



## Chip and Fluid Waste Reductions a Key Part of Machining Company's 'All Systems Grow' Initiative

### Introduction

Youngers and Sons Manufacturing Company, Inc. was founded in 1973 by Gerald Youngers who developed a patented recreational product in a small metal out-building on his property. The modest operation expanded, fueled by welding and machining projects, along with the support of three of Gerald's sons.

Today the family-owned-and-operated company is led by Gerald's son, Neil Youngers. The high-precision machining operation comprises three facilities spanning more than 100,000 square feet in Wichita and the surrounding area, where the company provides a broad array of services—including turning, milling, broaching, and

grinding—to meet the machining needs of oil and gas, agriculture, heavy equipment, and other industrial markets in the region.

In 2020, Youngers and Sons began a period focused on refining and improving existing processes, facilities, and growth strategies in order to position the company for future expansion and stability. The acquisition of a 51,000-square-foot facility in 2021 kicked off a systematic reorganization and right-sizing of the spaces in Youngers and Sons' three facilities. The combined initiatives enabled Youngers and Sons to double the size of the business in just three years.



# CHALLENGE

As the machining company worked through optimizing its facilities and growth strategies, it became clear another aspect of operations—its metal scrap and fluid recycling—needed to be addressed.

Youngers and Sons' Vice President of Manufacturing and Chief Operating Officer Chad Hoheisel quickly recognized the company's scrap and fluid management did not align with the trajectory of the rest of the operation.

"It was about as rudimentary as you can possibly imagine," he said of Youngers and Sons' metal scrap and fluid management.

The company relied on third-party service providers to haul

away, process, and recycle their metal scrap and coolant waste. Youngers and Sons was not earning the maximum value for its scrap, and replacement coolant expenses increased operating costs. Outdated transaction practices and the lack of autonomy also led to unpredictable financial outcomes for the manufacturing company.

From a housekeeping perspective, the existing arrangement resulted in a working environment that did not reflect the clean, orderly, and efficient operation the company had worked so hard to achieve during the reorganization of its plants. Bins loaded with oily scrap awaiting the scrap hauler to pick them up were both unsightly and an environmental security risk.



**Younger and Sons was not earning the maximum value for its scrap, and replacement coolant expenses increased operating costs.**

# SOLUTION



Based on his 20+ years of experience in manufacturing, Chad knew that if Youngers and Sons revamped its metal scrap and fluid processing, the company would attain sustainable cost-savings, improve efficiency, and optimize compliance. The improved housekeeping would strengthen the company's mission of being a top-choice employer.

In researching metal scrap and fluid processing options, Chad did some benchmarking within the industry. As part of that exercise, he consulted with one of Youngers and Sons' OEM customers who had a system by PRAB.

"They spoke very highly of it," he said.

Satisfied with his research, Chad connected with PRAB to procure chip processing and fluid recycling equipment for Youngers and Sons' newest production facility.

After assessing Youngers and Sons' application parameters, PRAB engineered a metal scrap processing and coolant

recovery system to automate the recycling of 1000-4000 series steel and brass and reclamation of water-soluble coolant on-site.

As is often the case when installing a custom system, Youngers and Sons faced challenges with commissioning the equipment. Installation and start-up didn't go as expected, ultimately requiring follow-up support. PRAB technicians promptly visited the plant to dial in the equipment until it performed as intended.

Once the issues were resolved, Youngers and Sons' scrap and fluid management transformed from a slow, dirty, and outsourced process to an efficient, clean, in-house solution.

**"The equipment is highly engineered, very complete. There was no stone left unturned on the final product. It is a very robust processing system," Chad said.**

# SOLUTION



During operation of the system, the company's steel and brass scrap containing approximately 40% chips, 40% turnings and 20% bundles is dumped into a **PRAB Vertical Axis Crusher** that reduces the material to flowable chips. From the crusher, a steel belt conveyor feeds the chips into a **PRAB Diagonal Shaft Chip Wringer** that uses up to 700 G's of centrifugal force to spin fluid from the chips. The reduced chips are discharged via a screw conveyor into a storage bin in preparation for haul-away. The fluid that is spun off the chips collects in a settling tank, where an air pump transfers the reclaimed coolant to a **PRAB Guardian™ Coolant Recycling System**.

