Liberty

EQUIPMENT GUIDE / MIXING & DISPENSING

Mixing & Dispensing Equipment Selection Guide

Which mixer, metering system, and chemical feed skid holds up against your actual chemistry and dosing point — not the generic "chemical feed" answer.

THE PROBLEM THIS GUIDE SOLVES

Almost every chemical feed system needs pH and conductivity probes — the chemistry decides the rest

> A chemical feed skid built from a generic parts list treats a plating rinse tank, a cyanide-destruction system, and a well-water disinfection line as the same problem. They aren't. Sensor count, loop count, and controller selection all flow from the specific chemistry being dosed — not from a standard panel.

This guide organizes real, vendor-documented selection data by mixing/dispensing category, not by brand. Every material and design call-out is sourced to a named vendor document or a real LibertyCES field case.

EQUIPMENT SELECTION, AT A GLANCE

Mixing & dispensing categories, by what they're actually built to do

Equipment category	Built for	Watch for
Mixer/Agitator	In-tank blending during pH neutralization, dosing, and storage	Impeller material must match the tank chemistry, not just the tank material — 316SS is the common default but not universal
Metering/Dispensing System	Precise chemical injection for disinfection, pH adjustment, and fertigation	Vendor-published reference tables mapping chemical to system model exist and should be checked before defaulting to a generic pump
Chemical Feed Skid / Plating & Rinse Tank System	Engineered, built-to-BOM feed systems for plating, rinse, and paint detack lines	Almost every system needs pH and conductivity probes — the specific chemical determines sensor count and type, not a standard template
Custom Chemical Feed Skid / Panel	Purpose-built panels for volumes too small for in-house builds but underserved by traditional panel shops	Engineered concepts require evaluating flow rate, physical space, equipment protection, and employee access together, not independently
Water-Powered / Proportional Chemical Injection System	Electricity-free proportional dosing scaled to water flow	A complete treatment-train sequence (pressure tank → retention tank → post-carbon de-chlorination → backwash filter) matters more than any single component choice

MIXER/AGITATOR — EVIDENCE: MODERATE

pH-neutralization tanks & tank-stored oxidizers

Grovhac Industrial Mixer

Also: Peabody Gemini Mixing/Agitation Systems

Acidic Wastewater (pH 3.3) | Caustic Dosing Chemical | Sodium Hypochlorite (tank-stored)

FIELD RECORD — AUTOMATED WASTEWATER PH TREATMENT

A Grovhac industrial mixer with stainless-steel impellers is used inside the acid-neutralization holding tank — the same mixer handling both the acidic feed water (pH 3.3) and the caustic dosing chemical added to neutralize it. One mixer, two opposite-chemistry roles, in the same real installation.

Peabody's Gemini Mixing/Agitation Systems are separately cataloged for tanks that store sodium hypochlorite, per Peabody's own Special Application Tanks guidance, using a 316SS shaft and impeller. Impeller material selection has to account for what's stored in the tank at rest, not just what's being blended during an active dosing cycle.

METERING/DISPENSING SYSTEM — EVIDENCE: STRONG

Vendor reference tables map chemical to system model directly

AXEON XP-Series · ProMinent DULCODOS · Snyder Chemical Feed Stations

Sodium Hypochlorite | Sulfuric Acid | Sodium Hydroxide

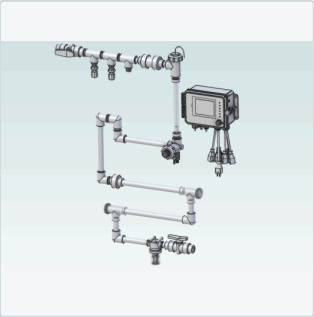
AXEON's XP-Series vendor reference table maps disinfection chemicals directly to system selection, and Snyder dedicates named resin SKUs to specific chemicals — resin #880059 for sodium hypochlorite feed stations, resin #880046 for sulfuric acid — rather than a single generic feed-station body. PVDF, PP, and 316SS are the confirmed wetted materials across the family.

Caustics/bases: a cyanide-destruction batch process explicitly doses sodium hydroxide via a precision dosing pump/system to reach a pH 11.5 setpoint, using a PVC/PP dosing skid — the same regulatory-load-bearing setpoint referenced elsewhere in this dataset's controller documentation.

Salts/brines — evidence: light. Netafim Fertilizer Meters are explicitly offered in polypropylene or PVC body variants for fertigation service, dosing urea and ammonium nitrate.

CHEMICAL FEED SKID / PLATING & RINSE TANK SYSTEM — EVIDENCE: STRONG

The design method matters more than any single component



Becker Custom Chemical Feed System Design

Named builds: Plating Systems · Rinse Tanks · Paint Detack Systems · Polymer Markdown Units · Tote Manifolds · Day Tank Transfer Systems · Flow Proportioning Panels · Disinfection Systems

Plating Bath Chemistry | Rinse Water | Paint Detack Chemistry

Plating Systems and Rinse Tanks are two of the 14 system types Becker names as regular builds, with Paint Detack Systems as a third adjacent metal-finishing application. Becker's stated design method is the real content here: almost every chemical feed system uses pH and conductivity probes, with the specific chemical determining sensor count and type — not a fixed template. Systems may need multiple loops, towers, or pumps, or particular controllers, and engineers evaluate flow rates, physical space, equipment protection, and employee access holistically before returning an engineered concept.

Wetted materials are largely built to the customer's own BOM rather than a fixed Becker spec, though PVC piping and ball valves and Koflo static mixers appear in Becker's own installed-system photos. Positioning: cost-effective for volumes too small to justify in-house builds but underserved by traditional panel shops — "no panel is too small."

WATER-POWERED / PROPORTIONAL CHEMICAL INJECTION SYSTEM — EVIDENCE: STRONG

Electricity-free dosing, scaled to water flow

AXEON XP-Series · Dosatron D07–D400

Hydrogen Peroxide | Chlorine | Potassium Permanganate | Soda Ash / Caustic Soda

AXEON's XP-Series page carries a chemical-to-problem reference table worth publishing directly: iron removal via hydrogen peroxide or chlorine (eliminates staining/metallic taste); hydrogen sulfide control via chlorine or potassium permanganate (removes rotten-egg odor); pH adjustment via soda ash or caustic soda (prevents corrosion, improves treatment efficiency); disinfection via chlorine or UV; scale prevention via polyphosphates; manganese removal via potassium permanganate (prevents black staining). A complete well-water treatment-train sequence is worth carrying as a reference: pressure tank integration, then a retention tank for contact time, then post-carbon de-chlorination, then backwashing filters.

Dosatron adds the electricity-free proportional alternative across three orders of magnitude of flow — from the D07 (0.02–3 GPM) up through the D400 (110–400 GPM), with the D132 rated for direct injection of chlorine dioxide, chlorine, and peracetic acid. The Venturi self-cleaning polypropylene proportioner with a built-in check valve is the mechanism that makes electricity-free proportional dosing work at all — injection scales automatically with water flow, no controller required.

NEXT STEP

Send LibertyCES the process data, not a part number.

Five mixing and dispensing categories, real vendor selection data, one guide — but your actual application still has a specific chemistry, dosing point, and duty cycle that determines which equipment and sensor architecture is correct. A spec review checks the exact conditions against the exact equipment, before anything gets ordered.

Chemistry, dosing point, flow rate, tank configuration, and current equipment — that's what a real spec review needs to start.

Request a spec review

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