

■简介

LKB-01Bb 系列流量开关是一种靶片式流量开关，主要用于测量和控制流经管道的液体流量。其典型的应用是使用在需要有连锁作用或断流保护的场所。它选用 SPDT 形式的微动开关，内有常闭和常开二组触点，客户可根据需要进行接线。另外，它还具有快速动作特点，确保动作的瞬时性。

流量开关的外壳采用了工程塑料全密封结构，防护等级 IP54 内部构件全部采用不锈钢材料，使其能适用于各种场合。

■参数

1、标准流量

流量开关动作所需的流量 (m³/hr)											
管子通径 (in)		1	1-1 \ 4	1-1 \ 2	2	2-1 \ 2	3	4	5	6	8
最小调节	流量超过 ①③触点闭合	0.95	1.32	1.70	3.11	4.09	6.24	8.4	12.9	16.8	46.6
	流量低于 ①②触点闭合	0.57	0.84	1.14	2.16	2.84	4.32	6.1	9.3	12.3	38.6
最大调节	流量超过 ①③触点闭合	2.00	3.02	4.36	6.59	7.84	12.00	18.4	26.8	32.7	94.3
	流量低于 ①②触点闭合	1.93	2.84	4.09	6.13	7.30	11.40	17.3	25.2	30.7	90.8

备注：所有接线以靠博印刷接线图为准

- 2、流体温度范围
- 0 ~ +90°；
- 3、环境温度范围
- 40 ~ +60°；
- 4、最大流体压力
- 1.6MPa；
- 5、流体最大允许流速
- 3m/sec；
- 6、开关触点容量
- 220V A.C. 3A
110V A.C. 16A

开关点：单刀双掷

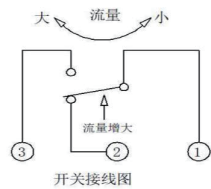


图 1

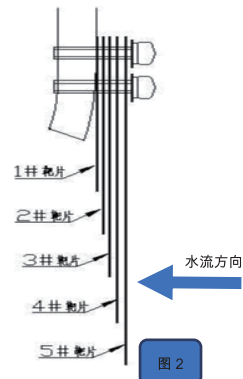


图 2

■安装

1.流量开关中的微动开关是单刀双掷型，触点功能见图 1。

微动开关上方有白色印刷接线图。其中：

①公共端，当流量增大时与③触点接通，当流量减小时与②触点接通。

2，流量开关出厂时附有 1#、2#、3#、4#和 5#靶片，用户可根据需要进行选装。如需要其他尺寸的靶片，可根据自行条件进行修剪。例如：如使用 3" 管道，则就要安装 1#、2#、3#靶片，见图 2 所示。如使用 1-1/2" 管道，则需根据安装底座平面到管底的尺寸修剪，以不碰管底适合长度即可。

管道直接大于 5#靶片总长，则将 1#至 5#靶片全部安装。如图 2 所示的是靶片正确安装位置。

3.流量开关安装在管道上必须要注意下列事项：

1)流量开关一定要安装到一段直线管道上，其两边至少要有 A=5 倍管径的直线长度。(见图 3)

