



## 5. Questions from stakeholders

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# Questions from stakeholders

## **Main issues are about:**

- Air handling units with heat pumps
- Unidirectional units with recirculation
- Bidirectional units with recirculation and/or bypass
- Declaring ventilation units for an area of operational points

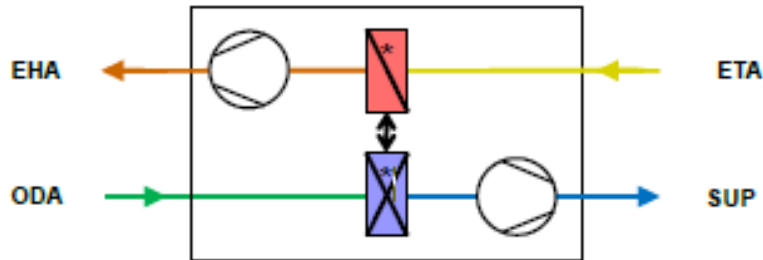
## **Preliminary considerations**

# Air handling units with heat pumps

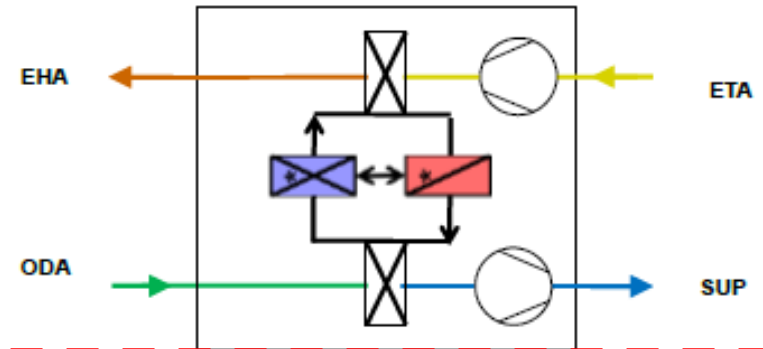


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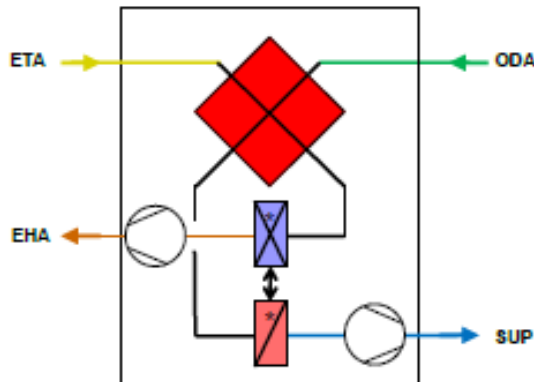
## Heat pump only



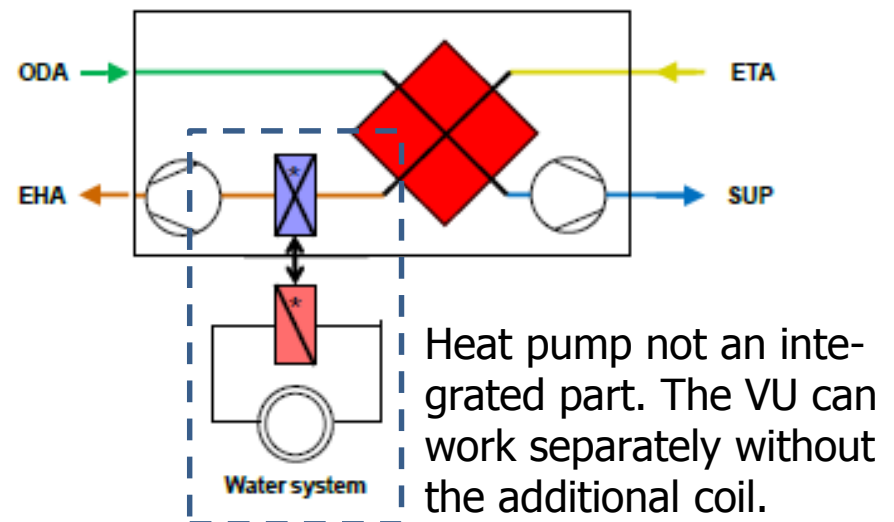
## Run around Coil + add heat pump in the water/brine circuit



