



# Naval Surface Warfare Center

*Non-Invasive Measurement System*  
*US Patent #7, 278,310*

## *Mini Market Study*

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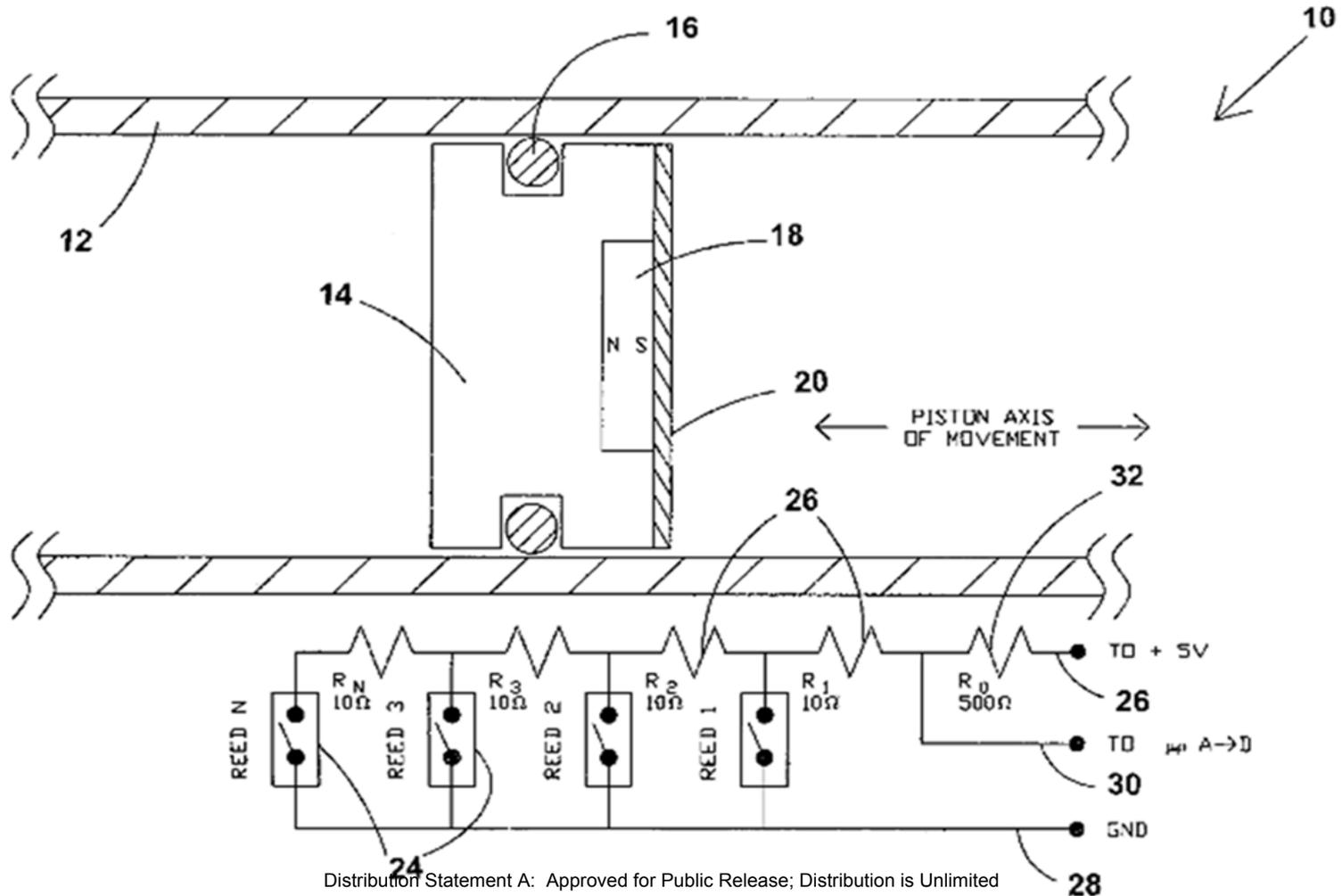
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# The Non-Invasive Measurement System





# Technology Synopsis

- It is used in manufacturing with companies that produce explosives.
- The measurement system consists of an electrical strip placed on the outside of the tube that will give a reading of the level of material that remains in the tube after the manufacturing process.
- The piston has a magnet attached to its backside that corresponds to the electrical strip showing the level of material in the tube.



# Key Competition & Competitive Advantage

Company Name	Product Name	Comment
Ningbo Cixi Imp. & Exp. Corp.	Eastern Long Oil Tape	It measures about 164ft, but you have to manually use the tape to measure the fluid.
Northeast Controls Inc.	Model 900B Impeller-Type Flow Meter	Limited on measuring pressure and viscosity. Causes a pinch point that can cause damage to equipment and humans.
Austin Powder Co	Model 900B Impeller-Type Flow Meter	Limited on measuring pressure and viscosity. Causes a pinch point that can cause damage to equipment and humans.
Orica	Model 900B Impeller-Type Flow Meter	Limited on measuring pressure and viscosity. Causes a pinch point that can cause damage to equipment and humans.

