



**SUSTAINABLE LIGHTING SOLUTIONS** FOR DEMANDING INDUSTRIAL USE



# SUSTAINABLE LUMINAIRE PRODUCTION WITH OVER 50 YEARS OF EXPERIENCE

I-Valo is a traditional company working on the lighting field and it has been manufacturing luminaires since 1971. During the past 50 years, we have supplied hundreds of thousands of lighting solutions for many different types of applications. Customer needs are always at the heart of the solutions we create, and I-Valo's experts focus on energy-efficiency, functionality and sustainability in their design work. I-Valo is a part of the international Fagerhult Group that operates with 12 brands in 27 countries.

As a part of the Fagerhult Group we commit to the group's common sustainability targets. We are committed to the Science Based Targets (SBTi) initiative and thus to achieve zero net emissions in all our operations in the long term and to reduce our emissions in accordance with the 1.5°C target set in the Paris Agreement. We measure our operations in accordance with the Global Reporting Initiative (GRI) standards. We have selected two UN Sustainable Development Goals that we concentrate on in all our operations since they have the biggest impact on our own approach.

## **Goal 11** – Sustainable Cities and Communities

Goal 11 is about making cities equal, safe, adaptive and sustainable.

## **Goal 12** – Sustainable Consumption and Production

Goal 12 is about ensuring sustainable consumption and production patterns.





# MAKING THE WORLD **BRIGHTER**

Our goal is to meet our customers' needs for lighting in challenging conditions through our energy-efficient, reliable and innovative solutions.



# ENVIRONMENT

Energy-efficiency has been the cornerstone in the design of our products since the 1970s. Our products have been designed to mechanically last decades of use in demanding conditions and their luminous efficacy (lm/W) has always been one of the cornerstones of our product development.

Today, we use only the LED technology in our luminaires. This change has led to significant energy savings and but there are other ways for saving energy as well. These include smart lighting control systems that also provide the end user with a more pleasant user experience. Luminaires can be equipped with motion and daylight detectors which provide up to 80% energy saving potential.

In addition, we make continuous investments in product development and production. This enables us to increase the share of renewable raw materials and to reduce the amount of raw materials in the production stage. With the correct material choices we can promote the principles of circular economy by, for example, replacing materials containing harmful compounds with more eco-friendly alternatives.

## Key topics

- Life cycle perspective
- Energy-efficient solutions
- Conscious material choices
- Use of raw materials, water and energy etc.
- Carbon dioxide emissions (scope 1-3)
- Internal environmental work
- Sustainable supply chains

