

# MECHANICAL FLOWMETERING SOLUTIONS

# Thank You for Attending Today's Webinar



## Your Host

Mike DeLacluyse  
President  
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## Today's Featured Speaker

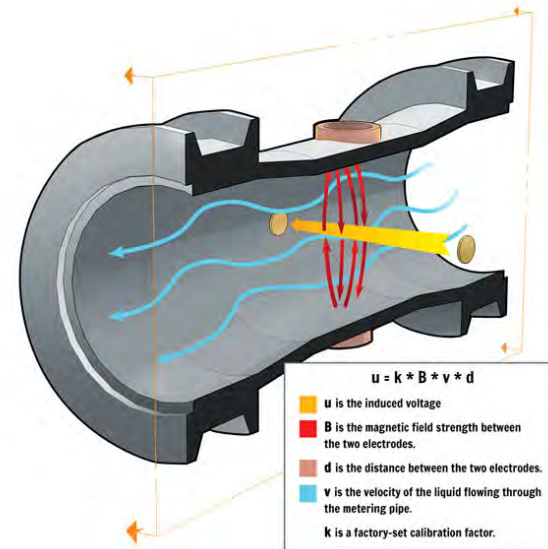
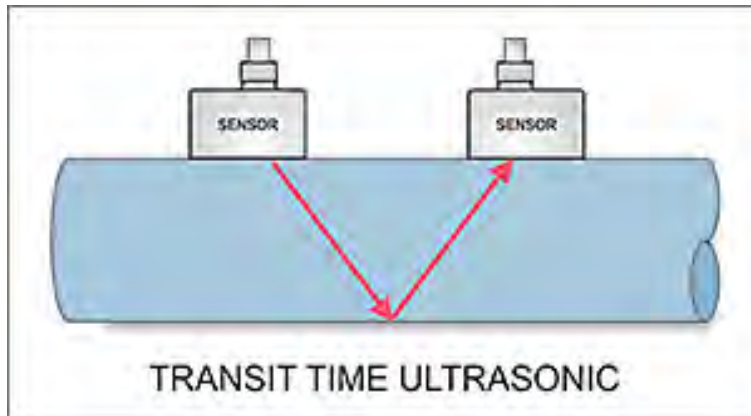
Bruce Patterson  
Regional Manager, Industrial Meters  
Great Plains Industries Flomec  
[bpatterson@gplains.com](mailto:bpatterson@gplains.com)

