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# Group Sustainable Products Policy

## Introduction and contents

This policy exists to set out group-wide requirements and guidance on the development of sustainable products in Systemair based on a common framework and holistic approach. The policy addresses concrete design parameters that must be considered when developing a new product or updating an existing one.

The contents of this document are:

- Introduction and contents
- Scope
- Product sustainability at Systemair
- Life cycle approach
- Design parameters
- Roles and responsibilities
- Communication and training
- Reporting

## Scope

The Sustainable Products Policy applies to all Systemair group companies and employees that develop, produce or otherwise put products on the market.

## Product sustainability at Systemair

*Sustainable Products* is one of four focus areas in Systemair's sustainability strategy, and is defined by three core issues:

- Energy-efficient solutions – Systemair provides energy-efficient solutions that help lower energy demand in buildings, and therefore also lower carbon emissions.
- Better indoor air quality – Systemair contributes to better public health by providing solutions that improve indoor air quality.
- Life cycle perspective and resource efficiency – Systemair seeks to reduce the negative environmental impact of its products by designing with a life cycle perspective, and with resource efficiency as a guiding principle.

Systemair support transparent and standardised ways to promote sustainability. We believe that one common framework is more effective than multiple diverging national arrangements. We also believe that a coherent life cycle approach is required to achieve positive net results, avoiding single-issue suboptimization. We are committed to providing our customers with accurate and non-misleading environmental information for our products, enabling them to optimise technical solutions on a system & building level. We do this through Environmental Product Declarations (EPDs) for the inbuilt environmental footprint, combined with performance data and product selection software for accurate calculations of energy performance and energy use.

We recognise that a product's environmental impact is dependent, not only on its environmental performance, but also on how well it performs on the market. Sustainability initiatives must not compromise on product safety, product features, product performance and/or product cost efficiency. Instead, we strive for measures that combine meaningful reductions in negative environmental impact with reduced production cost and added value for the customer.

We acknowledge that some sustainability related product parameters can be in opposition with one another, and that a productive and fruitful design process require us to find the right balance between different and sometimes opposing considerations. To balance correctly, we combine the Life Cycle Assessment method with information and knowledge about our products life cycle, and how they are most commonly used in the market.

### Life cycle approach

A life cycle approach requires systematic mapping and assessment of the environmental and resource impact during the life cycle of our products, including:

- The manufacturing of the products,
- The installation of the products during construction,
- The use of the products during the life span of the building,
- The disassembly and disposal of the product at the end of life of the building,
- And finally benefits and loads after end of life, including the recycling and reuse potential.

The typical setting is our products being used in some type of building. The time perspective for the assessment is typically 50 years representative for most products in our portfolio.

## Framework & toolkit

Systemair has established a Life Cycle Assessment (LCA) framework and a toolkit for the creation of Environmental Product Declarations (EPDs). This is based on the ISO 14025 and EN 15804 standards and is first and foremost tailored towards Business-to-business product information for use in building level assessments (as prescribed in EN 15978). The overall context is sustainability for construction works, minimising the environmental impact of the building sector.

With small but important adaptations, Systemair utilizes the same framework and toolkit for sustainable product development & optimisation, focusing on our product's contribution to the larger environmental context. Whereas our EPDs are limited to the life cycle stages under our direct control (Cradle to Gate), sustainable product development requires a holistic approach including all life cycle stages (Cradle to Grave / Cradle to Cradle).



### Framework and toolkit

With the standard stage Life-Cycle method, the different life cycle stages can be calculated/estimated and their relative importance with regards to the total environmental impact can be determined. Based on the result of the Life Cycle calculation, effective sustainability measures can be identified, analysed and - if suitable - implemented.

Tools and sources for modelling and assessing the different life cycle stages are available through local certified EPD Generator users. The Product Stage (A1 - A3), End of Life Stage (C1 - C4) and D we calculate according to our established EPD Procedure. For the Construction Stage (A4 - A5) and the Use stage (B1 - B7), we base our assessment on suitable scenarios.

Despite large variations in how and where the products are used, we aim for an objective and representative picture of the life cycle of the product. This will in most instances require us to assess both

average and dimensioning scenarios (e.g. cold, hot and tempered climates, renewable, average and fossil electricity etc).

