

SPECIFICATION

The SafeSite™ Leak Monitoring System

1.0 GENERAL DESCRIPTION AND STANDARDS

THE SAFESITE™ LEAK MONITORING SYSTEM (LMS) shall be provided where required by the Contract Drawings. The Vacuum Leak Monitoring System shall either be integrated into the SafeSite FOC Fuel Oil Control System or provided as a Standalone SafeSite Leak Monitoring System.

The system shall be listed with the National Work Group of Leak Detection Equipment (NWGLDE)

The pipe leak monitoring system shall continuously monitor the interstitial space of double wall piping for integrity and tightness of both the primary and secondary (containment) pipe.

The system in its entirety shall be configured and provided by Core Engineered Solutions, Inc. .

2.0 DESIGN AND CONSTRUCTION

The pipe leak monitoring system control panel shall consist of, but not be limited to the following:

1. Power requirements: 120 VAC 1 phase with neutral
2. Enclosure: NEMA 4X (suitable for outdoor and high corrosion areas)
3. Listings: UL508A listed, CSLA listed and meets NEC (NFPA70), NFPA 30 and NFPA 37 requirements. Suitable for Class 2, Division 2, Groups B, C and D
4. Display: 6-Inch Micro-Graphic Touch Panel with TFT color LCD, 320 x 240 dot, 32k color display with LED backlight
5. PLC: Micro-Analog PLC with relay ladder logic programming, real time clock/calendar and battery-backed memory
6. Outputs to building management (BMS)
7. System summary alarm (1) dry contact
8. Modbus RTU communications port (configurable up to 115.2k baud) and TCP/IP.

The pipe leak monitoring system shall consist of, but not be limited to the following components:

9. Vacuum pump – UL and ULC listed, 50 PSIG, 24inHG, 0.52 CFM
10. Liquid safety barrier
11. System vacuum setting shall be 10inHG
12. Pressure gauges – 30inHG, 100PSIG, liquid filled, stainless body with brass intervals

13. Compound gauges – 30inHG, 100PSIG or sized to 1.5 times the system operating PSIG.
14. Stainless steel bracket for manifold and pump assembly (4B finish).
15. The system shall be capable of interfacing with the Building Management System (BMS) via ModBus or a Dry Contact Output (General Fault Alarm).
16. The bracket and assembly shall be factory assembled and wired to the fuel oil control panel, or may alternately be installed as a standalone unit and certified by a SafeSite Fuel System Controls representative.
17. Programming: The system must be programmed by a factory trained technician or by the direction of a factory representative. The following parameters will be factory programmed (but not limited to this list).
 1. System type of test – Vacuum
 2. Test target to start a test – 8inHG
 3. Test duration – 1 hour increments
 4. Maximum loss to fail a test – 2inHG
 5. Number of failed tests in a row to activate an alarm – 3 failed attempts
 6. Number of failed attempts to start a test to activate an alarm – 1 failed attempt
 7. Alarm will disable the fuel pump
18. Automatic Operation: The system is designed to run only in the automatic test mode. The system monitors and controls the test media (vacuum) for the maximum loss for a programmed length of time. When testing, the system will perform the following:
 1. Prepare for the test
 1. The vacuum pump will start
 2. The system will stabilize before starting a test
 3. The system will start a test when the test media is stable
 4. The system will monitor the media for changes and either pass or fail a test based on the results
 2. The results of the test
 1. The system will log the results of a passed or failed test
 2. Activate the alarm and send a signal to a BMS as programmed. If the alarm is activated, press *Alarm Acknowledge* button on the front cover to silence the alarm.
 3. Disable the fuel pump(s)
 3. Types of system failure
 1. If the secondary pipe is compromised, the system will lose vacuum and the alarm is activated.

2. If the primary pipe is compromised, fuel will leak into the secondary pipe and fill the liquid barrier which will activate the alarm.
3. Each pipe run shall have an isolation valve to determine the specific pipe that is leaking in the event of a leak condition.
4. Automatically prepare for the next test as programmed.

For drawings or more information contact Core Engineered Solutions at www.core-es.com
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