2)流量开关应安装在水平管道或液流方向向上的垂直管道中，但不能安装在液流向下的管道中。

当安装在液流向上的管道时，因需要考虑重力的影响，流量开关应调节到略高于表 1 所示的典型流量值，调节方法可顺时针旋转“调节螺丝”即可。

4.流量开关在安装时为防止损坏，不允许握住开关的壳体旋入三通接头内，必须使用专用扳手放在开关接头的六角平面处旋紧。

5，当流量开关在安装时为防止旋入三通接头时，在旋紧的同时必须确保流向片的投影面与流体方向垂直，并使开关外壳上箭头的方向与流体方向一致。

6，流量开关出厂时已设定为最小流量值，不得调节到低于出厂设定值，以免造成开关失灵。

7，微动开关主杠杆上点有封胶的调节螺丝不得随意调节，否则会破坏开关的控制，以致开关动作失效。

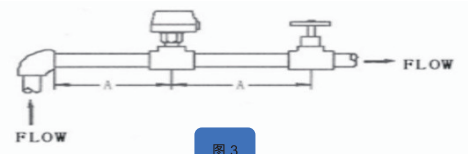


图 3

■调节

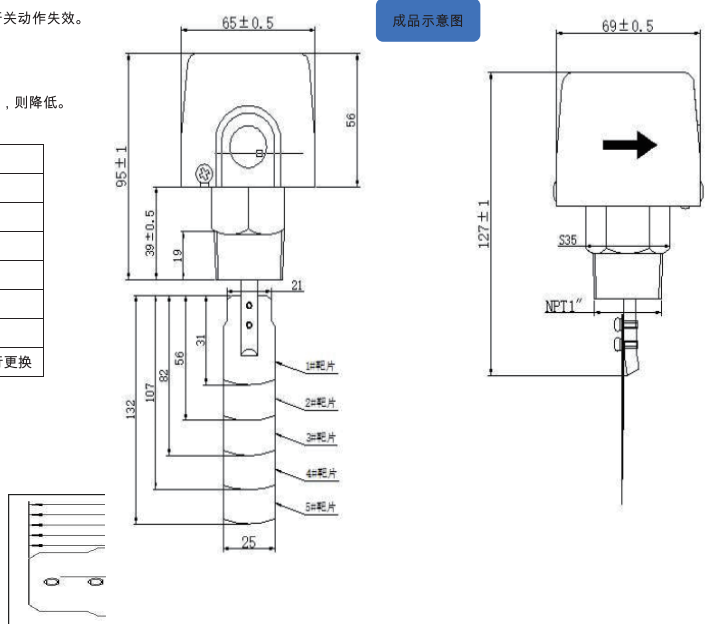
1.取下流量开关外壳，如果要调高流量值，则需要顺时针旋转调节螺丝使弹簧压紧。反之，则降低。

表 2

故障排除	
现象	排除方法
波纹管损坏，液体进入壳体	调换
杂质卡住开关的继续部分致使开关不动作	清除杂质
开关动作相反	检查接线是否准确
开关不动作	检查接线，检查流向片是否与管道碰
开关无法复回	开关的安装方向是否与流体的流向一致
流量增加时不动作	检查流向片是否有断裂现象，如果有应进行更换

表 3 管径与流向片配置

管道内径	inch	靶片长度	靶片宽度
1		31	25
2		56	25
3		82	25
6		132	25



成品示意图

Introduction

LKB-01Bb series flow switch is a target - chip flow switch. It's typical application is to be used in places where interlock action or cut-off protection is required. It adopts SPDT mode micro-switch, which has two sets of contact points, normally closed and normally open. Customers can connect the switch according to their needs. In addition, it also has the characteristics of fast movement to ensure the instantaneous action.

The shell of the flow switch is fully sealed with engineering plastic, and the internal components of the protection grade IP54 are all made of stainless steel, so that it can be applied to various occasions.

Parameter

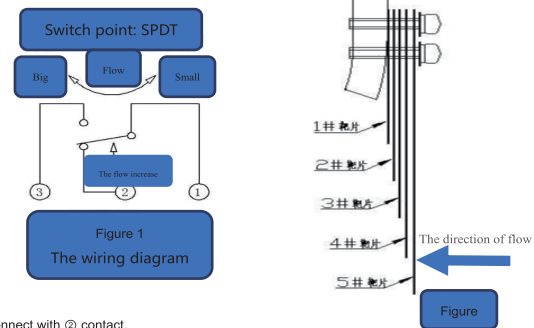
1. The standard flow

The amount of flow required for the operation of a flow switch (m³/h)											
The pipe size (in)		1	1-1 \ 4	1-1 \ 2	2	2-1 \ 2	3	4	5	6	8
The minimum adjustment	The flow is more than that, the①②contact closed	0.95	1.32	1.70	3.11	4.09	6.24	8.4	12.9	16.8	46.6
	The flow is lower than that, the①②contact closed	0.57	0.84	1.14	2.16	2.84	4.32	6.1	9.3	12.3	38.6
The maximum adjustment	The flow is more than that, the①②contact closed	2.00	3.02	4.36	6.59	7.84	12.00	18.4	26.8	32.7	94.3
	The flow is lower than that, the①②contact closed	1.93	2.84	4.09	6.13	7.30	11.40	17.3	25.2	30.7	90.8

