to the user. The point to keep in mind is that the fundamental design of this original system still dominates virtually all POU RO configurations to this day.

Even back in 1970, Don Bray knew there was a more "correct" (theoretically better) way to apply RO technology to POU devices. He recognized that as innovative as his POU RO invention was, it had some inherent limitations and less than desirable efficiency that translates into thousands of gallons of wasted water per year for the owners of these devices. So why didn't Mr. Bray do something about it back then? - For the simple reason that there was no practical way to implement a more "correct" design at that time.

Within the following decade the POU RO product category started to proliferate in the market

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and so did the “better mousetrap” inventors who sought to overcome the inherent limitations of the “air-on-water” design with new creations called the “water-on-water” design. This group even included such prominent corporations as Kodak, Teledyne and Hydrotech. The idea of the new configuration was simple enough – to use the existing water pressure to dispense the water to the user. But, the successful implementation of this concept proved to be as daunting as flight was at the turn of the century.

One by one, the “water-on-water” designs were offered into the marketplace and virtually all had to be given a well-deserved burial, having cost those hopeful enough to try them hard earned money. Each water-on-water design exhibited some fatal flaw. One system however, the Truman Tyler-Mike Beall (father of Tim Beall) design of 1977, had more staying power than the rest. It was a complicated system with numerous idiosyncrasies but for some dealers, the positives outweighed the negatives. Over the years it went through much design “tweaking” but its growing complexity left much to be desired. Nevertheless, the system was kept alive by Tim Beall into the new millennium, although it never made major market penetration.

During this time Tim gained extensive knowledge and experience of water-on-water design that had established him as an authority on the subject. Equally important, Tim also explored novel system assembly concepts as well as marketing alliances which could take advantage of a low cost, high performance POU RO – if and when he overcame current problems.

Unknown to the primary POU RO players at the time was an independent and self-funded inventor who took an interest in the POU water business. He came to the conclusion that suc-

cess awaited him if he could only make a simple and reliable water-on-water POU RO system. He studied all the shortcomings of previous system designs and took a fresh approach. The short version of the story is that he created a water-on-water control valve so magically simple that it almost defies explanation. It consists of four parts and only one of them moves – a true breakthrough. Previous designs were intricate and complex, having as many as 25 parts.

The inventor realized he had something special and sought a market for his creation. He approached Robert and Jack Slovak whose Water Factory Systems company had recently been acquired by Cuno Corporation. With great reluctance and skepticism they agreed to evaluate the RO control valve. After several weeks of testing they realized it could potentially be the key to producing a new, superior generation POU RO device worthy of mass marketing. A contract to license the invention was immediately written. It was then in the hands of the Cuno to develop what had eluded the industry for nearly 22 years.

Despite the influence of Robert and Jack Slovak as Engineering VP's at Cuno, the company was reluctant to proceed with developing another POU RO device when it was enjoying the growing market penetration with another relatively new POU RO, the evolutionary SQC (still a conventional air-on-water design). So, the RO control valve remained in laboratory and field testing for the next five years, after which Cuno decided to opt out of the licensing agreement and return the property back to its owner.

Nearly eight more years passed before the magic ingredients would finally come together and make the first breakthrough in POU RO technology a reality....Robert and Tim ran into each other at the 2004 WQA convention in Bal-

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timore and spent some time catching up. Soon they realized they had some common goals. Tim was still looking for a marketing partner for his latest POU RO concept and Robert was aware that the breakthrough invention remained in need of a home. As if destiny was calling, Robert and Tim realized they were on the same plane to Los Angeles and decided to explore this synergy. By the time they landed, they agreed to immediately pursue a new venture which finally brings the pieces of the puzzle together – Beall’s water-on-water tank design and system concept with the novel water-on-water control valve. The result we simply call “Next-RO”.

Why develop Next RO?

Part of the answer is the proverbial mountain to climb – a quest left undone by some the most recognized people in the POU RO industry. It was an opportunity to make the ultimate product in its category. More significantly, there is the practical side – to build a business around a revolutionary POU RO product to the industry that overcomes the shortcomings and dark little secrets of current POU-RO devices – especially the uneven dispensing flow of the processed water (which creates problems with other kitchen and office appliances) and the high water waste factor common to air-on-water designs).

From a purely business perspective, this new marriage of technical designs affords the lowest manufacturing costs of any respectable POU RO design on the market, allowing it to be a viable participant in the most aggressive high return mass marketing programs. High-tech at a low price! Even the Chinese POU RO copycats will not be able to compete.