## Adaptations

Certain adaptations to the LCA framework are required for the accurate assessment of HVAC products:

### Use stage energy consumption & thermal recovery

Recognizing that the Use stage Operational energy use (module B6) will typically be the most important module, often by several orders of magnitude, we divide this module into its respective parts and assess each one separately. We also include thermal recovery provided by the product:

- Energy use, Fans
- Energy use, Heating
- Energy use, Cooling
- Heat recovery
- Cooling recovery

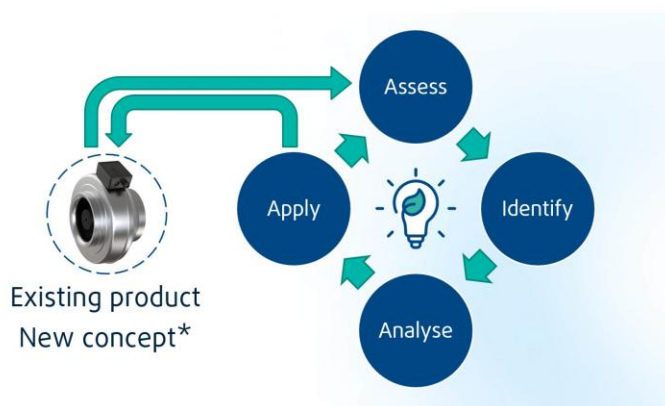
Thermal recovery represents a positive contribution to limit the environmental impact. Subsequently we assign both heating and cooling recovery as negative numbers in the assessment and aim at maximizing Heating/Cooling recovery in our product design.

### Passive components

Passive components do not use energy directly. However, the performance characteristics of passive components determine the energy efficiency of the system in which they are placed. In our assessments, we model and include these indirect effects, under the B6 module.

## Methodology

With an existing product or a new product concept as a starting point, we utilize an iterative optimisation process, actively addressing all design parameters in chapter 3.



Optimisation process diagram

With a clear and concise definition of the intended application and overall purpose of the product as the foundation, the iterative optimisation process consists of the following steps:

Do while “net benefit” is greater than “adverse effects”:

- Assess – perform/update life cycle assessment of the product
- Identify – find potential sustainability measure
- Analyse – analyse and address both positive and negative consequences of the measure
- Apply – if suitable, implement measure in the design

Repeat

## Important considerations

We analyse potential product sustainability measures for both positive and negative effects, and we base our decisions on net results and the following key considerations:

### Product application and purpose

For every suggested sustainability measure, we assess potential effects related to:

- Product safety
- Product performance
- User friendliness
- Product service life E. Cost effectiveness

### Product selection

The environmental performance of our products is largely determined by how they are applied and perform. In sustainability terms, enabling optimal product selection is one of the most impactful measures we can pursue, i.e. promoting the right products for any given application.

The foundation for this is a clear definition of the intended use / operating envelope of the product, accompanied by the necessary performance data, product selection tools and product documentation.

### Gross vs net results

We recognise the difference between gross and net environmental impact, and that improving one aspect of the life cycle can negatively impact another. Examples include:

- Size reduction ↔ energy performance
- Light weighting ↔ ruggedness, durability, lifespan
- Reducing packaging materials and waste ↔ damage during transportation and installation

We also recognise that in some instances, increasing the “inbuilt” (A1-A3) environmental impact is required to achieve a net reduction across the product life span. Examples include:

- EC motor technology for increased efficiency
- Inbuilt controls for reduced energy consumption
- Increased corrosion resistance for a longer life span

### **Small improvements**

A good sustainability measure, despite being of relatively small importance in the life span of the product, is still a good measure. Small improvements to a large product volume can have significant impacts.

### **Size and shape**

Product compactness is an inherent quality with regards to several life cycle stages, as well as ease of transportation, ease of installation and required space and volume in the building.

Simultaneously, we recognise that the use stage impact of our products is largely dependent on their applied performance in ventilation systems, where pressure drop is a key determining factor for both energy use and sound power levels.

Decisions regarding product size and shape must therefore be assessed and based on the aerodynamic effects and performance of the product, as well as ease of installation and use.

## **Design parameters**

In the design & optimisation process we address the parameters listed in this chapter. Despite the relative importance of some compared to others, all are mandated and must be addressed.

Some parameters are directly linked to specific life cycle stages & modules, whilst others are linked to general considerations (e.g. product service life, hazardous substances etc). Several design parameters are closely interlinked.

### **Energy efficiency**

Minimizing energy consumption during use (EPD - B6).

Our products are important to determine the energy consumption of the building (Use stage, B6). Of all design parameters, the use stage have the most significant impact on a life cycle perspective.

Key design parameters may include:

- Aerodynamic efficiency – cross section, air speed & pressure drop
- Component efficiency – motor type & efficiency, heat recovery type & efficiency
- Controllability – functionality with regards to automation and optimised operations
- Selectability – easy selection of the most suitable size and variant for any given application

### **Resource efficiency**

Minimising energy and material resource consumption during production (EPD - A1, A2 & A3).

Effective use of energy and material resources during production is key in minimising our own environmental footprint. With as much as 80 % of product cost being tied to materials and components, there is also a complementary link between the effective use of resources and product cost effectiveness.

