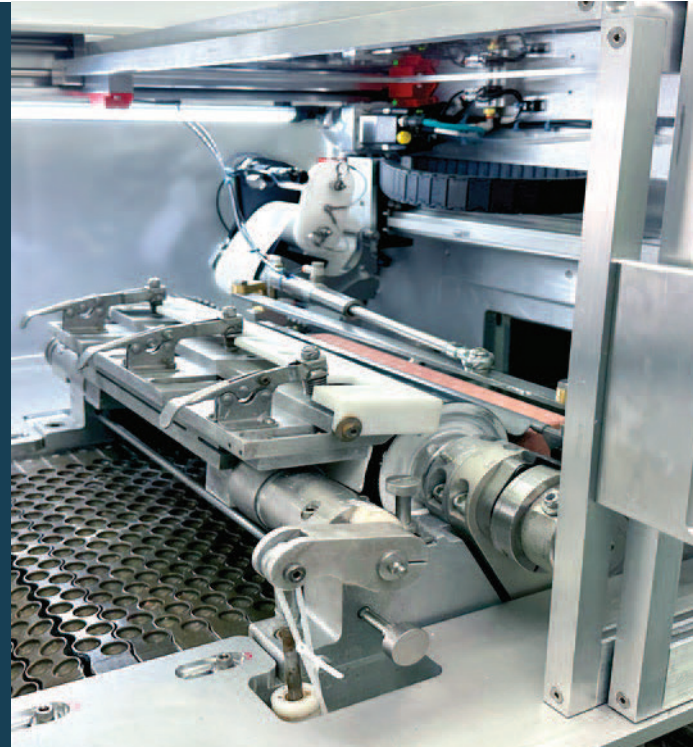




# ACKLEY HARTNETT

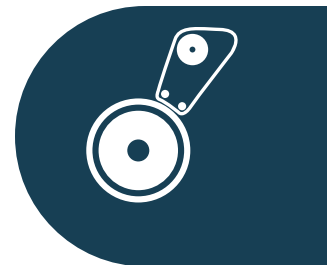
## Automated Roll Cleaning

- Hazardous Fume Control
- Automated Roll Cleaning
- Safety Switch Integration
- Programmable Cleaning Options
- Networked Machine Control



## ARC System

- Safety Innovation: The ARC Systems address hazardous ink fumes and improves operator protection through automated roll cleaning.
- Advanced Cleaning: A sophisticated trolley with pressure rollers distribute even pressure for superior cleaning.
- Versatile: This self-contained system enables flexible dry/wet cleaning with programmatic quality-based automation.
- Safety Mechanisms: Integrated switches instantly halt equipment when protective hoods open, preventing accidents and fume exposure.
- Efficient Process: Automated cleaning minimizes downtime.
- Networked Control: PLC-controlled system enhances safety, efficiency, and enables facility integration.



## MACHINE FEATURES

The ARC system was developed primarily as a safety project, addressing several critical challenges in the printing process. The primary motivation was a change in ink formulation to titanium-free ink, which produced aggressive and obnoxious fumes. The system was designed to solve multiple issues: operator safety, fume containment, and manual roll cleaning.

The cleaning system consists of a sophisticated setup with a trolley that moves along the printing rolls. It features a unique cleaning mechanism with rollers that apply even pressure across the roll surface. Unlike previous designs that used a sponge, these rollers are designed to prevent damage if the web breaks. The system uses a solvent (typically isopropyl alcohol or ethanol) to clean the rolls, with the solvent applied through tubes behind a cleaning towel.

A notable feature of the ARC System is its versatility. The self-contained unit inside the machine guard offers both dry and wet cleaning cycles using isopropyl alcohol (IPA). It provides flexible control options, allowing manual operation or programmatic integration with the camera and rejection system. In advanced configurations, the system can automatically initiate cleaning based on print quality rejections, with the ability to perform up to 10 cleaning passes depending on the ink type.

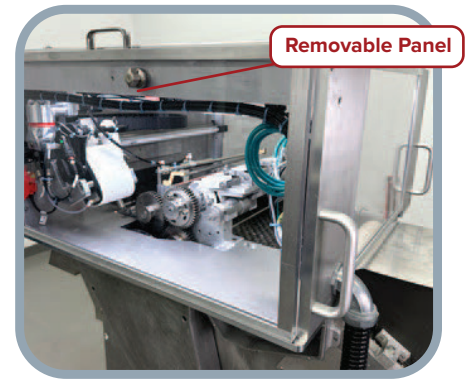
Safety is a paramount concern in the design of this system. Integrated safety switches are strategically placed to ensure employee protection. When the protective hood is opened, these switches immediately trigger the equipment to stop, preventing any potential accidents or exposure to moving parts or harmful fumes. This safety mechanism ensures that operators cannot access the internal components while the system is in operation, significantly reducing the risk of workplace injuries.

The automated cleaning process is programmed to clean rolls at staggered times, preventing multiple machines from going off-line simultaneously. It uses an air motor to advance a cloth roll, which is replaced when it reaches a certain diameter. The cloth rolls are now manufactured on stainless steel tubes to prevent potential contamination.

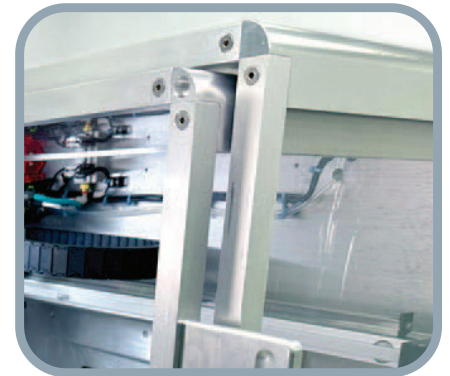
The system is designed to be controlled by a central PLC (Programmable Logic Controller) and can be networked with multiple machines. The project represents a significant improvement in operator safety, process efficiency, and product quality, addressing issues of fume exposure, manual cleaning, and potential contamination.

## Easy Programmable Automation Settings

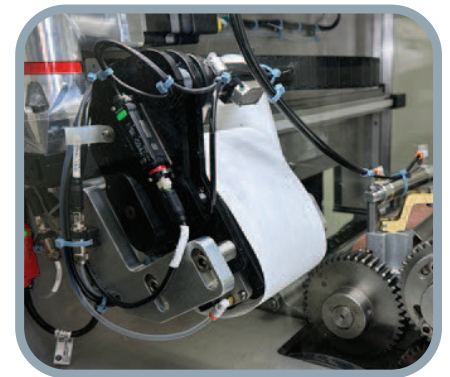
Clean Rotations	1-20 Rotations	4
Clean Passes	1-10 Passes	1
Step Clean Overlap	1-90%	60
First Wind Time	1-10 Seconds	2
Wind Time	1-10 Seconds	2
Solvent Time	500-10000 ms	2
Auto Cycle Frequency	0-60 Minutes	30



Fume Hood



Telescoping Access Door



Automated Cleaning System



Integrated Safety Switches