

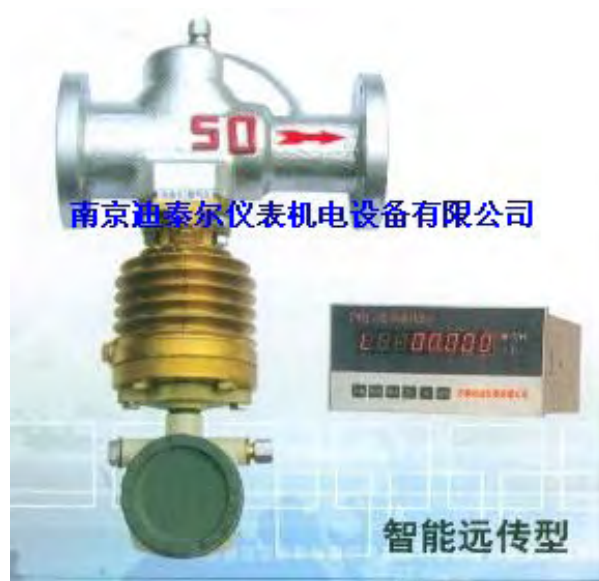


直读型分流旋翼式蒸汽流量计 功能特点:

- ▲ 测量介质: 饱和蒸汽、微过热蒸汽
- ▲ 公称直径 ( mm ) : 25 、 50 、 80 、 100
- ▲ 工作压力:  $\leq 1.6\text{MPa}$
- ▲ 精度等级: 2.5 级
- ▲ 机械结构无电源安装使用方便。现场直读指示累积流量

Direct-reading type steam flowmeter rotor streaming features:

- ▲ measurement medium: saturated steam, superheated steam micro
- ▲ nominal diameter (mm): 25, 50, 80, 100
- ▲ working pressure:  $\leq 1.6\text{MPa}$
- ▲ accuracy rating: 2.5
- ▲ mechanical structure without the power to install easy to use. Read the instructions at the scene straight cumulative flow



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智能远传型分流旋翼式蒸汽流量计 功能特点:

- ▲ 可输出脉冲信号
- ▲ 温度补偿功能
- ▲ 可配打印机 ▲电源: 220V
- ▲ 远传距离:  $\leq 100\text{m}$
- ▲ 有断电时间记录簿

Intelligent FarEasTone type steam flowmeter rotor streaming features:

- ▲ output pulse signal
- ▲ temperature compensation function
- ▲ printer can be equipped
- ▲ Power: 220V
- ▲ FarEasTone distance:  $\leq 100\text{m}$
- ▲ power outages have log



智能补偿直读型分流旋翼式蒸汽流量计 功能特点:

- ▲ 无齿轮转动无机械故障
- ▲ 采用先进集成线路低功耗
- ▲ 始动流量低自动温度补偿
- ▲ 精度高: 1.5 级
- ▲ 现场显示: 累积流量、瞬时流量等参数
- ▲ 电源: 3.6V 锂电池使用 2 年

Intelligent compensation shunt rotor direct-reading type steam flowmeter features:

- ▲ gearless mechanical failure
- ▲ rotation without the use of advanced integrated circuits with low power consumption
- ▲ initiating automatic temperature compensation of low flow and high precision ▲: 1.5

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- ▲ live show: the cumulative flow, instantaneous flow parameters such as
- ▲ Power: 3.6V lithium batteries used for 2 years

### 分流旋翼式蒸汽流量计

分流旋翼式蒸汽流量计是计量流经管道内饱和蒸汽或微过热蒸汽流量的质量流量计，能在现场或远传显示蒸汽质量流量的累计或瞬时值、分机械型、智能型。智能型可温、压补偿，测量过热蒸汽。流量计配有 1、2、3 号节流孔板，可通过更换节流孔板改变流量范围。本流量计的测量范围广、精确度高、寿命长、操作、维修方便，广泛用于石油、化工、轻工等工业部门的蒸汽流量计量。

Triage triage rotor steam flowmeter flowmeter rotor steam download instructions

Rotor streaming steam flowmeter measurement of flow through tubes are saturated or slightly superheated steam steam flow mass flowmeter can be at the scene or FarEasTone shows the cumulative mass flow of steam or the instantaneous value, sub-machine-type, intelligent type. Smart can be temperature, pressure compensation, measuring superheated steam. Flowmeter with 1, 2, 3 No. plate cutting, plate cutting through the replacement of the scope of change in flow. Flowmeter measurement of the wide range of high precision, long life, operation, maintenance convenience, are widely used in petroleum, chemical, light industry, such as the industrial sector of steam flow measurement.

