

|                   |  |              |  |
|-------------------|--|--------------|--|
| Project Data      |  |              |  |
| Customer Company  |  | Offer Number |  |
| Project Name      |  | Offer Date   |  |
| Unit Project Code |  |              |  |

**Product Specifications**

FHR60

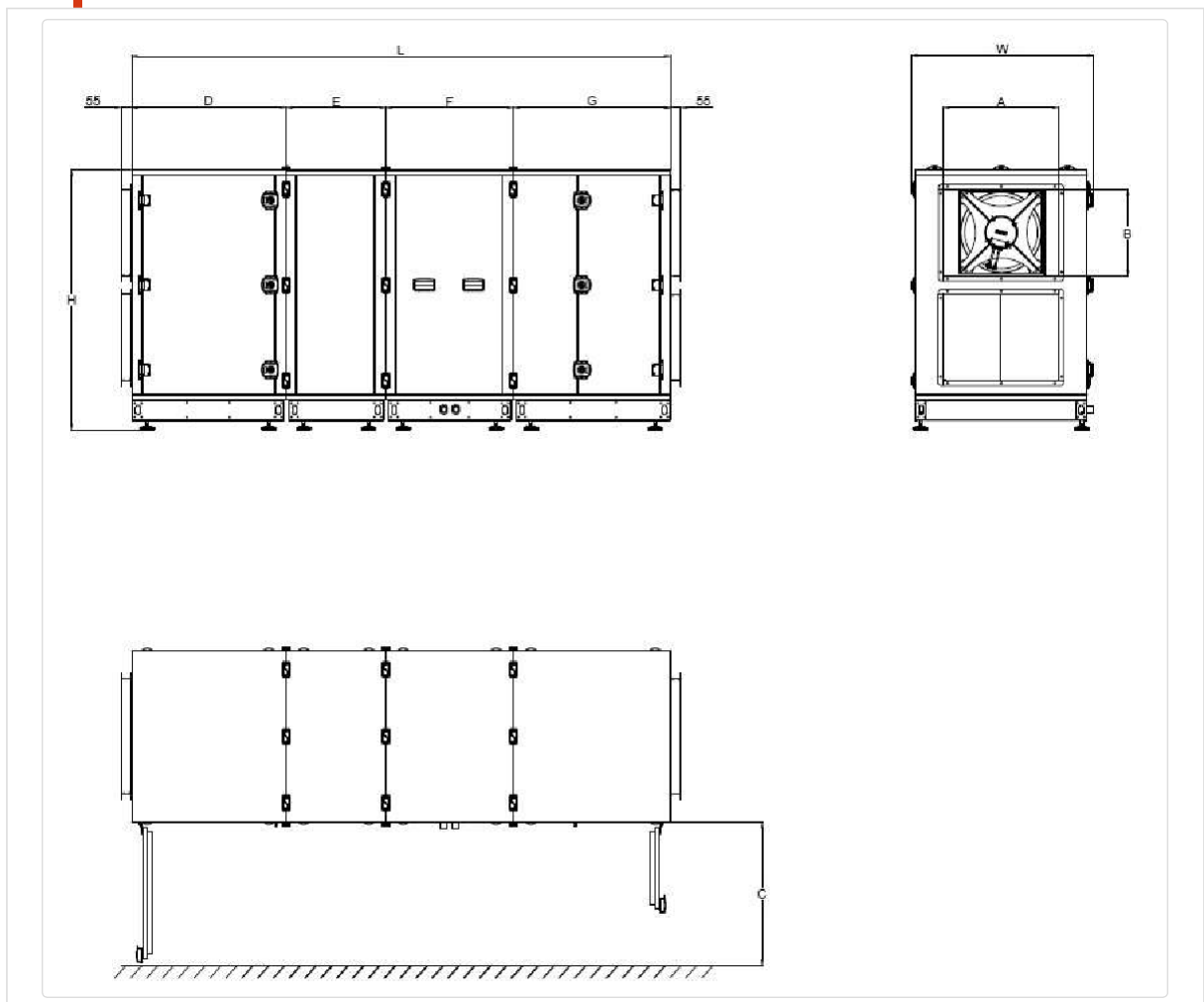


FHR Counter Flow Heat Recovery Units are used in restaurants, shops, historical buildings, offices and other places where clean air is needed. In places where air-conditioning is carried out by heating or cooling, low-quality air-conditioned indoor air is formed, where the internal carbon dioxide and other harmful gases are intense. By-pass damper provides free-cooling and anti-freeze protection of the heat exchanger. FHR Counter Flow Heat Recovery Devices operate on silent and high efficiency with plug fan motors. On the supply side there is a panel filter or an optional high-efficiency filter. With the control card sent as standard, the device can be operated at the desired flow rate.

