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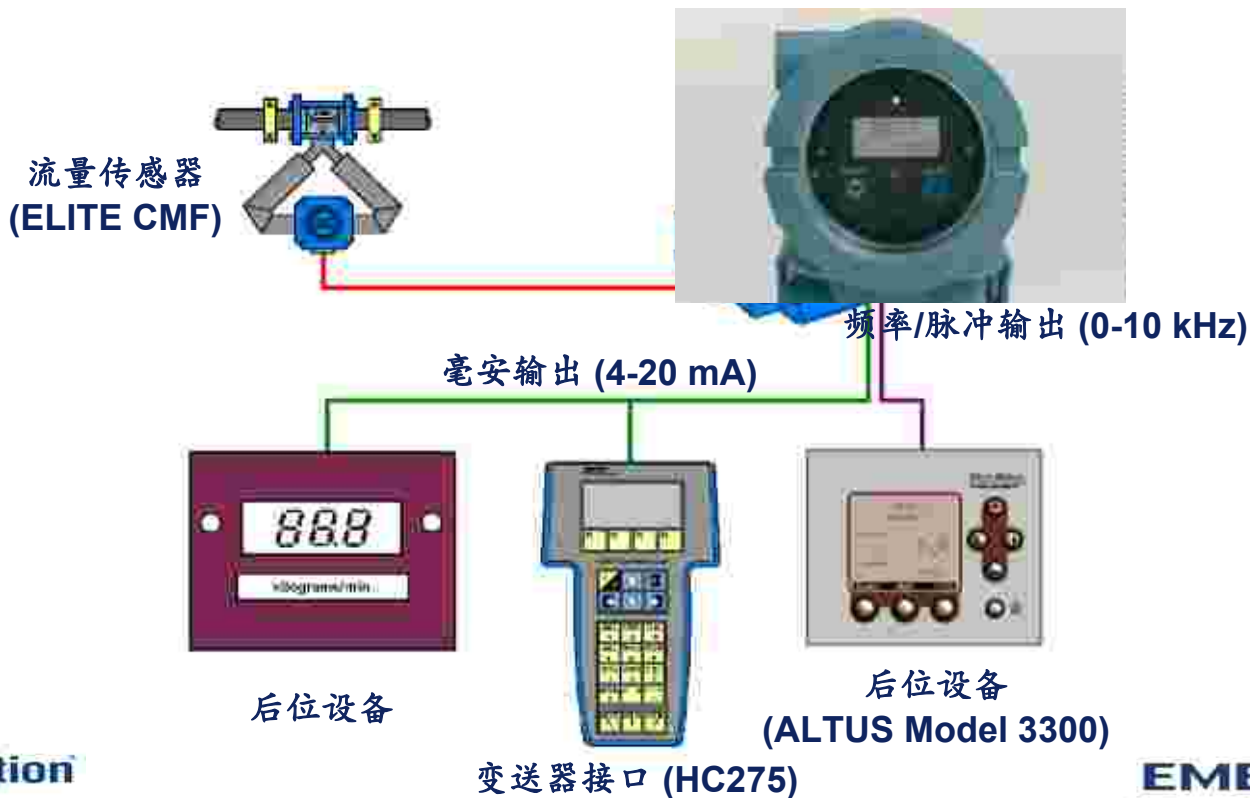
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议程