# Get Social with Lesman

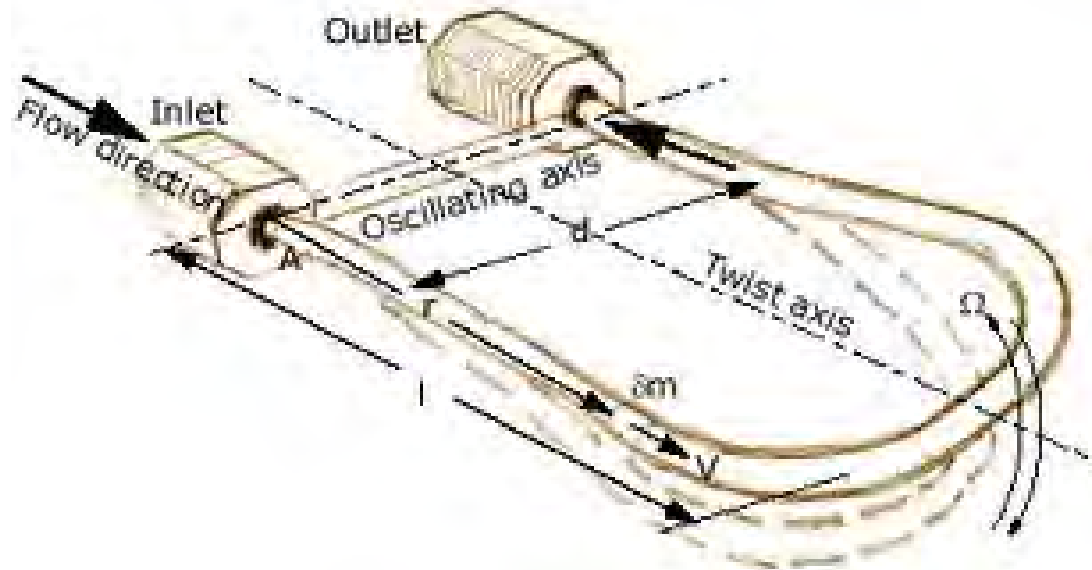


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# Electronic Meters

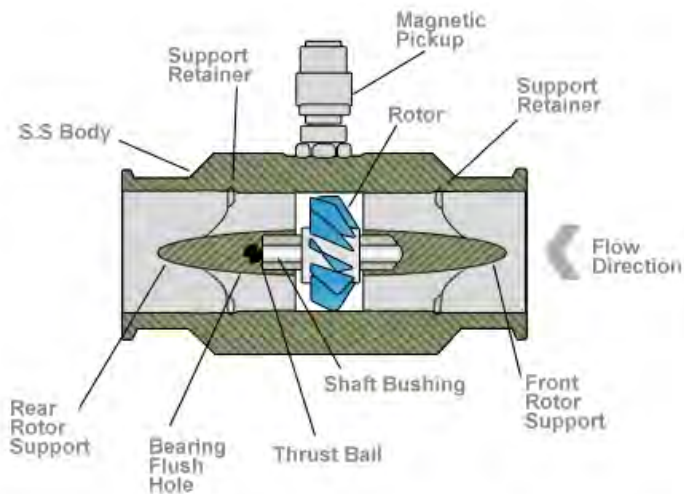


# Coriolis Thermal Mass



# Mechanical Meters

## Turbine



© Chipkin Automation Systems Inc.

## Variable Area

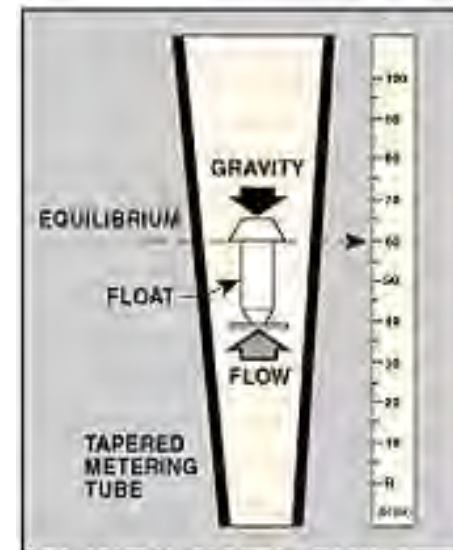
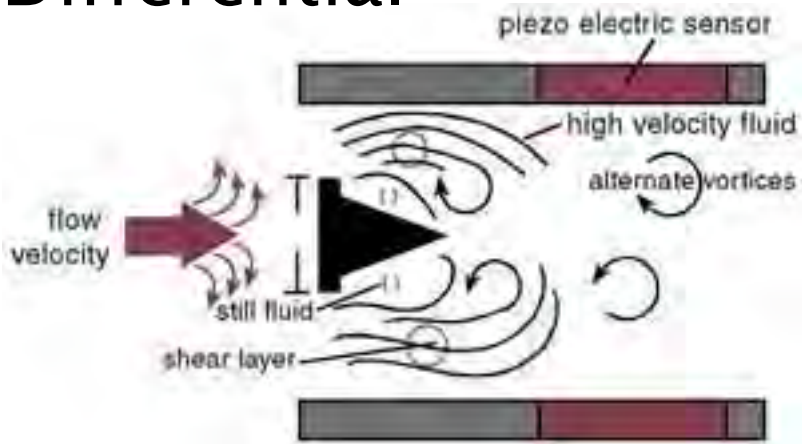