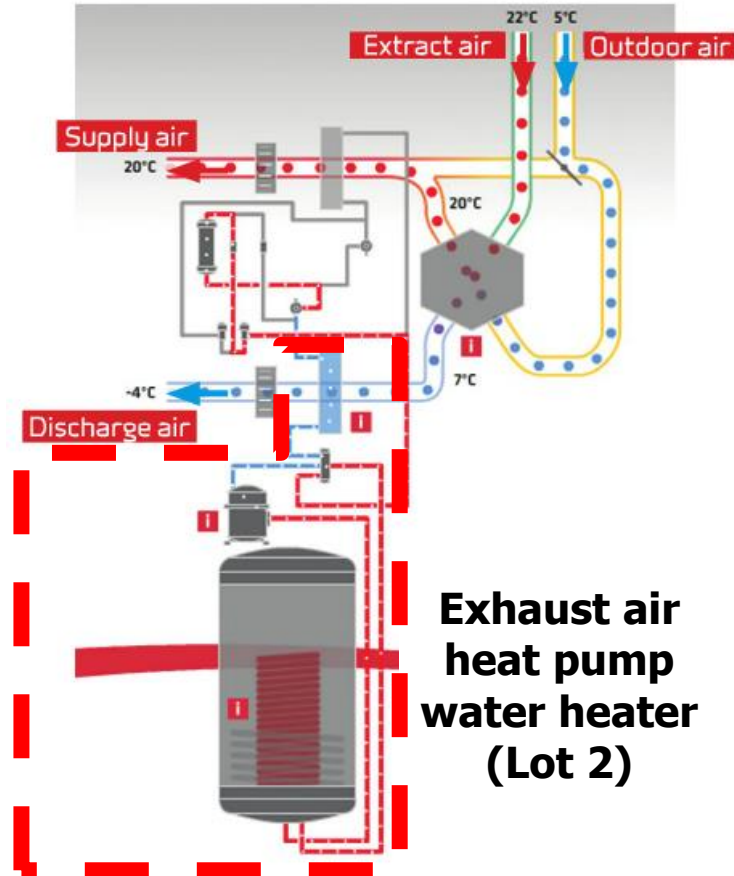
## Heat recovery + air to air heat pump



## Heat recovery + Air/water heat pump



# Air handling units with heat pumps



# Unidirectional units with recirculation

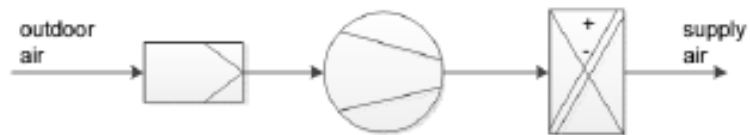


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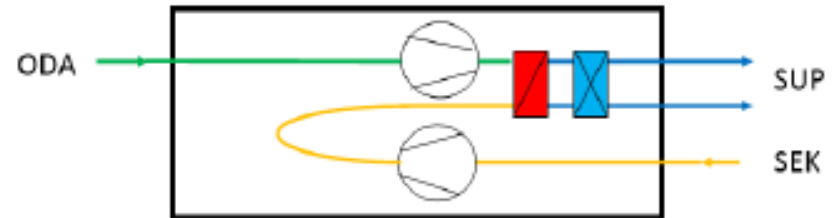
- **Question:** *Are terminal units/fan coil units that, besides recirculating air, also control outdoor air intake or exhaust to the outdoors considered to be ventilation units?*
  
- **Regulation 1253/2014:**
  - (5) 'unidirectional ventilation unit' (UVU) means a ventilation unit producing an air flow in one direction only, either from indoors to outdoors (exhaust) or from outdoors to indoors (supply), where the mechanically produced air flow is balanced by natural air supply or exhaust;
  