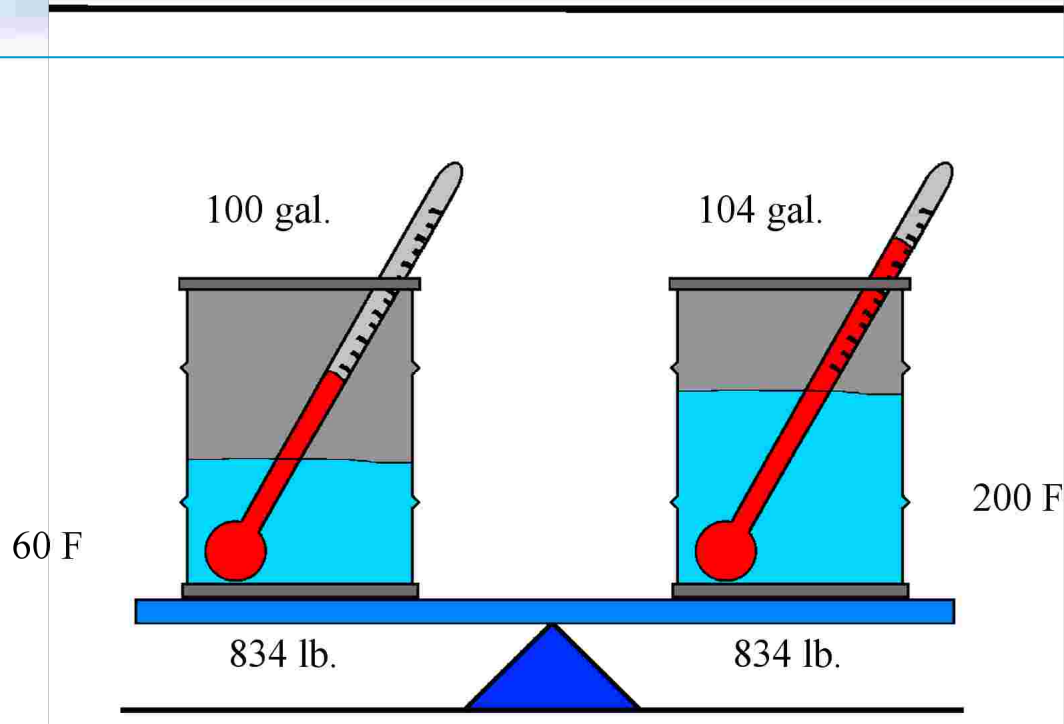
- 科里奥利质量流量计原理
- 安装、投用和基本维护



流量计系统部件



¿aÊÃ²âÁ;ÖÊÁ;?



1ª Etapa: O que é a Micro Motion?



2ª Etapa: Como funciona?

- A Micro Motion utiliza a tecnologia de medição de massa para determinar a vazão de um fluido em um tubo. Ela é baseada na Lei de Newton e na Lei de Hooke.
- A Micro Motion é composta por um sensor de massa e um controlador. O sensor de massa mede a massa do fluido em movimento e o controlador converte essa massa em vazão.
- A Micro Motion é utilizada em uma ampla gama de aplicações, incluindo processos industriais, petroquímicos e de alimentos.



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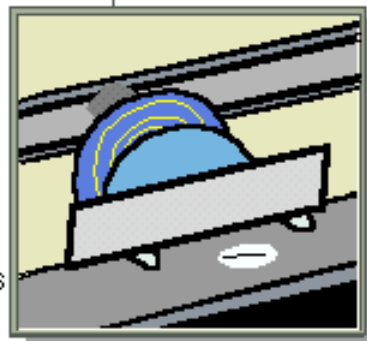
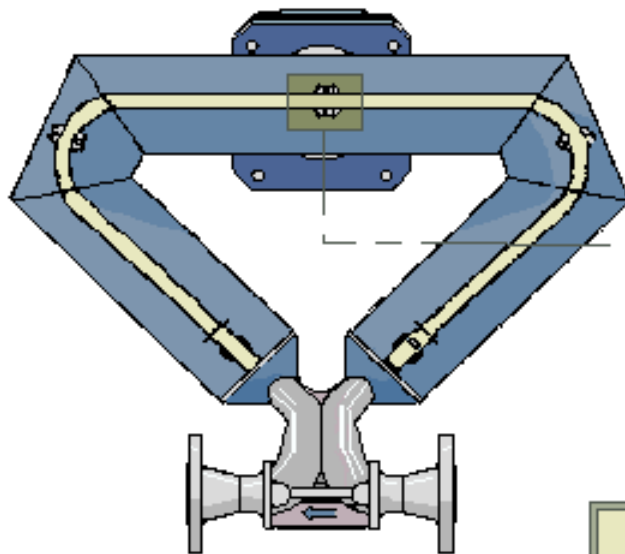




