Operating Instructions and Spare Parts List

ADU 2 Air Distribution Unit

![ADU 2 Air Distribution Unit Diagram]
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ADU 2 Air distribution unit

Description

The ADU 2 Air distribution unit regulates the fluidizing air, and the airmover air, both of which can be adjusted individually. Prefluidization is operated automatically by a solenoid valve. The pressure can be set inside the module housing. Fluidization takes place immediately the PMC Powder master control unit is switched on. The ADU 2 is foreseen for use with the APS 2 Automatic powder system only.

![Front panel of the ADU 2 Air distribution unit](image)

Figure 1

Technical specifications:

Pneumatic data:

- Input pressure: 7-10 bar
- Air consumption: Depending on the number of powder hoppers connected
- Max. water vapour: 1.3 g/m³
- Max. oil vapour: 0.1 ppm
Adjusting the powder fluidization

The fluidization of the powder in the hopper depends on the characteristics of the powder, the humidity, and the ambient air temperature etc. The ADU 2 Air distribution unit has pressure regulation for prefluidization, fluidization, and airmover air. The prefluidization/fluidization, and the airmover air are each shown on a separate pressure gauge.

The unit should be connected to a main compressed air supply with 7 - 10 bar.

Fluidization is adjusted as follows:

1. Prefluidization
   When the PMC Powder master control unit is switched on, the main pressure valve in the control module is opened, allowing compressed air to flow. Simultaneously, a prefluidization pulse is released by the time relay, K3 in the PMC. This relay is responsible for the following time functions settings:
   \[
   \begin{align*}
   T1 & \ (0.15 - 0.7 \ \text{sec.}) = \text{Prefluidization on.} \\
   T2 & \ (0.2 - 0.8 \ \text{sec.}) = \text{Prefluidization off.} \\
   T3 & \ (10 - 42 \ \text{sec.}) = \text{Prefluidization duration.}
   \end{align*}
   \]

   The pressure can be adjusted with the pressure reducing valve (inside the housing) and read on the pressure gauge during prefluidization pulse.

   The time function setting of the time relay must be adjusted to suit the type of powder being used. After prefluidization, the powder in the hopper should be loosened up enough to permit an even fluidization to take place.

2. Fluidization
   After prefluidization the fluidizing air can be set with the pressure reducing valve and the pressure can be read on the pressure gauge.

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Figure 2

1 Fluidization adjusting knob
2 Fluidization pressure gauge
3 Airmover adjusting knob
4 Airmover pressure gauge

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Adjusting the airmover of the powder hopper

Fluidizing air in the powder hopper produces overpressure. Since this adversely affects the conveyance of powder, this overpressure must be eliminated. For this purpose an airmover can be installed on the powder hopper. The airmover is similar to an injector. Its function is to produce a small negative pressure in the powder hopper. The amount of air to be removed depends on the size of the hopper and/or the amount of fluidizing air.

If a cloud of powder rises above the surface and tries to flow out of the hopper through the cover opening the airmover air pressure should be adjusted. This is done with the airmover setting knob (3 - Fig. 2) and airmover pressure gauge (4 - Fig. 2). The pressure should be increased until the powder cloud remains inside the hopper. After these adjustments have been made, the ADU 2 Air distribution unit does not have to be reset when starting up again.

Airmover connection (rear panel of the ADU 2)

1. Solenoid cable connection
2. Airmover air outlet (1.3)
3. Aeration hose to booth
4. Airmover
5. Airmover hose connection
6. Fluidization hose
7. Fluidization hose outlet (1.2)
8. Main compressed air input (1.1 IN)

Figure 3
Spare Parts List

Ordering Spare Parts

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

1. Type and serial number of your powder coating equipment

2. Order number, quantity, and description of each spare part

Example:

1. Type: ADU 2, Serial no: XXXX XXXX

2. Order no: 235 814, 1 piece, Pressure gauge

When ordering cable or hose material the length required must also be given. The spare part numbers of this yard/metre ware is always marked with an *. 

All dimensions of plastic hoses are given as external and internal diameters: 

e.g. ø 8 / 6 mm = 8 mm outside diameter (o/d) / 6 mm inside diameter (i/d). 