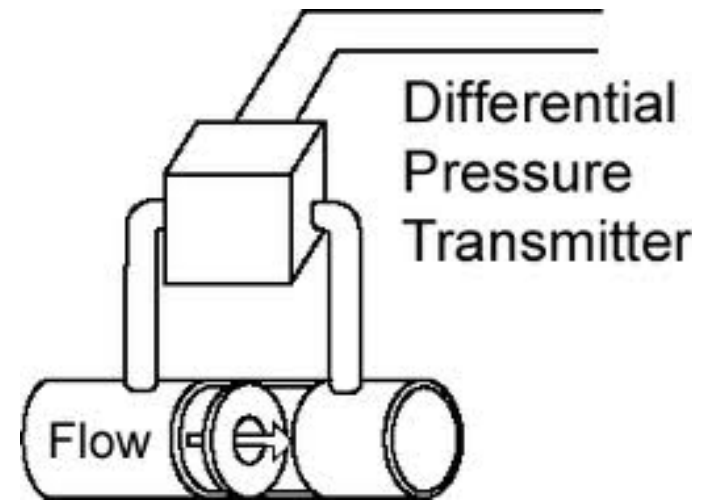
Figure 3. Variable-area flowmeter, also called a rotameter, has a float that moves up or down in tapered tube. The distance is proportional to the liquid flow rate and the annular area between the float and the tube wall.

# Mechanical Meters

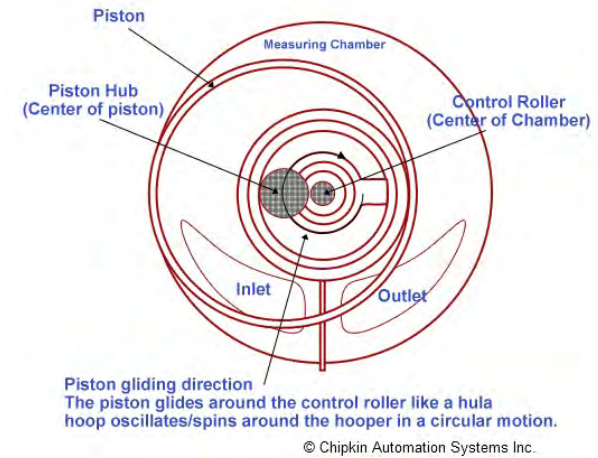
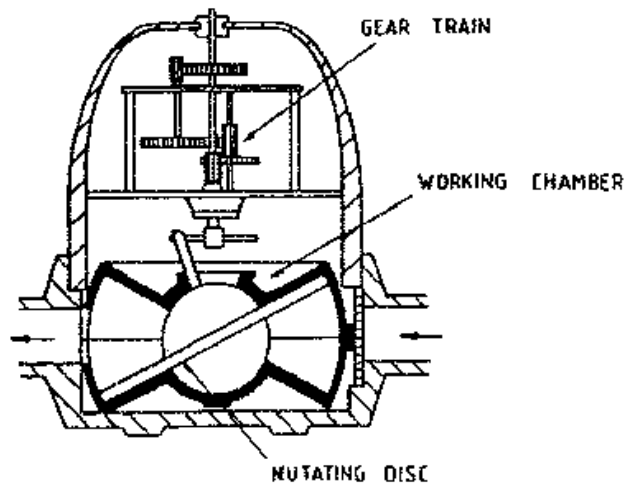
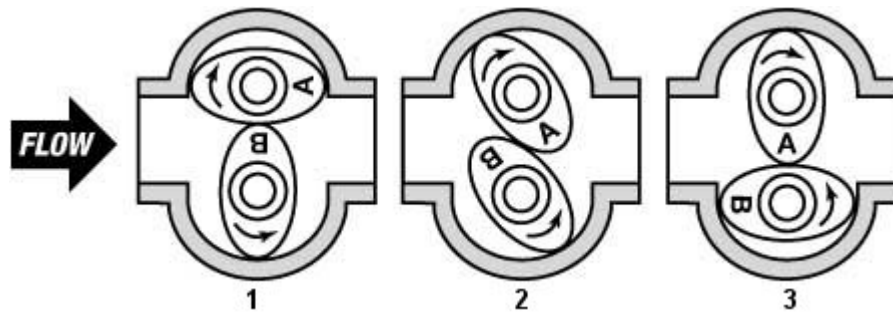
## Vortex Shedding Differential



