

MÜHLBERGER
ENGINEERING

GMBH/SRL

AUTOMATED SALT AND BRINE STORAGE SYSTEMS

STRAIN GAUGES FOR SILO WEIGHING



ACCURATE AND RELIABLE WEIGHING SYSTEMS – ALSO RETROFITTABLE ONTO PRE-EXISTING INSTALLATIONS

Winter road maintenance is critically reliant on efficient weighing systems. The proven technology behind our high-precision strain gauges enables the detection of compression and elongation of steel feet, while continuously calculating the silo weight and ensuring reliable, accurate monitoring at all times. With our strain gauges providing accuracy to $\pm 2\%$ of silo capacity, our technology is easily integrated into pre-existing silo systems, offering a ± 200 kg precision during discharge operations.

In addition, we also offer weighing systems with load cells. Our solutions are compatible with existing weighing technologies from other manufacturers.

All received data is transmitted straight to our SalzManager management platform for logging.

AUTOMATED SALT AND BRINE STORAGE



EASY, EFFICIENT EXTRACTION FOR ULTRA-QUICK SALT SPREADING

In addition to weighing systems, we offer customized automation solutions for salt and brine storage depots, customized for the specific needs of your site. Whether it's for manual extraction with weighing, automated control of silos and pumped discharge, or fully automated drive-in extraction using the "Topautomatik" system – we offer an optimal solution for every requirement.

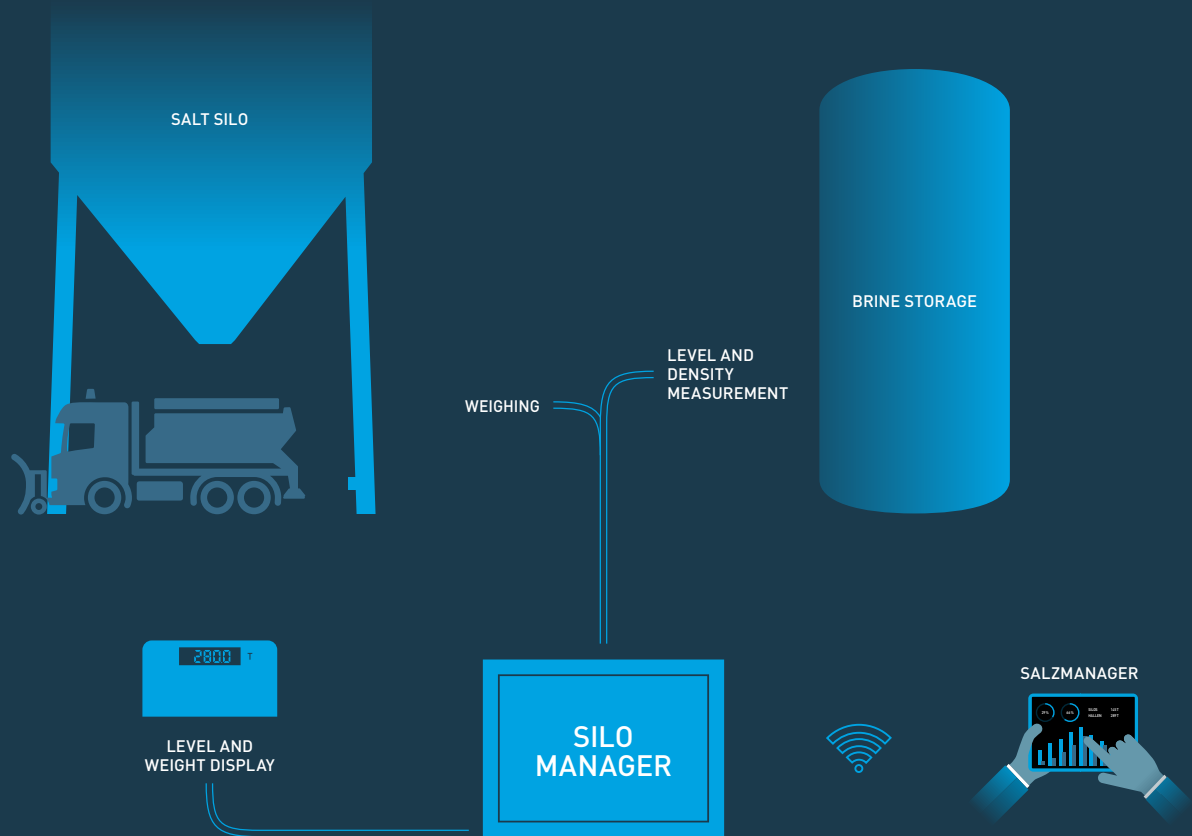
Our automated systems can be integrated into new plants even at the design stage or retrofitted in case of pre-existing systems. The

SalzManager is internet connected enabling efficient management of salt and brine storage also for winter operations.