The spare part number of yard/metre ware always begins with 1.. ....

All wear parts are marked with a #.
## ADU 2 Control unit

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pressure reducing valve</td>
<td>241 369</td>
</tr>
<tr>
<td>2</td>
<td>Locking nut - M14x1</td>
<td>302 163</td>
</tr>
<tr>
<td>3</td>
<td>Regulator knob</td>
<td>200 069</td>
</tr>
<tr>
<td>4</td>
<td>Pressure gauge - 0-4 bar</td>
<td>235 814</td>
</tr>
<tr>
<td>5</td>
<td>Pressure gauge holder plate</td>
<td>340 030</td>
</tr>
<tr>
<td>6</td>
<td>Quick-release tube connector - 1/8”- ø 6 mm</td>
<td>233 412</td>
</tr>
<tr>
<td>7</td>
<td>Regulating valve unit (Booster)</td>
<td>342 750</td>
</tr>
<tr>
<td>8</td>
<td>Pressure reducing valve</td>
<td>239 623</td>
</tr>
<tr>
<td>9</td>
<td>Double adapter valve - 1/8”-1/8”</td>
<td>202 258</td>
</tr>
<tr>
<td>10</td>
<td>Main air input or Fluid. air outlet - 3/8” B.S.P. thread</td>
<td>202 975</td>
</tr>
<tr>
<td>11</td>
<td>Quick-release tube connector elbow joint</td>
<td>203 033</td>
</tr>
<tr>
<td>12</td>
<td>Solenoid valve coil - 24 VAC (for item 7)</td>
<td>241 865</td>
</tr>
<tr>
<td>13</td>
<td>Quick-release tube connector elbow joint</td>
<td>227 455</td>
</tr>
<tr>
<td>14</td>
<td>Pressure reducing valve</td>
<td>239 852</td>
</tr>
<tr>
<td>15</td>
<td>Quick-release tube connector - 3/8”- ø 10 mm</td>
<td>239 607</td>
</tr>
<tr>
<td>16</td>
<td>Airmover lead-through joint - 1/8”-1/8”</td>
<td>202 371</td>
</tr>
<tr>
<td>17</td>
<td>Quick-release tube connector - 1/8”- ø 8 mm</td>
<td>237 663</td>
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<tr>
<td>18</td>
<td>Locking nut - PG 16</td>
<td>204 412</td>
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<tr>
<td>19</td>
<td>Solenoid plug and cable</td>
<td>343 021</td>
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<tr>
<td>20</td>
<td>Cap locking nut - PG 16</td>
<td>204 366</td>
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<tr>
<td>21</td>
<td>Cap nut - 3/8”</td>
<td>203 157</td>
</tr>
<tr>
<td>22</td>
<td>Hose nipple - ø 10 mm</td>
<td>203 165</td>
</tr>
<tr>
<td>23</td>
<td>Hose clamp ring</td>
<td>203 386</td>
</tr>
<tr>
<td>24</td>
<td>Solaflex hose - ø 16 / 10 mm</td>
<td>100 498*</td>
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<tr>
<td>25</td>
<td>Braided copper wire</td>
<td>103 373*</td>
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<tr>
<td>26</td>
<td>Plastic hose - ø 6 / 4 mm</td>
<td>103 144*</td>
</tr>
<tr>
<td>27</td>
<td>Quick-release connection - ø 8 / 6 mm</td>
<td>203 181</td>
</tr>
<tr>
<td>28</td>
<td>Quick-release connection - ø 10 mm</td>
<td>239 267</td>
</tr>
<tr>
<td>29</td>
<td>Plastic hose - ø 10 / 8 mm (black)</td>
<td>103 250*</td>
</tr>
<tr>
<td>30</td>
<td>Plastic hose - ø 8 / 6 mm (black)</td>
<td>103 756*</td>
</tr>
<tr>
<td>31</td>
<td>Lead-through - 3/8”-3/8”</td>
<td>202 975</td>
</tr>
</tbody>
</table>

* Indicate length required
ADU 2 Control unit

Figure 4

Airmover

APS

Fluid

 PMC