Gas Odorization System GOE 2000

Serving the Gas Industry Worldwide
Gas OdORIZATION System GOE 2000
construction, method of operation, features

Construction

The individual components are fixed to a mounting plate which is installed above a collector. The odorant tank is also located on the collector at the same level as the reserve tank. Almost all valves are integrated into the enclosure of the reserve tank which reduces the number of pipe connections and possible leakages.

A permanently installed hand pump is used for filling the reserve tank during start-up and during the time when the odorant tank is changed. In this way, the liquid column is formed which enables the levels to be equalized according to the principle of communicating vessels. A gas trap prevents this liquid column from being interrupted.

An activated carbon filter prevents odorant from escaping to the outside when the system is vented. For monitoring purposes, the system can be equipped with a level switch (giving an alarm when the level falls below minimum) or a level detector (level measurement).

Method of operation

In order to immediately detect natural gas leaking, it is necessary to add an odorous substance (odorant) to the odourless natural gas. Special devices adding the odorant in the required concentration are used for this process, which is called odorization.

The GOE 2000 odorization system operates according to the injection method. An electromagnetically operated reciprocating diaphragm pump injects the odorant through an injection nozzle into the gas flow. The proportioning pump receives an electric pulse from the associated control unit and then performs a stroke which delivers a settable quantity of odorant.

The number and sequence of pulses are determined by the control unit on the basis of volume-proportional pulses received from a volumetric meter.

The odorant is drawn from a reserve tank into which it flows from a connected odorant tank according to the principle of communicating vessels.

Features

- Odorizes according to the injection method
  Injection is performed by a reciprocating diaphragm pump which is controlled by volumeproportional pulses.
- Odorant is drawn from the odorant tank according to the principle of communicating vessels
  No auxiliary pressure is required (neither overpressure nor underpressure). A permanently installed hand pump is used only when the system is started up or when the odorant tank is changed.
- High proportioning accuracy
  In this way, a constant odorant concentration is achieved in the gas flow.
- Wide operating range
- High level of reliability
  All parts coming into contact with the odorant are manufactured from stainless steel, glass or Viton.
- Infinitely variable setting of the odorant concentration
  The setting of the odorant concentration can be performed at the pump and is also possible during operation.
- Suitable for use with all common odorants e.g. for THT or mercaptans
- Installed on a mounting plate with SWAGELOK fittings ready for connection
- Odorant tank can be changed without interrupting operation
- Venting the pump head poses no problems even if the gas line is under pressure
- Low on maintenance
- Equipped with a stored-program control unit
- Convertible to sulfur-free odorant.

Construction of the GOE 2000

1. Gas trap
2. Measuring coupling
3. Injection pipe
4. Hand pump
5. Flush valve
6. Hose clamp
7. Odorant tank
8. Odorant tank
9. Grid
10. Collector
11. Shut-off valve, flushing device
12. Drain valve
13. Shut-off valve, measuring burette
14. Shut-off valve, reserve tank
15. Filter
16. Proportioning pump
17. Ball valve
18. Flow monitor
19. Reserve tank
20. Measuring burette
21. Shut-off valve, measuring burette
22. Start-up valve
23. Filling valve
24. Level detector or level switch
Options

- **Level switch** giving an alarm when the filling level falls below a preset minimum value.
- **Level detector** for continuous level measurement. The odorant concentration produced can be calculated automatically through the change in the filling level.
- **Flow monitor** installed in the injection pipe for monitoring the proportioning pump.
- **High-pressure flushing and venting device** for flushing the fittings installed in the suction and injection pipes and for venting the proportioning pump. Maximum gas back pressure: 80 bar.
- **Manual button** (EEx i or EEx d), including manual/automatic changeover, for manual pump control.

Accessories

- **Injection nozzle** for injecting the odorant into the gas flow, including a non-return valve and a manual stop valve. There are different lengths available for nominal pipe diameters from DN 50 to DN 800.
- **Weldolet** (PN 100) for installing the injection nozzle, with G½", G¾" or G1" internal thread.
- **Collector** made of stainless steel with grid and supporting feet, manufactured and tested in compliance with WHG (100 litres or 200 litres).
- **Weather-proof concrete cabinet** with separate, gas-tight electrical section for installing the GOE 2000 odorization system with odorant tank, collector and control unit.
- **Insulating coupling** for the injection pipe, dia. 6 mm, for the electrical isolation of the piping and the odorization system.
- **Odorant tank** as per DIN 30 650 (50 litres or 200 litres) for transportation and storage, approved by DVGW.
- **2 flexible PTFE hoses** with stainless-steel sheathing for connecting the odorant tank with the reserve tank.

Special design

The GOE 2000 odorization system can be equipped with a second proportioning pump that is used either as a standby pump which will start to operate automatically when the process pump fails or as a second pump which operates parallel to the first pump to increase the output.

<table>
<thead>
<tr>
<th>Specifications</th>
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<tbody>
<tr>
<td>Dimensions (H x W x D)</td>
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<tr>
<td>100 l collector 300 x 770 x 770 mm</td>
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<tr>
<td>200 l collector 400 x 1000 x 770 mm</td>
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<tr>
<td>Weight^1 (depending on pump type)</td>
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<tr>
<td>- GOE 2000 with 17l - reserve tank 80 kg</td>
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<tr>
<td>- GOE 2000 with 35l - reserve tank</td>
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<tr>
<td>MH-6-15-300/ MH-6-15-500 86 kg</td>
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<tr>
<td>connection of injection pipe Ø 6 mm SWAGELOK fitting</td>
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<tr>
<td>power supply 230 V/AC (cia control unit)</td>
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<td>power requirement approx. 56 VA</td>
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<td>ambient temperature range +5 bis +50 °C</td>
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<tr>
<td>reserve tank 17l when using a 50l odorant tank</td>
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<tr>
<td>35l when using a 200l odorant tank</td>
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<tr>
<td>explosion protection (pump) EEx e G 4, approved for Zone 1</td>
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<tr>
<td>immersion length of injection nozzle DN 50 - DN 100: 93 mm</td>
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<tr>
<td>DN 200: 178 mm</td>
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<td>DN 400 - DN 500: 320 mm</td>
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<td>DN 150: 143 mm</td>
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<td>DN 250 - DN 300: 190 mm</td>
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<td>DN 600 - DN 800: 480 mm</td>
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^1 Without collector and odorant tank