## Key principles of our environmental work

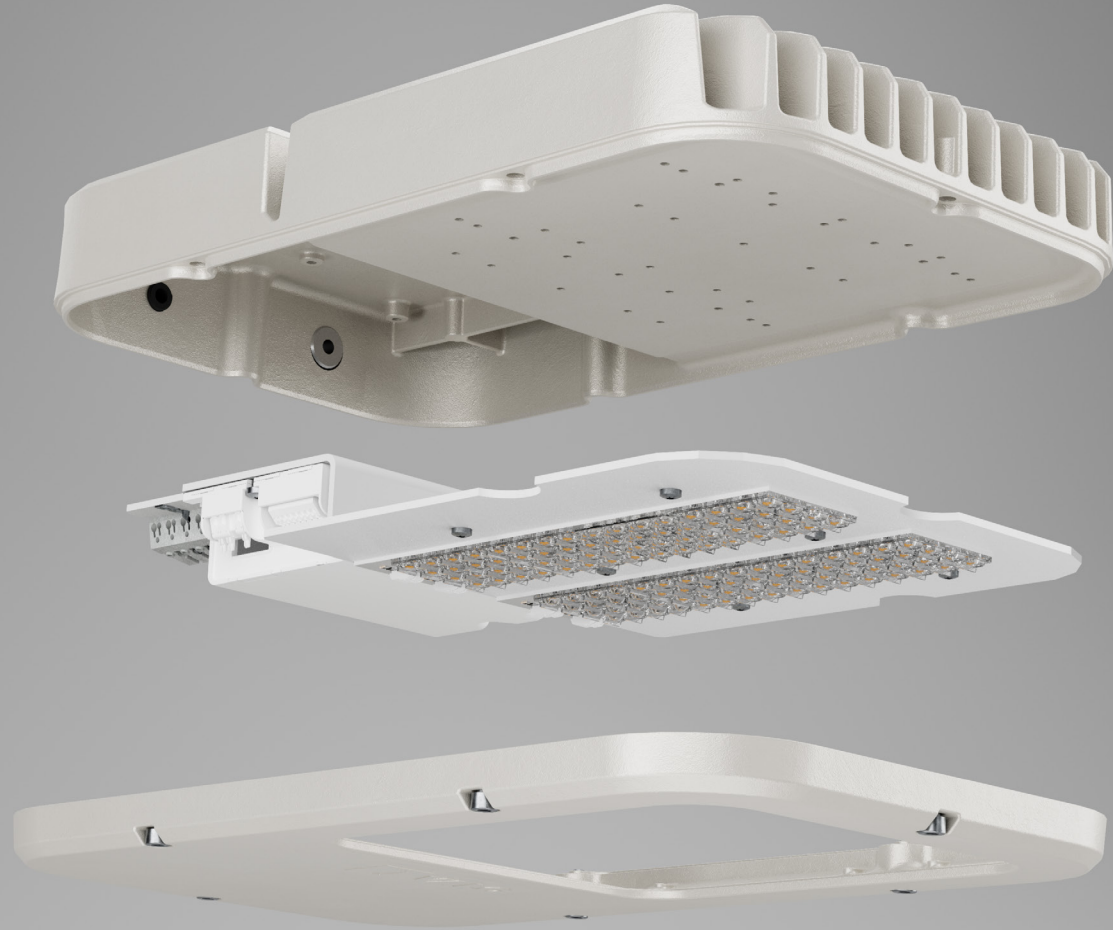
- Maximising energy savings with highly modern LED technology and smart lighting control systems.
- Ensuring that all products and services meet the requirements of the regulations and standards in force.
- Reviewing our solutions from the life cycle perspective in order to ensure that our operations have as small environmental effects as possible.
- Considering the environmental aspects in our value chain as a whole both internally and externally.













# SUSTAINABLE PRODUCTS

## ROBUST ALUMINIUM FRAME

I-Valo's industrial luminaires have been designed to withstand use in highly demanding installation environments. To ensure the robust construction, the frames of the luminaires have been manufactured of powder coated aluminium profile or cast aluminium. Aluminium has high thermal conductivity and thus when used with high quality components it enables very high Ta classes, i.e. maximum use temperatures of the installation environment. As a material, coated aluminium endures several decades of use and it can be recycled after use. Our goal is to increase the current share of recycled aluminium in our products which is currently 50%. Aluminium is a valuable recovered material that can be easily separated from other metals for reutilisation. The energy required for melting the recycled material is only 5% of the energy required for primary aluminium. In addition, aluminium maintains all of its properties throughout the recycling process.

The efficiency of our coating process has been significantly improved in the past years. The powder coating line is the most important individual production stage in terms of the use of energy and water, heat production and the use of chemicals. The efficiency and operations of the lines have been significantly improved and, at the moment, the coating line is in use two days a week instead the former five days a week. Our painting shops meet the requirements set in the ISO 9227 and ISO 6270 standards and our products are suitable for use in environments classified as C5 (very high corrosivity).

## REPLACEABLE LED TECHNOLOGY

As the robust aluminium frame withstands use for several decades, the most sensitive components of the LED luminaires in demanding conditions are the LED electronics. We use only high-quality components with long service life from well-known component manufacturers of the field. The majority of products in our product range and all new products contain a replaceable LED module. Thus, the luminaire as a whole does not need to be replaced once the LEDs or LED drives reach the end of their service life. This also significantly reduces the carbon footprint of the product. In addition, our product development continuously conducts research work in order to find more efficient solutions. Replaceable technology means that we can always utilise the most recent and energy efficient solutions in our luminaires.

## I-VALO'S FILTERING TECHNOLOGY

The luminaire breaths through the filter. I-Valo's efficient and unique filtering technique keeps the inner parts of the luminaire clean. Technique filters dirt and gas: the luminaire retains its excellent luminosity even in demanding conditions. The range offers several different filters to choose from. The choice is made according to prevailing ambient conditions. Efficient filtering technique is one of the solutions behind the luminaire's long service life.



