

# ROUSSELOT DUBUQUE'S ULTRASOUND PROGRAMS HAVE CONTRIBUTED TO NEARLY \$2,000,000 IN COST AVOIDANCE IN 5 YEARS



## ABOUT

Established in France in 1891 by Edward Rousselot, Rousselot is now part of Darling Ingredients International and is committed to producing high-quality, safe gelatin and collagen products. Today, Rousselot offers the widest range of gelatins and collagens available.

Rousselot's operational teams, located in 17 state-of-the-art facilities, have also developed outstanding know-how in manufacturing products from collagen-rich sources. Rousselot's Dubuque site produces food, pharmaceutical, medical, and fuel ingredients.

## THE PROBLEM

Rousselot Dubuque was experiencing unplanned downtime and their facilities were not running at optimal efficiency. They were encountering frequent issues with compressed air leaks, rotating bearings, steam traps, electrical, and valves, but they lacked an efficient strategy to adequately address these concerns. Consequently, they delved deeper into the optimistic potential of ultrasound technology and quickly understood the benefits it could have for their facilities.

Although introducing a brand-new ultrasound program in their facility could be helpful in alleviating these issues, they were also aware that incorporating new technology, even if it's intended to save a company money and improve efficiency, can be tricky to justify and adopt. Whether it be expenses, time, manpower, logistics, etc., it can be difficult to put the time and money into change.

## THE SOLUTION

Fortunately for Rousselot, the maintenance team knew they could sell ultrasound technology to management because of its fast payback and early detection capabilities. Although it's made with high-quality tools and offers thousands in annual savings, ultrasound is a relatively low-cost technology to introduce, and it allowed Rousselot Dubuque's 100% in-house reliability program to evolve quickly.

The Dubuque site introduced their ultrasound program in 2013, initially focusing primarily on using ultrasound for compressed air leaks. After training their technicians to use ultrasound equipment and develop consistent leak routes, they started experiencing significant savings in air leaks, meaning that not only did they quickly pay off the cost of their ultrasound equipment, but they also obtained concrete data to justify the use of ultrasound throughout their facility. They quickly began to expand their ultrasound program in 4 key areas:

## MECHANICAL ULTRASOUND

## STEAM TRAP MONITORING

## ELECTRICAL ULTRASOUND

## COMPRESSED AIR LEAKS

While Rousselot Dubuque purchased many instruments from UE Systems such as the Ultraprobe 3000, Ultraprobe 401 Grease Caddy, and Remote Access Sensors, the main instruments they utilized were two Ultraprobe 15,000s, paired with DMS software, and recently the UltraView Camera.

The Ultraprobe 15,000 uses ultrasound to analyze everything from bearings and electrical systems to steam traps and air leaks. With an intuitive, built-in touch screen, this hand-held instrument can easily detect and report on every aspect of a plant's equipment. DMS is a data management software that allows users to store, manage, and analyze inspection data. It also generates reports and alerts on bearing conditions, lubrication history, and the cost of air leaks or steam loss. DMS software is a must have software to pair with an Ultraprobe if you're looking to truly elevate your reliability program.

The UltraView Camera makes finding and quantifying leaks easier and faster than ever with its increased sensitivity and wider scanning area. It instantly pinpoints leaks as small as 0.016 l/min, allowing technicians to pinpoint leak locations and quantify exactly how much energy it is costing them.

# THE RESULTS

## 1. Mechanical Ultrasound

The Rousselot Dubuque site completes 34 routes each month, recording everything in DMS. These routes are designed to take less than 2 hours, which allows technicians to stay focused and complete their routes with precision. Lubrication issues are then noted, revisited, and corrected as part of completing the route. Any high alarm conditions are further investigated using a handheld vibration meter, which helps to quickly identify if the issue is the bearing or other problems such as imbalance or misalignment.

From 2019-2023, ultrasound has helped Rousselot Dubuque detect 34 failures, saved **\$152,274** in repairs, helped avoid 42 hours of unplanned downtime, and has saved the company an estimated total of **\$544,234**. These numbers are likely way higher, but this data represents conservative, best-case scenarios.

