

# **SME5200 Pallet Cleaning Machine Applications Report: Schneider Electric Trials**

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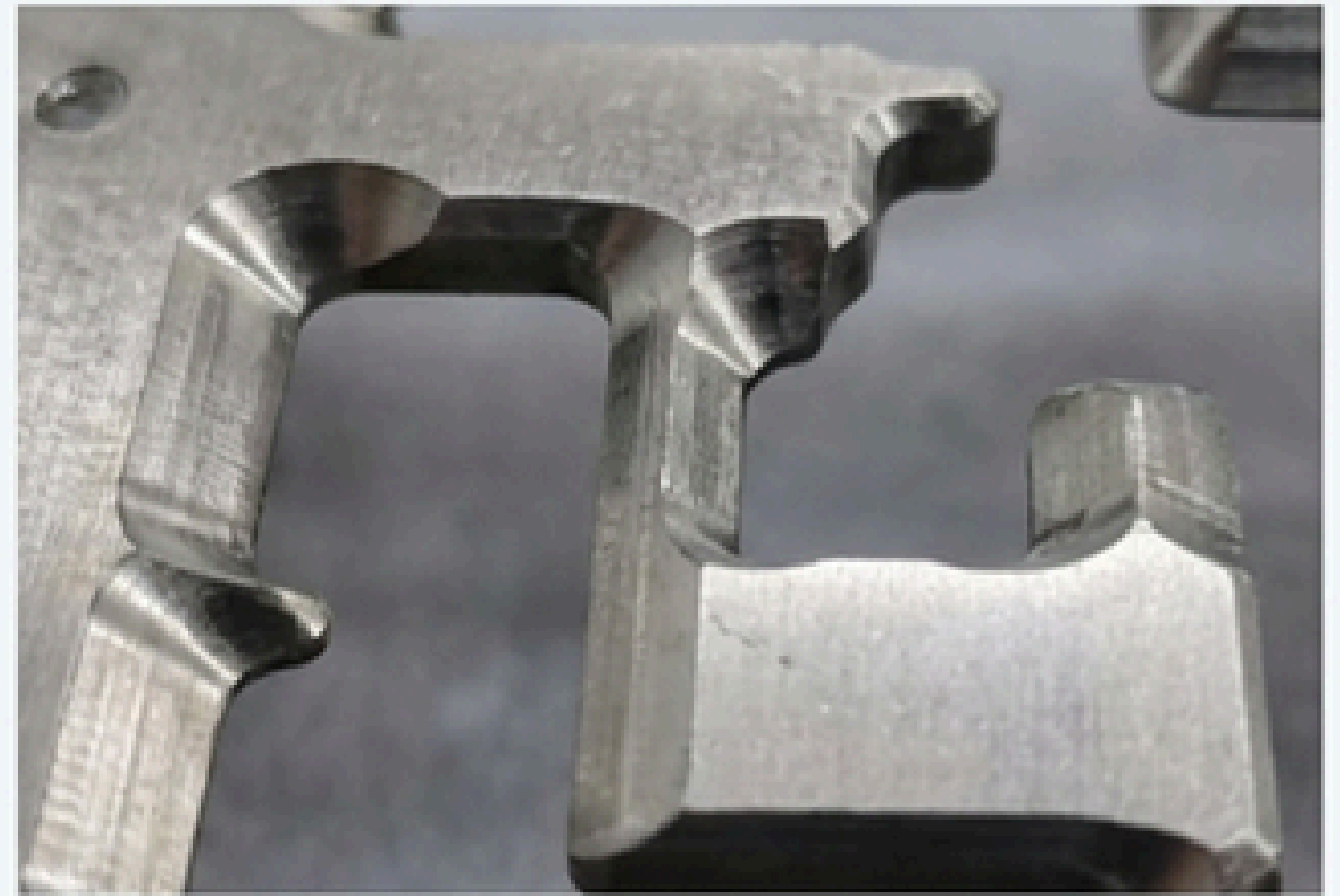
June 24, 2020



# Proven Performance: Complete Flux Residue Removal from Heavily Contaminated Pallets.



**BEFORE**



**AFTER**

The SME5200, in combination with CTC-300 cleaning agent, successfully removes baked-on flux residues from complex geometry SMT pallets, restoring them to a production-ready state.