# RETROFIT SOLUTIONS

I-Valo developed its first LED luminaires with a replaceable LED technology package as soon as the new technology was introduced on the luminaire market in the early 2010s. I-Valo's general-purpose SOL LED luminaire with a replaceable LED technology package was selected as the 2010 construction product of the year by the principal committee of the construction material and product information service of the Building Information Group. We have had retrofit packages for industrial luminaires in our product range for over 10 years.

Because I-Valo's solutions have a long service life, old discharge lamps and fluorescent tube luminaires are still in use in numerous applications. For this reason, I-Valo offers an extensive range of retrofit packages, which can be used to upgrade your old luminaires to more energy-efficient LEDs. The retrofit packages are updated regularly with the newest LED technology and we always utilise up-to-date technologies. Updating old luminaires with the new technology is once again a topical matter as the sales of fluorescent tubes ends as the EU's RoHS directive is updated in August 2023.

You can view the available retrofit solutions on our website and find out which modern LED luminaire can be used to replace your old I-Valo luminaire.







# PRODUCTION - LEAN THINKING

Continuous production development has been conducted at I-Valo already for a few decades. Our production development aims at reducing waste and at boosting production. The biggest leap in order to develop flow efficiency of production in accordance with the LEAN principles was taken in the 2010s and this work still continues. The production layout was reorganised and the necessary assessments were made to be used as the basis of the development work. Continuous improvement is still a key part of all of our operations. Our production process is developed and optimised in order to minimise the waste of time and materials.

We also use the 5S tool. It helps us to keep our production tidy and in order. There is a place for everything. The 5S tool consists of five areas which are all used for reducing waste and non value added activities. The five letters come from the following Japanese words: Seiri (**sort**), Seiton (**set in order**), Seiso (**shine** and clean), Seketsu (**standardise**) and Shitsuke (**sustain**).

I-Valo's quality, environmental and occupational health and safety activities are certified with quality management systems (SFS ISO 9001:2015, SFS ISO 14001:2015, SFS ISO 45001:2018). This enables to ensure that the operations are consistent and of uniform quality. Due to our operational policy, our customers can be sure that the promises made are kept, the products are suitable for their purpose of use and that the solutions work reliably for years to come.







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## SORTING OF WASTE

The amount of waste in our factory premises is minimised as efficiently as possible. 100% of the waste is sorted and recycled. The amount of mixed waste is in practice zero and the materials that cannot be recycled for further use are combusted in waste-to-energy plants.

Via producer responsibility we also carry our responsibilities when our products reach the end of their service life. I-Valo is a member of SELT association – a producer organization for producers who manufacture electrical and electronical products – and with this membership we carry our statutory producer responsibility obligations in Finland and in other EU countries as well.









# PACKAGES AND SHIPPING

Our products are packaged in recyclable uncoated carton packages. Our packages do not contain metal rivets or plastic tapes. Also small packages have been renewed by replacing plastic bags with paper bags. We do not use bubble wrap at all. Packages are designed already in the product development stage in order to ensure that the packages are of correct size and in order to eliminate the need for filling material.

With our customer's approval, we use larger project packages instead of individual packages in order to minimise the use of packaging material.

The plastic used to protect the pallets has been replaced by a biodegradable alternative. The pallets are supported by a PET plastic strap, made from 90 % recycled plastic. The pallets must be protected with protective wrapping in order to ensure that the product packages do not get damaged while on the pallet and in order to keep them dry during shipping and possible storage in the customer's location.

We recycle the packages we receive, as possible, by using them for example for our spare part deliveries. In addition, we recycle 100% of the clear plastic we receive with the parts we purchase.

We also aim to reduce the use of paper in our organisation as a whole. In some of our products, we already use digital user manuals by adding the QR code of the user manual in the packages instead of including the paper version of the manual in the packages. Our goal is to start using the digital version in all our products in the future.

In spring 2023, we decided to use the Kaukokiito BIO service for all our product shipments which enables us to reduce our carbon footprint nearly by 90%. The Kaukokiito BIO service uses renewable fuel which is produced 100% from waste and residues.