动画演示

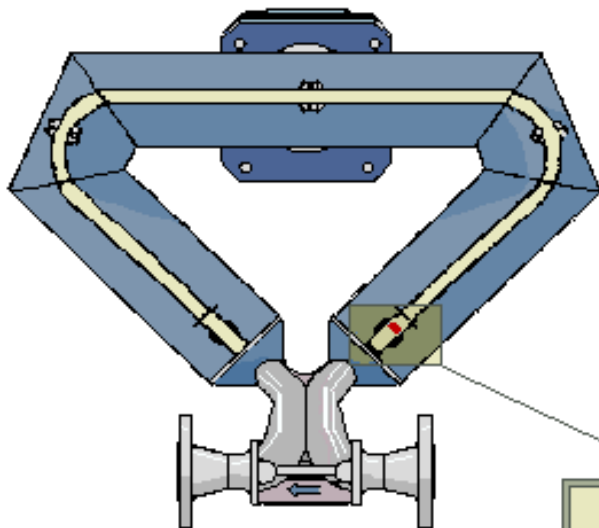


科里奥利流量计- 弯管结构



The drive coil is used with a magnet to produce the oscillation of the sensor flow tubes. The coil is energized to keep the tubes vibrating at their natural frequency.

科里奥利流量计 - 弯管结构



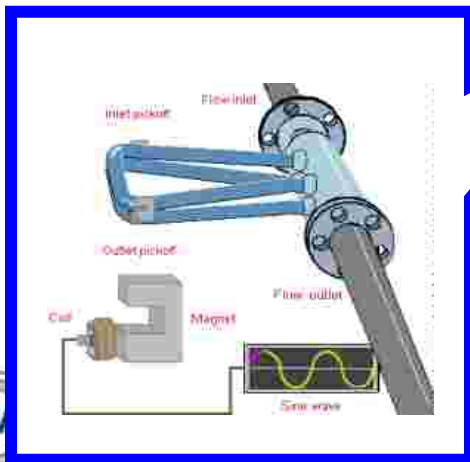
The RTD is a 100 ohm platinum element. Its output signal represents the temperature of the flow tubes.