Year	# of failures detected	Repair savings	Down time avoided	Lubrication saves	Other issues corrected	Total cost avoidance estimate
2019	7	\$22,540	11 hours	40	4	\$121,500
2020	5	\$8,157	6 hours	28	3	\$62,157
2021	8	\$7,805	11 hours	18	4	\$106,805
2022	14	\$113,772	14 hours	23	6	\$253,772
<b>Total</b>	<b>34</b>	<b>\$152,274</b>	<b>42 hours</b>	<b>109</b>	<b>17</b>	<b>\$544,234</b>

## 2. Steam Trap Monitoring

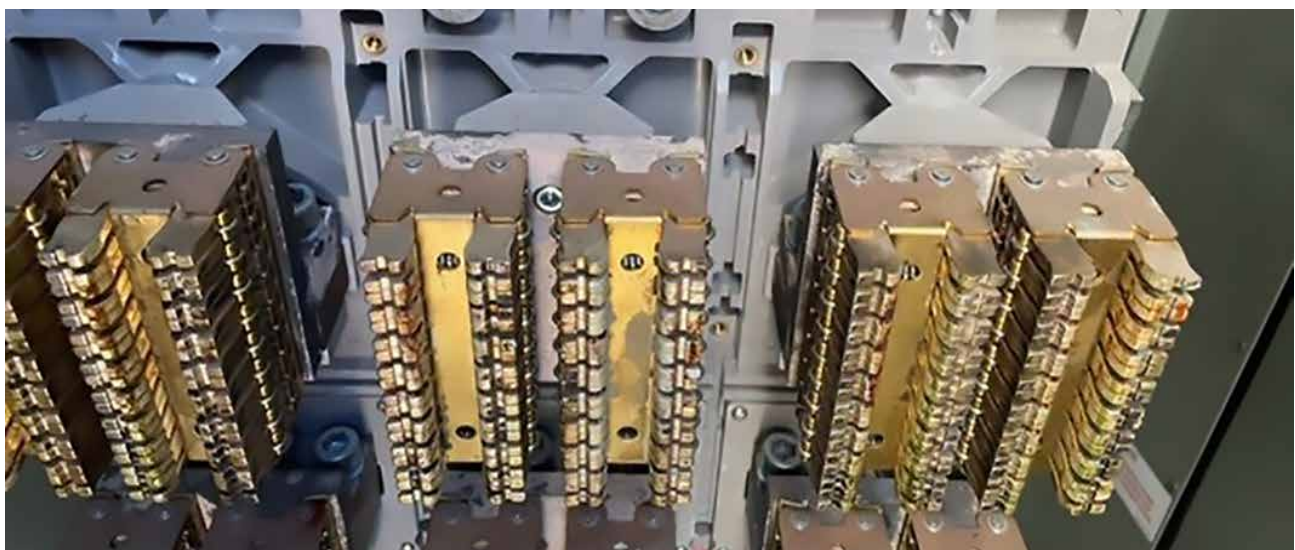
The Rousselot Dubuque site tests over 120 steam traps on 8 routes each quarter. When they first started using ultrasound for steam trap monitoring, they found a high percentage of their steam traps were failing due to water hammer and leaks. From 2019-2022, they detected and repaired 23 trap failures, saving the company an estimated **\$34,500**.

## 3. Electrical Condition Monitoring

In the last couple of years, the Dubuque site has put an extra focus on developing their electrical ultrasound program. During one specific incident, one of their technicians heard a new sound that raised concerns about a potential issue with one of their critical service breakers. This drew an alarm because a replacement breaker would take nearly 5 months to arrive. Taking proactive measures, the technician not only ordered a spare part but also captured an audio recording of the sound. Later, they were able to get an expert circuit breaker team to confirm that both arcing and corrosion were present on the clamping bars as well as hydrogen sulfide film on the insulators from a nearby piece of wastewater treatment equipment.

Thankfully, the circuit breaker team was able to clean up the equipment and apply dielectric grease to help secure the electrical connection but arcing resurfaced just a few weeks later. Fortunately, the replacement breaker had arrived early, so they were able to plan a shutdown to switch it out. If it weren't for ultrasound, they never would have heard the foreign noises, alerting the technician that something was wrong.

In the end, **the estimated cost avoidance for this finding was \$1,200,000!** While this is likely an underestimation, this is the cost avoidance estimate of minimal downtime.



## 4. Compressed Air Leak Detection

From 2018-2022, with the use of the Ultraprobe 15,000 and DMS, they detected, measured, and repaired 284 air leaks leading to a cost avoidance estimate of **\$160,572 (\$40,134 annually)**! This was accomplished by performing just 7 leak routes each quarter, ensuring they had a consistent process in place.

In December of 2022, they purchased an UltraView Camera from UE Systems – this was monumental because it eliminated competing ultrasound, cavitation in pumps, vacuum transfer systems, proportional valves that leak air intentionally, etc.

After looking at other cameras on the market, Rousselot Dubuque chose UE System's UltraView Camera for several reasons:

1. They liked the one hand design, leaving the other hand free for handrails, stairs, or other purposes. It also allowed technicians the ability to scan ceiling areas, even switching hands when an arm gets tired.
2. The cloud-based automatic link between the UltraView Camera and the UltraView Cloud is seamless and easy to use.
3. Positive prior relationship with UE Systems.
4. It's what the technicians wanted!

