



威仕齿轮流量计安装操作指南

General

Please observe the advice contained in these operating instruction to ensure trouble-free operation of the flowmeter.

Where damage arises from a disregard of the advice, the guarantee provided by VSE will become null and void.

Opening of the unit within the Guarantee Period is only permissible after reference to and approval of VSE.

Description

VSE flowmeters are flow measuring instruments based on the meshing gear principle. Two precisely matched gear wheels are enclosed in a very accurately machined housing. Gear rotation is sensed by a non-contacting detection system.

Each tooth produces one impulse. The fluid contained within each chamber created by the meshing gears produces a discrete measuring volume per pulse and is expressed in cm^3/pulse . It is used to define the size of the flowmeter.

If desired a works calibration sheet can be supplied. For applications with especially high accuracy requirements we recommend a DKD-calibration at the respective viscosity.

Flowmeter Selection

For trouble-free and safe operation of the flowmeters the correct choice of type and size is decisive. Due to the great number of different applications and flowmeter versions the technical data in the VSE-catalogues are of general character. Certain characteristics of the devices depend on type, size and measuring range as well as on the medium to be measured. For exact flowmeter choice please contact VSE.

Pick-up System

The detection system consists of two pick-up sensors which are offset from one another by one quarter of a tooth pitch.

总 述

请认真阅读以下操作指南,确保正确使用流量计.

若没有认真阅读该指南而造成流量计损坏,我们不作保修承诺;

在保修期间,只有得到 VSE 厂方授权,才可以拆开流量计;

工作原理

威仕 (VSE) 齿轮流量计以啮合齿轮为原理的流量计量仪器。两个精确配合的齿轮安装在一个极精密的密闭容腔内。由非接触式传感器检测齿轮的转动而形成信号输出。

每个齿产生一个脉冲信号.齿与腔壁间形成一个个隔离的小计量单位,容积单位为 $\text{CM}^3/\text{脉冲}$.我们可以根据此特点,选取不同规格的流量计.

我们可以根据客户要求,提供标定证书.对精度要求高的场合,我们建议在指定粘度下做 DKD 标定.

流量计选型

选取合适规格的流量计,能在很大程度上减少问题发生.由于流体计量应用千变万化,而 VSE 产品说明书仅描述最通用的性能.我们建议客户提供必要的参数,由 VSE 来选取合适的流量计.

传 感 器

检测装置由两个传感器组成.它们的位置刚好相差 $1/4$ 齿距.

A preamplifier digitises the signals of both sensors and amplifies them in short circuit and reverse polarity-proof square waves. The output signals are bidirectional and may be easily processed by any external electronics, SPS control or computer. The signal frequency is proportional to the particular flowmeter size.

The preamplifier is protected against reverse polarity and incorrect connection. The frequency range extends from 0 – 2000 Hz.

VSE Precision flowmeters are available for supply voltages of 10-28 VDC (Old Model:12 V or 24 V DC). Models with EEx approval are supplied for application in potentially hazardous areas. These types are certified to EEx ia IIC T6 and together with suitable safety barriers can be operated as intrinsically safe equipment.

Installation

Mounting positions: universal
Flow direction: bi-directional

Wiring

Standard: VS--32N11-- / VS--12A11--/ VS--12D11--
Ex-Design: VS--32Q11-- / VS--22G11--/ VS--22K11--

Filtration: (ball bearing versions)

VS 0,02/0,04/0,1: 10 my
VS 0,2/0,4: 25 my
VS 1/2: 50 my
VS 4: 50 my
VS 10: 50 my

Exceptions: Models supplied with special clearances – refer to VSE

Mounting

The flowmeters are positioned and fastened to the subplate by means of four cylinder bolts to DIN 912. When changing the bolts please observe the required stress class (10.9/12.9).

The bolts should be tightened to the following torque values:
VS 0,02/0,04/0,1/0,2 G + E: 15 Nm
VS 0,4/1/2: 35 Nm

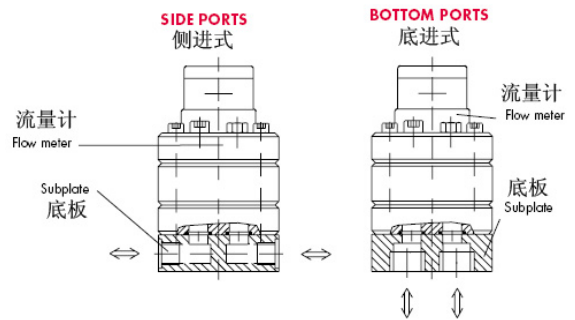
前置放大器采集两个传感器信号,处理成两路方波信号.信号为双向,极易被仪表,SPS 控制器或计算机采集.

极性接反或不正确连线,前置放大器可起保护作用.各规格流量计频率范围在 0—2000Hz.

