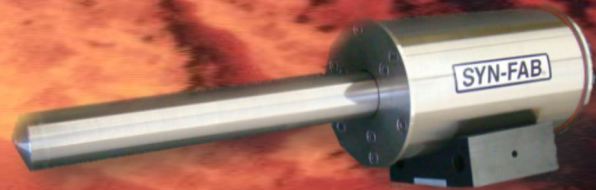


# CARRYOVER MONITORING SYSTEMS

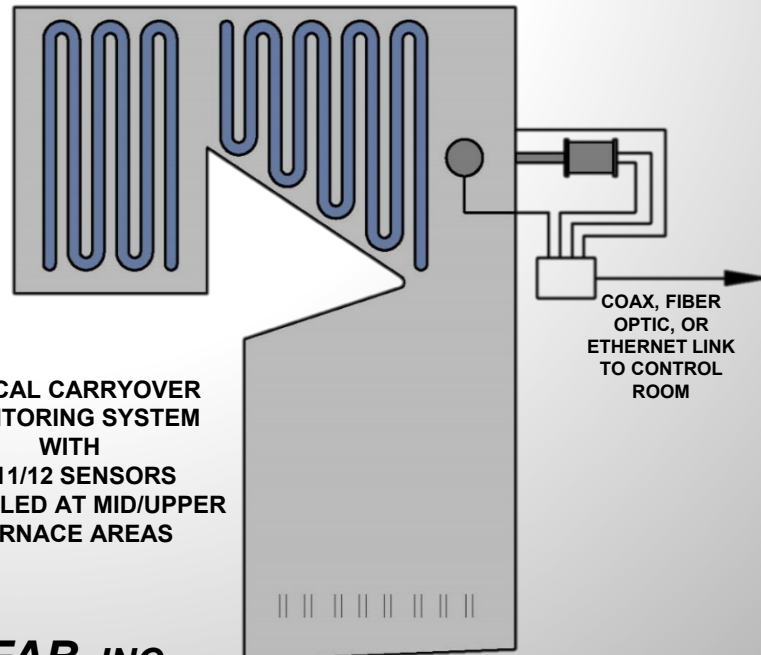


In many boilers and furnaces, variations in fuel infeed and/or combustion air can result in unburned fuel particles being carried up in the flue gas (**carryover**) and deposited on the tubes in the mid to upper furnace areas. These deposits can obstruct gas flow resulting in poor furnace ventilation as well as causing reduced heat transfer. A carryover monitoring system from **SYN-FAB®** can be used as a tool to troubleshoot and resolve such problems.

**SYN-FAB®** SF11SP or SF12SP imaging sensors can be installed in key mid/upper furnace areas to detect and display the carryover particulate as it travels up from the lower furnace. The wavelength optimized optical systems accentuate the luminescence of upper furnace particulate and eliminate interference from visible and IR radiation. The result is a dark image (zero signal) when no particulate/carryover is present and a calibrated signal in particles per second (PPS) when particulate is present within the target area. The outputs of the sensors are fed via fiber optic/coax/Ethernet link to a **SYN-FAB®** carryover monitoring system located in or near the control room. The **SYN-FAB®** carryover displays both a visual and a digital reading that corresponds to the amount of particulate that is flowing in the vicinity of the detector(s). The system's output data can be analyzed and/or sent to the plant's DCS. Operators can use these visual images and data to correlate changing operational parameters to increases and decreases in carryover rates.

The **SAE0031-III CARRYOVER COUNTER™** is a black box device that accepts the input from one to four detectors to calculate the carryover rate that is passing in front of each detector. The SAE0031-III allows the operator to define target areas and generate a data output for each detector.

The **Pyro-Viper™-HD CARRYOVER COUNTER™** is a PC based carryover rate and image processing system that accepts the input from up to eight detectors. Like the SAE0031 this system calculates the carryover rate but has more flexibility and features, including individual calibration for up to 32 carryover target zones. Options for data outputs include an OPC standard network interface and optically isolated 4-20 mA outputs.



**TYPICAL CARRYOVER MONITORING SYSTEM WITH SF11/12 SENSORS INSTALLED AT MID/UPPER FURNACE AREAS**

**SYN-FAB® INC.**

## HIGH TEMPERATURE & INDUSTRIAL PROCESS MONITORING SYSTEMS

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