Maintenance and smart data analysis: our system provides accurate remote diagnostics. In the event of minor malfunctions, interventions are usually fast and cost-effective without necessitating on-site inspection. Silos can be calibrated remotely, including the setting of target values and parameters.

WEIGHING AND MEASURING

salt and brine storage



BASIC FUNCTIONS

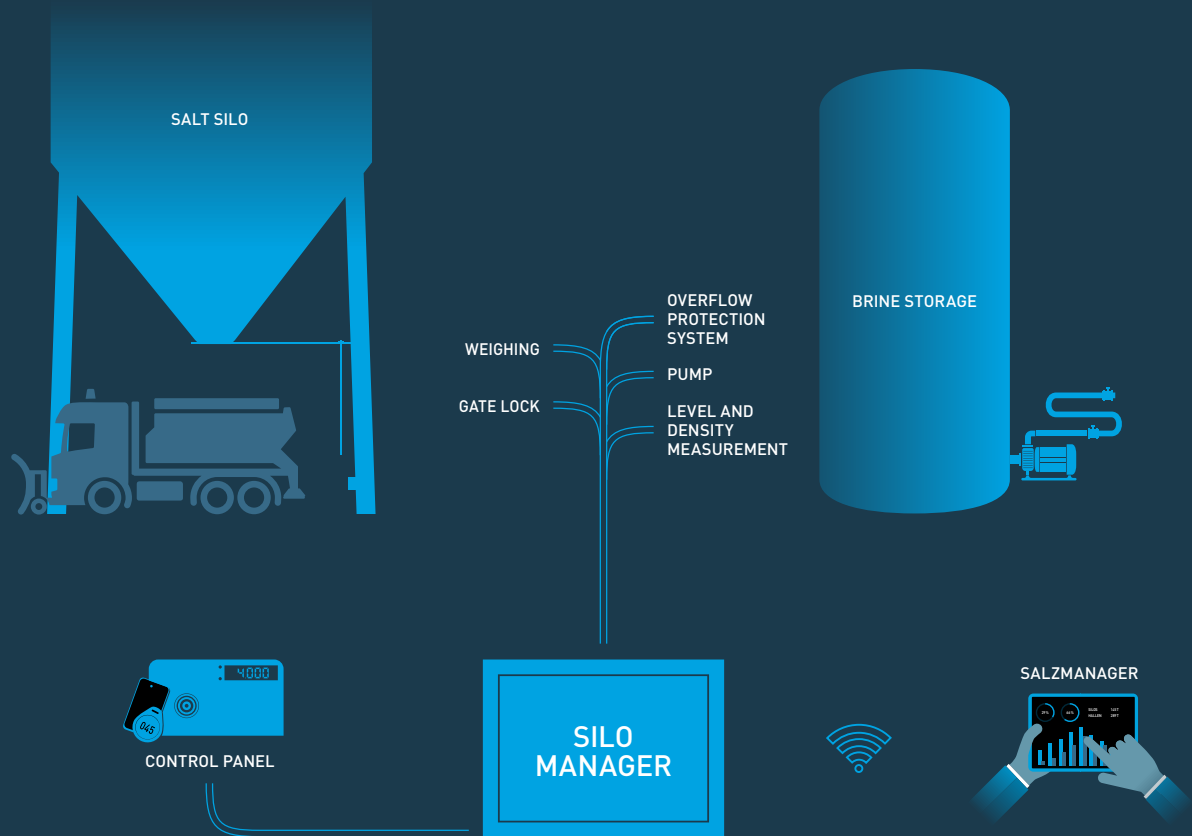
- 1 Screen displayed silo/tank level detection
- 2 All transmitted data relayed to SalzManager

NOTES

Our flexible modular automated systems can be used in conjunction with an expandable number of salt and brine storage depots, each with its own display and control panel. In the event of malfunction, each system can be unlocked by means of a key switch and in the event of a power outage hydraulic systems are manually operated.