# BUSINESS

I-Valo strives to ensure ethicality and sustainability in all of its business operations. Our operations are guided by our Code of Conduct that outlines the basic principles of responsible business operations. All members of our group must follow the Code of Conduct; this concerns the board of directors, management, and all employees. Following of the Code of Conduct is ensured by proving all employees with comprehensive induction.

## Key topics

- Ethicality and fight against corruption
- Human rights
- Collaboration partners
- Supplier assessments
- Due diligence procedures

## Targets

- All companies and collaboration partners follow the laws and regulations in force.
- Our common Code of Conduct creates the basis for all our operations and practices.
- Ensuring sustainable supply chain and that all suppliers meet our requirements.
- Comprehensive process is followed in all procurement activities in order to ensure due diligence.

I-Valo is actively involved in the operation of the National Electrotechnical Standardization Organization (SESKO) and The Association of Finnish Lighting Manufacturers (AFLE). We want to actively influence the development of our field and the preparation of the standards connected to our field.









# EMPLOYEES

As a workplace, we concentrate on inclusion, commitment and well-being of the employees – we want to provide each employee with a perfect environment to develop themselves. We aim to provide all employees with a possibility to influence the development of their own work, products and processes. We encourage our personnel to continuously improve and actively take initiative. We aim to utilise the strengths and expertise of our employees as efficiently as possible.

The values of our group should be reflected in all our processes and daily routines. They unite and guide our employees in their work and strengthen the collaboration between the companies of the group. Our most important goal is to ensure the health, safety and human rights of our employees.

## Key topics

- Working conditions
- Equality and diversity
- Career development
- Occupational health and safety
- Product responsibility and safety

We support our employees' possibilities to implement green choices in their everyday actions:

- Company cars are electric
- Possibility to use the charging points of electric vehicles in the workplace
- Possibility for remote work
- Reducing business travel by arranging video meetings







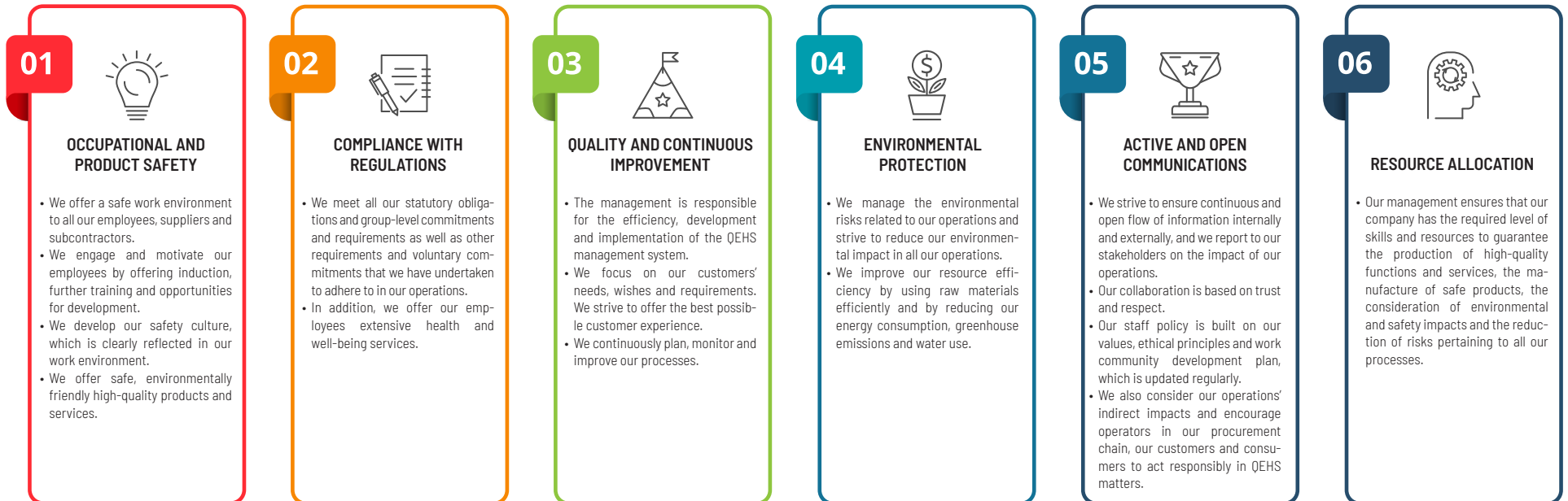


# I-VALOS QEHS POLICY

Our company's policies guide our operations and they summarise the key principles we follow. They also define how we can act in line with our company values. As a part of the Fagerhult Group, all companies of the group have made a strong commitment to shared ethical guidelines and practices. All I-Valo's employees have read the guidelines and have made a personal commitment to the principles of the best business practices.