## Pressure



# Mechanical Meters





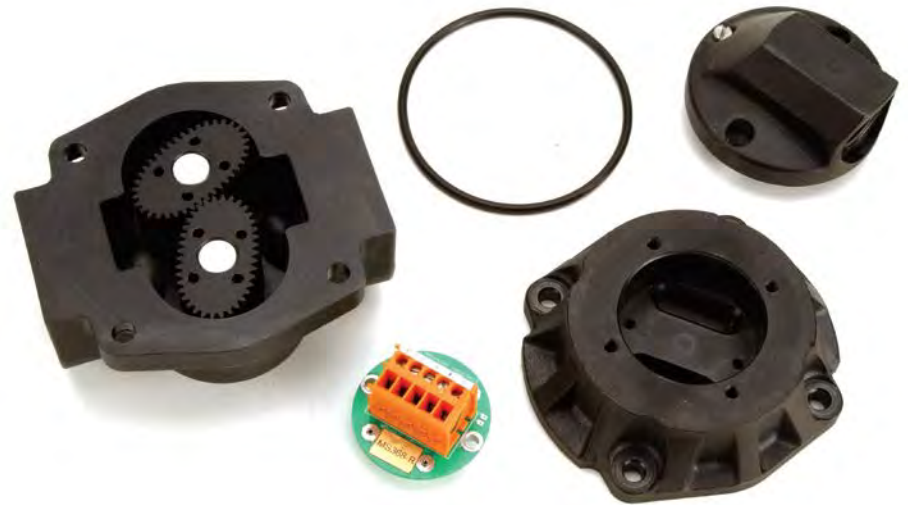
# Many Material Options



# Oval Gear Flowmeters

Uncomplicated design  
for easy repair or  
servicing on site.

Sealed rotor chamber  
allows access to  
PCB without removal  
from line.



# Value Equation

$$\text{BENEFIT} - \text{COST} = \text{VALUE}$$

# Accuracy

- ▶ Repeatability

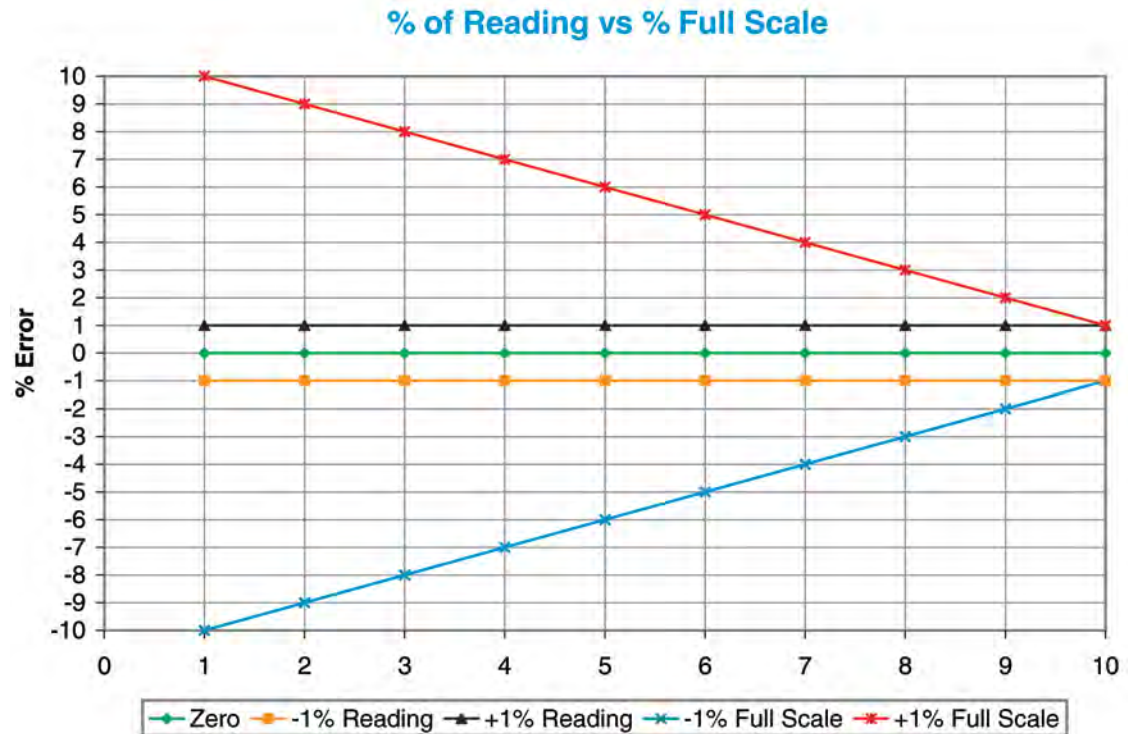
The meters ability to repeat itself under identical operating parameters.

