The invention claimed is:

1. A metering system for a metering substance, comprising a nozzle, a feed channel for a metering substance, a discharge element, and a piezo actuator coupled to the discharge element and/or the nozzle, wherein the piezo actuator is hermetically encapsulated in a housing by being arranged entirely between a housing base and a housing lid along an entire longitudinal extension of the piezo actuator.

2. The metering system according to claim 1, wherein the housing is designed to be vibration fatigue-resistant.

3. The metering system according to claim 1, wherein at least one temperature sensor is arranged inside the housing and/or on an outer side of the housing.

4. The metering system according to claim 3, wherein at least one temperature sensor is arranged on an outer side of the piezo actuator and/or inside the piezo actuator.

5. The metering system according to claim 3, wherein at least one temperature sensor is located on an inner wall of the housing.

6. The metering system according to claim 1, wherein at least one strain gauge is arranged inside the housing and/or on an outer side of the housing.

7. The metering system according to claim 1, wherein the housing comprises at least one feed-through for a number of electrical conductors.

8. The metering system according to claim 1, wherein a thermally conducting medium and/or a medium for moisture suppression are located in the housing.

9. The metering system according to claim 1, wherein a pressure compensation zone is located in the housing.

10. The metering system according to claim 1, wherein the housing comprises a heat dissipation zone.

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11. The metering system according to claim 10, further comprising a cooling device that uses a coolant which comprises a gaseous and/or liquid medium.

12. The metering system according to claim 10, further comprising a cooling device that is designed in such a way that mechanical abrasion debris is removed from an actuator chamber of the metering system by the coolant.

13. A method of using the piezoceramic actuator hermetically encapsulated in the metering system for metering the metering substance according to claim 1.

14. A method for operating the metering system for metering the metering substance according to claim 1, the metering system including the piezo actuator hermetically encapsulated in the housing.

15. A method for producing a metering system for metering a metering substance, the metering system including a piezo actuator, wherein the piezo actuator is hermetically encapsulated in a housing, and the housing of the piezo actuator is arranged in a housing of the metering system.

16. The metering system according to claim 10, wherein the heat dissipation zone is coupled to a cooling device of the metering system.

17. The method for producing the metering system for metering a metering substance according to claim 15, wherein the piezo actuator is hermetically encapsulated in the housing by being arranged entirely between a housing base and a housing lid along an entire longitudinal extension of the piezo actuator.

18. The method for operating the metering system for metering the metering substance according to claim 14, further comprising regulating, as a function of at least one operating parameter of the encapsulated piezo actuator, the operation of the metering system.

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