OptiAir CA09
Pneumatic-fluidizing unit
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General safety regulations

This chapter sets out the fundamental safety regulations that must be followed by the user and third parties using the OptiAir CA09 Pneumatic-fluidizing unit.

These safety regulations must be read and understood before the OptiAir CA09 is put into operation.

Safety symbols (pictograms)

The following warnings with their meanings can be found in the Gema Switzerland operating instructions. The general safety precautions must also be followed as well as the regulations in the operating instructions.

DANGER!
Danger due to electrically live or moving parts. Possible consequences: death or serious injury

WARNING!
Improper use of the equipment could damage the machine or cause it to malfunction. Possible consequences: minor injuries or damage to equipment

INFORMATION!
Useful tips and other information

Proper use

1. The OptiAir CA09 Pneumatic-fluidizing unit is built to the latest specification and conforms to the recognized technical safety regulations and is designed for the normal application of powder coating.

2. Any other use is considered non-compliant. The manufacturer shall not be liable for damage resulting from such use; the user bears sole responsibility for such actions. Gema Switzerland GmbH must be consulted prior to any use of the OptiAir CA09 for any purposes or substances other than those indicated in our guidelines.
3. Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of conformity of use. The OptiAir CA09 should only be used, maintained and started up by trained personnel informed about and familiar with the possible hazards involved.

4. Start-up (i.e. the execution of a particular operation) is forbidden until it has been established that the OptiAir CA09 Pneumatic-fluidizing unit has been set up and wired according to the guidelines for machinery (2006/42 EG). EN 60204-1 (machine safety) must also be observed.

5. Unauthorized modifications to the OptiAir CA09 exempt the manufacturer from any liability from resulting damage.

6. The relevant accident prevention regulations, as well as other generally recognized safety regulations, occupational health and structural regulations are to be observed.

7. Furthermore, the country-specific safety regulations also must be observed.

<table>
<thead>
<tr>
<th>Explosion protection</th>
<th>Protection type</th>
<th>Temperature class</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE II 3D Ex</td>
<td>IP54</td>
<td>T4 (Zone 22)</td>
</tr>
</tbody>
</table>

**Product-specific safety measures**

**OptiAir CA09 Pneumatic-fluidizing unit**

The OptiAir CA09 pneumatic/fluidizing unit is a constituent part of the system and is thus integrated into the safety system of the plant. If it is to be used in a manner outside the scope of the safety concept, then corresponding measures must be taken.

**NOTE:**
For further information, see the more detailed Gema safety regulations!
About this manual

General information

This operating manual contains all the important information you require for the working with the OptiAir CA09 Pneumatic-fluidizing unit. It will safely guide you through the start-up process and give you references and tips for the optimal use of your new powder coating system.

Information about the functionality of the individual system components - booth, gun control unit, manual gun or powder injector - should be referenced to their enclosed corresponding documents.

DANGER:

Working without operating instructions

Working without operating instructions or with individual pages from the operating instructions may result in damage to property and personal injury if relevant safety information is not observed.

► Before working with the device, organize the required documents and read the section "Safety regulations".
► Work should only be carried out in accordance with the instructions of the relevant documents.
► Always work with the complete original document.
Function description

Field of application

The OptiAir CA09 Pneumatic-fluidizing unit regulates the fluidizing air and Airmover pressure. The fluidization operates directly by connecting the OptiAir CA09 Pneumatic-fluidizing unit to the compressed air.

When using the OptiAir CA09 Pneumatic-fluidizing unit, the fluidizing air and the air to the Airmover will be regulated separately. The prefluidization is controlled automatically by the inserted solenoid valve (the signal comes from the PLC, OptiControl CM22 etc.). The exact prefluidization pressure can be set with the pressure regulator in the OptiAir CA09 Pneumatic-fluidizing housing. The prefluidization starts immediately by switching on the interlocking control unit.