- ▶ Linearity

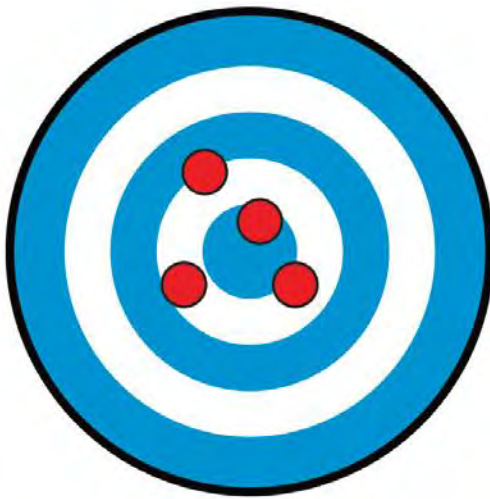
The error that represents the entire flowrate range. Usually referenced from a midpoint.

# % Error

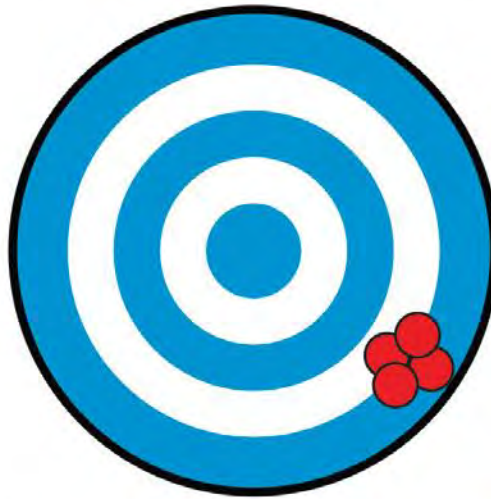
- ▶ % Error of Reading  
The same percentage of error is applied at all flowrates
- ▶ % Error Full Scale  
The percentage of error is applied at the maximum flowrate. This amount is used at all other flowrates.



