

HOUPC - Oil mist filters



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Compact multi-stage filter for cooling lubricants to mount directly on processing machines. For filtration of oil mist, emulsion mist, minimal quantity lubrication and oil smoke.

The 4-stage separator principle in HOUPC ensures the optimal filtration solution for each of the primary types of mists: oil mist, emulsion mist, minimal quantity lubrication and oil smoke.

The large surface of the washable pre-filter and self-draining filter cartridge ensure long service life and low pressure loss, which minimize costs for energy and filter replacements. The high separation degree of the third filter stage ensures very long life.

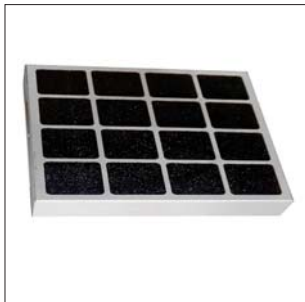
| | |
|-------------------------|----------------------------------|
| Air volume : | 500 up to 4000 m ³ /h |
| Vacuum : | Up to 5000 Pa |
| Filtration efficiency : | H13 |

Applications :

- Oil mist

Functioning :

- The polluted air is led in at the separator end to pre-separation chamber for air distribution and densification. The accumulated particles are led on to the washable pore filter PPI35 that separates dust and accumulated liquid with up to 50% higher efficiency than alu-grease filter
- The air is fine filtered in filter cartridge type G104A with micro-glass fiber material, where the fibers allow the fluid to drain away from the filter. Filtration degree > 99% of particles above 0.1µm
- A ½"-drain cock is located below the first two filter stages in a fluid reservoir that can be connected to return to the processing flow
- Last filter stage is a HEPA-filter, filter class H13 that ensures the removal of >99.95% smoke particles down to 0,1µm, before the air is recirculated by large-meshed grid.
- The HEPA-filter is placed after the fan module and works as an efficient silencer (model 500 & 1000 series)
- Air is led to clean air outlet or fan for models 2000 & 4000 HOUPC series (delivered with outlet connection)



The pre-separation is done by a pore filter PPI35 at the entrance of the filter which ensures minimal pressure drop.



The extraction fans are integrated in enclosure with outlet silencer and integrated service door in fan cabinet.