Key design parameters may include:

- Material sourcing – using recycled materials or materials with a low environmental footprint
- Material qualities – suitable strength and corrosion resistance
- Waste generation – utilisation of purchased materials and components
- Production efficiency – production area and machining requirements
- Supply chain – transportation distances, transportation means, economy of scale
- Production energy use
- Production water use

## Durability

Design for longevity, reducing the need for frequent replacements (service life).

Key design parameters may include:

- Durability during transportation – packaging materials and philosophy, weak points
- Durability during installation – tools, procedures, limitations
- Durability during use – strength, ruggedness, corrosion resistance
- Documentation – correct installation, maintenance and operations for optimal durability
- Key component quality – ball bearings, electronic components, gaskets etc.
- Spare parts – availability of spare parts, custom vs standard
- Software / firmware – update dependency, interface with BMS

## Reliability

Designing for consistent performance over time (EPD - B1-B6, service life).

Key design parameters may include:

- Application suitability – accurate description and marketing of intended applications
- Key component quality – ball bearings, motors, actuators, sensors etc
- Maintenance regime – description of routines and schedule
- Fault detection – detection of faults with suitable alarms
- Performance logging – key performance data trends for easy diagnostics
- Predictive maintenance – automated early detection of operational issues

## Repairability

Designing products that can be easily repaired (EPD - B1-B6, service life).

Ensuring repairability is instrumental in making products more sustainable and reducing waste, with accessible spare parts and repair information.

Key design parameters may include:

- Accessibility

- Weak points
- Modularity
- Spare parts availability and affordability
- Repair information
- Digital dependency / obsolescence (firmware, software updates)

## Maintainability

Designing products that can be efficiently maintained and operated as intended (EPD - B1-B6, service life).

Key design parameters may include:

- Accessibility for maintenance
- Safety during maintenance
- Maintenance routines and intervals
- Consumables and spare parts
- Troubleshooting guidelines

## Reusability

Facilitating the reuse of products in new applications (B1-B6, service life).

Key design parameters may include:

- Documentation availability – key product documentation must be available
- Dismantlable – dismantling and re-installation without damage
- Interface – electric, hydronic and mechanical interface suitable for reuse

## Upgradability

Enabling upgrades to extend the product's useful life (B1-B6, service life).

Key design parameters may include:

- Mechanical foundation / casing durability
- Modular design – functional parts

## Recyclability

Enabling easily dismantling and recycling at End of life (C1-C4, D).

Key design parameters may include:

- Easy partition into basic materials (steel, insulation, electronics etc)
- Recycling instructions part of IMO documentation

## Recycled content

Incorporating recycled materials to reduce the demand for virgin resources (A1, D).

Selecting materials suitable for the application, which also reduce the net demand for virgin resources can be beneficial while not compromising performance or intended use.

Key design parameters may include:

- Materials suitability
- Physical scrap availability (net results / symbolism)
- Recycling system maturity

## Hazardous Substances

Limiting / eliminating the use of substances that pose a risk to human health and/or the environment.

We strive to avoid any hazardous substances in our products and work to find suitable substitutions where needed. Where no replacement can be found, we assess and mitigate the risks.

Key design parameters may include:

- Avoiding any substances listed on the REACH candidate list
- Risk assessment of any hazardous substances

## Roles and responsibilities

This policy is approved by the VP Products & Technologies, member of Group Management. Director Group Products and Innovation is responsible for developing and revising the policy. It is revised as needed to ensure an up-to-date policy in line with internal and external requirements.

Product Area Directors & Product Managers are responsible for the implementation of this policy within the respective product areas and product groups. Product development engineers are responsible for the practical execution in product development projects. Local Management are responsible for promoting this policy and create the necessary conditions to follow and monitor compliance.

Certified EPD Generator users are responsible for providing the necessary LCA / EPD competence and support, in accordance with established routines and procedures.

## Communication and training

This policy is available on Systemairs Global Management System and should be read by all who have access to it.

Systemair is stepwise implementing a circular approach into our product life cycle maintenance processes. Local Systemair companies must carry out regular trainings for employees on the contents of this policy to improve awareness and knowledge on the topics. New employees should always be trained when they start.

## Reporting

Potential issues must be escalated or, if not possible, reported through the Whistleblower function. Escalation is based on one of Systemair's core values *Trust* and the importance of employees and managers reporting and escalating possible violations when made aware.

Through Systemair's whistleblower function employees and partners can provide information while being guaranteed total anonymity with a non-retaliation policy, meaning no retaliatory actions may be taken against any employee for reporting suspected violations in good faith.

All reports are received and investigated by an external company. Cases are reported to Systemair's Audit Committee (the whistleblower committee). Cases can be reported via Systemair's website, Intranet or verbally by phone at (+46) 77-177 99 77.