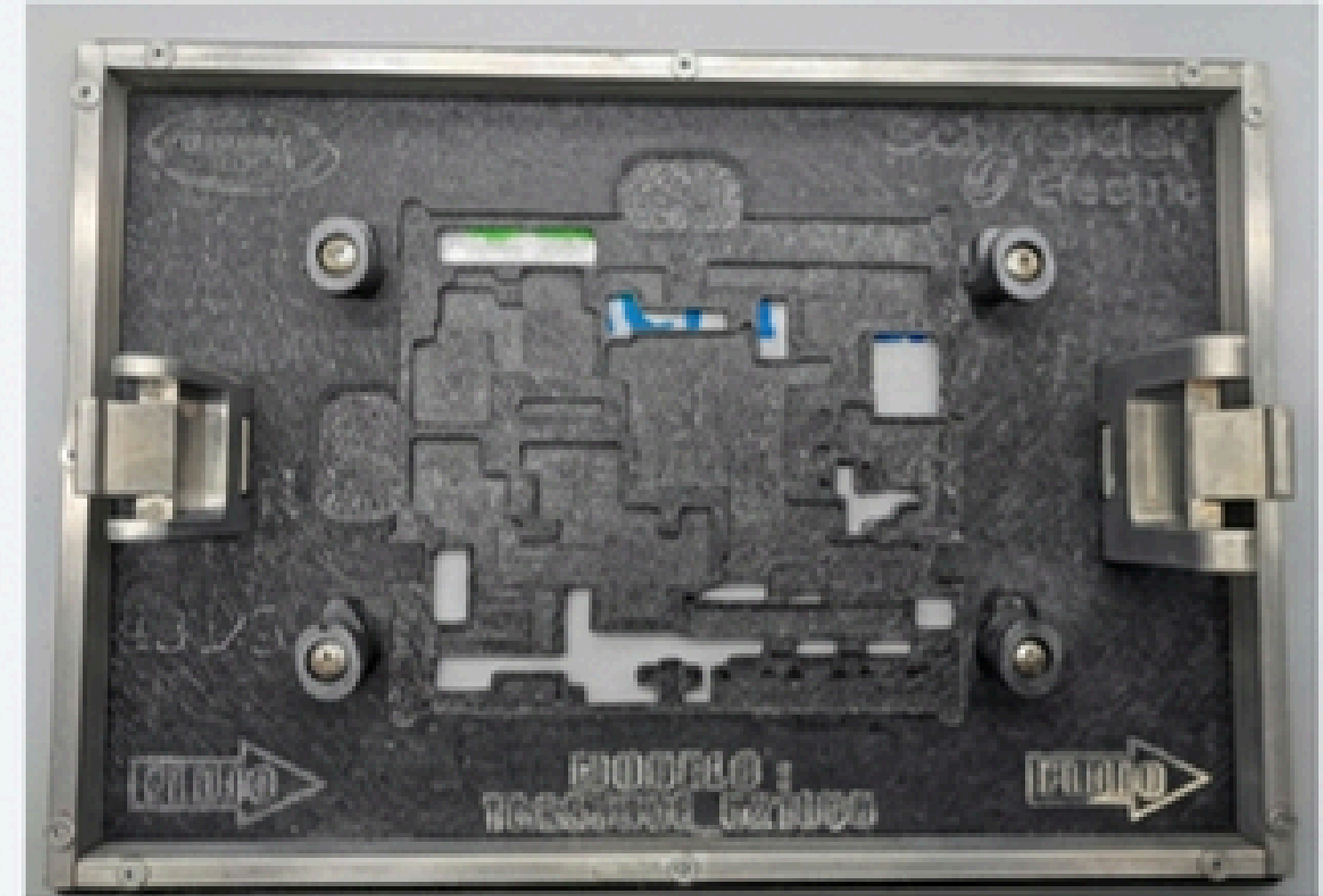
# Test Subject 1: Composite Stone Pallet (Modelo: TBSS333E)

**BEFORE**



Visible accumulation of flux residue on composite material and aluminum fixtures after extensive production use.

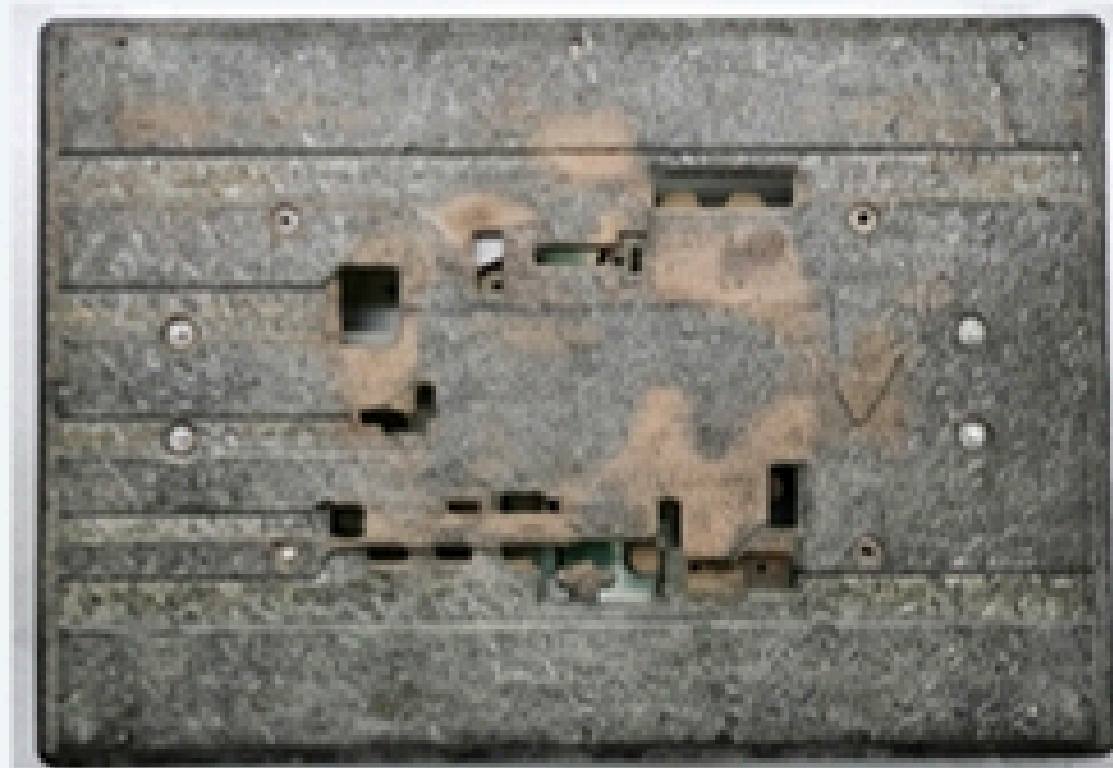
**AFTER**



All flux residue completely removed. Composite surface and metal fixtures are clean and free of contamination.