SEMI-AUTOMATION

In addition to basic visualization, controlled unlocking of the extraction process is possible

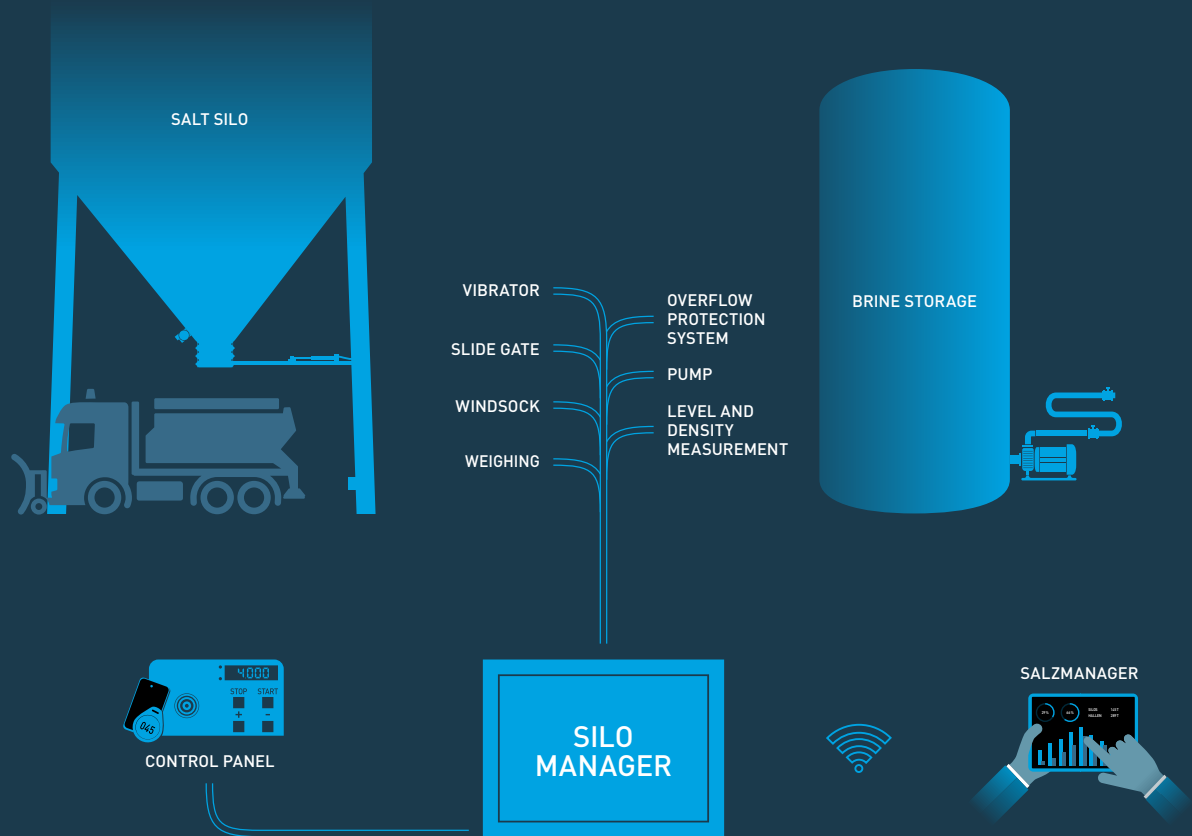


ADDITIONAL FUNCTIONS

- 1 RFID chip/smartphone authentication
- 2 Pump/silo gate unlocking for manual discharge
- 3 Data transmitted to the SalzManager platform: vehicle ID logging, volume discharged and more

FULL AUTOMATION

In addition to semi-automation it offers automatic control of the silo gate, windsock, and pump

