



PROCESS RELIABILITY

Money and Space-Saving Reservoir Overhaul Provided to Zamboni Operator

Technical Application Bulletin

PROJECT BACKGROUND

DISCOVER	DIAGNOSE
<ul style="list-style-type: none"> • Customer deals with Zamboni ice resurfacers. • The Zamboni ice resurfacer started experiencing varying degrees of air in oil problems (i.e. excessive noise, component damage, cavitation, oil degradation, and decrease in filter performance). 	<ul style="list-style-type: none"> • It was noted that the hydraulic reservoir/tank was not properly sized for the application. • There was enough volume in the tank, but the flow path within the tank was not optimized to utilize all of the storage space. • Tank movements, short dwell times, and seal leakages caused by the poor assembly allowed large amounts of air to enter into the hydraulic circuits, causing various degrees of damage.

INDUSTRIES



DESIGN

What We Did: We utilized our innovative lab and test equipment at the research and development center for filtration.

We were able to provide a standard solution that benefited from comprehensive system analysis and application specific customization.

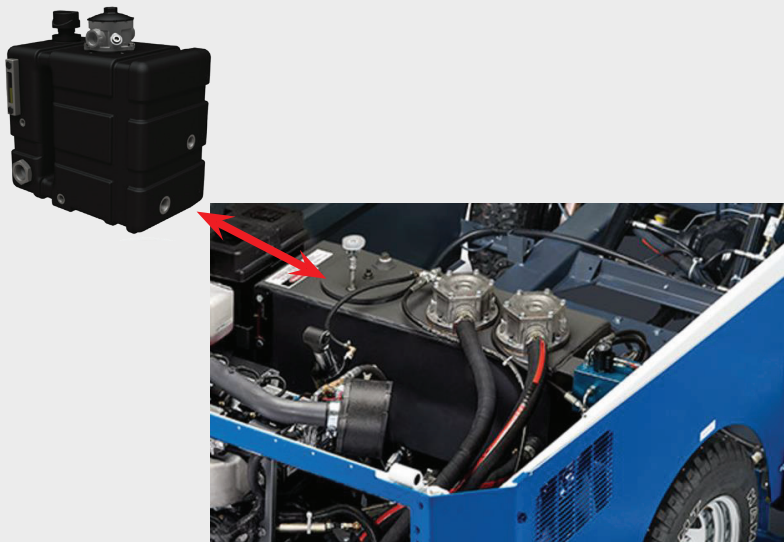
Computer simulations showed a much better flow path that resulted in longer dwell time, and better air separation processes. And, the lab test displayed real world data of improved fluid flow through the tank.

And because of the optimized flow paths, we showed the customer that we would utilize the entirety of a smaller tank, while still providing the same heat dissipation as the larger steel tank they were currently using.

DELIVER

- We provided a one-on-one packed solution in the form of a 12-gallon plastic molded tank.
- This solution provided a 50% volume decrease, in addition to 79 lbs. of weight reduction from the previous steel tank.
- With the smaller dimensions and lighter weight, the Zamboni could focus on improving the other aspects of their machine.
- The all-in-one package also eliminated the need to source each individual component, as our solution is equipped with all the filter housings, breathers, and other components.

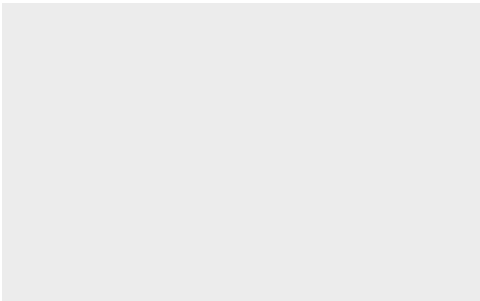
Zamboni Ice Resurfacers	Without TNK12	With TNK12	Savings
System (1 unit / yr.)	\$741.86 / u/y	\$519.00 / u/y	\$222.86 / u/y
System (150 units / yr.)	\$111,279 / u/y	\$77,850 / u/y	\$33,429 / u/y



CUSTOMER BENEFITS

- Patented integrated baffle wall creates settling zone for returning oil (degassing) with simultaneous cooling effect
- Provided 50% volume decrease
- Provided a 79 lb. weight reduction

FURTHER APPLICATION AREAS



ROI

Annual Cost-Savings For One (1) Unit



\$223.00

Wasted Tank Volume



▼ 50%

Underlying values:

Annual cost for one (1) unit (w/o TNK Solution) = \$741.86 per unit per year (150 total units) $741.86 \times 150 = \$111,279$

Annual cost for one (1) unit (w/ TNK Solution) = \$519.00 per unit per year (150 total units) $519.00 \times 150 = \$77,850$

Annual cost savings (w/ TNK Solution) = $\$741.86 - \$519.00 = \$222.86$ per unit per year

PRODUCT SPECS

TNK12 | Complete Plastic Tank Solution

- Max Return Flow:** 40 gpm
- Tank Material:** HDPE, Nylon 12 (PA12)
- Tank Volume:** 12 gal (45L)
- Operating Temperature:** (HDPE) - 20°F to 180°F (Nylon 12 ((PA12))) -20°F to 220°F
- Return Line Filter:** ZT & GZT
- Weight:** 21 lbs