Aerosol Separator Device
LGA 601 FU/FUW
Nominal volume flow 600 m³/h

1. Features

- High performance aerosol separator device for separation of coolant from tooling machine exhaust air
- Excellent retention rates 100 % at 1 µm aerosols
- Suitable for high raw gas loads up to 3000 mg/m³
- Equipped with high-efficient coalescer elements
- High dirt holding and optimized service life
- Pre-separation system for optimized service life
- HEPA filter stage available for more efficiency
- Low maintenance and energy system
- Modular design for direct installation of main components onto tooling machines
- Quality filters, easy to service
- Low space requirements
- Worldwide distribution and service
- Numerous accessories
2. Fractional collection efficiency

\[
x = \text{Particle size in } \mu\text{m} \\
y = \text{Fractional retention rate in } \%
\]

Aerosol: Wiolan SH 10
Raw gas concentration: 50 mg/m³
Volume flow: 600 m³/h

1 = Filter cartridge as delivered
2 = Filter cartridge after 100 operating hours

3. Operating principle

Oil aerosols are sucked away from the machining space of machine tools. The oil-laden air flows outward through the coalescer element from the inside. The oil attaches itself to the fibre media as it passes through the filter. Minute oil droplets "coalesce" to form larger drops. These larger droplets migrate downwards on the coalescer element due to gravity. The oil accumulates at the bottom of the housing and is returned to the cooling lubricant storage reservoir via the oil drain hose and the membrane valve.

The vacuum in the filter housing causes external air to be sealed off by the membrane valve. The valve opens automatically when the oil in the drain hose reaches a height of at least 500 mm. The cleaned airflow is sucked away by means of a high-pressure fan and blown out at the top through a silencer.

4. Application

Suitable for non-water-miscible cooling lubricants (cutting oil, grinding oil, drilling oil) and oil aerosol exhausted by machine tools and also for water-miscible cooling lubricants.

Operating limits

If oil is used as cooling lubricant for machining processes, air usually has to be sucked away from the working area to prevent the atomized oil from dispersing. The concentrations that often occur in the cooling lubricant jet or in the machine room could result in ignition in case of tool breakage, for example. If the machining process involves flammable cooling lubricants or flammable materials, safe operation must be ensured by providing suitable fire and explosion protection devices in conformance with statutory regulations.

Installation in potentially explosive atmosphere (Zones 0, 1 and 2) is not permitted!

5. Product information

LGA 601 FU and FUW
The LGA 601 is a filtering separator with optional pre-separation (when FUW design).
It is driven by a frequency controlled motor. A volumetric flowrate sensor supplies the actual value required to obtain a constant volume flow of 600 m³/h. If this value falls below the setpoint, an electrical signal is output at approximately 450 m³/h. These signals can be evaluated to enable suitable maintenance action to be taken.

6. Order numbers

<table>
<thead>
<tr>
<th>Type</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGA 601 FU RAL 7035</td>
<td>72374902</td>
</tr>
<tr>
<td>LGA 601 FUW RAL 7035</td>
<td>72410327</td>
</tr>
</tbody>
</table>
7. Modules/main components

1. Membrane valve (FU 1x/FUW 2x)
2. Oil hose (FU 1x/FUW 2x)
3. Air inlet nozzle
4. Oil drain nozzle (FU 1x/FUW 2x)
5. Pre-separation element (only FUW)
6. Coalescer element
7. Housing
8. Filter housing
9. Eyebolt for transport
10. Fan with FU
11. Electric motor
12. Air outlet nozzle/Mounting fixture for HEPA filter
13. Silencer
14. Connection port
15. Volume flow display
16. Frequency converter
17. Volumetric flowrate sensor
18. Mounting base plate

8. Technical data

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume flow</td>
<td>600 m³/h</td>
</tr>
<tr>
<td>Temperature range</td>
<td>+10 °C to +60 °C</td>
</tr>
<tr>
<td>Air nozzles (2x Jacob)</td>
<td>150 mmm</td>
</tr>
<tr>
<td>Oil hose (2x)</td>
<td>PVC transparent 15x2 mm (5.5 m) - (FUW 2x)</td>
</tr>
<tr>
<td>Filter</td>
<td>1 coalescer element and 1 pre-separation element (only FUW)</td>
</tr>
<tr>
<td>Filter surface</td>
<td>4.8 m²</td>
</tr>
<tr>
<td>Dimensions (LxWxH)</td>
<td>919x550x825 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>140 kg</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>3 AC 400 V/PE, 50-60 Hz</td>
</tr>
<tr>
<td>Current consumption</td>
<td>3.3 A</td>
</tr>
<tr>
<td>Protection class electrical devices</td>
<td>IP54</td>
</tr>
<tr>
<td>Backup fuse</td>
<td>10 A</td>
</tr>
<tr>
<td>Connection port</td>
<td>Harting 10B</td>
</tr>
<tr>
<td>Motor output</td>
<td>1.5 kW</td>
</tr>
<tr>
<td>Motor speed</td>
<td>5920 U/min</td>
</tr>
<tr>
<td>Sound level</td>
<td>69 dB (A)</td>
</tr>
</tbody>
</table>
9. Dimensions

A* Min. clearance required for filter element change
B* Removable side panel
C* Snap closure filter housing
1* Membrane valve
2* Oil hose
3* Raw gas inlet connection DN 150

8* Filter housing
12* Clean gas outlet connection DN 150
14* Connection port
15* Volume flow display
18* Mounting base plate
10. Installation

1 Equipotential bonding
2 Suction pipe
3 Raw air inlet nozzle
4 Oil hose (FUW 2x)
5 Oil storage reservoir
6 Membrane valve (FUW 2x)
7 Exhaust air pipe

Note the minimum clearance of 480 mm is required for element removal!