- **Working document (Draft regulation) ecodesign requirements for air heating products, cooling products and high temperature chillers:**
  - 9) 'fan coil unit' means a factory-made assembly which provides one or more of the functions of forced circulation of air, for the purpose of heating, cooling, dehumidification and filtering of indoor air thermal comfort of human beings, but which does not include the heat or cold generator nor an outdoor heat exchanger. The device may be equipped with minimal ductwork to guide the intake and exit of (conditioned) air. The product may be designed for built in application, or with an enclosure for application within the conditioned space;

# Unidirectional units with recirculation

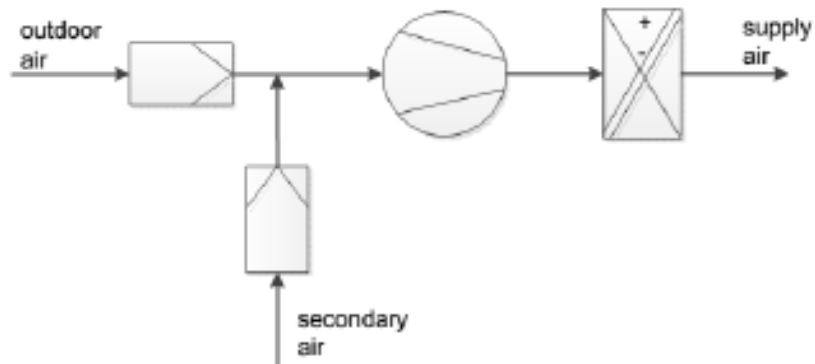