Chart 1

Remark: all connections should be according to the wiring diagram printed by Kaobo.

- Fluid temperature range 0 ~ +90° ;
- Environment temperature range -40 ~ +60° ;
- Maximum fluid pressure 1.6MPa ;
- Maximum allowable fluid velocity 3m/sec ;
- Switching contact capacity 220V A.C. 3A
110V A.C. 16A



Installation

1. The micro switch is SPDT type, and the contact function is shown in figure 1. Among them:

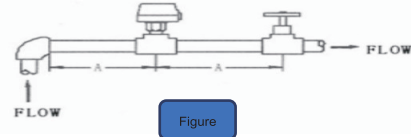
① is the public side, When the flow increase, Connect with ③ contact; and when the flow decrease, Connect with ② contact.

2. The flow switch comes with 1#, 2#, 3#, 4# and 5# target plates when it leaves the factory. Users can select and install them according to their needs. If the target of other dimensions is needed, it can be pruned according to its own conditions. For example, if the 3 "pipe is used, the 1#, 2#, and 3# target films will be installed, as shown in figure 2. If the 1-1/2 "pipe is used, it shall be trimmed according to the size from the installation base plane to the bottom of the pipe, so as not to touch the bottom of the pipe to suit the length.

If the total length of the pipe is directly greater than 5# chips, all # 1 to # 5 targets will be installed. As shown in figure 2, the correct installation position of the target is shown.

3. When installing a flow switch in a pipe, the following matters must be noted:

- The flow switch must be installed on a straight pipe at least 5 times the diameter of the pipe on both sides. (see figure 3)
- Flow switches shall be installed in horizontal pipes or vertical pipes with upward flow direction, but not in pipes with downward flow direction.



When installed on the fluid flow of pipeline, because of the need to consider the influence of gravity, flow switch should be adjusted to slightly higher than the typical flow rate value shown in table 1, the adjusting method can be the adjusting screw clockwise.

4. In order to prevent damage when installing the flow switch, the case holding the switch is not allowed to rotate into the tee joint, and special wrench must be used to tighten it at the hexagonal plane of the switch joint.

5. When the flow switch installed to prevent when screwing in tee joint, while tightening must ensure that the plane and vertical direction of fluid flow to slice, and the direction of arrow on the switch and the fluid in the same direction.

6. The flow switch has been set as the minimum flow value when it leaves the factory.

It must not be adjusted below the factory setting value to avoid causing the switch failure.

7. The adjusting screw with sealant on the main lever of the micro switch shall not be adjusted at will, otherwise it will damage the control of the switch, leading to the failure of the operation of the switch

Adjustment

Remove the flow switch housing. If you want to increase the flow value, turn the adjusting screw clockwise to tighten the spring. Otherwise, it goes down.

Chart 2

troubleshooting	
phenomenon	solution
The bellows are damaged and the liquid enters the shell	Replace
The continuing part of the impurities on the switch causes the switch to fail to operate	Remove impurities
On off action opposite	Check whether the wiring is correct
Switch off	Check the wiring and check whether the flow plate is in contact with the pipe
The switch cannot be reset	Whether the installation direction of the switch is consistent with the flow

	direction of the fluid
No action when the rate of flow increases	Check whether there is fracture on the flow plate. If any, it should be replaced

Chart 3 Pipe diameter and flow plate configuration

internal diameter of the pipeline (inch)	block slice length	block slice width
1	31	25
2	56	25
3	82	25
6	132	25