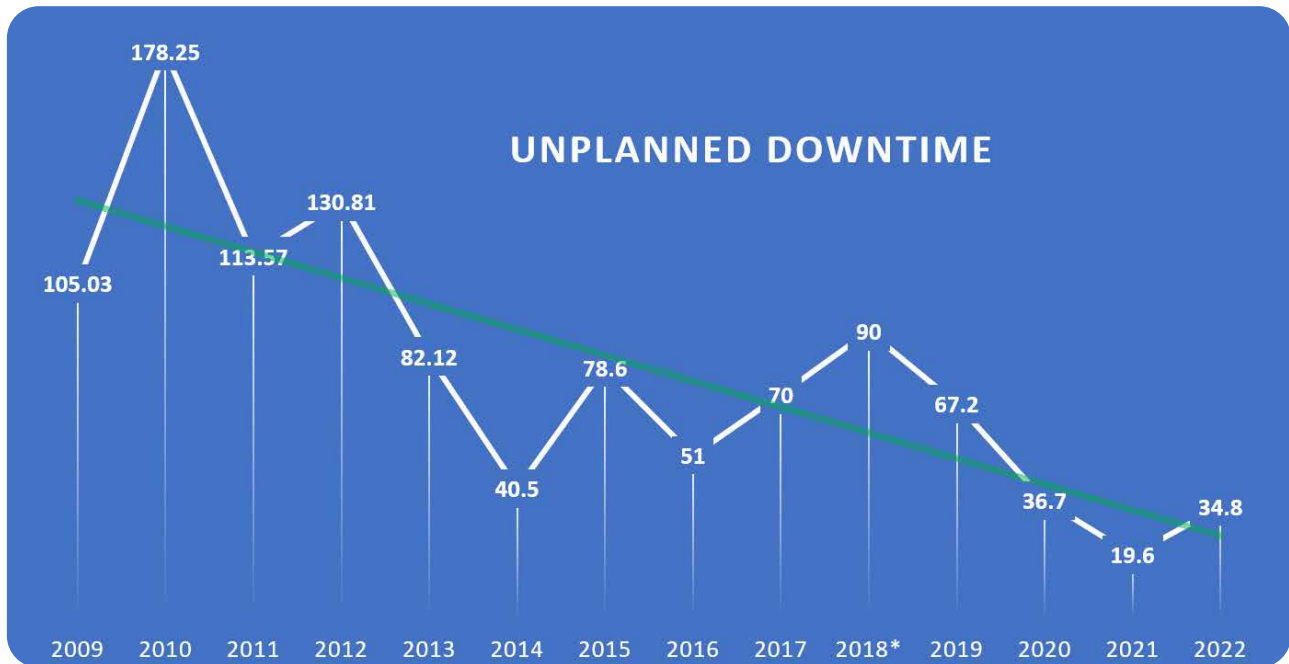
The level of detail provided about a given leak is excellent on the detail screen. With images like below, the repair guys have an easy job of finding and fixing the leaks.



Since purchasing UltraView Camera in December of 2022, the average number of air leaks discovered per route **increased over 400%** - in just 4 months, they have already paid for their UltraView Camera!

**Since 2019, the overall total estimated cost avoidance that can be directly attributed to their ultrasound programs in mechanical ultrasound, steam trap monitoring, electrical condition monitoring, and compressed air leak detection is \$1,939,306!**

It has now been 10 years since Rousselot Dubuque started buying into their ultrasound program, and they are expanding the use of Ultrasound technology across their global sites. Moving forward, they plan to utilize the power of ultrasound in their facilities. Their ultrasound program has come a long way since 2013, and they are in continuous communication with UE Systems about new products and services.



## SUMMARY

- Unplanned Downtime and Suboptimal Efficiency:** Rousselot Dubuque encountered frequent issues with compressed air leaks, rotating bearings, steam traps, electrical, and valves, but they lacked an efficient strategy to adequately address these concerns. Consequently, they delved deeper into the potential of ultrasound technology and quickly understood the benefits it could have for their facilities.
- Introducing Ultrasound:** In 2013, Rousselot Dubuque introduced a brand-new ultrasound program in their Dubuque facility, focused primarily on compressed air leaks.
- Expanding Their Ultrasound Program:** After significant cost savings and experiencing heavy success with their compressed air leaks, The Dubuque site quickly began to expand their ultrasound program to 4 key areas: mechanical ultrasound, steam trap monitoring, electrical ultrasound, and compressed air leaks.
- Incredible Cost Avoidance:** The overall total estimated cost avoidance that can be directly attributed to their ultrasound programs in mechanical ultrasound, steam trap monitoring, electrical condition monitoring, and compressed air leak detection is **\$1,939,306!**
- Continuously Maturing:** Despite evolving their ultrasound program for the past 10 years, Rousselot Dubuque continues to communicate with UE systems regarding new products and services to ensure their ultrasound program is maturing.