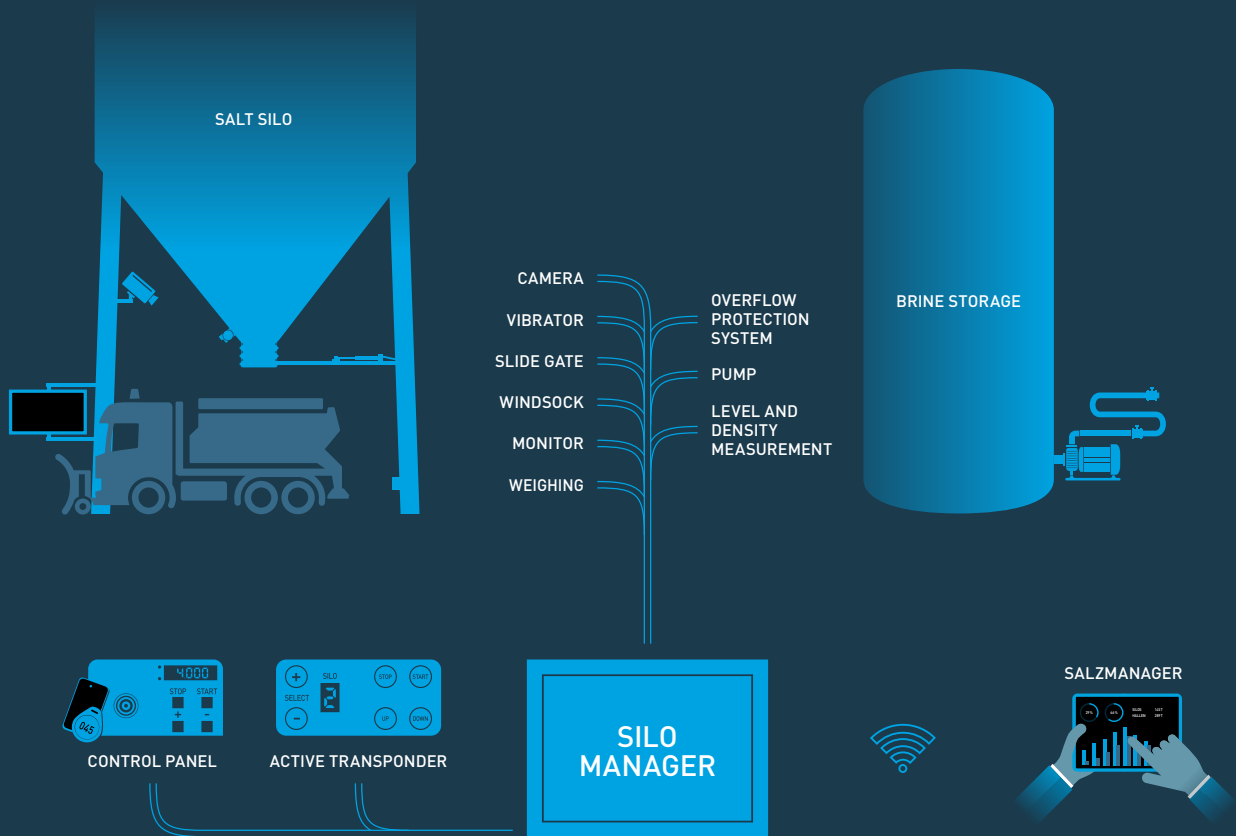


ADDITIONAL FUNCTIONS

- 1 Selection of the desired discharge quantity at the respective control panel
- 2 Automated operation: after discharging the process stops automatically
- 3 Automatic vibrator mounted on the silo outlet is for breaking up salt clumps
- 4 Optional: flexible windsock adapts to the vehicle height

TOPAUTOMATIK SILO ONLY

Beyond automation – for maximum safety: discharging from the vehicle cabin.
Developed in conjunction with Blumer Lehmann.



ADDITIONAL FUNCTIONS

- 1 Vehicle-mounted active transponder with start/stop function, verification, selection of silo and volume
- 2 Camera monitoring for precise vehicle positioning and discharge operation
- 3 Hydraulic silo gate, with immediate shutoff switch in the event of malfunction/blackout for additional safety

CLIENT REFERENCES

In conjunction with Blumer Lehmann



BERN (CH): 3 X 900 M³ SILOS – TOPAUTOMATIK



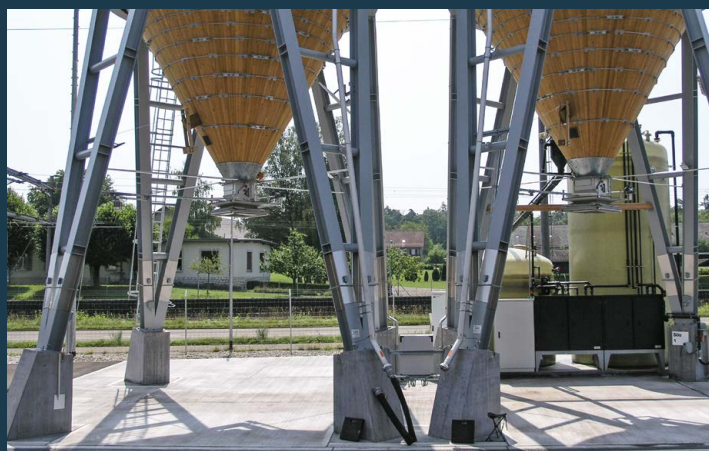
MÜLLHEIM (CH): 2 X 400 M³ SILOS – TOPAUTOMATIK



TOPAUTOMATIK SCREEN FOR VEHICLE POSITIONING



DOMDIER (CH): 2 X 600 M³ SILOS – TOPAUTOMATIK + 2 BRINE EXTRACTION POINTS



BÜLACH (CH): 2 X 400 M³ SILOS – FULL AUTOMATION



FULLY AUTOMATED SILO DISCHARGE

INFO



mbeng.eu/en/salt-brine-management

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