



**Redefining Flow Control
with
L³ Flow Technology**

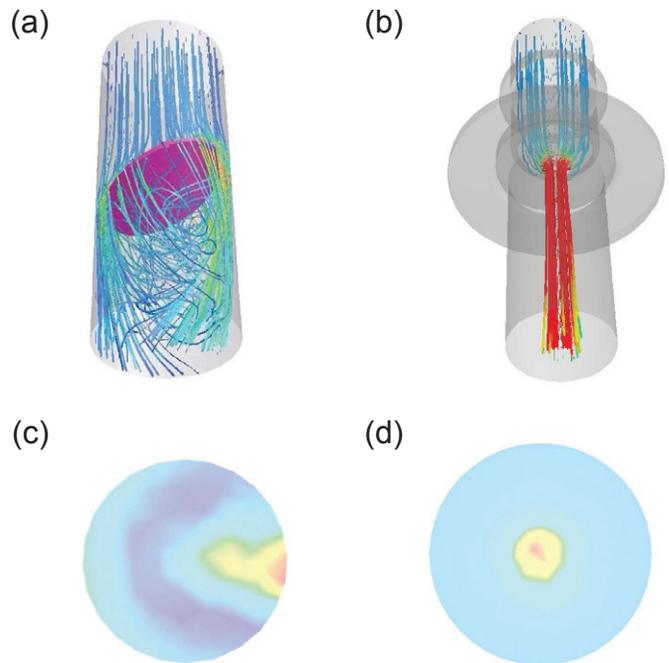


Lumec Control Products Technology

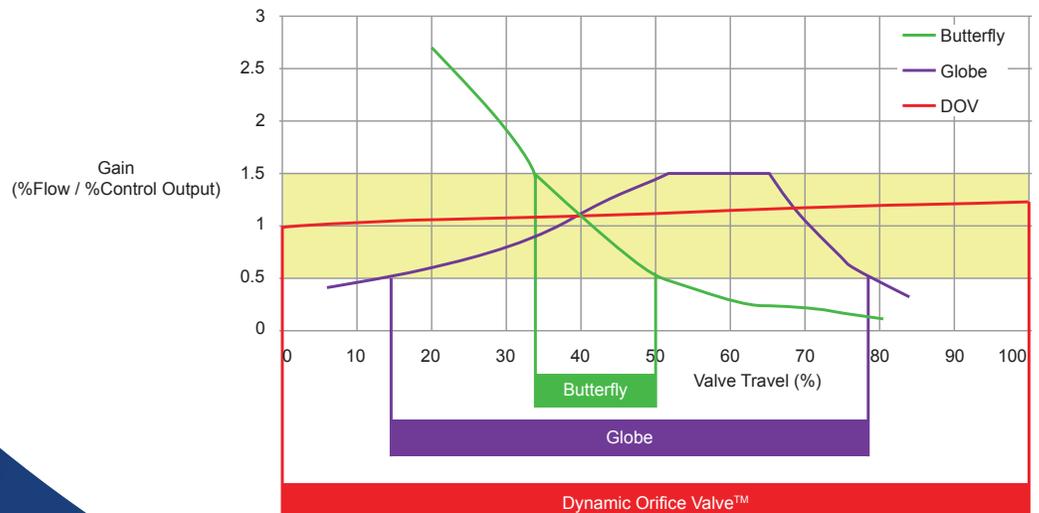
Lumec Control Products, Inc. (LCP) introduces our dynamic orifice valve (DOV). This extremely precise control valve provides truly linear response resulting in predictable and repeatable flow. The DOV is a smart valve, designed around a unique iris diaphragm control element coupled with on-board, microprocessor-based, solid state electronics. By adding sensors for things like oxygen, temperature, and pressure, the DOV is a complete control solution that meets many of today's flow control challenges.

Current flow control systems rely on outdated butterfly valves and simplistic control schemes which lead to inefficient operation and myriad other problems. Attempts to correct for these deficiencies have led to expensive, complex, large systems. The DOV is a single unit that is better and less costly.

Results of our computational fluid dynamic model (shown at right) illustrate the problem inherent in the standard butterfly valve. As the butterfly valve opens (a) the flow through the device is very turbulent. With the DOV, a nearly laminar flow is developed through the control element (b). This is further illustrated by a cross-section view of the pressure in the pipe. The flow through a butterfly valve (c) generates a very uneven pressure on the pipe walls. To eliminate this turbulent flow, additional devices must be added to the pipe. Flow through the DOV, however, results in very uniform pipe wall pressure (d). With this laminar flow, adding pressure measurement sensors for accurate flow calculations is possible.



The DOV provides unmatched linear control. The graph below shows the control gain per valve travel for a butterfly valve, a globe valve, and the DOV. The ideal behavior is a gain of 1.0, in which the valve allows a given percentage of flow for the same percentage of valve travel. The DOV gain is linear and ranges from 1.0 to 1.25. The butterfly and globe valves are highly nonlinear, and actually only have usable ranges of 17% and 62%, respectively, for a gain band of 0.5 to 1.5. The DOV delivers the flow that the process needs, whereas the other valves do not.



Long Term Market Potential

The need to control flow is everywhere in our lives. Almost all commercial and industrial processes require some method of controlling the flow of ingredients, fuel, air, and other process fluids. Control valves are the most commonly used method. And the worldwide market for these valves is over \$15 billion per year.

