

# Introducing ISAAC

The Inspection, Sealing, and Advanced Cleaning Robotic Solution  
that Enables Efficient Remediation of Existing HVAC Systems.



**CARLISLE**   
HVAC PRODUCTS

**HARDCAST**  
DUCT SEALANTS &  
INSULATION ADHESIVES

**DYN/AIR**  
DUCT HARDWARE

**NEXUS**  
DUCT FLANGE  
CONNECTION SYSTEM

# ISAAC™ HVAC Robotic System

## ISAAC can:

- Inspect, coat, and seal ductwork from the inside
- Effectively remove debris in a single pass
- Provide video footage of interior conditions
- Lower labor costs significantly

ISAAC can help improve indoor air quality and decrease heating and cooling costs without significant interruption to building occupants.

Carlisle HVAC continues to raise the bar in the HVAC industry with the introduction of innovative new products that revolutionize duct repair and maintenance. The ISAAC HVAC Robotic System is Carlisle HVAC's answer to cleaning and sealing inaccessible ductwork.

## What is ISAAC?



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The Inspection, Sealing, and Advanced Cleaning robot, or ISAAC, is a precision machine created specifically for the inspection and repair of ductwork. The ISAAC HVAC Robotic System is capable of hard-to-reach remediation that would otherwise result in much more costly renovations. It is a robotic vehicle integrated with a digital video recorder that is specifically designed to clean, coat, and seal ductwork of all types.

## What's in your ductwork?

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A number of things inside your ductwork may affect the indoor air quality of your facility. Poor air quality may result in health problems for those who use the facility. The breakdown of fiberglass insulation that is not properly encapsulated results in fiber buildup inside of ductwork. Mold and bacteria can feed on particulate matter that accumulates in corners and on fire and smoke dampers. Dirt and debris will continue to accumulate if the optimal airflow through ductwork is not achieved.

## Why inspect your ductwork?

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Ducts are rarely inspected inch-by-inch making it possible for breaches in the system to exist. Such breaches may include poor or non-existent sealing, improperly installed turning vanes, or full duct separation resulting in compromised airflow. The ISAAC HVAC Robotic System also makes it possible to inspect for debris that has built up on the coils in VAV boxes. Any of these issues will result in an inefficient HVAC system creating unnecessary additional monthly operational costs. The only way to ensure that these problems do not affect your ductwork is to visually inspect them and repair all potential issues.



## How does ISAAC work?

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The remotely operated vehicle can be equipped with a variety of payloads depending on the object of its mission. For instance, it can be equipped with a pneumatic cleaning attachment to remove particulate from the ductwork. In addition, an airless spray attachment allows the ductwork to be sealed or fiberglass insulation to be encapsulated. These kits are equipped with quick disconnect hardware for speedy attachment and set-up. Once deployed, the ISAAC HVAC Robotic System is controlled remotely and progress is monitored on the LCD display using the live video feed. Upon reaching an area in need of remediation, ISAAC gets to work – cleaning with air-driven whips and brushes, sealing leaks or coating damaged insulation with its airless sprayer. These attachments are capable of 360-degree rotation, ensuring that every inch of ductwork that requires attention is treated properly.

## Why use the ISAAC system?

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ISAAC offers three benefits to commercial buildings: improved air quality, greater energy efficiency, and easier, less costly full system inspection. The energy efficiency of an HVAC system is contingent upon it remaining free of leaks and debris. According to the Department of Energy, the typical duct system loses 25 to 40 percent of its energy output due to improper sealing. The ISAAC HVAC Robotic System helps to mitigate energy loss by fully cleaning and properly sealing your ductwork, resulting in increased airflow and reduced operational costs. It can also dramatically improve your building's indoor air quality, purging your system of long-unnoticed particulate. Moreover, the sealants and encapsulants developed by Carlisle HVAC products are anti-microbial, meaning they do not provide a food source for bacteria.

The same innovative team that introduced SPRAY-SEAL™ to the market formulated two new products especially engineered for the ISAAC system:

- RS-100 for sealing leaks from the interior of the ductwork
- RE-500 to encapsulate fiberglass insulation



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