The OptiAir CA09 control unit is suitable particularly in combination with the Gema OptiMatic 2 series.
Structure

Overview

1 Pressure regulator for fluidizing air
2 Pressure indicator for fluidizing air
3 Pressure regulator for Airmover
4 Pressure indicator for Airmover

OptiAir CA09 Pneumatic-fluidizing unit - structure
Technical data

OptiAir CA09 Pneumatic-fluidizing unit

### Pneumatic data

<table>
<thead>
<tr>
<th>OptiAir CA09</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Input pressure</td>
<td>6-8 bar</td>
</tr>
<tr>
<td>Compressed air consumption</td>
<td>depending on the powder hopper size</td>
</tr>
<tr>
<td>Water vapor content</td>
<td>max. 1.3 g/m³</td>
</tr>
<tr>
<td>Oil content</td>
<td>max. 0.1 mg/m³</td>
</tr>
</tbody>
</table>

### Electrical data

<table>
<thead>
<tr>
<th>OptiAir CA09</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage (according to the valve coil)</td>
<td>24 VDC</td>
</tr>
<tr>
<td></td>
<td>24 VAC / 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>230 VAC / 50/60Hz</td>
</tr>
</tbody>
</table>

### Dimensions

<table>
<thead>
<tr>
<th>OptiAir CA09</th>
<th>Width</th>
<th>Height</th>
<th>Depth</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>173 mm</td>
<td>177 mm</td>
<td>290 mm</td>
<td>3.4 kg</td>
</tr>
</tbody>
</table>
Start-up and operation

Setting the fluidization

The powder fluidization depends on the powder type, the air humidity and the ambient temperature.

The OptiAir CA09 Pneumatic-fluidizing unit contains pressure regulators and manometers for fluidizing air and Airmover.

The OptiAir CA09 Pneumatic-fluidizing unit is connected to a 6-8 bar compressed air circuit.

The fluidization is set as follows:

1. Connect the main compressed air supply and open it. The compressed air flows now through the OptiAir CA09 Pneumatic-fluidizing unit. The fluidization operates immediately when connecting the OptiAir CA09 Pneumatic-fluidizing unit to the compressed air.

2. Adjust the compressed air to 6 bar on the pressure reducing valve.

3. Check the powder fluidization in the powder hopper. The compressed air of the prefluidization will "loosen up" the powder. This compressed air is controlled externally. If the powder begins to "boil", adjust the fluidizing air with the corresponding pressure regulator in such a way that the "boiling" spreads evenly on the powder surface. The fluidizing air pressure is monitored on the pressure gauge.

Connect the powder hopper Airmover

The fluidizing air produces an overpressure in the powder hopper. This overpressure prevents the powder supply and must be eliminated. For this purpose an Airmover is installed on the powder hopper, which extracts, similarly as an injector, the overpressure and the powder mixed with air.

Therefore, the Airmover produces a depression in the powder hopper. The air volume, which can be extracted by the Airmover, depends on the powder hopper size and the fluidizing air volume.

The Airmover air is to be set, when a powder cloud rises over the powder surface and flows out through the powder hopper openings. The Airmover pressure is set with the corresponding adjusting button and monitored on the manometer. The pressure will be increased so far, until no more powder flows out of the powder hopper.
If these settings are once fixed, they can be left also when work interruptions take place. A reset of the adjusted values is thereby not necessary. The main switch of the OptiFlex A2 Control system can be switched on now, and the guns can be set and/or operated (see therefore the powder gun and gun control unit manuals).

1 Compressed air connection
2 Fluidizing air connection to the powder hopper
3 Output to the Airmover
4 Pressure regulator
5 Booster

OptiAir CA09 - Airmover connection (rear view)
Spare parts list

Ordering spare parts

When ordering spare parts for powder coating equipment, please indicate the following specifications:

- Type and serial number of your powder coating equipment
- Order number, quantity and description of each spare part

Example:

- **Type** OptiAir CA09 Pneumatic-fluidizing unit
  **Serial number** 1234 5678
- Order no. 203 386, 1 piece, Clamp - Ø 18/15 mm

When ordering cable or hose material, the required length must also be given. The spare part numbers of this bulk stock is always marked with an *.