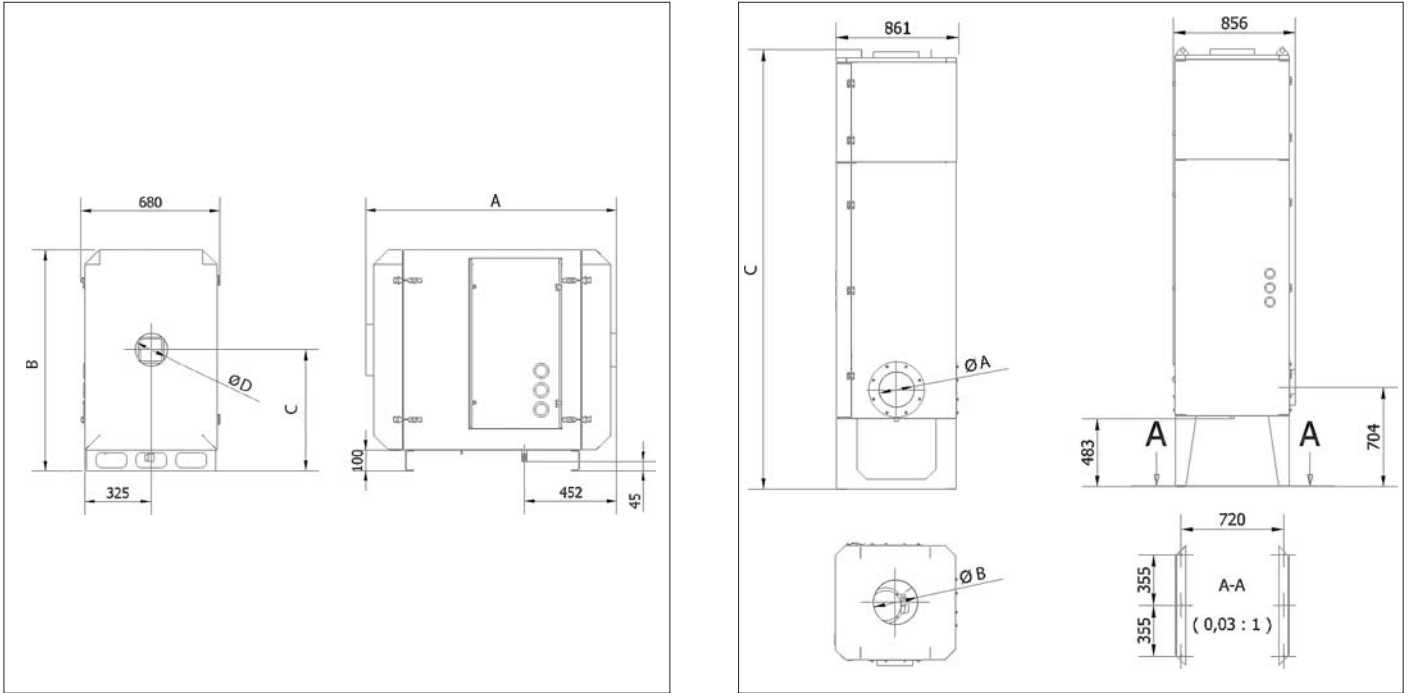


Access doors on front of units makes for easy maintenance of the different filter elements.



Each filter stage is equipped with differential pressure manometer for monitoring of the individual pressure losses for filter service optimization.

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Filter unit HOUPC :

| Model | Filter area (m ²) | Air volume (m ³ /h) | Fan type | Noise level (dB[A]) | # of prefilters ¹⁾ | # cartridge filters | # of H13 absolute filters | # of manometers ⁴⁾ |
|------------|----------------------------------|-----------------------------------|-------------|------------------------|----------------------------------|------------------------|---------------------------------|----------------------------------|
| HOUPC 500 | 4 | 500 | - | - | 1 | 1 ²⁾ | 1 ⁵⁾ | 3 |
| HOUPC 510 | 4 | 500 | VL750 | 76 | 1 | 1 ²⁾ | 1 ⁵⁾ | 3 |
| HOUPC 1000 | 8 | 1000 | - | - | 1 | 1 ³⁾ | 1 ⁵⁾ | 3 |
| HOUPC 1010 | 8 | 1000 | VL1100 | 75 | 1 | 1 ³⁾ | 1 ⁵⁾ | 3 |
| HOUPC 2000 | 16 | 2000 | - | - | 1 | 2 ³⁾ | 1 ⁶⁾ | 3 |
| HOUPC 2020 | 16 | 2000 | VR3000 | 74 | 1 | 2 ³⁾ | 1 ⁶⁾ | 3 |
| HOUPC 4000 | 32 | 4000 | - | - | 1 | 4 ³⁾ | 1 ⁶⁾ | 3 |
| HOUPC 4040 | 32 | 4000 | VR5500 | 76 | 1 | 4 ³⁾ | 1 ⁶⁾ | 3 |

¹⁾ Pore filter PPI35, 1x2 m

²⁾ DIN-cartridge ø325x330 mm, G104A

³⁾ DIN-cartridge ø325x660 mm, G104A

⁴⁾ 1 x Minihelic-differential pressure manometer 0-3kPa and 2 x Minihelic-differential pressure manometer 0-0.5kPa