The Guardian uses a magnetic paper bed filter, tramp oil separator, an integrated coolant make-up system, ozone injection, and polishing filter to clean the water-soluble coolant and restore the fluid to its properly proportioned coolant mix so it can be reused. The fluid's service life is perpetually extended because the coolant is repeatedly reclaimed and recycled.

The coolant recycling system processes cutting fluids collected by separating the fluid from the metal scrap. It also processes cutting fluid removed during sump cleaning. Previously, Youngers and Sons' sump coolant was hauled away for disposal and replaced with new coolant. Now, it is replaced with clean, recycled coolant produced by the Guardian.



# RESULTS

At the time of installation, the new PRAB equipment joined a secondary processing system Youngers and Sons had acquired while the PRAB system was being engineered. The systems and transactional improvements are providing the company with the following bottom-line benefits:

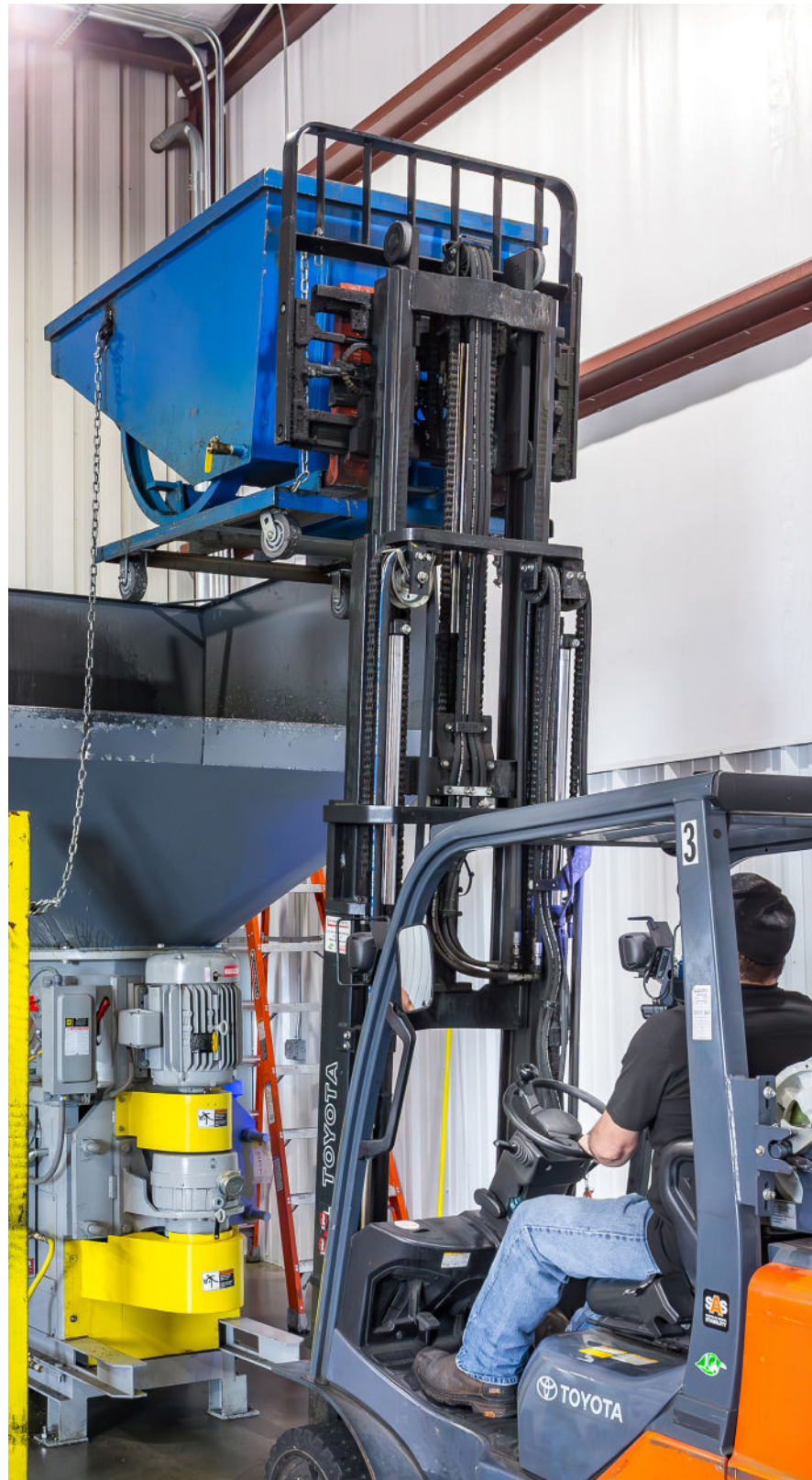
- **The company's haul-away costs for metal scrap and fluids are 18% lower.**
- **New coolant purchases have dropped 38%.**
- **The company is receiving 12% more value for their metal scrap from the recycler.**