11. Spare parts

<table>
<thead>
<tr>
<th>Order numbers for spare parts</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-separation element (only LGA 601 FUW)</td>
<td>70515630</td>
</tr>
<tr>
<td>Coalescer element</td>
<td>79354390</td>
</tr>
<tr>
<td>Silencer</td>
<td>76326227</td>
</tr>
<tr>
<td>Oil hose</td>
<td>76326268</td>
</tr>
<tr>
<td>Membrane valve</td>
<td>78769697</td>
</tr>
<tr>
<td>Fixing nut for Coalescer element</td>
<td>76302996</td>
</tr>
<tr>
<td>Differential pressure transmitter</td>
<td>72404747</td>
</tr>
<tr>
<td>Volume flow display</td>
<td>70593410</td>
</tr>
<tr>
<td>Fixing nut for pre-separation element (only LGA 601 FUW)</td>
<td>76302996</td>
</tr>
<tr>
<td>Fan with frequency-controlled motor</td>
<td>72374884</td>
</tr>
</tbody>
</table>
12. Accessories and options

12.1 HEPA filter
For very high requested quality of cleaned air in recirculation mode, there is an option to add a HEPA filter downstream. Thanks to the outstanding separating performance of the LGA device, HEPA filters can reach a very long service life. HEPA downstream filters (class H13) are standardly available with filter surfaces about 3.5 m². Order number 72381952

12.2 Rack
For installation or mounting of the LGA-Gerätes beside a tooling machine. Order number 70539323

A* plate height adjustable
B* height adjustable grid
12.3 External preseparation with an impact separator (MIO filter plate)
Protects the prefilter and main filter installed in the unit from impurities such as entrained metal parts, dust particles or macro emulsions. MIO filter plates are cleanable coarse filters which can achieve class G4 (EN 779) depending on the inflow velocity.

12.3.1 Installation in the tooling machine
The MIO filter plate (order number 70569965) can be installed into the tooling machine directly in front of the raw air inlet nozzle of the LGA 601 using the fixing set (order number 70571759).

12.3.2 Installation outside the tooling machine
The MIO filter plate (order number 70569965) can be installed outside the tooling machine in the sheet metal housing (order number 70579167) in front of the oil aerosol separator device.

12.4 Tubing package
DN150 tubing package with a total length of approx. 5 meters includes two 90° bends, tube sections and clamps incl. seals. Order number 70549566

12.5 Keypad for frequency converter and display
Allows the volume flow (350 to 700 m³/h) to be optimally adapted to the operating conditions (must be installed by a qualified electrician or customer service). Energy efficiency is significantly improved as a result. Order number 72415282

1* Membrane valve
2* Oil hose
13. Check list for aerosol separators

Checklist for ASL/LGA series
Aerosol separation

1. Customer data

<table>
<thead>
<tr>
<th>Company:</th>
<th>Contact person:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post code:</td>
<td>Customer-no.:</td>
</tr>
<tr>
<td>Town:</td>
<td>Street:</td>
</tr>
<tr>
<td>Phone number:</td>
<td>E-Mail:</td>
</tr>
</tbody>
</table>

2. Information on the tooling machine

General Information:
Manufact.: Turning
Model: Milling
Grinding
Year:
Others: 

Type of processing:
Turning
Milling
Grinding
Others:

Machine housing:
Complete housing
Partial housing

Workspace (room to be collected):
width x height x depth m

Machine utilization:
Single-shift
Double-shift
Three-shift

Material of the workpiece:

Machine setting:
Cutting speed: m/min
Feed speed: mm/min

Dwell time before manual workpiece loading

3. Information on the cooling lubricant

Type:
water-miscible
non water-miscible

Name according to safety data sheet:

Minimal quantity lubrication:

pressure.
bar

Nebulization:

(Workpiece not visible)
(Workpiece still visible)
(Workpiece clearly visible)

4. Evacuation system and aerosol separation

Aerosol separator is already in use?
yes
no

If yes:
Number of the evacuation points:

Position of the evacuation points:

Size of the evacuation ports:

Position of the separator:
on top of the machine
next to the machine

Max. Distance from the suction point:
m

Exhaust air:
recirculation in the hall
extraction to the outside

Limit value for oil mist concentration:
mg/m³

Piping planning and assembly desired?
yes
no

4. Additions/Miscellaneous

Place/Date: 

Signature: 

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Aerosol Separator Device LGA 601 FU/FUW