

Case Study

PRESSURE LOSS PROBLEMS

PRESSURE PROBLEMS IN YEAST TANK WASHING SOLUTION



Often tank cleaning problems may be due to fluid supply problems between the cleaning head and the pump. Generally speaking it is simple to specify a pump that will deliver the required flow and pressure but if the “performance at the pump” does not match what the nozzle “sees” then tank cleaning performance may be affected.

► PROBLEM: TANK CLEANING REACH



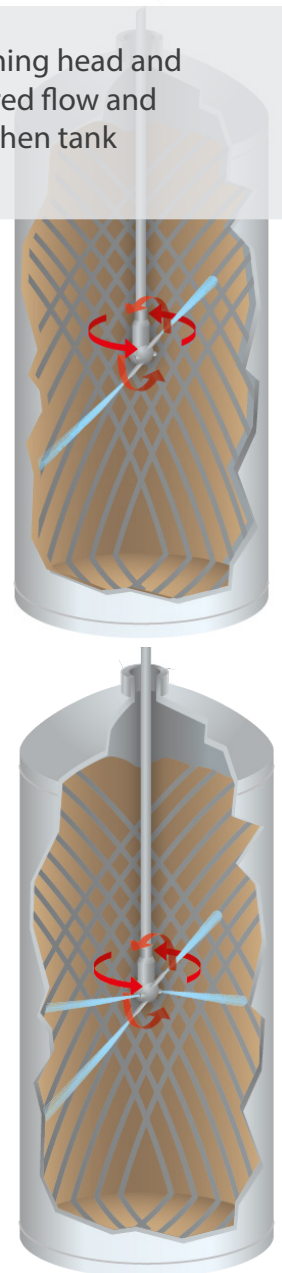
In a large yeast producer existing cleaning heads were installed and were found to be having very little impact on the tank walls. The tanks in question were large 10 meter diameter storage vessels that need to be cleaned periodically. On paper the existing 4 nozzle rotary jet heads should have sufficient reach to provide adequate cleaning but, when observed, the jets were barely reaching the walls.

Upon investigation it was found that frictional pressure losses were causing a significant pressure drop between the pump and the cleaning head. The pipe run was quite long with an effective length of 50 meters as well as a 12 meter climb. The new tanks were larger than the previous units and so a larger tank cleaning system was needed. What was not accounted for was the additional flow in the existing pipework which then caused an increase in pressure losses. The result was the cleaning heads only “saw” a 4 bar pressure drop as opposed to the 8 bar required.

► THE SOLUTION: 2 NOZZLE JET CLEANERS



As the cleaning was periodic the time taken to clean was not critical. By swapping the cleaning heads to a two nozzle solution the cleaning time was doubled but, critically, the flow rate was lowered. This reduced the frictional pressure losses incurred and allowed the new 2 nozzle cleaners to “see” higher pressure drop and thus produce a more powerful cleaning jet.





WHY CHOOSE SNP FOR YOUR FOOD PROCESSING NOZZLE NEEDS?

- The ability to solve unique and complex process challenges
- ISO 9001:2015 Certified
- Custom nozzle design and manufacturing with consistent quality assurance

With SNP you get our world-class customer support from a nozzle industry pioneer who has been creatively solving problems for over 15 years.



THE
SPRAY NOZZLE
PEOPLE

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The Results

After the new two nozzle tank cleaners were installed they performed as expected. Due to the lower overall flow rate the fictional pressure losses were reduced by 2 bar resulting in a dramatic increase in the jet length delivered.

This meant that the customer didn't need to upgrade over 50 meters of stainless steel pipe work, which was the other option. The cost saving from this saving is clear!



4 Nozzle, high flow, resulted in big pressure losses



2 Nozzle, lower flow, resulted in reduced pressure losses

CHALLENGES WITH OTHER TANK WASHING NOZZLES

- Non rotary jet nozzles will not have the reach for this application.
- Other manufacturers rotary jet nozzles are complex an expensive to maintain. The Orbitor is elegantly engineered for easy maintenance.
- Other jet cleaners were deemed to be too "fragile" and easily damaged. The Orbitor is robust.

ADVANTAGES OF THE ORBITOR

- Hygienic stainless steel design
- Self cleaning
- Very efficient
- Produces powerful, impact cleaning.