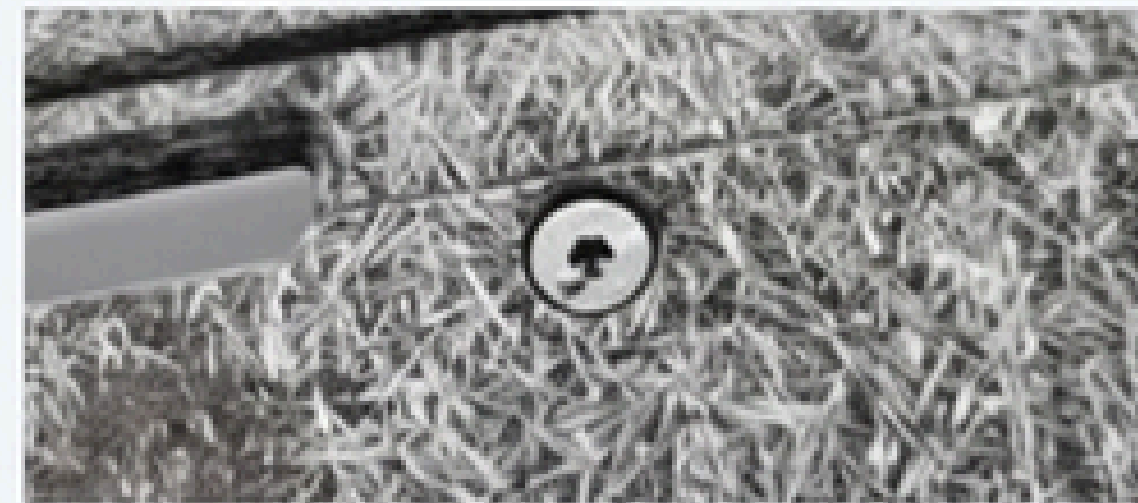
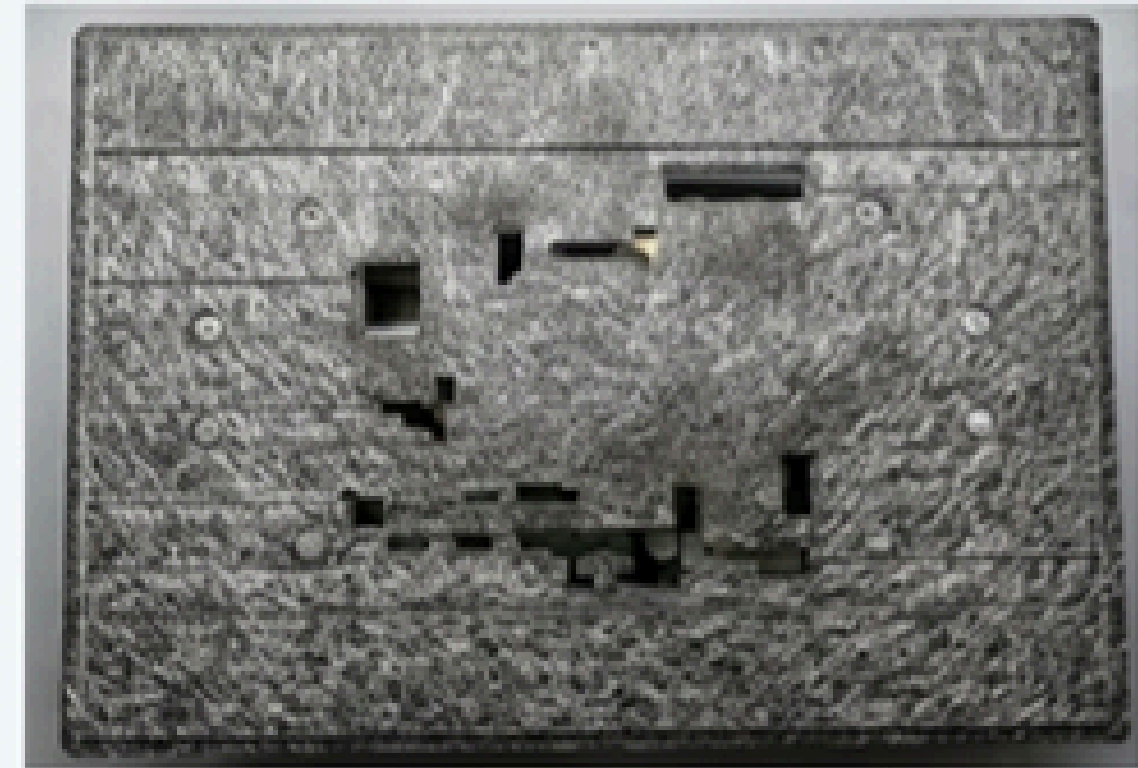
# Test Subject 2: Composite Stone Pallet

**BEFORE**



Heavy flux contamination embedded in the pallet's textured surface and around mounting hardware.

