

REDUCING INVESTMENT AND OPERATING COSTS OF ULTRA FILTRATION PLANT THROUGH INNOVATIVE INTEGRATED UF RACK DESIGN

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Abstract

At present Ultra filtration modules (UF) are designed as a stand-alone units for installation in racks that are individually designed by the system integrator. The engineering and manufacturing of UF racks is a labour and cost intensive process for the system integrator. In particular, the manufacturing of the collectors and the interconnecting piping to the modules requires a high amount of precision and usually the use of expensive stainless steel.

In order to overcome the above-mentioned disadvantages of conventional UF rack design inge watertechnologies invented the T-rack that is an integrated UF module/rack package unique on the market. The T-rack is a complete solution including the UF modules ready for connection to the valve skid and plant piping.

The T-rack uses standard UF dizzer modules with completely new designed end caps. The end caps are designed in such a way as to be end caps and feed/concentrate collectors at the same time. The module filtrate port is connected to a central filtrate collector. The T-rack is of self-supporting structure making steel support frames obsolete.

The design of the T-rack is extremely compact, reducing the footprint significantly in comparison to a conventional rack. The T-rack is based on a modular design concept and can be tailor made according to the requirements of the customer. T-racks from 4 to up to 96 dizzer 5000plus modules are standard.

This paper describes in detail the features of the T-rack and their impact on design and operation costs of a UF plant. Results from a large-scale test unit will be illustrated. The first T-rack installation in South Africa designed by Sagisa Process Engineering recovers mine water from a platinum mine, will be described and operating results will be illustrated.