Resistance
Thermal Device



科里奥利流量计 - 弯管工作原理

QUICK-FILL SYSTEM

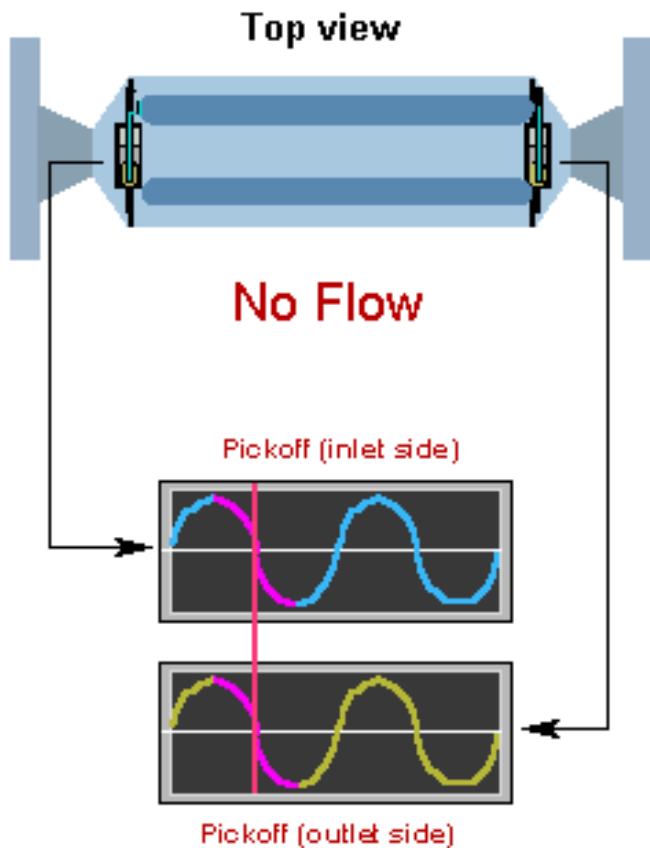


Micro Motion

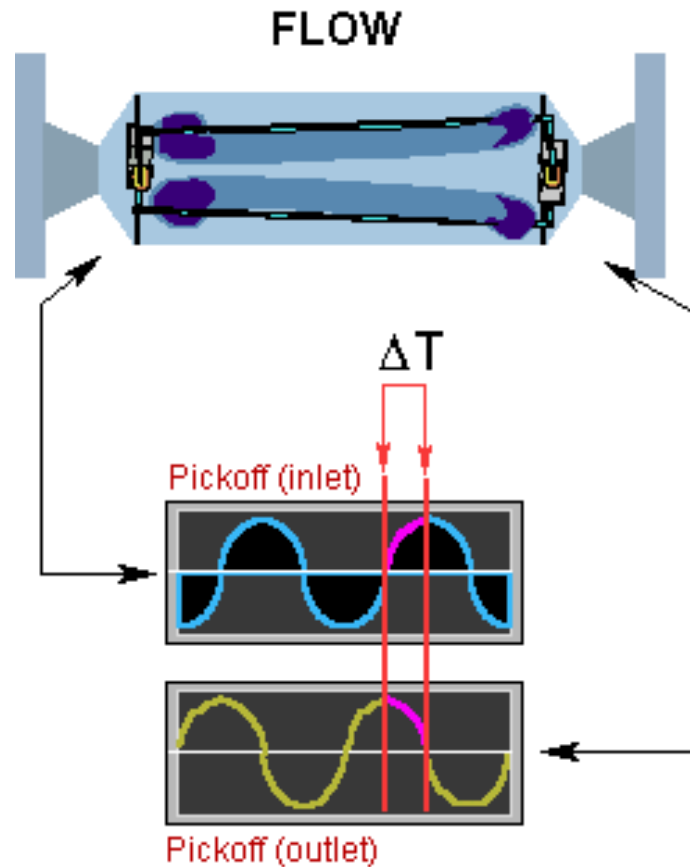
PERSON

Process Management

科里奥利流量计 - 弯管工作原理



科里奥利流量计 - 弯管工作原理

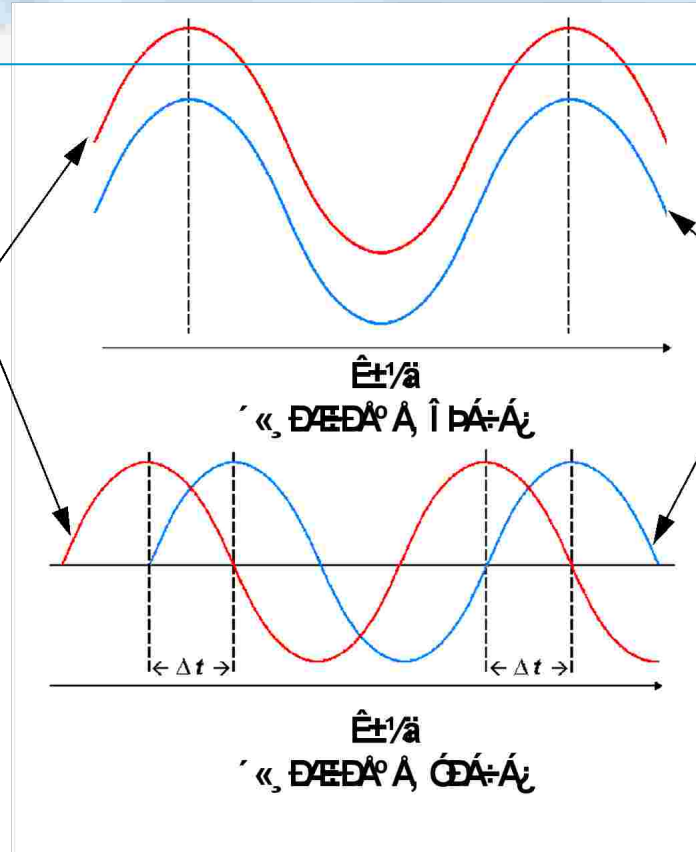


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(C1)

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(C2)





Flow Calibration Factor

4.55235.13

Flow Factor (grams / sec / microsec of delta time)

Temperature Correction Factor (% / 100 °C)



变送器怎样计算质量流量

流量标定常数 (在工厂或现场标定)

流量标定常数, $4.5523\text{g/s/us} \times (1-1)\text{us}$

$K_{\text{flow}} =$ 每产生 $1\ \mu\text{s}$ 相差所对应的流量(单位为克每秒)

零流量偏移, 调零(满管, 静止, 等温)

$K_{\text{zero}} =$ 传感器无流量时的相差

流量温度修正, $5.13\%/100\text{C}$

$\text{FTC} =$ 温度变化 100C 时由于流量管刚性变化而引起的流量百分比误差

质量流量计算(由变送器进行)

