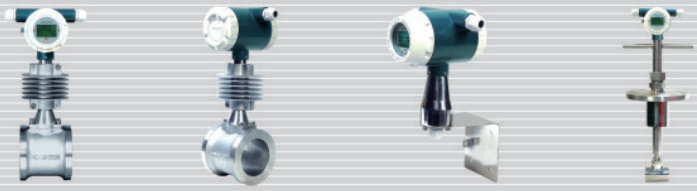
SELECTION CATALOGUE

Precision Manufacturing Accuracy Measurement

Vortex Flowmeter

SV21/22



SINIER

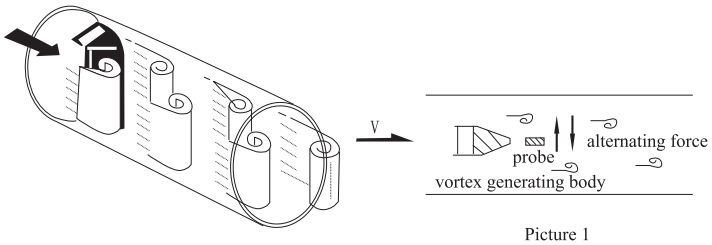
Sino-British Cooperation

Main Features:

- Wide application range, suitable for measuring flow of steam, gas, and fluid
- Measurement results have nothing with velocity distribution, fluid pressure, temperature, density, viscosity, and other physical parameter
- Simple and firm structure, no movable parts, high reliability, stable operation in long terms
- Abrasion and smudge resistance, no mechanical maintenance, long life, safe and explosion-proof, suitable for severe environment
- Adopting micro power high-tech, battery powered flowmeter, available to operate over three years continuously
- Electrical isolation type current output, good common mode interference control ability
- Good seismic resistance, no zero drift, effectively eliminating surrounding vibration
- SMT craft circuit, compact structure, high reliability, wide measuring range, range ability can be 10:1
- Small pressure loss, wide dynamic measuring range, low operation cost, stainless steel material, strong corrosion resistance
- (0~5)KHz frequency output, 4~20mA output or HART communication/Modbus protocol communication, can connect with industrial automation system
- Local LED display, instantaneous flow, total flow, percentage, frequency display simultaneously, no need to switch in turn
- Local key setting, convenient to adjust parameter, no need for HART communicator

Working Principle:

When a vortex generating body placed in the flowing fluids in pipe, a series of vortices will be generated alternately, firstly on one side of the objects, then on the other side. This theory is firstly forwarded by Karman and named as "Karman Vortices". The frequency of the Vortex shedding is related to the velocity of the fluid and the width of the body. Expressed by formula as below (Picture 1):



Picture 1

$$f=St\cdot\frac{v}{d}$$

where:

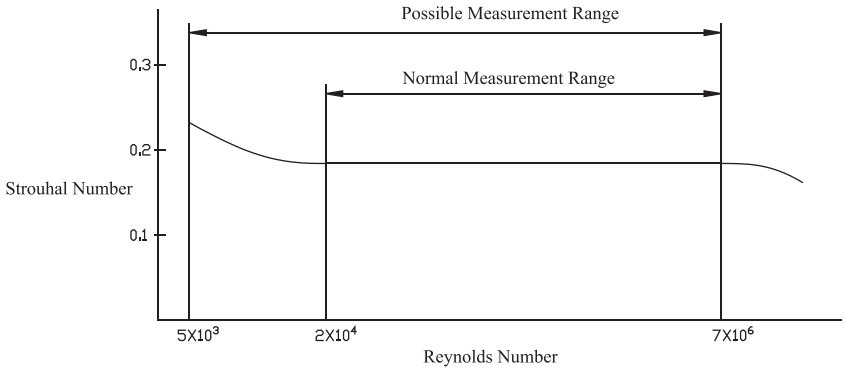
f - frequency of Karman Vortex Shedding

St - Strouhal number

v - velocity

d - width of vortex generating object

As for correctly designed vortex generating body, Strouhal number keeps in constant related to a very wide range of Reynolds Number (Picture 2).



Technical Parameters

Main Technical Parameters of Vortex flowmeter SV21			
Measured fluid		Gas, Steam	Liquid
Accuracy		±1.5%	±1.0%
Repeatability		±0.5%	±0.33%
Reynolds number		2×10^4～7×10^6	
Medium temperature	Standard	-40℃～ 250℃	
	High temperature type	-40℃～ 350℃	
Range ratio		10:1	
Nominal diameter（mm）		DN25～DN500	
Operating pressure		1.6Mpa/2.5Mpa/4.0Mpa /Others	
Velocity range		5～70 m/s	0.5～7 m/s
Wetted parts material		304SS/ 316L	
Flange material		Carbon steel/ 304SS/ 316L	
Bolt material		Carbon steel/304SS	
Detector probe		316L	
Connecting rod		304SS	
Radiator		Aluminum alloy	
Installing type		Wafer type/ Flange type	
Protection level		IP65/IP67/IP68	
Power supply		24VDC(18VDC~30VDC)/ Battery-powered	
Signal output		4-20mA output, pulse output	
Communication		HART/ Modbus Profibus	
Electrical connection		2-M20×1.5	
Explosion proof		No/ Intrinsical safe/ Exd IIB T3-T6	
Structure type		Integrated type/ Split type	
Ambient temperature		-10～60 ℃	
Relative humidity		5%～90%	