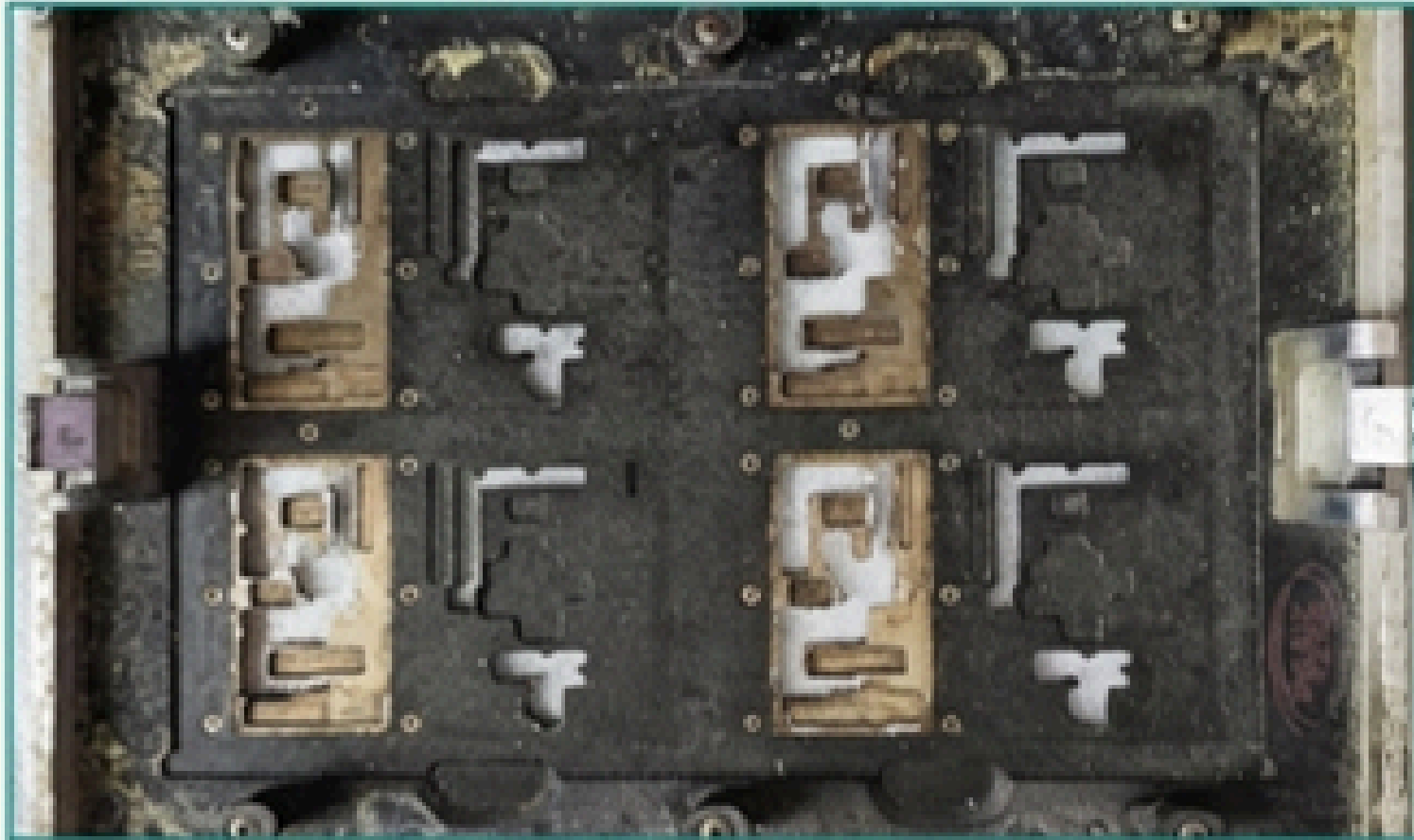
**AFTER**



Surface texture is fully restored. Contamination is eliminated from all recessed areas and hardware.

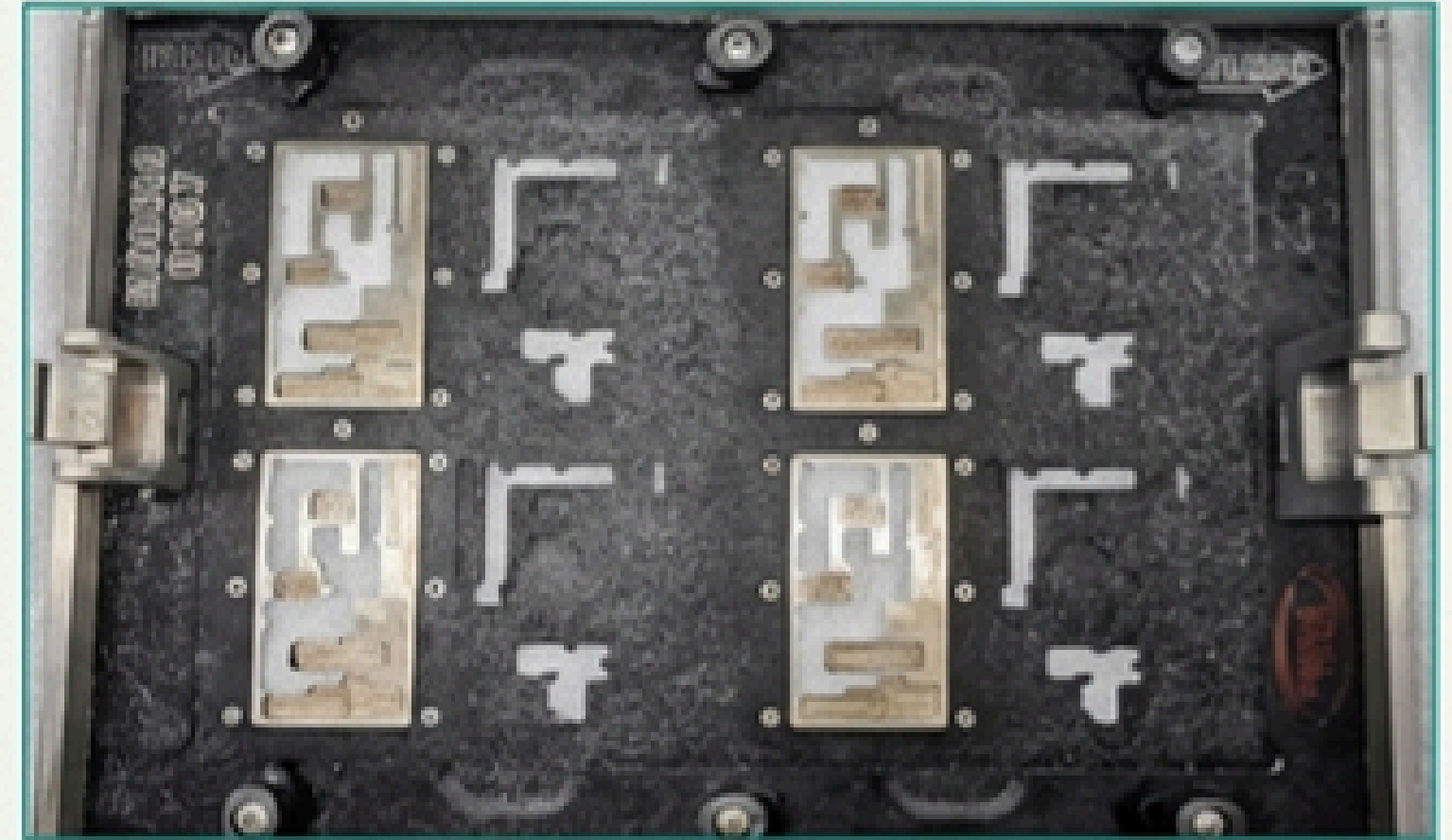
# Test Subject 3: Heavily Contaminated Pallet (Modelo: 0157)

BEFORE



Severe build-up of flux, exhibiting corrosion and a thick, layered texture across all surfaces.