Lumec Control Products is initially targeting natural gas combustion applications. Commercial steam and hot water boilers are found in nearly every large building,

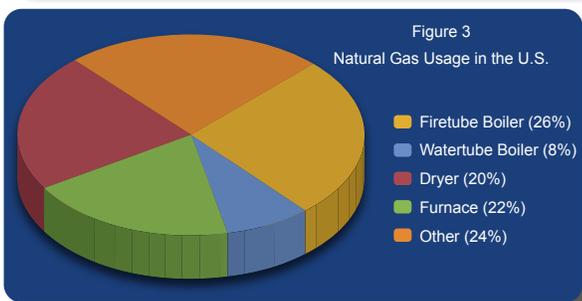
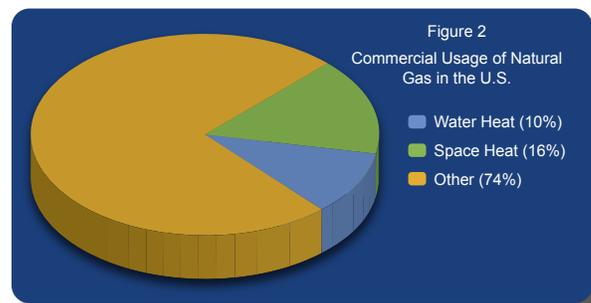
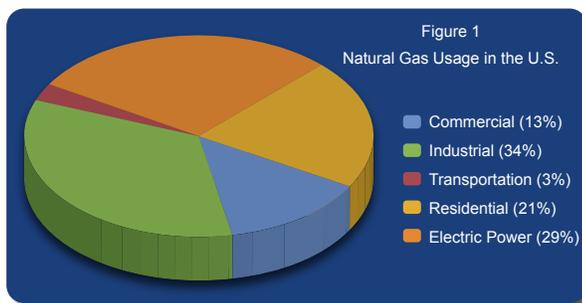
such as schools, hospitals, hotels, office buildings, and government facilities.

Industrial facilities such as metal processors, asphalt plants, cement plants, glass factories, and food preparation use large gas-fired furnaces, ovens, kilns, and dryers. All of these installations rely primarily on natural gas or other fuels such as methane, propane, digester gas, landfill gas, and more. There is no better valve than the DOV for controlling air and fuel in these applications.

Natural Gas Combustion Market

In 2007, \$198 billion was spent on natural gas in the U.S. Of that, forty-seven percent was used by commercial and industrial facilities as shown in figure 1. Of the commercial usage, twenty-six percent went to generating space heat and water heat through combustion, as shown in figure 2. As illustrated in figure 3, seventy-six percent of natural gas usage in industrial applications was for generating heat.

Taken together this represents a combined expenditure of \$57 billion on natural gas combustion. U.S. Department of Energy research has shown that proper control of air and fuel can yield combustion efficiency improvements of at least ten percent. Proper application of DOV technology can save U.S. customers nearly \$6 billion annually.



The Competitors

Competitors include Honeywell, Emerson, Tyco (who together control only 40% of the market) as well as another 200 smaller companies. This proves that this is a robust market with low entry barriers in which Lumec Control Products can compete (protected with our patents).

Competitors are trying to achieve ideal flow using outdated technology, resulting in higher cost and more complexity, without reaching the precise control performance of the DOV. The DOV is built on new technology from the ground up.

Management

CEO – Steve Ogonek

Mr. Ogonek is an electrical engineer who has led combustion companies, as president, as business unit manager, and as owner, for over twenty years.

CTO – Paul Luebbers

Mr. Luebbers invented the Dynamic Orifice Valve. He has a master's degree in materials science and engineering and a background in metallurgy, R&D, product development, and systems engineering.

The Company

LUMEC is an engineering company in Peoria, Illinois that is redefining flow control.

Flow control is everywhere in our lives: fuel injection in our cars, gas flow to our homes, water flow control, industrial processes; it's everywhere. The most common flow control device in use today is the butterfly valve—technology that is hundreds of years old. Unfortunately, a butterfly valve creates turbulence in flow, which robs the overall system of energy, increases the system size, and increases the number of components in the system (more components mean higher cost).

The demand for high-performing flow control valves is increasing exponentially to meet the ever stricter efficiency and emissions requirements of the global marketplace, investors, and governments. In fact, the world market for intelligent valves has grown to \$4 billion of which the U.S market is \$1 billion. The total valve market is \$15 billion worldwide.

Other manufacturers of intelligent valves still rely on the butterfly valve – an outdated idea. LUMEC is redefining flow control with L3Flow technology, which eliminates turbulence, provides precise linear control response (ask any control engineer how important this is), and integrates

a suite of high-powered sensors and electronics for superior flow control in a single device.

Lumec's first released product – the dynamic orifice valve (DOV) has been installed and is exceeding operational expectations in several industrial plants. To expand the product line and build on our initial success, additional funding is needed.

First round funding of \$380m was used for studying the market, creating L3Flow technology, designing and engineering the DOV, setting up a lab, and for manufacturing and selling valves. An additional round of funding is being sought for tooling purchases, to attain certification of our existing products, to complete design of future versions of the valve, to implement LUMEC's marketing plan, and to complete the executive team. We are currently operating with a small staff consisting of an experienced CEO, a CTO, key engineering leaders, and support staff.

L3Flow technology is unique, is needed by the marketplace, and provides a promising investment opportunity that supports going green. LUMEC will capture 5 percent of the \$1 billion intelligent valve market within the next seven years (projected revenue of \$50 million).

Funding

We need funding of \$1 million over next year (approximately \$250 thousand per quarter) for:

- Purchasing tooling – especially for castings
- Attaining approvals (UL, CSA, FM) to increase product acceptance
- Implement marketing plan to drive sales
- Development of follow-on products

Exit Strategy

We understand that you are investing in Lumec Control Products with the expectation of a return on your investment. Lumec Control Products plans to recapitalize within five years, at which point you may choose to exit your investment.

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Milestones

1. Implement marketing plan (immediately)
2. Release of cast product (3 months)
3. Approvals: UL, CSA, FM (6 months)
4. Profitable in 24 months