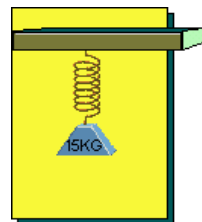
质量流量 $= K_{\text{flow}} \times (\Delta t - K_{\text{zero}}) \times (1 - (\text{FTC} \times T_{\text{DegD}}))$



密度工作原理

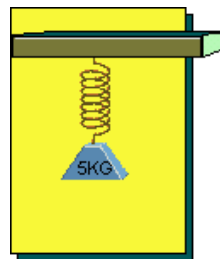
- 在高准质量流量计中，质量和谐振频率之间的关系是密度测量的基础。去理解这个关系，就认为是弹簧和质量系统。

1. 当质量增加时，系统的谐振频率就减少。



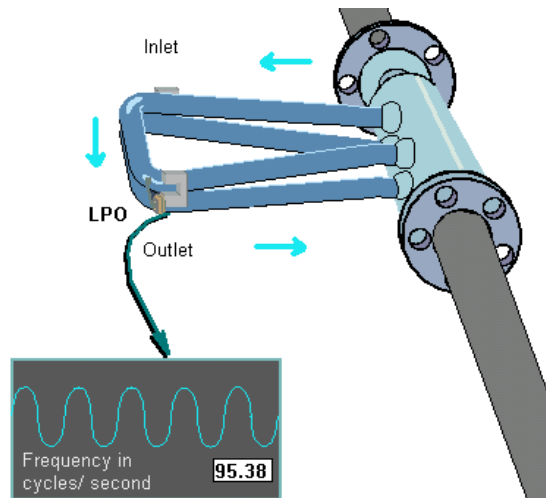
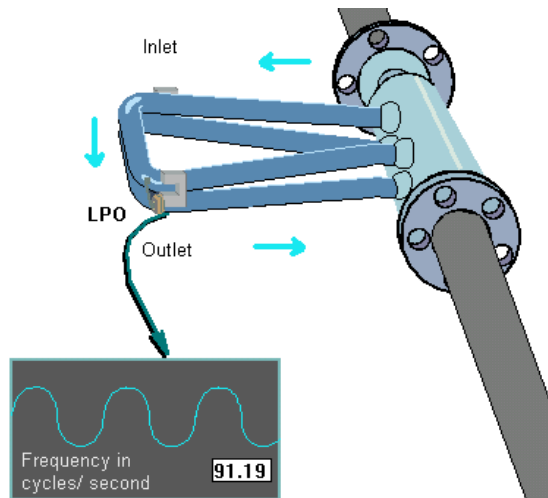
Spring and mass system

2. 当质量减少时，系统的谐振频率就增加。

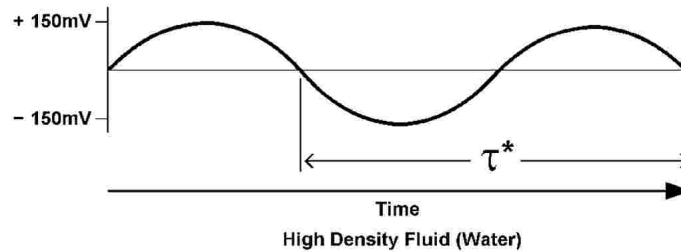
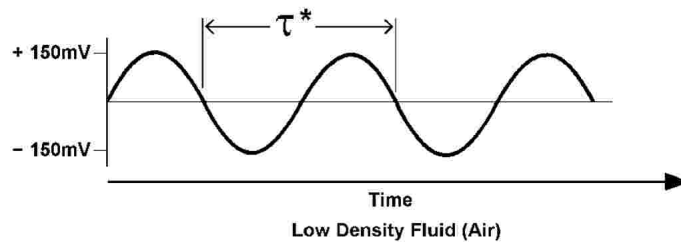


Spring and mass system

密度工作原理



ÃÛÏË² âÁ¿



* τ - Tube Period = $\frac{1}{\text{freq}}$

密度标定系数

密度标定系数 (在标定时得出)

- K_1 传感器注入低密度标定介质(空气)时的管道周期
- D_1 低密度标定介质的密度
- K_2 传感器注入高密度标定介质(水)时的管道周期
- D_2 高密度标定介质的密度
- T_c 温度变化100C时由于流量管刚性变化而引起的密度百分比误差



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