流量计工作电压为 10-28VDC(旧型号为 12 或 24VDC)。本安型 (EEx) 用于危险环境下。本安型符合 EEx ia IIC T6 规范, 必须配合合适的安全栅一起使用。

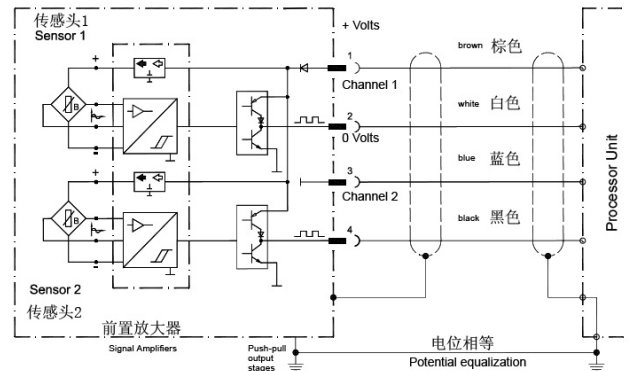
安装方式

安装位置: 任意角度;
流量方向: 双向

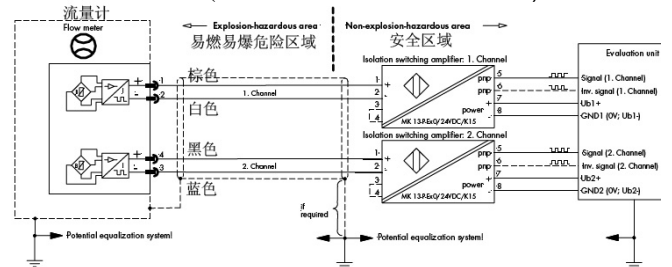


电气接线图

标准型接线图: (VS--32N11-- / VS--12A11--)



本安型接线图: (VS--32Q11-- / VS--22G11--)



过滤精度要求: (滚珠轴承类型)

VS 0,02/0,04/0,1: 10 微米(μm)
VS 0,2/0,4: 25 微米(μm)
VS 1/2: 50 微米(μm)

VS 4: 120 Nm

(grey iron and stainless steel versions)

Please observe the special mounting requirements (attached) for the VS 4.

▶ Putting into service

Please observe the following prior to putting into service.

- All component parts must be free of dirt and contamination (metal shavings, weld spatter)
- The system is fully purged of air
- Ensure that the maximum operating pressure of the flowmeter cannot be exceeded. Pressures are as follows:
 - for cast iron versions: 315 bar
 - for stainless steel versions: 420 bar
- The electrical connection is made in accordance with VSE connection diagram.
- Plants where malfunction or failure can lead to personal injury have to be equipped with suitable safety device. The function of this safety device must be checked in regular intervals.

Putting the flowmeters into service is not permitted until it has been determined that the machine which our products have been installed, meets the requirements of the European Community Machinery Regulations.

▶ Maintenance

Depending on the operating conditions lifetime and thus the specific characteristics of the devices is limited due to wear, corrosion, deposits or aging. The operator is responsible for regular control, maintenance and recalibration. On request VSE can place a flowmeter at your disposal during the inspection period.

▶ Returns

When returning VSE equipment please note that inspection and/or repair can only be made when the shipment is accompanied by a Safety Data Sheet for the flow medium and if the equipment has already been flushed and cleaned prior to return.

If this condition is not observed VSE reserves the right to return the flowmeters.

VS 4: 50 微米(μm)

VS 10: 50 微米(μm)

特殊: 特殊清洁度型号请按厂家指引。

▶ 紧固要求

流量计由 4 根螺钉紧固于底板上; 更换螺钉, 请参考强度等级(10.9/12.9 标准).

螺钉松紧度请参照以下扭力值:

VS 0,02/0,04/0,1/0,2 G + E: 15 Nm(牛米)

VS 0,4/1/2: 35 Nm(牛米)

VS 4: 120 Nm(牛米)

(通用铸铁和不锈钢型号)

▶ 前期准备工作

流量计使用前, 请认真阅读以下内容:

必须清理所有灰尘及污染物(金属屑, 焊渣等);

系统需排放掉管路里的空气;

最大工作压力: 铸铁, 315bar; 不锈钢, 420bar;

电气接线需符合 VSE 电气接线要求;

设备故障或失灵会造成人员受伤的厂房需配备必要的安全措施。该安全保障措施需定期检查。

只有满足“欧盟机械法规”要求的机械设备才允许安装该流量计并投入使用。

▶ 维护保养

根据应用条件和环境, 存放, 老化, 磨损和腐蚀等因素会造成流量计性能变化。操作人员有责任定期检查, 维护和重新标定。

▶ 送返检修

在送返前必须清洗干净流量计, 并附上工作介质的参数表。只有满足以上两点, 我们才会检测和维修。

如果不符合要求, VSE 保留是否寄返流量计的权利。