## 二、流量计的正确选型

流量计的口径及孔板号的选型很重要，要遵循一些原则进行选择；应根据被测蒸汽的最大流量、常用流量、最高压力；流量测量范围应处于仪表的最佳工作范围（即公称注流量的 50% -100%）见表 1，来选定流量计的口径及孔板号。

Second, the correct selection of flowmeters

Flowmeter orifice diameter and its selection is very important to follow some principles of selection; should be based on the measured maximum steam flow, commonly used traffic, the maximum pressure; flow measurement should be the best instrument in the scope of work (that is, nominal Note flow of 50% -100%) in Table 1, to selected orifice flowmeter and No. caliber.

## 三、结构及工作原理

流量计主要由节流体，阻尼器和指示器三大部件组成，是一种差压一分流原理式仪表，被测介质蒸汽进入流量计节流体后，一部分通过主管道节流孔板，一部分经分流管流经喷嘴，射流到叶轮上，对叶轮形成转矩，使叶轮带动转子轴旋转，在转子轴的下部装有阻尼叶片，安装在注满阻尼液的阻尼室中，使叶轮转动受到制约，所以它的转速比蒸汽的喷速慢得多，因此，叶轮能有效地吸收蒸汽喷速的功能，使它的旋转速度与蒸汽喷射造成的转矩及阻尼力矩相对应，并形成一确定量的关系，叶轮转速与流量成正比。智能型流量计是采用耐高温传感器、叶轮直接带动传感器，无需齿轮减速，可温度补偿密度，液晶就地显示也可远传二次仪表。

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Three, the structure and working principle

Mainly by the section of fluid flow meters, and indicator Damper three components, is a principle of differential pressure shunt one meter, the measured medium steam into the fluid flow meter section, the part of director Road cutting through the orifice, part by the shunt flow through nozzles, jet to the impeller, the torque on the impeller to form, so that the rotor shaft driven impeller rotation, the rotor shaft at the bottom with damper blades, installed in the damping fluid filled damping chamber, so that impeller rotation subject to constraints, so its speed than the jet of steam much slower speed, so the impeller can effectively absorb the functions of the steam jet speed, so that its rotation speed and the torque caused by steam injection and the corresponding damping torque, and the formation of one determine the amount of the relationship between the impeller and the flow is directly proportional to speed.

Smart flowmeter temperature sensors are used, directly Driven Impeller sensors, no need to gear reducer can be temperature and pressure compensated density, liquid crystal display can also be in situ FarEasTone Secondary Instrument.

4 . 1 公称流量 (表 1 ) 4

**旋翼式蒸汽流量计流量范围表**

表1 单位: Kg/h

| 工作压力<br>MPa | 口径<br>mm | 25mm (1") |      |      | 50mm (2") |      |      | 80mm (3") |      |      | 100mm (4") |      |      |
|-------------|----------|-----------|------|------|-----------|------|------|-----------|------|------|------------|------|------|
|             |          | No.1      | No.2 | No.3 | No.1      | No.2 | No.3 | No.1      | No.2 | No.3 | No.1       | No.2 | No.3 |
| 0.05        |          | 105       | 53   | 27   | 605       | 449  | 222  | 1580      | 917  | 458  | 2461       | 1831 | 916  |
| 0.1         |          | 120       | 60   | 30   | 788       | 637  | 315  | 2021      | 1273 | 637  | 3143       | 2353 | 1277 |
| 0.2         |          | 145       | 72   | 36   | 1143      | 828  | 340  | 2940      | 1725 | 863  | 4588       | 3448 | 1724 |
| 0.3         |          | 165       | 83   | 41   | 1498      | 985  | 444  | 3841      | 1970 | 985  | 5989       | 3940 | 1970 |
| 0.4         |          | 183       | 92   | 46   | 1840      | 1090 | 545  | 4375      | 2188 | 1094 | 7381       | 4373 | 2187 |
| 0.5         |          | 200       | 100  | 50   | 2187      | 1190 | 595  | 4785      | 2383 | 1192 | 8751       | 4763 | 2382 |
| 0.6         |          | 215       | 107  | 54   | 2521      | 1278 | 639  | 5118      | 2658 | 1279 | 10084      | 5110 | 2555 |
| 0.7         |          | 229       | 115  | 57   | 2725      | 1363 | 682  | 5454      | 2728 | 1364 | 10910      | 5455 | 2728 |
| 0.8         |          | 242       | 121  | 61   | 2880      | 1440 | 720  | 5770      | 2835 | 1443 | 11535      | 5768 | 2884 |
| 0.9         |          | 255       | 127  | 64   | 3030      | 1518 | 758  | 6065      | 3033 | 1517 | 12125      | 6063 | 3032 |
| 1           |          | 266       | 133  | 67   | 3170      | 1585 | 793  | 6345      | 3173 | 1587 | 12885      | 6343 | 3172 |
| 1.1         |          |           |      |      | 3305      | 1653 | 827  | 6615      | 3308 | 1654 | 13225      | 6613 | 3307 |
| 1.2         |          |           |      |      | 3435      | 1718 | 859  | 6875      | 3438 | 1719 | 13740      | 6870 | 3435 |
| 1.3         |          |           |      |      | 3560      | 1780 | 890  | 7125      | 3536 | 1782 | 14240      | 7120 | 3560 |
| 1.4         |          |           |      |      | 3680      | 1840 | 920  | 7355      | 3678 | 1839 | 14705      | 7353 | 3677 |
| 1.5         |          |           |      |      | 3795      | 1898 | 949  | 7595      | 3798 | 1899 | 15185      | 7593 | 3797 |
| 1.6         |          |           |      |      | 3907      | 1953 | 977  | 7820      | 3970 | 1955 | 15635      | 7818 | 3909 |