The competitive advantage of this technology begins with the fact that it can measure materials at a higher pressure and higher amount of viscosity compared to current products on the market.



# Value Proposition

- This technology can help cut waste and improve production in a manufacturing company which helps a company produce a Six Sigma mentality with a lean manufacturing atmosphere .
- The non-invasive measurement system does not cause any pinch points which can lead to damage of equipment and human injury.
- It can be retrofitted for any kind of manufacturing process.
- On the electrical strips it displays an LCD reading for the worker to give a specific reading of material left after use.



# Potential Applications

Industry	Industry Segments	Application Segments
A. Military	1. Explosive	1. Metal Tubes
B. Commercial	1. Pyrotechnics & Explosives 2. Fuel 3. Oil	1. Metal Tubes 2. 500-20,000 above ground gallon oil tanks 3. 500-20,000 above ground gallon fuel tanks



# Recommendation and Next Steps

- Feedback from manufacturing companies that produce tanks and steel vessels for possible partnerships.
- Attend the Steel Tank Institute/SPFA 2011 Fall Conference.
  - It's held September 20-22 in Hilton Post Oak, Houston TX
- Attend the International Society of Explosives Engineers 38<sup>th</sup> Annual Conference on Explosives and Blasting Technique.



# Naval Surface Warfare Center

## *Non-Invasive Measurement System Patent # 7,278,310*

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# Market Study Goals

Status	Required Tasks
Completed	Draft interview agenda/questions. Obtain mentor approval prior to interviews.
Completed	Perform in person interview with inventor(s) and/or subject matter experts (SME) in accordance with a provided checklist
Completed	Develop a short succinct (1-2 paragraphs) common language description
Completed	Perform a web search for similar / competing products.
Completed	Identify potential markets for the technology including an abbreviated horizontal and vertical analysis and potential company lists.
In Progress	For the top 2-3 markets, contact potential companies to determine interest, issues, etc.



# Situational Summary



- The National Surface Warfare Center's Crane Division Technology has created an measurement system that is used for a manufacturing process.
- The purpose of its creation was because manufactures employees couldn't tell how much material was left in the tube after being used.



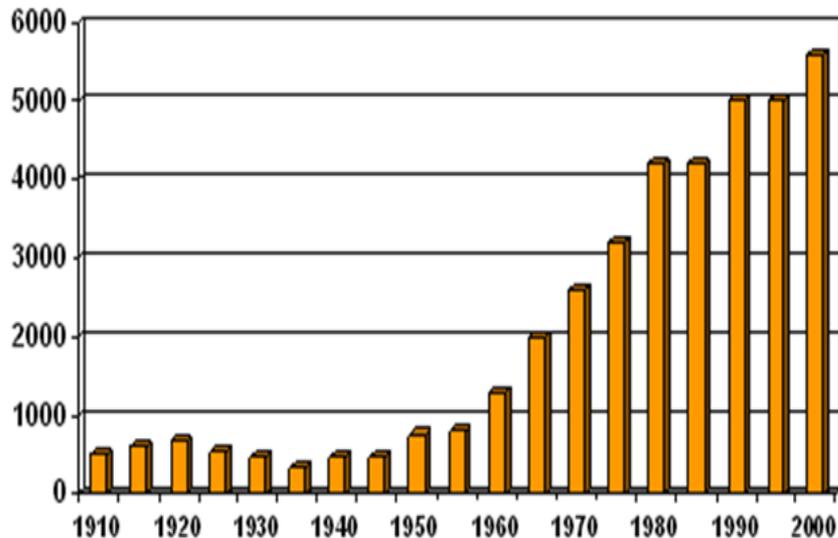
# Market Study Goals

- Conduct an abbreviated market study assessment to:
- a) Define the technology in common language as priority commercial and military application.
  - b) Create collateral material for industry outreach.
  - c) Validate collateral material communication through primary and secondary research.

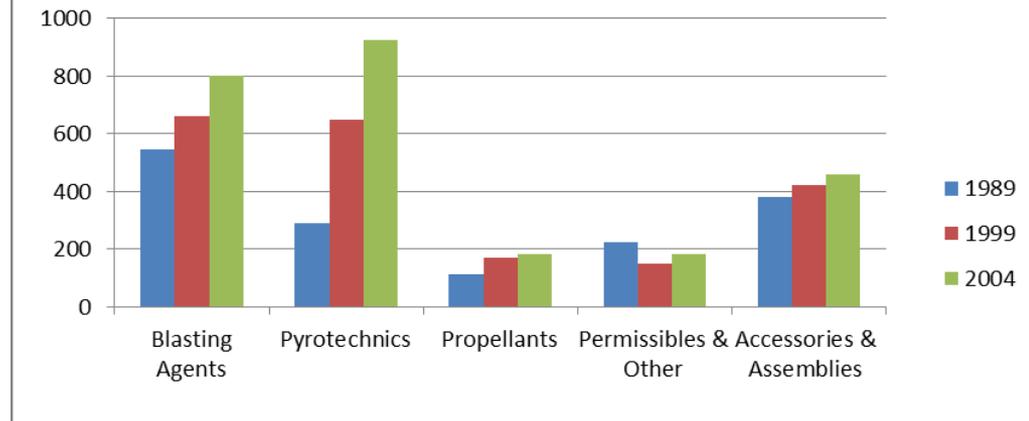
# Market Opportunity

- The industry's revenue for the year 2010 was approximately \$2.3 billion USD. <sup>1</sup>
- The U.S. explosives and pyrotechnics market grows at an annual rate of 4.5%. <sup>2</sup>