## 1. Without recirculation



## 3. With recirculation



## 2. With recirculation

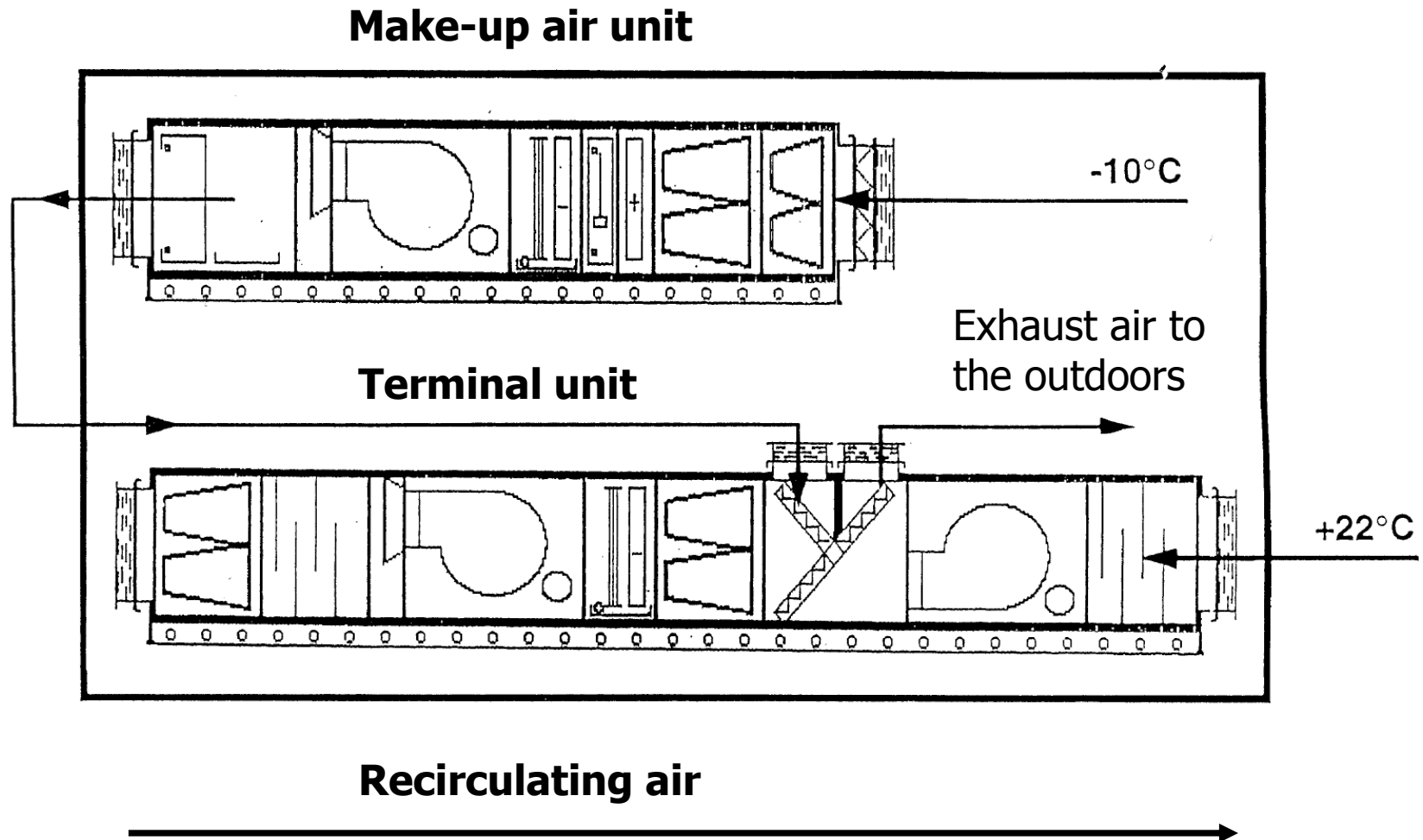


# Unidirectional units with recirculation



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## 4. With recirculation



# Unidirectional units with recirculation

## **Preliminary consideration:**

- Regulation 1253/2014 has come into force
- Draft regulation on fan coil units is expected to be voted on in Regulatory Committee this year
- It might be possible to find reasonable parameters that can specify to what extent a fan coil with outdoor air intake or exhaust air to the outdoors shall be considered a ventilation unit or not and without introducing 'loop holes'
- Specific proposals/suggestions are very much appreciated