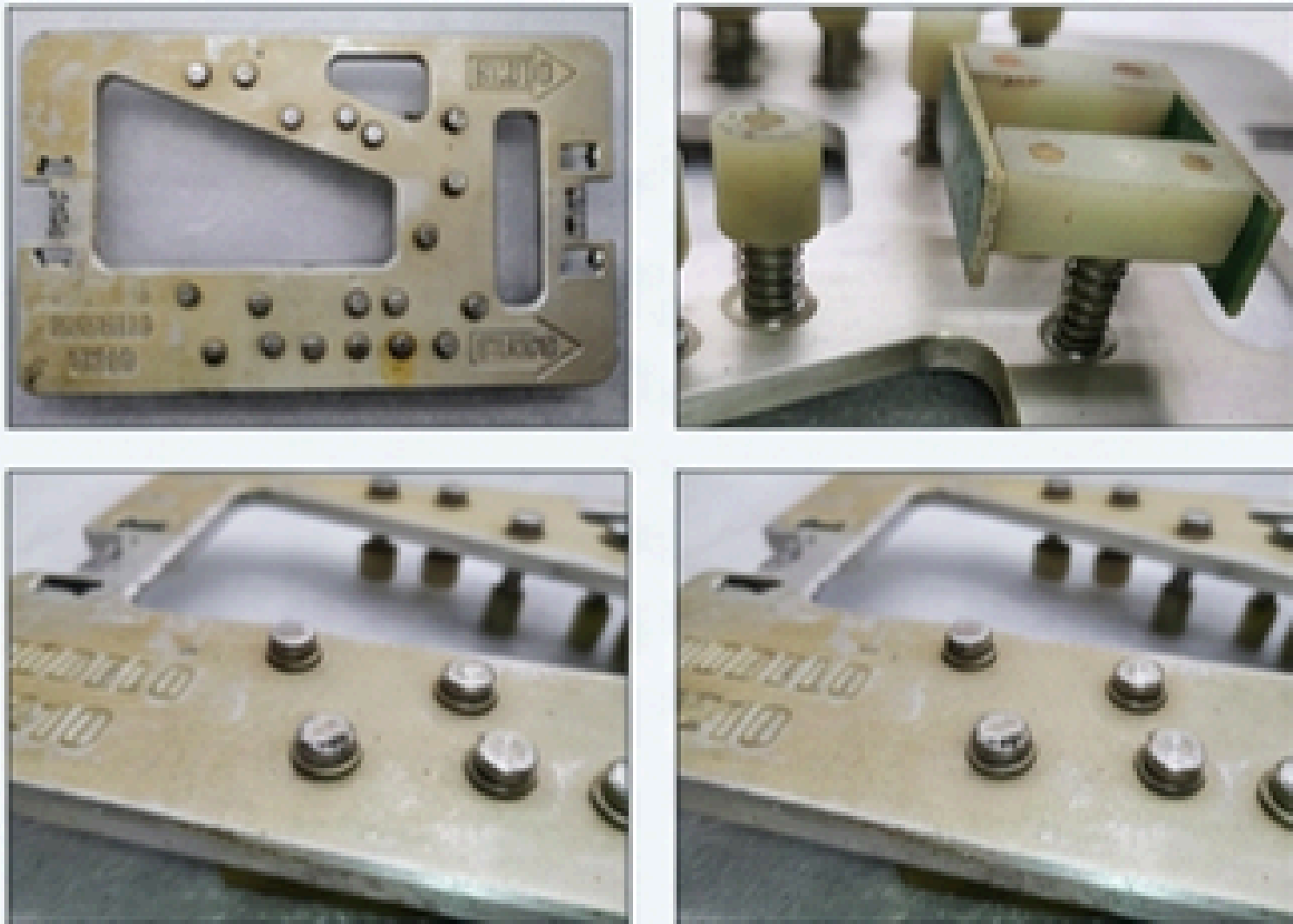
AFTER



Exceptional cleaning result. Even the most severe contamination and corrosion have been completely removed.