- Counter Flow Heat Exchanger
- Low Sound Level
- EC Plug Fans
- By-Pass Damper (0-100%)
- M5+F7 Filters for Supply Side
- M5 Filter for Exhaust Side
- Plug&Play
- Optional Electric Heater
- Optional Heating/Cooling Coils
- Optional Sound Attenuator

|   |  |
|---|--|
| Product Model                             | FHR60  |
| Product Type                              | Commercial Type Heat Recovery                    |
| Heat Recovery Type                        | Aluminum Counterflow                             |
| Unit Casing                               | Double wall - Inside: 0.8 mm galvanized sheet    |
| Unit isolation                            | 50 mm 70 kg/m3-Rockwoq                           |
| Casing Air Leakage                        | 0  |
| Unit Frame                                | -  |
| Service Direction                         | Right  |
| Voltage / Frequency / Phase (V / Hz / Ph) | 380/50/3   |
| Operating conditions                      | -20 ~ 46 ° C Temperature, 90% Max.RH Outdoor Air |
| Standard Air Density (kg/m <sup>3</sup> ) | 1.2  |

## Dimensions



| L    | W    | H    | A   | B   | C   | D   | E   | F   | G   |
|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| 3155 | 1230 | 1515 | 950 | 500 | 850 | 895 | 518 | 868 | 868 |

## Performance Data

|                            |                     |           |                             |    |       |
|----------------------------|---------------------|-----------|-----------------------------|----|-------|
| Supply Air Flow            | m <sup>3</sup> /h   | 5100      | Heat Recovery Efficiency    | %  | 82.73 |
| External Static Pressure   | Pa                  | 300       | Heat Recovery Capacity      | kW | 43.96 |
| Return Air Flow            | m <sup>3</sup> /h   | 5100      | Additional Heating Capacity | kW | 0     |
| External Static Pressure   | Pa                  | 300       | Additional Cooling Capacity | kW |       |
| Unit Total Power / Current | kW/A                | 2.96/4.58 | Air Outlet Temperature      | °C | 16.49 |
| SFP <sub>int,total</sub>   | W/m <sup>3</sup> /s | 1120.59   | Energy Efficiency Class     | -  |       |

## Heat Recovery Data

|                    |                          |
|--------------------|--------------------------|
| Heat Recovery Type | Aluminum Counterflow - - |
| Fin Pitch (mm)     | 0                        |

| Winter                               |                   | Outside Air   | Return Air      |
|--------------------------------------|-------------------|---------------|-----------------|
| Air Inlet Flow                       | m <sup>3</sup> /h | 5100          | 5100            |
| Air Inlet Temperature (DB / WB)      | °C                | -10 / -10.32  | 21 / 12.66      |
| Air Inlet Relative Humidity          | %                 | 90            | 37              |
| Air Outlet Temperature (DB / WB)     | °C                | 16.49 / 5.86  | 0.85 / -0.47    |
| Air Outlet Relative Humidity         | %                 | 12.49         | 78.77           |
| Heat Recovery Pressure Drop          | Pa                | 225.76        | 291.27          |
| Heat Recovery Efficiency (Dry / Wet) | %                 | 82.73 / 85.45 | -               |
| Heat Recovery Capacity (Dry / Wet)   | kW                | 43.96 / 45.40 | -43.96 / -45.40 |
| Condensation                         | kg/h              | 0.00          | 15.45           |

