

Title: Sliding valve**Description**

The invention relates to a sliding valve having a valve body and a throttle body supported at the valve body.

- 5 Such sliding valves are well known in the state-of-the-art, for example from DE 42 41 701 C1. In order to be able to guarantee a good seal tightness of such sliding valves, the throttle body and the valve seat have to be machined with highest precision. This is complicated and therefore
10 expensive.

Therefore, it is an object of the present invention to provide a sliding valve, which, at little manufacturing expense, nevertheless guarantees a good tightness and thus may be produced at less expense.

- 15 This problem is solved with the characteristics specified in patent claim 1. Advantageous further embodiments will result from the dependent claims.

A two-piece sliding valve consists of metal in this case, and the throttle body consists of plastic material. In this case,
20 the shape of the throttle body is cylindrical and is inserted in a guiding borehole. Depending on the set position – by turning the sliding valve counter-clockwise, respectively

turning it clockwise – a transversal borehole, through which a volume flow passes, will be completely or only partially closed.

The inventive sliding valve is able to guarantee a good
5 tightness at considerably reduced manufacturing cost. This is because the throttle body, due to the slot thereof, is able to elastically deform in circumferential direction, and thus sit tightly at the valve seat, such that the throttle body's tolerances do not have to meet excessive requirements. As
10 a result of the high elasticity of the throttle body, a tilting within the valve seat can be avoided as well, such that the inventive sliding valve, besides little manufacturing cost, also features improved functionality. According to one advantageous further development, the throttle body is
15 substantially constituted as a slotted hollow cylinder. Such geometrical body is simple to manufacture and otherwise does not present any increased requirements with regard to the shaping thereof, such that this measure will contribute to inexpensive manufacturing altogether.

20 The throttle body is preferably made from an elastic material with the intention to achieve good sealing properties. Thus, a tight contact of the throttle body at the valve seat is guaranteed.

According to a preferred further development, the throttle body is oversized in relation to a valve seat accommodating the throttle body. Thus, a forced deformation of the throttle body to be inserted into the
5 valve seat will be achieved in the simple way and will thus sit in a sealing manner at the valve seat.

In order to allow for an easy insertion of the throttle body into the valve seat, according to the invention it is intended that the valve seat, on the side thereof oriented towards the
10 valve body, is provided with a chamfer.

A particularly tight and accurately fitting location of the throttle body within the valve seat is achieved, if, according to a preferred further development, the throttle body is compressible by the valve seat such that, in the inserted
15 position, the slot of the valve body is completely or almost completely closed. In order to fasten the throttle body in a simple way at the valve body, according to one advantageous embodiment, the throttle body is held at the valve body by means of a snap-in connection. Such snap-
20 in connection is simple in manufacturing and nevertheless guarantees secure holding together of the throttle body and the valve body, while presenting additional high holding force.

With the intention to make joining of the snap-in connection easy, according to one advantageous further embodiment, it is provided that the valve body, on the end thereof oriented towards the throttle body, presents a truncated
5 neck.

The truncated neck is preferably provided with an undercut. This allows for secure support of the throttle body at the valve body.

In order to be able to engage in a secure connection with
10 the undercut, according to one preferred embodiment, the throttle body is provided, at the end thereof oriented towards the valve body, with an annular reinforcement oriented to the inside, which will engage with the undercut. This will secure a support without play of the throttle body
15 at the valve body.

According to one advantageous further development, the slot in the throttle body likewise extends through the annular reinforcement. On the one hand, the truncated neck at the valve body is able to slightly widen the slotted
20 throttle body during assembly, until the annular reinforcement will be located in the undercut and, on the other hand, a good deformability of the throttle body in the valve seat is guaranteed.

Further characteristics and advantages of the invention will result from the following description of one preferred embodiment example, in which:

5 Figure 1: represents a view of the inventive sliding valve with valve body and throttle body,

Figure 2: represents a section through the inventive throttle body,

Figure 3: represents a section through the lower part of the valve body with attached throttle body, and

10 Figure 4: represents a section through the sliding valve inserted into a housing.

An inventive sliding valve is illustrated and explained on the basis of one preferred embodiment example in figures 1 to 4.

