



LUSE THERMAL TECHNOLOGIES, LLC **The ISOMEMBRANE® System**

Licensed Designers and Installers of:

The ISOMEMBRANE® System a “PROVEN” Engineered Flexible High Temperature Solution for “Air-In-Leakage” Issues in Plant Dead Air Spaces and Expansion Joints.

Syntho Glass® Products and Services for pipe issues and repair of rusted, pitted, thinning wall thickness and even in some cases while the piping is under pressure repair. Syntho Glass conforms to ASME PCC-2, DOT, ASME B31.4 and API 570 ensuring pipe line integrity.

“Introduction: Overview of Syntho Glass products and services”

One area LTT specializes in is the industrial plant pipe restoration which includes the repair and restoration of all piping systems except for polyethylene. During normal operation of plant systems the piping often experience outer rust, scaling, thinning wall thickness, and even on line pipe leaks. Syntho Glass is a cost effective method to engineer, a repair and reinforce these piping systems back to original design and if conditions permit, repairing the pipes while the plant is “ON LINE”. Syntho Glass is excellent on most piping including, Copper, General Steel, Carbon Steel, Stainless Steel, PVC, Clay, Rubber and more.

Applications: Power Plants, Petro-Chemical, Process Chemical and Refineries including but not limited to the following piping systems, Service Water, Ash Handling lines, Fuel and Fuel Oil piping, Fire Protection systems, Condenser and Condensate piping, Gas, Cooling, Waste and Potable water piping and the list goes on.

“Introduction: Overview and Penthouse Solution”

Luse Thermal Technologies, LLC (LTT) is a specialty engineering and construction company dedicated to Isomembrane® and Syntho Glass® Products and Services.

Another area LTT specializes in stopping Air-In-Leakage. LTT engineers and provides a flexible, high temperature engineered solution, ISOMEMBRANE®, to stop air leakage in coal fired power plant boilers. This technology, however, isn't limited to the coal fired power plants. Other industries include, Refineries, Petro-Chemical and Process Chemical Plants. If Air-In-Leakage is the problem, LTT's ISOMEMBRANE® is a PROVEN Solution.



Power plant designers and operators are very familiar with the problem of sealing the roof of pulverized fuel fired boilers against fly ash intrusion into the so-called dead air space on top of a boiler. During heating up, cooling down and even in operation, the many steam and water tubes that make up a boiler move in opposing directions due to thermal expansion. A durable metallic seal has proven difficult to provide, as steel is very inelastic. Due to the differences in pressure, flue-gas carrying fly-ash will enter through leaks into the dead air space from the combustion chamber. The fly-ash will settle in the dead air space and the flue gas will continue either to the second draft of the boiler or further out into the boiler-house.

Hasle Isomax ISOMEMBRANE® technology was developed to deal with these challenges. ISOMEMBRANE® is a flexible, elastic and ash-tight seal composed of proprietary materials. ISOMEMBRANE® is considered the most advanced and efficient way to seal dead air spaces and can be applied to existing boilers, or new construction. ISOMEMBRANE® has been installed throughout North America and Europe with great success.

Luse Thermal Technologies (LTT) is the exclusive North American Midwest licensed provider of ISOMEMBRANE®. With the support of High Temperature Technologies (HTT), LTT designs and installs ISOMEMBRANE® throughout the Midwest United States utilizing certified trained ISOMEMBRANE® technicians.

ISOMEMBRANE® has proven its effectiveness for more than a decade in Europe, in power plants ranging in capacity from 9Mw to 2,200Mw. Our experience shows a lifetime of 8-12 years in an undisturbed environment. Please check out the articles outlining the performance and cost savings that are possible with ISOMEMBRANE® as well as a list of systems already seeing the benefits of using it. (Supplied upon request)

No other product has demonstrated a similar economical and flexible solution to this problem.

“Your Leaky Expansion Joints Solution”

Luse Thermal Technologies have the technology and the know-how for Sealing Up Leaky Expansion Joints, ISOMEMBRANE®. Power plant designers, operators and boiler specialists are familiar with the challenges of leaky expansion joints throughout boiler duct work. Leakage of that sort causes a variety of negative impacts. Frequent replacement of metal expansion joints from cracked corners and leakage is inefficient, expensive and unnecessary. Some of the consequences of leaky expansion joints are:



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| 1. ID FAN LIMITATION | 4. HIGHER LOI |
| 2. INCREASED OPACITY | 5. COLD END CORROSION |
| 3. INCREASED MASS FLOW | 6. DECREASED CAPACITY |

SOLVING THE PROBLEM

Hasle Isomax ISOMEMBRANE® technology was developed to deal with problems resulting from multiplane movement. ISOMEMBRANE® is a flexible, elastic and ash tight seal composed of high quality, high temperature resistant materials. ISOMEMBRANE® has been installed throughout Europe and North America with much success. ISOMEMBRANE® considered an advanced and efficient way to seal dead air spaces and expansion joints.

ISOMEMBRANE® has several distinct benefits:

- ISOMEMBRANE® can be installed over existing expansion joints, eliminating the need for costly demolition
- ISOMEMBRANE® can be installed either internally or externally, minimizing the need for costly scaffolding
- ISOMEMBRANE® can be installed with very short lead times, allowing for immediate results
- ISOMEMBRANE® can frequently be installed externally while the unit remains on-line, reducing outage periods while allowing for immediate results

No other product has demonstrated a similar economical and flexible solution to this challenge. ISOMEMBRANE® is a sandwich construction installed by certified technicians.