⁵⁾ Absolute filter in MDF-frame, HEPA/H13, 610x610x78 mm

⁶⁾ Absolute filter in metal frame, HEPA/H13, 610x610x292 mm

Dimensions :

| Model | A (mm) | B (mm) | C (mm) | D (mm) | Weight (kg) |
|------------|-----------|-----------|-----------|-----------|----------------|
| HOUPC 500 | 1011 | 750 | 425 | Ø 125 | 105 |
| HOUPC 510 | 1273 | 750 | 425 | Ø 125 | 145 |
| HOUPC 1000 | 1226 | 1080 | 590 | Ø 160 | 155 |
| HOUPC 1010 | 1553 | 1080 | 590 | Ø 160 | 200 |
| HOUPC 2000 | Ø 250 | Ø 315 | 2390 | - | 240 |
| HOUPC 2020 | Ø 250 | Ø 315 | 3096 | - | 395 |
| HOUPC 4000 | Ø 315 | Ø 400 | 2390 | - | 240 |
| HOUPC 4040 | Ø 315 | Ø 400 | 3096 | - | 400 |

Pressure loss over individual filter stages :

| Model | Filter type | Delta P start (Pa) | Delta P end (Pa) |
|-----------------------------|------------------------|-----------------------|---------------------|
| HOUPC 500 & 1000 - stage 1 | Pore filter PPI 35 | 30 | 150 |
| HOUPC 500 & 1000 - stage 2 | Filter cartridge G104A | 100 | 1300 |
| HOUPC 500 & 1000 - stage 3 | HEPA filter - H13 | 40 | 250 |
| HOUPC 2000 & 4000 - stage 1 | Pore filter PPI 35 | 30 | 150 |
| HOUPC 2000 & 4000 - stage 2 | Filter cartridge G104A | 100 | 1300 |
| HOUPC 2000 & 4000 - stage 3 | HEPA filter - H13 | 40 | 250 |

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Compact and space-saving solution

The construction of HOUPC 500 – 1010 provides an especially compact and space-saving filter solution for mounting directly on machining center due to height restrictions. The vertical construction of HOUPC 2000 – 4040 provides an especially compact and space-saving filter solution for floor mounting. The integrated fan reduces the need of piping which also reduce costs (where recirculation is permitted).

Advantages by removing oil mist directly at the machine :

- Reduced hazardous effects on breathing and skin
- Minimize the risk of slippery floors and accidents
- Minimize fire risk and oil mist aerosols damaging electronics in the machines
- Reduced cleaning and maintenance costs
- Reduced energy consumption (reduced air speed in ventilation channels, when there are no heavy oil particles that must be kept airborne, no oil mist deposits on light sources)

Surface :

The filter cabinet is made in 2 mm black steel plate.
Surface powder enamelled RAL 7042/7011.

Filter equipped with fans :

510 & 1010 units are equipped with VL fans, and 2020 & 4040 units are equipped with VR fans, 3x400 VAC, 50Hz, 2800 rpm. The fan is equipped with closed fan wheel and backward-curved straight self-cleaning blades, static/dynamic balanced according to ISO 14694 (BV3 G 6,3).

Fan consumption on filter unit HOUPC with built-in fan :




| Model | Volt (V) | RPM | Power (kW) | Rated current (Amp) | Start Current (I_L/I_N) |
|---------|-------------|--------|---------------|------------------------|--------------------------------|
| VL 750 | 3 x 400 | 2 pole | 0.75 | • | • |
| VL 1100 | 3 x 400 | 2 pole | 1.1 | • | • |
| VR 3000 | 3 x 400 | 2 pole | 3.0 | • | • |
| VR 5500 | 3 x 400 | 2 pole | 5.5 | • | • |

• See section "General information" conc. electro motors

Filter monitoring :

Continuous monitoring must be kept with pressure drop above filters for timely replacement of these. For this Minihelic-differential pressure manometer is mounted on front side of HOUPC.