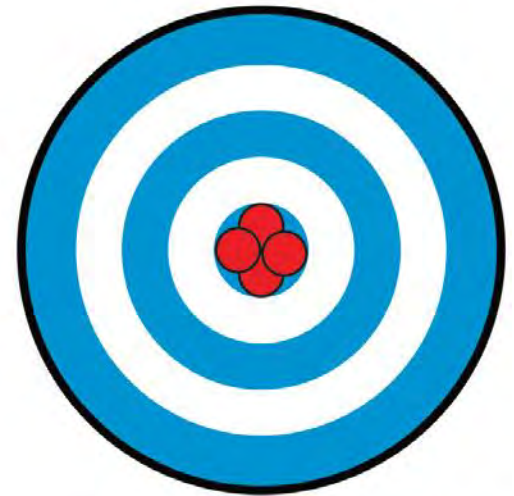
# Accuracy



**ACCURATE BUT NOT  
REPEATABLE**

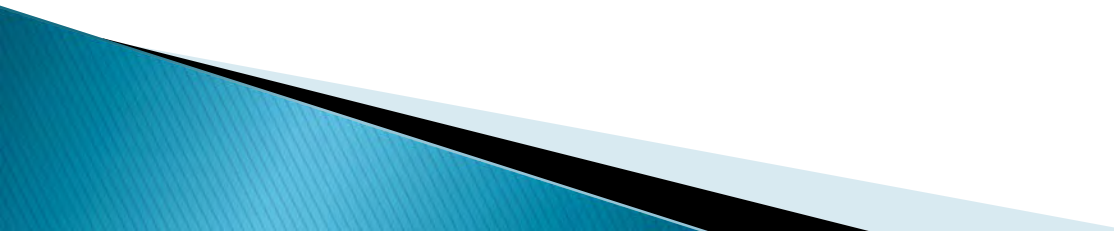


**REPEATABLE BUT NOT  
ACCURATE**

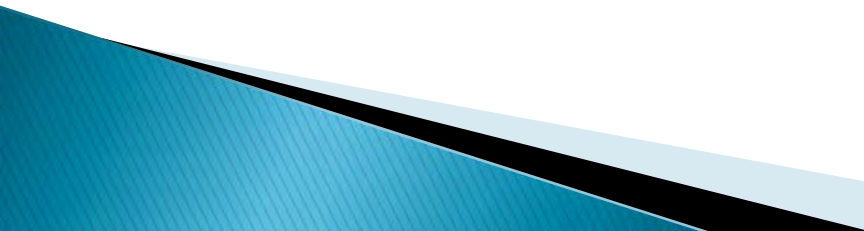


**ACCURATE AND  
REPEATABLE**

# Elements of a solution

- ▶ Does it solve the problem
  - ▶ Is it deliverable
  - ▶ In the requested time frame
  - ▶ Does it fit the sophistication level of the user
  - ▶ Does it stay within the budget
  - ▶ Does it provide the best value
- 

# The FairWay Company

- ▶ Fluid: An agent to modify the viscosity of their pet shampoo
  - ▶ 10–100 CPS      Conductive Typical 3 GPM
  - ▶ Outside Temp                      75 psi                      Neutral Ph
  - ▶ Injected with a piston pump located in small pump room. No clear pipe runs
  - ▶ Local Read (total)                      Requires  $\pm .5\%$
- 



# Option 1

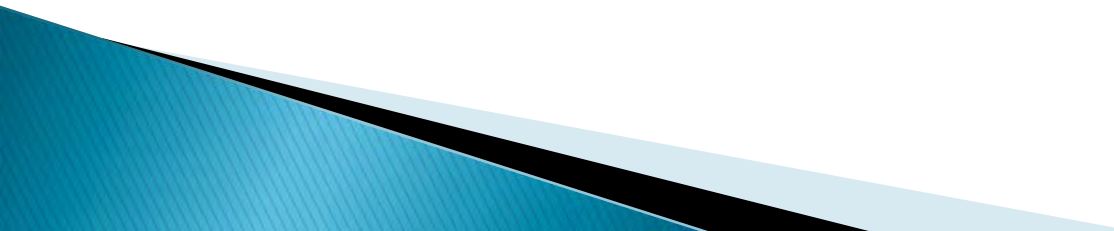
- ▶ Correolis:
  - High level of technical expertise
  - High Cost
  - High Accuracy and Repeatability

This meter is probably not the best Value due to high cost and many unrequired features.

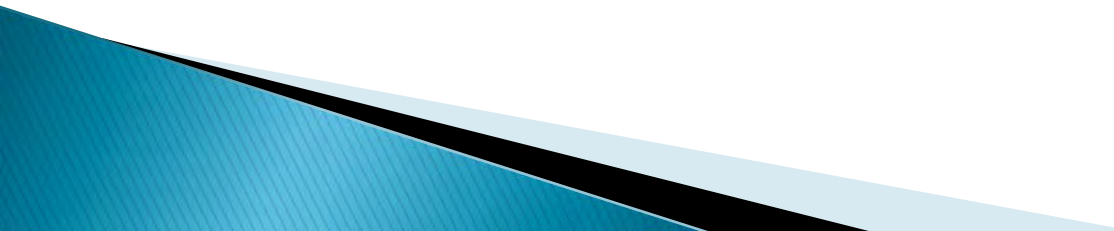
# Option 2

- ▶ Mag Meter
  - Does not perform well with pulsating flow. This is an inferential meter and looks at velocity
  - Requires flow conditioning
  - Moderate Cost

# Option 3

- ▶ Oval Gear Meter ( Mechanical)
    - Low technology
    - Low Cost
    - No Flow Conditioning Required
    - Responds well to pulsating flow and changing viscosity
- 

# Conclusions

- ▶ There are many times when a mechanical meter is the Best Solution in providing the value our customers are looking for.
  - ▶ Don't assume newer technology is better
  - ▶ Never fail to ask the proper question
- 

**THANK YOU**

**QUESTIONS?**



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