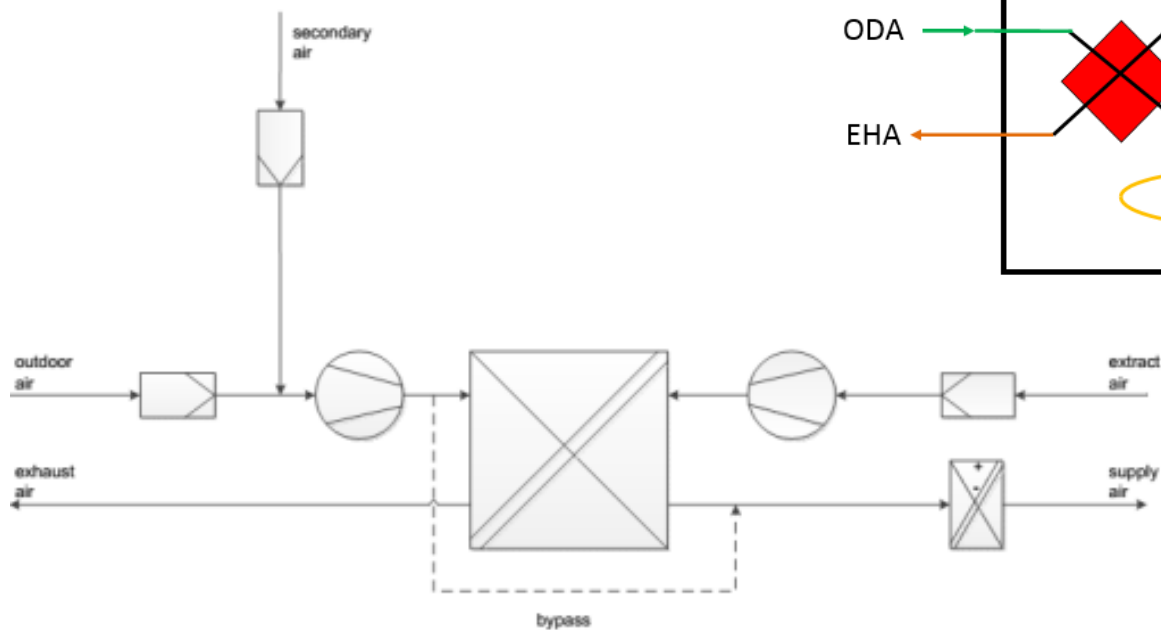
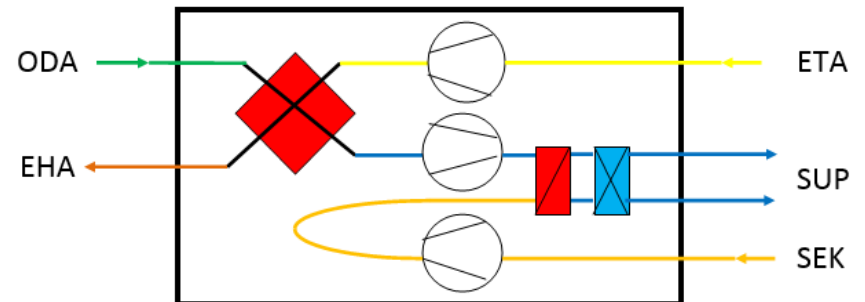
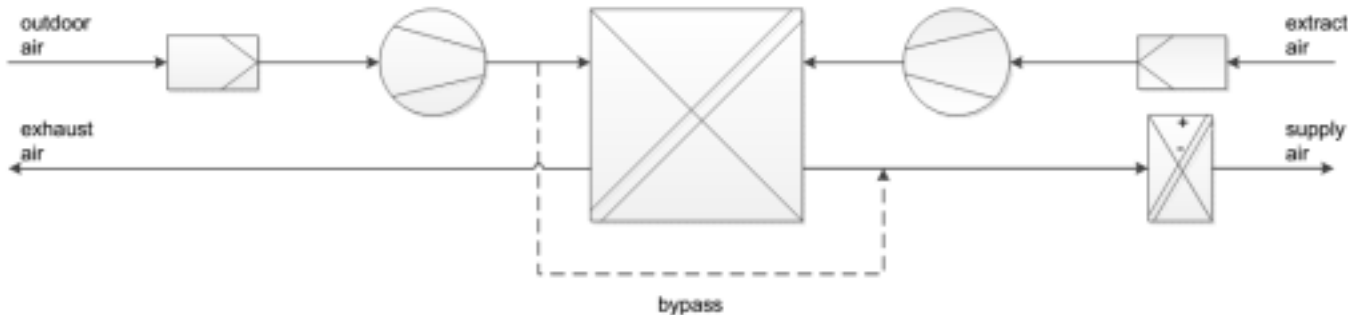


# Bidirectional units with recirculation and/or bypass

## Questions:

- We have received some questions from stakeholders about how to handle ecodesign requirements for BVUs with recirculation/mixing section/large bypass.
- Such BVUs exist, e.g., when the BVU (besides removing utilised air) also provides a large recirculated airflow for an air heating/cooling system or for cleaning of air, e.g., in cleanrooms.