4 . 2 型式与公称直径

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| 型 式 Type                    | LFX-25   | LFX-50     | LFX-80     | LFX-100     |
|-----------------------------|----------|------------|------------|-------------|
| 公称直径 mm Nominal diameter mm | 25       | 50         | 80         | 100         |
| 工作流量 KgKg job flow          | 27 ~ 266 | 222 ~ 3907 | 458 ~ 7820 | 916 ~ 15635 |

4.3 允许工作压力范围及最高工作温度: a. 0.05 — 1.0Mpa ; 220 °C  
b. 0.05 — 1.6MPa ) a. 240 °C

4.3 permit the scope of work pressure and maximum operating temperature: a. 0.05 1.0Mpa; 220 °C b. 0.05 1.6MPa) a. 240 °C

4.4 被测介质: a. 饱和蒸汽或微过蒸汽 (过热度 ' 30 °C ) b. 过热蒸汽

4.4 Dielectric test: a. Saturated steam or micro-off steam (superheat '30 °C) b. Superheated steam

4.5 Nominal flow (Table 1) 4

4.6 精度等级及基本误差: 4.6 accuracy rating and fundamental error:

|   | 准确度 Accuracy | 基本误差 Basic error |
|---|--------------|------------------|
| 推荐流量范围 Catalytic recommended flow range | 2.5          | ±2.5 %           |
| 扩大流量范围 To expand the scope of traffic   | 4            | ±4 %             |

注: 推荐流量范围为公称流量的 50 %— 100 %

Note: Recommended flow range of nominal flow of 50% 1 100%

4.7 计量单位: a. 机械型 4.7 units of measurement: a. Mechanical-type units:

Kg

单位: Kg

|                                | LFX-25 | LFX-50 | LFX-80 | LFX-100 |
|--------------------------------|--------|--------|--------|---------|
| 最小计算量 The smallest computation | 0.1    | 1      | 1      | 1       |
| 指针转一圈 Pointer to a around      | 10     | 100    | 100    | 100     |

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读数方法: DN25 Ways of reading:

|   |   |   |   |   |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

读作 123 . 45 吨 ( t ) Read for 123.45 tons ( t )

DN50 . 80 . 100

|   |   |   |   |   |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

读作 1234 . 5 吨 ( t ) Read for 1234.5 tons ( t )

b . 智能型: 双行 LEDS 位数, 上行: Q 瞬时流量 kg / h , 下行: 累积量 kg  
4 . 9 连接方式: 流量计与管路的连接为法兰连接, 法兰规格按 GB2555 — 81  
( ( 一般用途管法兰连接尺寸 ) ) 。

b. Intelligent type: double-digit LEDS, uplink: Q instantaneous flow kg / h, Downlink: cumulant  
kg 4. 9 connections: flow meter and pipeline connections for flange connections, flange  
specifications according to GB2555 1 81 (( general-purpose pipe flange connection size. "

4 . 10 外形尺寸及重量: Dimensions and weight: Type

| 型式                | LFX-25 | LFX-50 | LFX-80 | LFX-100 |
|-------------------|--------|--------|--------|---------|
| 长 L Length L      | 220    | 320    | 320    | 320     |
| 高 H High-H        | 457    | 480    | 482    | 482     |
| 宽 M Wide M        | 200    | 303    | 318    | 338     |
| 重量 KgWeight<br>Kg | 21     | 34     | 39     | 43      |