Filter media :

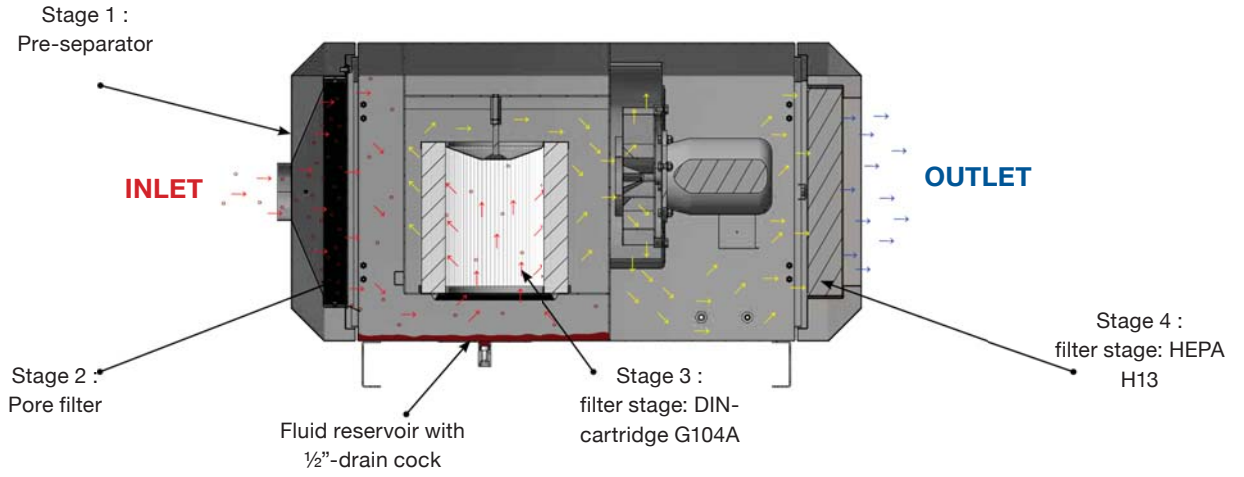
| Model | Standard | Material | Filtration efficiency (%) |
|---|---|---|---|
|  | Pre-separation in grease filter | Pore filter 35 open-celled polyurethane foam (washable) | Separated normally up to 30% of particles |
|  | Fine filtration in self-draining cartridge filter | Cartridge filter ø325mm, length 330/660mm, G104A polyester/glassfiber | > 95% corresponding to filter class F9 according to DS EN779 |
|  | Fine filtration through HEPA-absolute filter | HS-Mikro SFV High Efficiency Particular Air filter, micro-filter (glass fiber) mounted in metal frame | > 99,95% corresponding to filter class H13 according to DS EN1822 |

! If oil or cooling lubricant contain boric acid, the fine filter must be mounted in galvanized steel frame! Also joints and sealings must be changed.