# Bidirectional units with recirculation and/or bypass



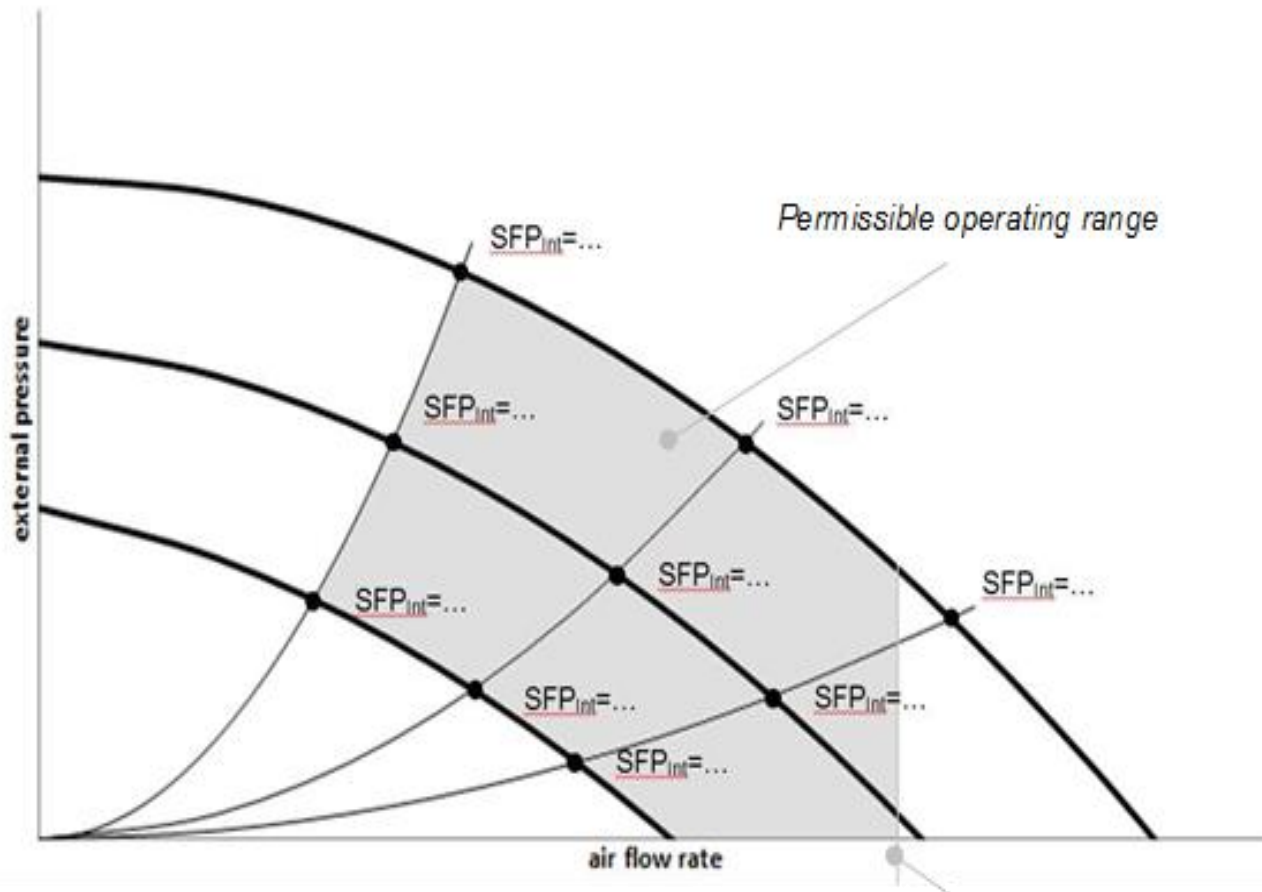
# Bidirectional units with recirculation and/or bypass

## **Preliminary consideration:**

- If manufacturers declare the airflow without recirculation they cannot increase the flow, as the reference flow is based on the maximum flow for RVU, and the nominal airflow for NRVU must be seen as the maximum airflow (declared design airflow rate).
- The NRVU declaration could be performed for two operational conditions: with and without recirculation/bypass activated except for the thermal efficiency of heat recovery. The leakage is calculated based on the reference flow without recirculation.
- Specific proposals/suggestions are very much appreciated

# Declaring ventilation units for an area of operational points

- **Question:** Can an area be used instead of only one point?



# Declaring ventilation units for an area of operational points

## Preliminary considerations:

- NVRU consists of two main groups, i.e. **taylor-made** NVRUs and **mass-produced** standardised compact NVRUs. They deviate in the matter of working point. A tailor-made NVRU is designed for specific working points but a compact NVRU is typically used for a wide range of working points.
- If the working point is not specified by the customer, which can be the case for a **mass-produced** compact NVRU, one could declare a field (graph) of nominal airflows with associated 'nominal external pressure ( $\Delta p_{s, ext}$ )',  $SFP_{int}$  and  $\eta_{t\_nrvu}$  (thermal efficiency).
- The customer could then be allowed to use the NRVU if the design working point is within the declared field.
- Information requirements for the whole area of working points to be specified further