#### 旋翼式蒸汽流量计简介及安装和使用

分流旋翼式蒸汽流量计是用于计量流过管道内饱和及低过热蒸汽的质量流量计, 系现场直读累积式, 特别适用与中小企业的蒸汽计量, 可为锅炉节能提供可靠的依据。其结构和工作原理及特点为: 流量计主要由节流体, 阻尼器和指示器三大部件组成, 是一种差压 —— 分流原理仪表, 被测介质蒸汽进入流量计节流体后, 一部分通过主管道的节流孔板, 一部分经分流管流经喷嘴, 射流到叶轮上, 对叶轮形成转矩, 使叶轮带动转子轴旋转, 在转子轴的下部装有阻尼叶片, 安装在注满阻尼液的阻尼室中, 使叶轮转动受到制约, 所以它的转速比蒸汽的喷速慢得多, 因此, 叶轮能有效地吸收蒸汽喷速的动能, 使它的旋转速度与蒸汽喷射造成的转矩及阻尼力相对应, 并形成一确定量的关系, 叶轮转速与流量成正比。流量计为机械型仪表, 结构牢固, 安装、使用和维修方便且使用寿命长。用被测蒸汽作动力源, 无需外接动力源。配有三种规格孔板, 流量范围广。在工况压力改变后, 可方便地进行压力调节。为了确保流量计的精度和使用寿命, 分流旋翼式蒸汽流量计的使用和安装必须按照安装说明书中规定的各项条款安装操作。流量计必须安装在水平管道上, 蒸汽介质的流向应与蒸汽流量计箭头所指方向一致, 蒸汽进口前要有大于 10D 的直管段, 出口后要有大于 5D 的直管段, 管道内径与流量计的公称直径要相同。当

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实际管道直径与流量计的公称直径不一致时，除在流量计进，出口安装所要求的直管段外，可安装喇叭管进行扩缩管径处理。蒸汽流量计安装时，必须使指示器处于管道的下方，使流量计铅垂轴线与地面垂直度小于  $\pm 5$  度，以免影响测量精度。流量计运行前，必须将阻尼器内腔注满阻尼液，可将阻尼器上的注水孔排气孔及放水孔处的螺栓取下，注入阻尼液，待排水孔流出的液体无黄锈及污物时，将放水孔上的螺栓拧紧，继续注入至溢处 30 秒后液位不变时，将注水孔和排气孔螺栓拧紧。阻尼液可用当地自来水或者防锈溶液。

#### Rotor steam flowmeter brief introduction and the installation and use of

Streaming steam flowmeter rotor are used to measure the flow tube saturation and low quality of superheated steam flowmeter, a direct-reading scene cumulative, especially with small and medium-sized steam measurement for the boiler to provide a reliable basis for energy conservation. Its structure and working principle and characteristics are: flow meter section primarily by fluid, damper, and the three major components indicator is a differential pressure - the principle of triage instruments, the measured dielectric fluid steam to enter the flowmeter section, the part of Road through the throttling orifice director, as part of shunt flow through nozzles, jet to the impeller, the torque on the impeller to form, so that the rotor shaft driven impeller rotation, the rotor shaft at the bottom with damper blades, installed in the fill damping fluid damping chamber, so that impeller rotation constraints, so its speed than the jet of steam much slower speed, so the impeller can effectively absorb the kinetic energy of the steam jet speed, so that its rotation speed and the torque caused by the steam jet and the corresponding damping force, and one to determine the volume of the formation of the relationship between the impeller and the flow is directly proportional to speed. flowmeters mechanical type meters, the structure of a solid, installation, use and maintenance of the convenience and long life. Using the measured steam for power source, no external power source. Plate with three specifications, flow range. At the pressure of working condition changes, can be easily carried out pressure regulator. Flowmeter in order to ensure the accuracy and service life, separate steam flowmeter rotor use and installation must follow the installation instructions provided for installation and operation of the provisions. Flowmeter must be installed in horizontal pipe, steam flow of media should be referred to the direction of the arrow steam flow meter in line, steam import must be greater than the straight tube sections 10D, exports must be greater than the 5D, after the straight pipe sections, pipe diameter and flowmeter to the same nominal diameter. When the actual pipe diameter and the nominal diameter flowmeter is inconsistent, with the exception of flowmeter at import and export the installation of the required straight pipe sections, the speakers can be installed tube diameter handle scalable. Steam flow meter installation, pipe must be made at the bottom indicator to plumb Flowmeter vertical axis with the ground is less than  $\pm 5$  degrees, so as not to affect measurement accuracy. Running before the flowmeter must be filled cavity damper damping fluid, can be injection damper on the vent hole and the water hole to remove the bolts into the damping fluid, to be liquid drainage holes without yellow rust and pollution objects, it will be water-hole on the bolt tightening to continue to overflow into the Service Level unchanged after 30 seconds when the injection vent hole and tightening bolts. damper liquid water can be used locally or rust-proof solution.

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