COMPACT GAS SCRUBBER

- Minimum height at maximum cleaning efficiency -
- For acidic, caustic and organic gas loads -
- Waste gas streams up to 200Nm³/h -
- Turn-key unit incl. control panel -
- Ex-Version -
The compact vent gas solution for your production units

CONCEPT

The highly corrosion resistant compact gas scrubber is especially advantageous for batch wise operated production plants with waste gas streams up to 200Nm³/h at atmospheric pressure.

Filled with a suitable absorption liquid it is suitable for gas streams containing acidic or caustic and also organic loads. The absorption heat can be withdrawn by a heat exchanger. The unit is therefore of universal usage.

The column of the gas scrubber with an effective height of 2m is split into 2 sections so that the total height of the complete system is also only 2m. The mobile unit requires therefore only a minimum room height and clearance to get it transferred in one piece to its operational location.

It must only be connected to the electrical power and cooling water supplies.

The turn-key unit incl. control panel is ready for operation in ex-rated areas. The measuring and control equipment indicate the process parameters and alarms, run the plant always into a safe state and permit hence the unattended operation.
FUNCTION

The waste gas stream enters the first part of the absorption column unit through a neck in the receiver B01 for the absorption liquid. Leaving the first column K01-A the vent gas is guided by a glass piping into the bottom of the second part of the absorption column K01-B and leaves the system through a siphon into a the vent line. Eventually condensating liquid in a subsequent vent line flows back into the siphon and is there guided back into the liquid receiver B01. The waste gas is washed in both columns with the same absorption liquid. The liquid load can be adjusted manually individually per column with the valves V04-A and V04-B. The absorption liquid is selected according to the components to be removed from the waste gas stream and filled via V01 into the receiver B01. The absorption efficiency of a caustic or acidic absorption liquid can be monitored by an option pH/T-measurement in the circulation line. A sample can be taken via V03.
We would be pleased to check the size of the standard heat exchangers for your application or adapt it to specific requirements.

Flow Chart of the Compact Gas Scrubber

TECHNICAL DESCRIPTION

The package unit consists mainly of a column split into 2 sections K01-A and K01-B, a liquid receiver B01, a coil type heat exchanger W01, internal glass piping made of borosilicate glass 3.3 and a centrifugal PVDF-pump P01. The standard unit is conceived for column diameters between DN100 and DN300. The liquid feed enters through a sprinkler the top of the columns K01-A and K01-B which are filled with Raschig-Rings. The volume of the liquid receiver is 80l for all column sizes.

Optionally the filling level in the receiver in measured by a radar sensor to register any under or overflow in the receiver B01. The safe operation of the circulation pump P01 is monitored by flow meters equipped with minimum flow contacts or as an alternative by thermal flow meters. The plant can optionally been operated by a PLC with an ETHERNET Fieldbus connection situated an ex-rated housing. The operating conditions can be followed by a easily visible signal light.

Gasket and bellows are made of PTFE having FDA material certificates. Coupling rings up to DN300m are made of stainless steel. The tightness of the complete flange couplings is certified according to TA-Luft. The dead volume reduced fire polished QVF® glass flanges are ideal in
combination with inclined horizontal glass piping for self-drainage. A 100l safety tub is integrated in the mobile unit. All parts of the plant are easily accessible for cleaning, inspection, maintenance and repairs. The standard version of the plant can be operated in ATEX-zone 1 II B. Optionally the plant can also be fitted for ATEX-zone 1 II C.

Split columns K01-A and K01-B linked with a vapour pipe

Inlet of absorption liquid at top of each column section
Technical Data

<table>
<thead>
<tr>
<th></th>
<th>Type</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gas Flow</strong></td>
<td>Nm³/h</td>
<td>10</td>
<td>30</td>
<td>70</td>
<td>230</td>
</tr>
<tr>
<td><strong>Column Diameter</strong></td>
<td>DN</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td><strong>Packed Height</strong></td>
<td>mm</td>
<td>2 x 1000</td>
<td>2 x 1000</td>
<td>2 x 1000</td>
<td>2 x 1000</td>
</tr>
<tr>
<td><strong>Size of Raschig-Rings</strong></td>
<td>mm x mm</td>
<td>10 x 10</td>
<td>15 x 15</td>
<td>15 x 15</td>
<td>30 x 30</td>
</tr>
<tr>
<td><strong>Feed Vessel with TriClamp Connection DN25</strong></td>
<td>B01</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td><strong>Heat Exchange Area</strong></td>
<td>m²</td>
<td>0.3</td>
<td>0.3</td>
<td>0.7</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Max. Cooling Water Flow</strong></td>
<td>m³/h</td>
<td>1.2</td>
<td>2.2</td>
<td>3.0</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Electrical Connection of Circulation Pump 230/400V;50Hz</strong></td>
<td>P01</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td>mm</td>
<td>2000</td>
<td>2000</td>
<td>2000</td>
<td>2250</td>
</tr>
<tr>
<td><strong>Width</strong></td>
<td>mm</td>
<td>1700</td>
<td>1800</td>
<td>1900</td>
<td>2250</td>
</tr>
<tr>
<td><strong>Depth</strong></td>
<td>mm</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
</tr>
</tbody>
</table>

OPTIONEN

- Equipment for Zone 1 IIC
- pH-Measurement
- Temperature-Measurement
- Flow-Measurement
- Level-Measurement RADAR based
- Control Panel with PCS
- Signal output in EX-version
- Signal lights
- Signal horn
Which kind of industry can use this product?

Specialty Chemicals
Pharmaceuticals and Fine chemicals

Questions? We are here to help.
If you'd like to talk with a sales representative about purchasing De Dietrich Process Systems's products and services, you can reach us here.

Highlights
Minimum height at maximum cleaning efficiency
For acidic, caustic and organic gas loads
Waste gas streams up to 200Nm³/h
Turn-key unit incl. control panel
Ex-Version

12/05/2019 @ 18:37:27