Wearing parts are always marked with a #.

All dimensions of plastic hoses are specified with the external and internal diameter:

Example:

Ø 8/6 mm, 8 mm outside diameter (o/d) / 6 mm inside diameter (i/d)

WARNING!
Only original Gema spare parts should be used, because the explosion protection will also be preserved that way. The use of spare parts from other manufacturers will invalidate the Gema guarantee conditions!
### OptiAir CA09 Pneumatic-fluidizing unit - spare parts

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OptiAir CA09 Pneumatic-fluidizing unit - complete</td>
<td>1009 110</td>
<td></td>
</tr>
<tr>
<td>3 Front frame - complete</td>
<td>1007 048</td>
<td></td>
</tr>
<tr>
<td>4 Pressure regulator – 0.1-4 bar, G1/4&quot;</td>
<td>1009 101</td>
<td></td>
</tr>
<tr>
<td>5 Plug cap - 1/8&quot;a</td>
<td>258 687</td>
<td></td>
</tr>
<tr>
<td>6 Elbow joint - 1/4&quot;a, Ø 6 mm</td>
<td>265 691</td>
<td></td>
</tr>
<tr>
<td>7 Pressure gauge - 0-6 bar, 1/8&quot;a</td>
<td>1003 300</td>
<td></td>
</tr>
<tr>
<td>8 Connection sleeve - 1/8&quot;i, Ø 6 mm</td>
<td>233 412</td>
<td></td>
</tr>
<tr>
<td>9 Connection fitting - 3/8&quot;a-3/8&quot;a</td>
<td>202 975</td>
<td></td>
</tr>
<tr>
<td>10 Booster - 0-8 bar (without valve coil)</td>
<td>1007 561</td>
<td></td>
</tr>
<tr>
<td>10.1 Valve coil (for pos. 10) - 24 VDC (for the control by CM22, PLC etc.) (not shown)</td>
<td>257 990</td>
<td></td>
</tr>
<tr>
<td>10.2 Valve coil (for pos. 10) - 230 VAC, 50/60 Hz (not shown)</td>
<td>258 016</td>
<td></td>
</tr>
<tr>
<td>10.2 Connecting cable for pos. 10.1 - 5 m (not shown)</td>
<td>371 173</td>
<td></td>
</tr>
<tr>
<td>12 Screw-in nipple - 3/8&quot;a, Ø 10 mm</td>
<td>242 268</td>
<td></td>
</tr>
<tr>
<td>13 Double nipple - 1/8&quot;a-1/8&quot;a</td>
<td>202 258</td>
<td></td>
</tr>
<tr>
<td>14 Pressure regulator - 0-8 bar, 1/8&quot;</td>
<td>239 623</td>
<td></td>
</tr>
<tr>
<td>15 Elbow joint - 1/8&quot;a, Ø 6 mm</td>
<td>254 061</td>
<td></td>
</tr>
<tr>
<td>16 Connection sleeve - 3/8&quot;i, Ø 10 mm</td>
<td>259 349</td>
<td></td>
</tr>
<tr>
<td>17 Lead-through connection - Ø 6 mm, Rapid</td>
<td>241 792</td>
<td></td>
</tr>
<tr>
<td>Nut with kink protection for pos. 17 (not shown)</td>
<td>201 316</td>
<td></td>
</tr>
<tr>
<td>Plastic tube - Ø 8/6 mm, for pos. 17 (not shown)</td>
<td>103 756*</td>
<td></td>
</tr>
</tbody>
</table>

* Please indicate length
OptiAir CA09 Pneumatic-fluidizing unit - spare parts
Hose connections

1 Plastic hose - Ø 6/4 mm, black 103 144*
2 Plastic hose - Ø 10/8 mm, black 103 250*

* Please indicate length

OptiAir CA09 Pneumatic-fluidizing unit - hose connections