15 Figure 1 shows the inventive sliding valve in a disassembled condition. A thread is provided for adjusting the sliding valve, which thread cooperates with a female thread within a guiding borehole. A radially extending seal is provided at a head, having no further reference, for
20 adjusting the sliding valve. A valve body 1 and a substantially hollow cylindrically shaped throttle body 2, separate from the valve body 1, can be distinguished. In the axial direction thereof, the throttle body 2 is provided

with a slot 3, which extends over the total height of the throttle body 2. The throttle body 2, at the end thereof oriented towards the valve body 1, is provided with an annular reinforcement 4 directed to the inside (see Figure 5 2). This annular reinforcement 4 is likewise slotted. However, it is likewise possible that this annular reinforcement 4 is not provided with the slot 3.

The valve body 1, at the end thereof oriented towards the throttle body 2, is provided with a truncated neck 5, the 10 thinner end thereof being oriented towards the throttle body 2. The truncated neck 5, at the thicker end thereof, is provided with an undercut 6, with which the annular reinforcement 4 of the throttle body 2 engages when the throttle body 2 is fixed at the valve body 1.

15 In a reciprocating way the throttle body 2 is freely supported in a valve seat 7. In order to enable the throttle body 2, being oversized manufactured in relation to the valve seat 7, to be easily inserted into the valve seat 7, the valve seat 7, at the end thereof oriented towards the 20 throttle body 2 respectively towards the valve body 1, is provided with a chamfer 8. This chamfer 8 likewise facilitates the elastic deformation of the throttle body 2 when being inserted into the valve seat 7.

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The above description of the embodiment example of the present invention serves illustrative purposes only and is not intended to limit the invention. Various changes and modifications are possible within the range of the invention
5 without leaving the scope of the invention or the equivalents thereof. This type of sliding valve is suitable for all fields of application, where valves are necessary. This is particularly valid for hydraulic door closers and swing door leaf drives.

10 Besides presenting the advantages of easy mounting, increased holding force of the snap-in connections, and high elasticity of the throttle body 2, equalling a good tightness and absence of jamming within the guiding borehole, the sliding valve is characterized by good
15 temperature stability. The shorter the throttle length, respectively the length of the throttle slot, the higher the temperature stability will be.

References

- 1 valve body
- 2 throttle body
- 3 slot
- 5 4 annular reinforcement
- 5 truncated neck
- 6 undercut
- 7 valve seat
- 8 chamfer

Patent claims

1. A sliding valve having a valve body and a throttle body being supported at the valve body, and that the throttle body (2) is provided with a slot (3) extending in the axial direction thereof, characterized in that the throttle body (2) is held at the valve body (1) by means of a snap-in connection.
2. A sliding valve according to claim 1, characterized in that the throttle body (2) is substantially formed as a slotted hollow cylinder.
3. A sliding valve according to one of the preceding claims, characterized in that the throttle body (2) consists of an elastic material.
4. A sliding valve according to one of the preceding claims, characterized in that the throttle body (2) presents an over-size in relation to a valve seat (7) accommodating the throttle body (2).
5. A sliding valve according to one of the preceding claims, characterized in that the valve seat (7), on the side thereof oriented towards the valve body (1), is provided with a chamfer (8).
6. A sliding valve according to one of the preceding claims, characterized in that the throttle body (2) is compressible by the valve seat (7) such that, in the inserted condition, the slot (3) of the throttle body (2) is completely or almost completely closed.
7. A sliding valve according to one of the preceding claims, characterized in that the valve body (1), at the end thereof

oriented towards the throttle body (2), presents a truncated neck (5).

8. A sliding valve according to one of the preceding claims, characterized in that the truncated neck (5) is provided with an undercut (6).
9. A sliding valve according to one of the preceding claims, characterized in that the throttle body (2), at the end thereof oriented towards the valve body (1), is provided with an annular reinforcement (4) oriented towards the inside, which engages with the undercut (6).
10. A sliding valve according to one of the preceding claims, characterized in that the slot (3) in the throttle body (2) likewise extends through the annular reinforcement (4).