



**BRECHBUHLER
SCALES, INC.**

Case Study: Brechtbuhler Scales, Inc

Brechtbuhler Scales, Inc. | Engineered Solutions

From Vendor Lock-In to Operational Freedom: A Case Study in Automated Weighing

Migrating High-Downtime Legacy Control Packages to Standardized, Field-Serviceable PLC Systems

EXECUTIVE SUMMARY

Industrial batching and filling operations frequently suffer from closed, proprietary vendor architecture, leaving plants vulnerable to extended downtime when components fail or suppliers exit the market. This case study details how Brechtbuhler Scales re-engineered an unserviceable legacy bagging and packaging operation. By implementing custom-fabricated mechanical adjustments alongside a standard, off-the-shelf Programmable Logic Controller (PLC) package, Brechtbuhler eliminated custom engineering bottlenecks, mitigated manual transcription errors, and established 100% field service autonomy for the client's internal maintenance team.

THE CHALLENGE: THE HIGH COST OF PROPRIETARY VULNERABILITY

A high-throughput manufacturing facility utilizing industrial chemical bag packaging and rock salt filling frameworks encountered an operational crisis. The existing system relied completely on highly proprietary control hardware and closed-source software supplied by a legacy vendor that subsequently went out of business. This left the client with an unsupported system, severe technical vulnerabilities, and zero recourse for replacing failing electronics.

Compounding the software crisis were two critical engineering flaws:

Buried Service Access: In the legacy rock salt bagging configuration, pneumatic cylinders and material valves were positioned completely blind beneath an integrated product tray. Routine servicing or manual resets required multiple staff members, a complete system shutdown, and exhaustive disassembly labor.

Manual Operator Friction: The existing weight-verification and layer-building steps relied entirely on manual operator intervention and visual confirmation. Human transcription and reading mistakes (e.g., misinterpreting 16 lbs for 17 lbs on local readouts) introduced routine batch variations, costly material waste, and frequent downstream rework.

THE INNOVATION: DECOUPLED SOFTWARE & PRE-WIRED HARDWARE

Brechtbuhler Scales engineered a total system migration designed to isolate software database layers from physical hardware functions, using open architecture to eliminate single-source dependencies.

The core solution decoupled data tasks from real-time weight targets. Standard enterprise computers handle software tasks and database recording via Brechtbuhler's ScaleSoft framework. Concurrently, all real-time target weights, vibratory controls, and high-speed valve timings are routed through an isolated, open-source industrial PLC package.

Rather than developing a single-use custom control panel, the Brechtbuhler workshop deployed a pre-wired, modular cabinet package. This "cookie-cutter" control configuration fits standard industrial footprints, drastically compressing initial custom engineering layouts and panel fabrication timelines.

100%

Off-the-Shelf Open Architecture

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Zero Proprietary Vendor Lock-In

24/7

Independent Maintenance Autonomy

"By decoupling our operational databases from local weight execution hardware, Brechbuhler gave our team an entirely open system that we can manage, troubleshoot, and scale ourselves."

— Plant Operations Director

IMPLEMENTATION: MAINTENANCE-FIRST REDESIGN & AUTOMATION

The field installation demanded significant mechanical and logical optimization, executed by the Brechbuhler workshop and internal systems team to prioritize long-term serviceability:

180-Degree Mechanical Re-Orientation: Brechbuhler physically rotated the scale bucket assembly 180 degrees. This modification shifted all critical pneumatic cylinders and valves to the exposed front face of the machine. A custom, removable crossmember was fabricated and integrated above the unit, providing seamless overhead lift access and eliminating blind maintenance tasks.

Vibratory & Automation Controls: To replace unsupported legacy feeding hardware, Brechbuhler integrated a vibratory feeder equipped with an automated "Autolearn" feedback loop that adapts directly to material flow dynamics.

Field-Serviceable Sub-Assemblies: The system architecture utilizes removable baseplates, quick-disconnect modular terminal plugs, and controls-only wiring schemes. Local technicians and field branches can replace localized switches or physical components rapidly without invasive drilling or complete panel rewiring.

Automated Layer-Verification: The manual pallet-building and packing line was upgraded with an industrial floor scale integrated directly with a heavy-duty scissor lift. Operators are now guided by automated HMI visual indicators that physically lock out or confirm layers, preventing incorrect packing sizing or volume discrepancies.

THE RESULTS: OPERATIONAL INDEPENDENCE AND ENHANCED THROUGHPUT

The transition from proprietary legacy infrastructure to Brechbuhler's open-architecture batching and filling environment delivered immediate operational benefits:

Complete Maintenance Autonomy:

Upon project delivery, Brechbuhler provided the client with unrestricted, comprehensive electrical schematics and unlocked PLC program logic. The facility's internal maintenance crew is now fully empowered to perform 24/7 independent troubleshooting, component replacements, and field software adjustments without waiting for specialized vendor dispatch.

Elimination of Product Rework:

Automated material tracking and direct HMI verification routines completely eliminated manual reading and decimal errors. Batch repeatability achieved consistent targets, bringing product waste down to nominal tolerances.

Enhanced Facility Safety:

By engineering automated weight-layer validations directly on the scissor lift and automating primary material routing, the facility drastically decreased unnecessary secondary forklift handling and cross-dock material transit, materially improving plant floor safety ratings.

PROTECT YOUR OPERATIONS AGAINST PROPRIETARY DOWNTIME

Don't let closed-source control packages and obsolete components jeopardize your production schedule. Contact the Brechbuhler Scales Engineered Solutions team today to schedule a comprehensive audit of your legacy batching and filling infrastructure.