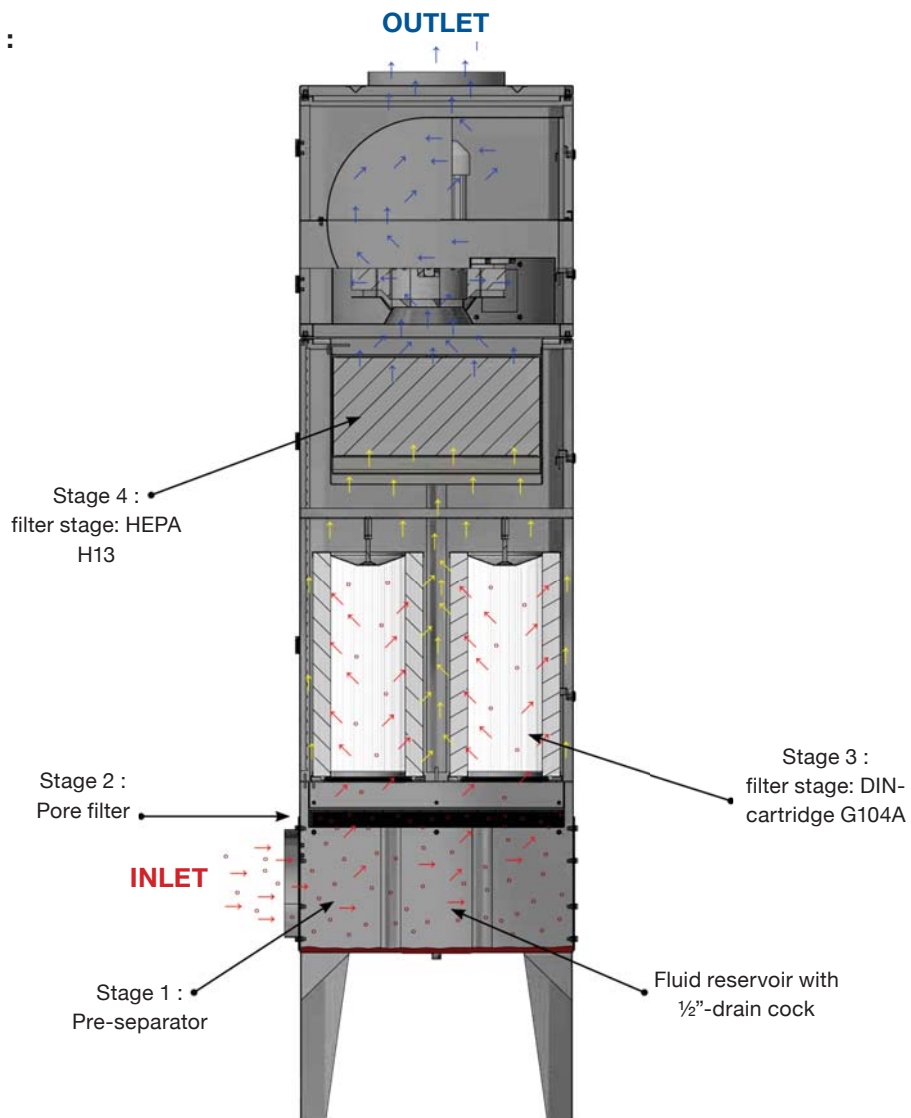
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Working principle of flow through HOUPC filter unit:

500 & 1000 series :

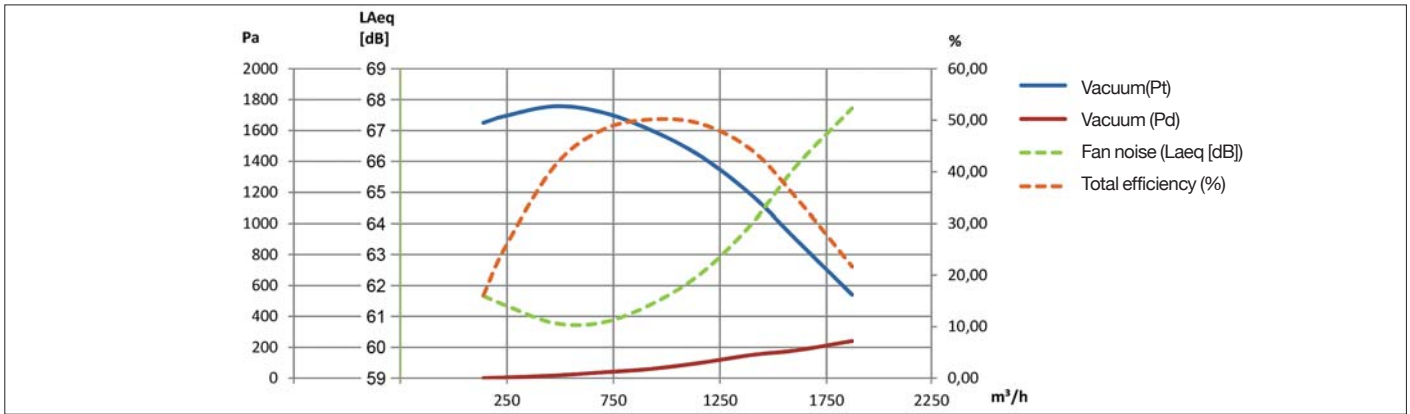


2000 & 4000 series :