Because I-Valo's vision extends longer into the future, we also set targets that cover a shorter period, typically a year. While the company only has one vision, it has several simultaneous targets. These targets are steps towards the vision. They are important because they almost automatically make the company's operations more successful if clear targets are set for various subareas of business.





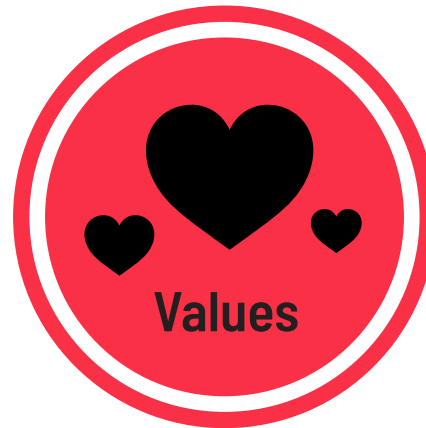


# I-VALO'S MISSION-VALUES-MISSION



**To meet our customers' needs for lighting in challenging conditions through our energy-efficient, reliable and innovative solutions.**

Mission provides an answer to the question 'what is the reason for the company to exist'? Simply put, mission describes the company's operating idea.



**Internal entrepreneurship  
Customer-orientation  
Operating culture  
Innovative thinking**

Company values refer to the guidelines and principles that should be reflected in the day-to-day operations and management of the company and its employees. The correct values are manifested as daily actions.



**To be a reliable, leading supplier of customer-oriented, advanced lighting solutions designed for challenging conditions.**

The company's vision refers to its idea of the situation it wants to achieve within a certain time. The vision guides the strategy.



### INTERNAL ENTREPRENEURSHIP

Taking responsibility  
Showing initiative  
Commitment to shared targets



### OPERATING CULTURE

Finding solutions together  
Giving feedback



### CUSTOMER-ORIENTATION

Making the customer's life easier  
Keeping promises



### INNOVATIVE THINKING

Expertise  
Continuous improvement



# OUR MEASURES

Ensuring sustainable development is a continuous process. We have committed to the Science Based Targets (SBTi) initiative and thus to achieve the zero net emissions in all our operations in the long term and to reduce our emissions in accordance with the 1.5°C target set in the Paris Agreement.

The short-term goals we are working on at the moment are the following:

- Installation of solar panels on the roof of a factory building - study ongoing.
- Replacement of the lighting in the factory building - phased implementation ongoing.
- Phase-out of natural gas and switch to renewable energy sources:
  - We stopped using natural gas for heating the property and switched to green electricity water-to-air heat pumps at the end of 2023. The new system will reduce the amount of energy purchased for heating by around 50%.
  - We are also currently looking for an alternative technical solution for the drying oven in our painting line.
  - Switching to low-temperature paints - study underway. The target for the transition is Q2/2024.
- Increase the proportion of recycled aluminium in the aluminium we use. Currently we use at least 50% recycled aluminium.
- Avoiding SVHCs (Substances of Very High Concern) and reducing their use in our components.
- Preparation of the LCA and EPD processes regarding our luminaires\*. Our goal is to provide the Environmental Product Declaration for all I-Valo's new luminaires.

\*LCA = Life Cycle Assessment. EPD = Environmental Product Declaration that lists the types of materials used in the product.









## USING FINNISH LIGHTING SYSTEMS IS A SIGNIFICANT CLIMATE ACTION

Lighting industry aims at producing more light with smart, efficient and environmentally friendly lighting systems. Emission reductions achieved by the use of the products and services of the Finnish lighting industry are even five times bigger when compared with the total emissions of the luminaire production.

A Finnish luminaire is a significant environmental action as the differences in the carbon footprint are evident; a Finnish product is more environmentally friendly than products produced in other EU countries and – when compared with its Chinese competitor – significantly better alternative due to the low greenhouse gas emissions of the Finnish energy production.

Source: The Association of Finnish Lighting Manufacturers (AFLE)







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