Deployment of Pulsafeeder's NextStep® Pumps in Reverse Osmosis Systems

Executive Summary

Pulsafeeder secured a significant order for its NextStep® series of stepper motor-driven metering pumps, specifically for use in advanced Reverse Osmosis (RO) applications. This deployment underscores the growing demand for precision chemical dosing in high-performance water treatment systems. The order includes NextStep NS1 and NS9 models, each selected for their unique capabilities in high-pressure and low-pressure RO environments.

1. Background

Reverse Osmosis is an important technology in industrial and municipal water purification, enabling the removal of dissolved solids and contaminants. RO systems require precise chemical dosing to maintain membrane condition, prevent scaling, and optimize filtration efficiency. Pulsafeeder's NextStep® pumps are engineered to meet these demands with industry-leading pressure ratings, multiple control modes, and chemical compatibility.

2. Order Overview

The recent order includes:

- **NextStep NS1 with PVDF Head:** For high-pressure chemical injection up to 360 psi.
- **NextStep NS9 with PVDF Head:** Designed for high-flow, low-pressure RO systems requiring up to 21 GPH.

This configuration supports both **HPRO (High-Pressure RO)** and **LPRO (Low-Pressure RO)** systems, supporting water treatment across varying levels of dissolved material concentrations.

3. Technical Application

High-Pressure RO (HPRO)

HPRO systems recover permeate from water with high concentrations of dissolved solids. These systems demand chemical dosing at elevated pressures to maintain membrane performance.

- **NS1 with PVDF Head:**
  - Pressure rating: **360 psi.**
  - Material: PVDF for chemical resistance.
  - Role: Injects anti-scalants and pH adjusters to maintain filter stack performance.

Key Differentiator: NS1 and NS2 are the only stepper motor pumps in the market capable of operating above **290 psi**, making them uniquely suited for HPRO applications.

Low-Pressure RO (LPRO)

LPRO systems treat water with lower concentrations of dissolved materials or perform final polishing for ultra-pure output.

- **NS9:**
  - Flow rate: Up to **21 GPH.**
  - Application: Maintains chemical balance and filter efficiency in polishing (final high purification) stages.
  - Process Steps: It is common to reduce dissolved elements efficiently using the HPRO process initially, then proceed to the LPRO process, removing the remaining impurities.

4. Strategic Impact

This order reflects a growing industry trend toward:

- **Energy-efficient RO systems.**
- **High-precision chemical dosing.**
- **Modular pump configurations for scalable operations.**

By deploying NextStep pumps, the customer ensures:

- **Improved system uptime.**
- **Reduced maintenance costs.**
- **Enhanced water quality for sensitive industrial and potable applications.**

5. Conclusion

Pulsafeeder's NextStep pumps are setting a new benchmark in RO system performance. With unmatched pressure capabilities, wide selection of control modes, chemical compatibility and large hydraulic range, NextStep models deliver the precision and reliability required for modern water treatment challenges.

This project not only validates the technical advantage of the NextStep series but also reinforces Pulsafeeder's position as a trusted partner in advanced fluid handling solutions.

2883 Brighton Henrietta Town Line Rd
Rochester, NY 14623
Phone: +1 (585) 292-8000
pulsa@idexcorp.com

27101 Airport Rd
Punta Gorda, FL 33982
Phone: +1 (941) 575-3800
pulsaspo.cs@idexcorp.com