U.S.A Explosives Consumption in Billion Pounds

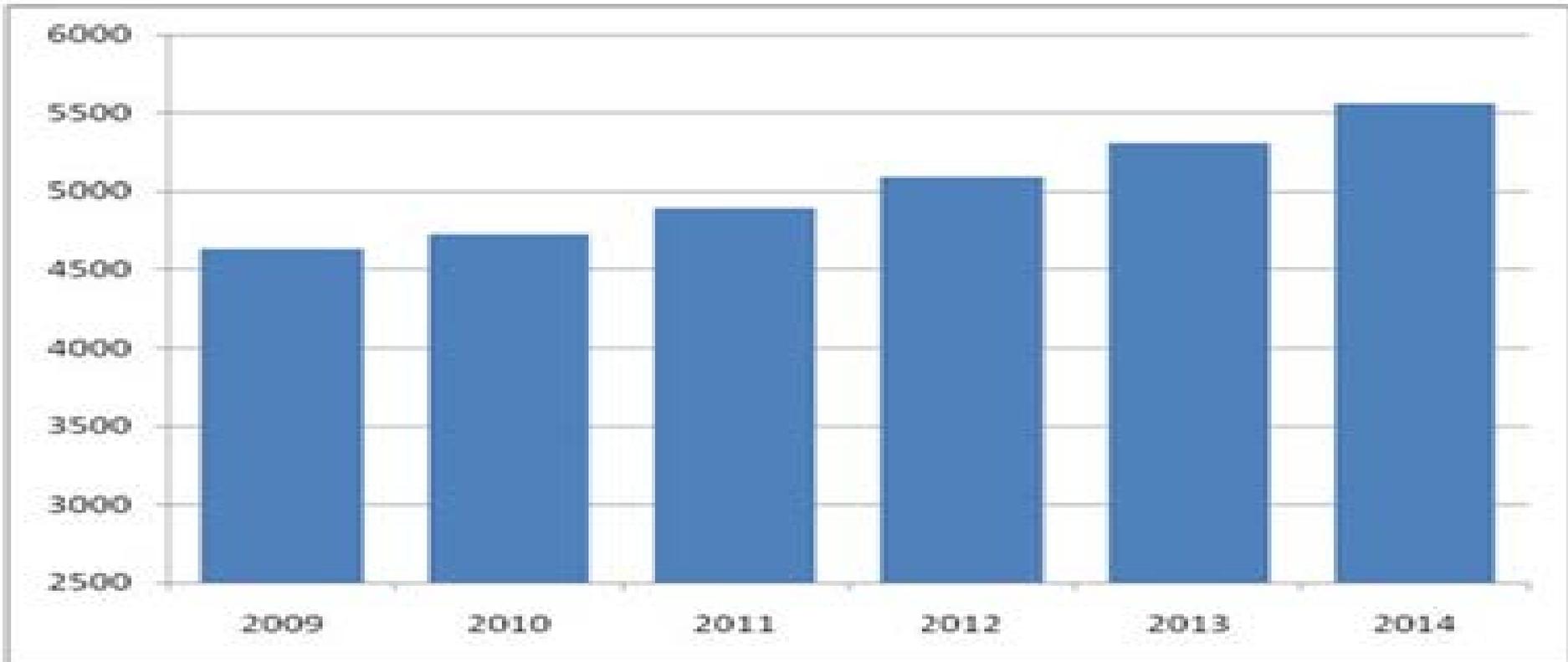


U.S. Demand for Explosives and Pyrotechnics (million dollars)



1. <http://finance.yahoo.com/news/Research-and-Markets-A-2011-bw-2605307715.html?x=0&.v=1>
2. <http://www.allbusiness.com/specialty-businesses/639757-1.html>

# Market Opportunity



This graph shows the Total Shipments of All Flowmeters Worldwide (Millions of Dollars) for the years 2009 through 2014.



# The Difference From A Flow Meter



- The non-invasive measurement system can measure at a high pressure and high viscosity.
- With our measurement system it is placed on the inside of the tube to measure material, but with the flow meter it is a attachment on the outside of the tube to measure material.
- Also, with our measurement system it corresponds wireless with the electrical strip, but with the flow meter it has to use electrical wires with power to work.



# Potential Targets for Licensing



- The companies that would probably license this technology would be companies that provide the Mining industries with Pyrotechnics & Explosives and manufacturing companies with specialize instrumentals and special flow meters.
- Getting in contact with smaller companies that manufacture explosives such as Austin Powder Co. & Orica once information was given they seem interested in this technology.