In addition, the metal scrap and fluid processing systems have taken Youngers and Sons' plant housekeeping to a whole new level.

"Look at how clean this system is from start to finish for a job that could easily be very dirty and nasty. Any of our team that was managing chips and coolant in the old method – they can't believe the difference," Chad said.

The equipment supports the company's resolve to have their facilities "visit-ready" at a moment's notice. It is also eliciting positive reactions from visitors and customers who are impressed by the systems' capabilities and what they accomplish for Youngers and Sons.

"We have a fantastic facility. But of the many things guests see when they visit, when they see the scrap and fluid recycling systems their response is, 'Wow, YOU do THAT?!' And I explain how we process the chips, we reclaim 99.7% of the fluids, we recycle everything. They walk away blown away like 'I've never seen anything like this,'" he said.



# CONCLUSION

As Youngers and Sons' strategically planned improvements mature, the company finds itself well-positioned for continued growth. Sized to accommodate another 200 percent increase in production capacity, the PRAB metal scrap and fluid recycling equipment stands ready for heightened production demands. Compared to the company's previous process, the in-house equipment will bring incremental savings as the company expands. Lower haul-away expenses and replacement cutting fluid costs, higher scrap value, and improved housekeeping and liability risk will make conditions favorable for an "all systems grow" approach in the years ahead.

## PRAB Chip Processing and Fluid Recycling Solution Summary



### Chip Processing System:

- Vertical Axis Crusher: Model VAC II
- Wringer Feed Conveyor: 2.5" Pitch Steel Belt
- Tramp Metal Separator: Model R24
- Diagonal Shaft Chip Wringer: Model 24CD
- Settling Tank with Re-Circulating Drag Conveyor
- Wringer Discharge Conveyor
- Control Panel



### Fluid Recycling System:

#### PRAB Model HG-4000 Deluxe Guardian™ Coolant Recycling System

- Dirty Coolant Transfer System with a 100-micron In-Line Bag Filter Assembly
- Includes second inlet manifold for bringing fluid from the PRAB Chip System
- Magnetic Paper Bed Filter Package:
  - MSK-100 Magnetic Separator: 15-micron rated unit
  - Model PFA-240 Paper Bed Filter System: 10-micron filter media
- Process tank: one 2,000-gallon capacity dirty coolant compartment, and one 2,000-gallon capacity clean coolant compartment.
- TW25 Tramp Oil Separator
- Automatic Air Sparging Package
- Coolant Make-up System
- Coolant Manager: Ozone Generator
- Polishing Filter: 20-micron rated cartridge filter
- Touchscreen HMI/PLC control panel
- AC3 Automatic Coolant Concentration Control Package
- System flow rate: 25 GPM