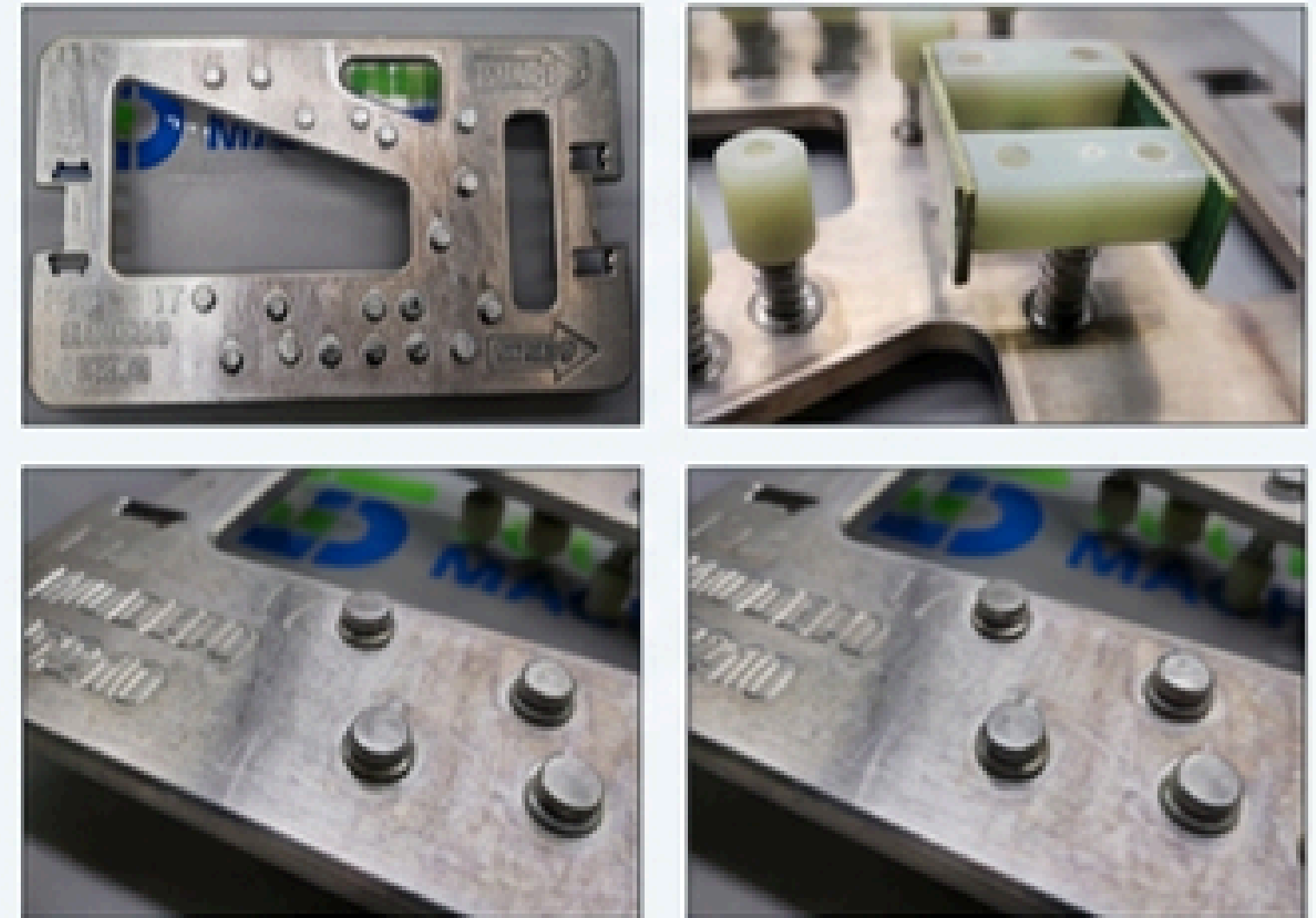
# Detailed Cleaning: Hold-Down Components with Springs and Pins

**BEFORE**



Contamination on mixed materials, including aluminum frame, steel springs, and composite hold-down pins.

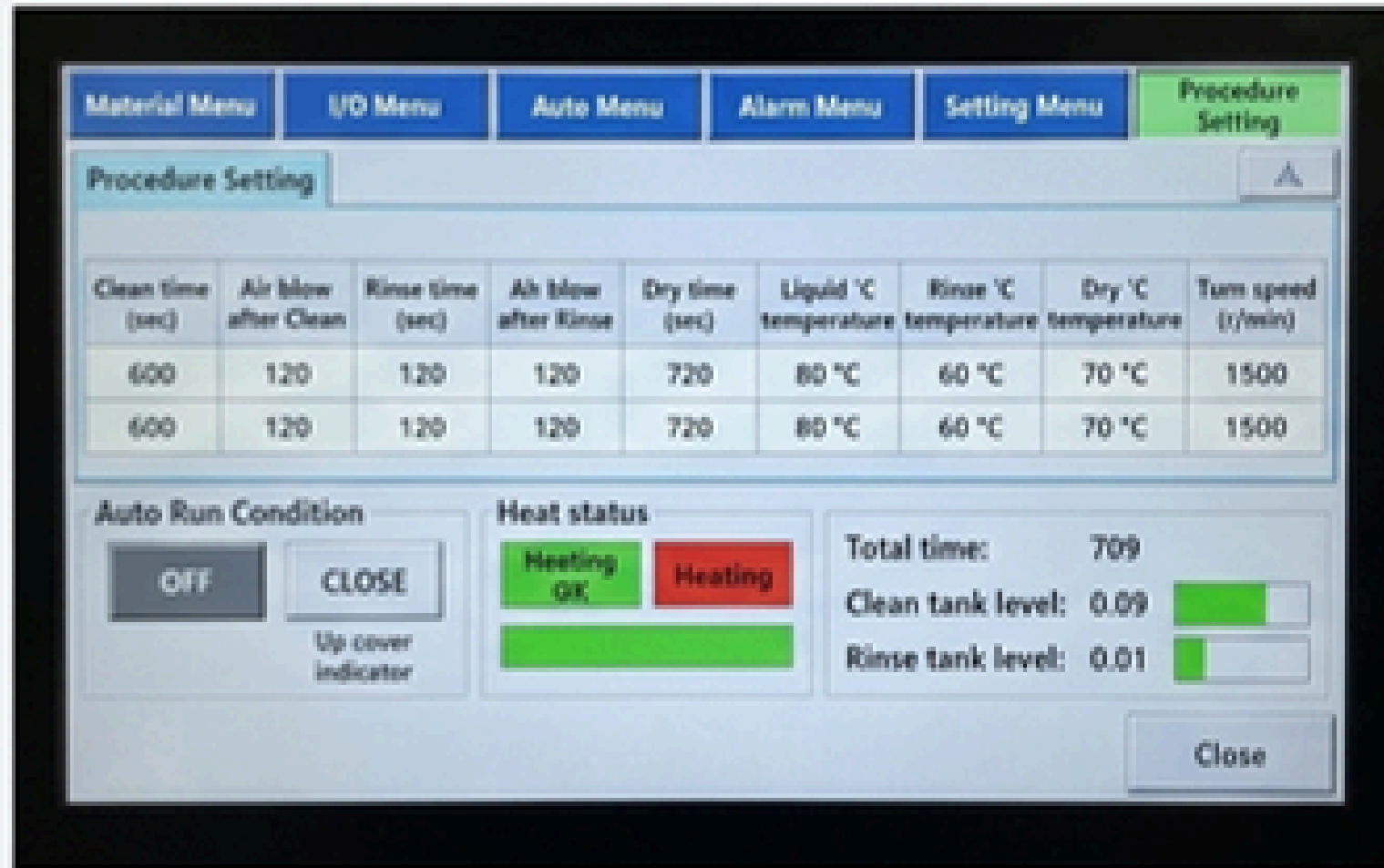
**AFTER**



Thorough cleaning of all components. Residue removed from spring coils and pin bases without affecting material integrity.