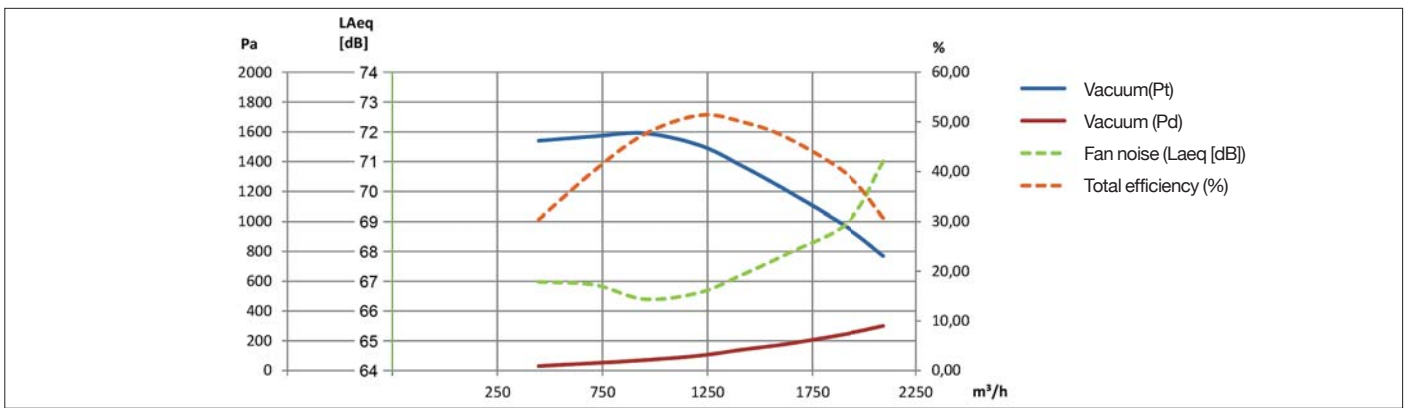


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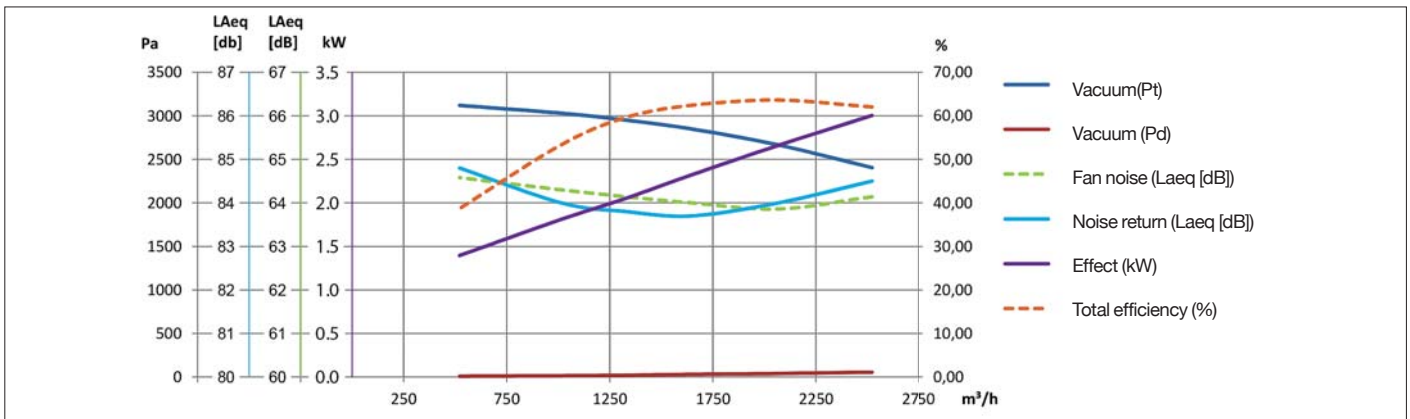
Fan type VL 750 functioning curves at 2800 rpm



Fan type VL 1100 functioning curves at 2800 rpm



Fan type VR 3000 functioning curves at 2800 rpm



Fan type VR 5500 functioning curves at 2800 rpm

