

CONSTELLIUM SAVED \$25,000 IN TWO WEEKS FROM ARGON GAS LEAKS ALONE



ABOUT CONSTELLIUM

Constellium is a global leader in designing and manufacturing high-value aluminum products and solutions for the aerospace, automotive, and packaging markets. The company operates 27 manufacturing sites across Europe, North and Central America, and China.

„It's incredible to see the impact of ultrasound technology on our operations. Detecting and fixing air and gas leaks has saved us thousands in a short amount of time, while also reducing downtime and extending the life of our assets. It's a game changer for our facility,”

Roger Carpenter, Constellium

THE PROBLEM

30% of all compressed air is wasted, and with the cost of energy on the rise, locating and fixing air leaks is essential to saving money and allowing your plant to run more efficiently. Constellium realized this and identified a key initiative in their maintenance strategy for their Ravenswood, WV facility: air and gas leaks. Ultrasonic frequencies caused by air and gas leaks cannot be heard by the human ear, so leaks often go unnoticed.

THE SOLUTION

Constellium decided it was time to use ultrasound technology to listen to their assets and drastically reduce unexpected downtime while also prolonging the life of their assets. They purchased ultrasonic instruments from UE Systems to implement an ultrasound-based predictive maintenance program for compressed air and gas leak detection and bearing monitoring and lubrication. Using the Ultraprobes, they were able to perform an air and gas leak survey around their facility, finding many leaks consisting of natural gas, nitrogen, and argon.

THE RESULTS

Once they repaired these leaks, they noticed their energy usage decreased over \$25,000 in argon leaks alone in the following two weeks. Throughout the course of the year, they estimated a total cost avoidance of \$235,000. By fixing the leaks, Constellium saved a significant amount of money. Additionally, when leaks are properly sealed, it is less of a burden on the equipment because the machines don't have to work as hard to compensate for the lost energy. With the implementation of ultrasound technology, Constellium successfully installed a reliable and efficient compressed air and gas leak program, resulting in an additional \$235,000 per year to reallocate their time and budget more resourcefully across the organization.

Record Number	Air Leaks Repaired		Argon Leaks Repaired		Natural Gas Leaks Repaired		Nitrogen Leaks Repaired		CO2 Leaks Repaired		Cost Avoidance			CO ₂ Identified	NO Identified	SO ₂ Identified
	CFM	Cost	CFM	Cost	CFM	Cost	CFM	Cost	CFM	Cost	Identified	Repaired	% Complete			
	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00	\$244,128.28	\$0.00	0%			
	Group Name	Location Name	Type of Gas	Pressure at Leak	dB Reading	Problem Description	Repaired (Y/N)	Work Order Schedule #	Identified Leaks Cost Avoidance	Size of Leak (CFM)	Energy Avoidance (kWh)	CO ₂ Avoidance (lbs)	NO Avoidance (lbs)	SO ₂ Avoidance (lbs)		
1	Mixed Gas Survey	outside West wall	Nitrogen	50	24	flange on Nitrogen shut off Valve	N	10129559	\$1,580.19	0.7	N/A	N/A	N/A	N/A		
2	Mixed Gas Survey	just inside west wall	Natural Gas	50	12	Natural Gas tube leak	N	10129561	\$325.13	0.2	N/A	N/A	N/A	N/A		
3	Mixed Gas Survey	DC 2 beside pit fan	Air	75	40	union is leaking	N	10129564	\$206.38	2.1	3558	7114	12	72		
4	Mixed Gas Survey	Dc8 Irma Cabinet	Argon	50	45	Argon tube	N	10129565	\$54,420.04	1.9	N/A	N/A	N/A	N/A		
5	Mixed Gas Survey	DC8 Snif cabinet	Argon	50	50	leaking from a weep hole	N	10129567	\$65,002.32	2.3	N/A	N/A	N/A	N/A		
6	Mixed Gas Survey	Dc8 Snif cabinet	Argon	50	44	inlet fitting on regulator	N	10129667	\$52,396.09	1.8	N/A	N/A	N/A	N/A		
7	Mixed Gas Survey	Dc8 pressure regulator	Air	75	68	on catwalk inlet to air drier	N	10129668	\$456.90	4.6	7878	15749	26	158		
8	Mixed Gas Survey	High Pressure Nitrogen	Nitrogen	100	37	DC9 Catwalk filter Bowl	N	10129672	\$5,270.57	2.2	N/A	N/A	N/A	N/A		
9	Mixed Gas Survey	DC9 Irma Cabinet	Argon	50	30	Argon Manifold Block	N	10129673	\$27,465.08	1.0	N/A	N/A	N/A	N/A		
10	Mixed Gas Survey	Dc9 Irma Cabinet	Argon	50	32	Argon Tube	N	10129674	\$30,623.26	1.1	N/A	N/A	N/A	N/A		
11	Mixed Gas Survey	below dc10 Chlorine shutoff	Air	75	50	leaking Bowl	N	10129675	\$288.28	2.9	4970	9937	16	100		
12	Mixed Gas Survey	DC10 C02 Lockout valve 121	CO2	50	12	inlet flange	N	10129676	\$3,466.67	0.2	N/A	N/A	N/A	N/A		
13	Mixed Gas Survey	DC10 C02 Regulator	CO2	50	6	leaking from Weep Hole	N	10129677	\$1,077.02	0.1	N/A	N/A	N/A	N/A		
14	Mixed Gas Survey	DC10 C02 Regulator	CO2	50	5	Weep Hole	N	10129679	\$791.93	0.0	N/A	N/A	N/A	N/A		
15	Mixed Gas Survey	hose behind DC10 pit fan	Air	75	65	holes in hose	N	10129681	\$427.05	4.3	7363	14720	24	148		
16	Mixed Gas Survey	walkway between blue room and Dc9	Air	75	32	Air Valve Packing gland	N	10129683	\$147.74	1.5	2547	5093	8	51		
17	Mixed Gas Survey	pressure Regulator	Air	75	37	Between Blue Room and Dc9	N	10129684	\$181.63	1.8	3166	6330	10	64		

Compressed Air Leak Survey Cost and Savings

USING THE CHARACTERISTICS OF ULTRASOUND, LOCATING LEAKS IS FAST AND EASY



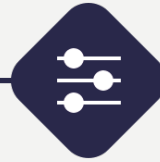
SCAN

Scanning a test area with an Ultraprobe, leaks can be heard through the headset.



IDENTIFY

Follow the sound of the leak. The closer you get to the source, the louder it gets and the higher the decibel (dB) level will read.



ADJUST

Keep adjusting the sensitivity level of the Ultraprobe to lead you to the precise location of the leak.



ESTIMATE

Capture the dB level to estimate the leak rate, amount of energy wasted, and the greenhouse gasses associated.

SUMMARY

- Constellium identified air and gas leaks as a major problem in their maintenance strategy.
- They decided to use ultrasound technology to listen to their assets and reduce unexpected downtime while prolonging the life of their assets.
- They purchased ultrasonic instruments from UE Systems to implement an ultrasound-based predictive maintenance program for compressed air and gas leak detection and bearing monitoring and lubrication.
- By fixing the leaks, Constellium saved a significant amount of money, and with the implementation of ultrasound technology, they installed a reliable and efficient compressed air and gas leak program resulting in an additional \$235,000 per year to reallocate their time and budget more resourcefully across the organization.