# The Process: Replicable Parameters for Consistent Results

All trials were conducted in the SME5200 using documented parameters for cleaning, rinsing, and drying cycles.



**Table 1: Pallet Cleaning Parameters**

<b>Cleaning</b>	Temp: 50°C Agent: CTC-300 (20%) Time: 600 sec
<b>Air Blow 1</b>	120 sec
<b>Rinsing</b>	Temp: 30°C Agent: Water Time: 120 sec
<b>Air Blow 2</b>	120 sec
<b>Drying</b>	Temp: 80°C Tech: Hot Air Time: 720 sec
<b>Rotation</b>	15 r/min

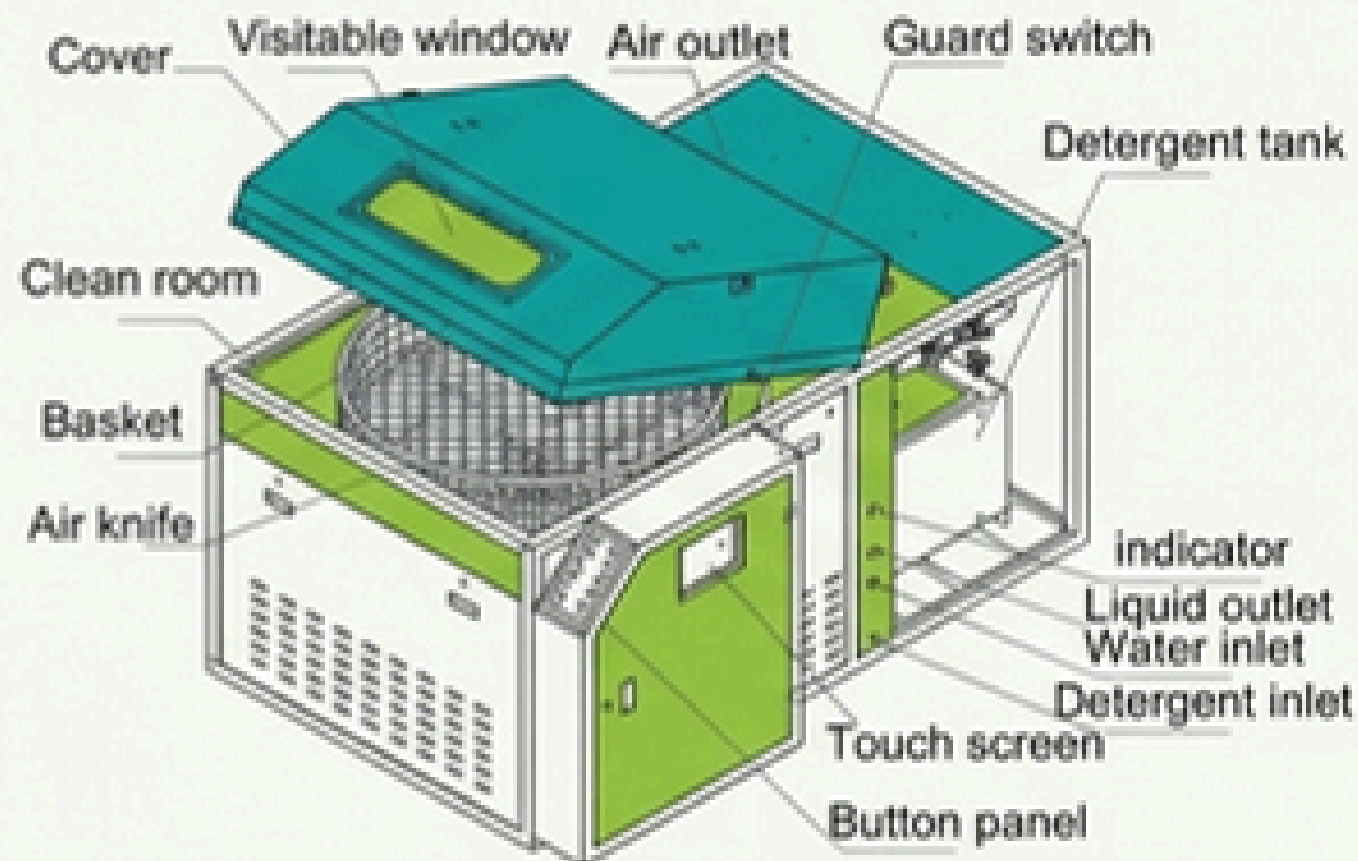
**Table 2: Hold-Down Cleaning Parameters**

<b>Cleaning</b>	Temp: 50°C Agent: CTC-300 (20%) Time: 300 sec
<b>Air Blow 1</b>	120 sec
<b>Rinsing</b>	Temp: 30°C Agent: Water Time: 120 sec
<b>Air Blow 2</b>	120 sec
<b>Drying</b>	Temp: 80°C Tech: Hot Air Time: 600 sec
<b>Rotation</b>	15 r/min

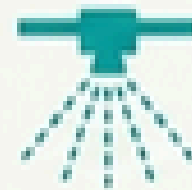
# Inside the Machine: The Automated Cleaning & Rinsing Cycle



# The Technology: SME5200 Pallet & Fixture Cleaning Machine



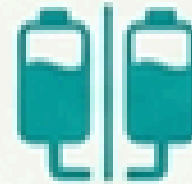
**Total SUS304 Stainless Steel Construction:** For maximum durability and chemical resistance. No PVC or PPH tubes.



**720° Complete Coverage:** Top, bottom, and front spray bars with 74 individual nozzles ensure no blind spots.



**Automated Operation:** Mitsubishi PLC and touch panel for precise process control.



**Separated Tank System:** Dedicated 80L cleaning fluid tank and 80L rinse water tank prevent cross-contamination.



**Efficient Drying:** Combines a compressed air cut with a hot air system for fast, spot-free results.



**Customized Basket:**  $\varnothing 1000$  mm x H200mm basket accommodates a wide range of fixture sizes.

# Engineered for Reliability: Premium Industrial Components

The SME5200 is built with industry-leading components to ensure maximum uptime and performance in demanding production environments.