| Summer                               |                   | Outside Air     | Return Air    |
|--------------------------------------|-------------------|-----------------|---------------|
| Air Inlet Flow                       | m <sup>3</sup> /h | 5100            | 5100          |
| Air Inlet Temperature (DB / WB)      | °C                | 28 / 22.07      | 23 / 19.83    |
| Air Inlet Relative Humidity          | %                 | 60              | 75            |
| Air Outlet Temperature (DB / WB)     | °C                | 23.90 / 20.87   | 27.10 / 21.08 |
| Air Outlet Relative Humidity         | %                 | 76.46           | 58.74         |
| Heat Recovery Pressure Drop          | Pa                | 275.60          | 268.98        |
| Heat Recovery Efficiency (Dry / Wet) | %                 | 81.9483 / 81.95 | -             |
| Heat Recovery Capacity (Dry / Wet)   | kW                | -7.10 / -7.10   | 7.10 / 7.10   |
| Condensation                         | kg/h              | 0.00            | 0.00          |

## Filter Data

|                              |     | SA Filter 1 | SA Filter 2  | EA Filter     | EA Filtre 2 |
|------------------------------|-----|-------------|--------------|---------------|-------------|
| Filter Class                 | -   |             | F7           | M5            |             |
| Filter Class (ISO 16890)     | -   |             | ISO ePM1 50% | ISO ePM10 50% |             |
| Filter Initial Pressure Drop | Pa  |             | 97.6         | 77.6          |             |
| Filter Final Pressure Drop   | Pa  |             | 200          | 170           |             |
| Filter Average Pressure Drop | Pa  |             | 148.8        | 123.8         |             |
| Filter Surface Air Velocity  | m/s |             | 2.2827       | 2.2827        | 2.2827      |

## Fan Data

|                             |                   | Outside Air  | Return Air   |
|-----------------------------|-------------------|--------------|--------------|
| Air Flow                    | m <sup>3</sup> /h | 5100         | 5100         |
| Fan Speed                   | d/d               | 1988.78      | 1997.12      |
| Nominal Fan Speed           | d/d               | 2180         | 2180         |
| Fan Power                   | Watt              | 1431.2       | 1532.38      |
| Operating Point Current     | A                 | 2.21         | 2.37         |
| Voltage / Frequency / Phase | V/Hz/Ph           | 380 / 50 / 3 | 380 / 50 / 3 |

| Fan LWA    |        |     | LWA (In+Out) | LWA   | 63Hz  | 125Hz | 250Hz | 500Hz | 1kHz  | 2kHz  | 4kHz  | 8kHz  |
|------------|--------|-----|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Supply Fan | Inlet  | dBA | 85,60        | 78,86 | 67,20 | 68,10 | 78,50 | 75,50 | 73,60 | 71,30 | 67,60 | 64,70 |
|            | Outlet | dBA |              | 84,61 | 70,50 | 69,30 | 78,40 | 79,70 | 81,80 | 76,60 | 72,10 | 68,20 |
| Return Fan | Inlet  | dBA | 85,77        | 78,86 | 67,20 | 68,10 | 78,50 | 75,50 | 73,60 | 71,30 | 67,60 | 64,70 |
|            | Outlet | dBA |              | 84,61 | 70,50 | 69,30 | 78,40 | 79,70 | 81,80 | 76,60 | 72,10 | 68,20 |

| Fan LPA    | @ 1 m  |     | LPA (In+Out) | LPA   | 63Hz  | 125Hz | 250Hz | 500Hz | 1kHz  | 2kHz  | 4kHz  | 8kHz  |
|------------|--------|-----|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Supply Fan | Inlet  | dBA | 77.62        | 70.88 | 59.22 | 60.12 | 70.52 | 67.52 | 65.62 | 63.32 | 59.62 | 56.72 |
|            | Outlet | dBA |              | 76.63 | 62.52 | 61.32 | 70.42 | 71.72 | 73.82 | 68.62 | 64.12 | 60.22 |
| Return Fan | Inlet  | dBA | 77.62        | 70.88 | 59.22 | 60.12 | 70.52 | 67.52 | 65.62 | 63.32 | 59.62 | 56.72 |
|            | Outlet | dBA |              | 76.63 | 62.52 | 61.32 | 70.42 | 71.72 | 73.82 | 68.62 | 64.12 | 60.22 |