**PLC & HMI:** Mitsubishi  
(FX3U-48-ES PLC, GS107 Touch  
Screen)



**Pumps:** Zhejiang South Pump  
Industry (Clean & Rinse),  
ARO-USA (Diaphragm)



**Inverter:** Mitsubishi (FR-D740)



**Sensors & Power Supply:**  
OMRON



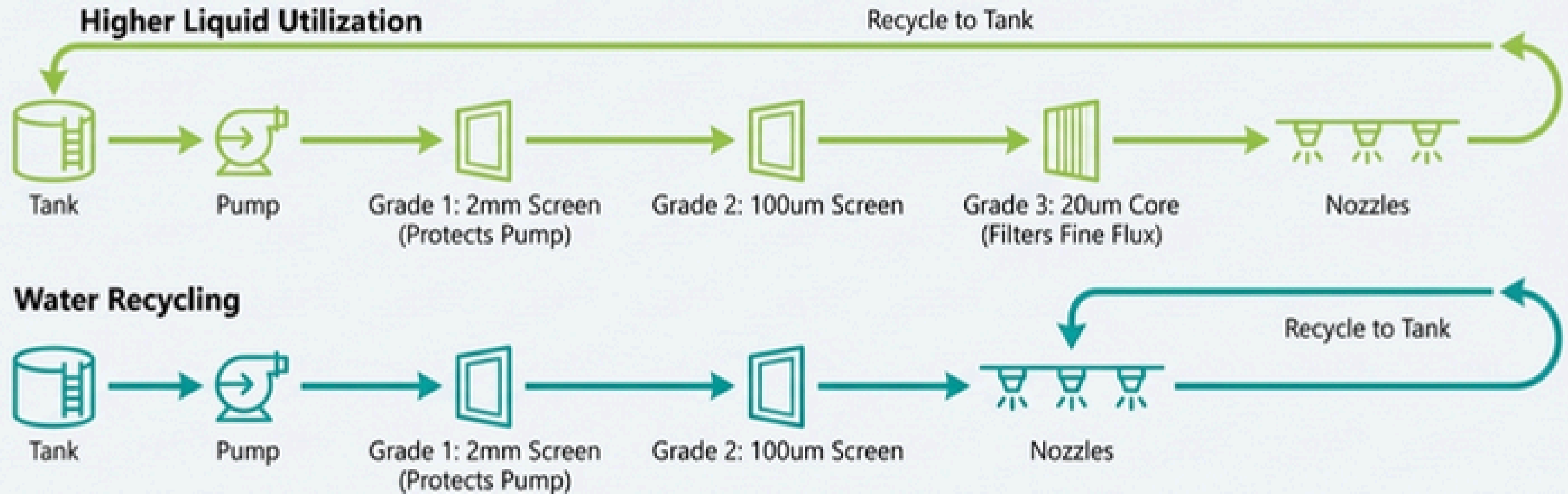
**AC Contactor & Relay:**  
Schneider Electric (LC1E series)



**Solenoid Valves:** CKD-Japan

This transparency in component selection underscores a commitment to quality and long-term reliability.

# Designed for Efficiency: Advanced Multi-Stage Filtration System



- ✔ **Greatly Saves Operational Cost:** Extends the life of cleaning chemicals, reducing consumption and disposal costs.
- ✔ **Ensures Consistent Performance:** Prevents nozzle clogs and protects pumps from particulate damage.
- ✔ **Reduces Maintenance:** Pressure sensors on cleaning and rinsing pipes alert operators to filter changes.

## SME5200 Technical Specifications

Specification	Value
Cleaning Basket Size	ø1000 mm x H200 mm
Cleaning Tank Capacity	80 L
Rinse Tank Capacity	80 L
Clean / Rinse Pump Power	2.2 KW / 1.1 KW
Blower Power	3.7 KW
Liquid / Hot Air Heating	9 KW (Room Temp ~ 90°C)
Air Supply Required	0.5 ~ 0.7 Mpa, 800-1000 L/min
Power Supply	380 VAC, 3 Phase, 50/60 Hz, 34 KW
Normal Operation Power	~13 KW
Machine Dimensions (LxWxH)	1380 mm x 2000 mm x 1400 mm
Machine Net Weight	600 kg

# Test Report Verdict: A Comprehensive Cleaning Solution



- **Complete Removal:** The combination of the SME5200 and CTC-300 chemical completely removed flux residues from the majority of the pallets and hold-downs.



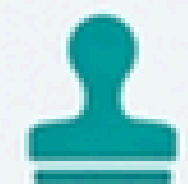
- **Effective Filtration:** The 3-stage filter system is proven to enable chemical recycling. The test chemical had been used for over 1 week (>15 cycles) and still delivered a perfect cleaning result.



- **Cosmetic Improvement:** The process significantly improved the cosmetic appearance of the pallets, giving them a bright, clean finish.



- **Heavy Contamination Note:** For pallets with extreme contamination (like Pallet 4), an additional cleaning cycle may be needed if they are not cleaned regularly. This situation is avoided with routine maintenance cleaning.



- **Validation:** The cleaned pallets are ready to be sent back to the client to evaluate the cleaning results.

# Operational Recommendations for Maximum Efficiency

## Best Practices

- Utilize Recyclable Chemicals: Employ environmental cleaning liquids to save costs and reduce waste. The SME5200 is designed to maximize the life of these fluids.
- Flexible Chemical Options: While CTC-300 was used for this test, KYZEN® brand chemicals or other high-quality agents available in your local market are also recommended.
- Monitor Chemical Efficacy: Recycle liquid until it becomes visibly dirty or its cleaning capacity diminishes. The machine's filtration system will significantly extend this period.

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For further details, DEMO requests, or to discuss your specific application, contact Southern Machinery.

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