



**heliospectra**

Annual report 2018



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## The year in brief

- Net sales amounted to KSEK 45,370 (36,039).
- The operating result amounted to KSEK -33,251 (-33,089), signifying a negative operating margin (neg).
- The result after tax was KSEK -33,303 (-33,171) or SEK -0.95 (-0,94) per share.
- Operating cash flow was KSEK -25,588 (-29,511). Total cash flow was KSEK -29,468 (-32,307).

### Key financial indicators (in KSEK if nothing else is stated)

	2018	2017	2016	2015	2014
Orders	47,806	43,814	22,729	–	–
Net sales	45,370	36,039	23,053	13,686	3,110
EBITDA	30,526	-28,770	-38,446	-28,473	-29,284
Operating profit/loss	-33,251	-33,089	-42,784	-32,360	-32,901
Cash flow	-29,468	-32,307	54,092	12,721	2,596
Cash and cash equivalents	11,165	40,633	72,940	18,848	6,127
Equity	15,207	48,303	81,474	28,147	16,099
Equity/assets ratio, %	38 %	65 %	77 %	56 %	51 %
Cash and cash equivalents, %	119 %	324 %	614 %	277 %	177 %
Number of shares, thousand	35,112	35,112	35,112	18,622	13,791

After the end of the period, the company raised SEK 52.7 million before issuing costs through a preferential rights issue in May, 2019.

## Summary of the year

### Selected significant events

On January 3, an order valued at approximately 5.49 MSEK from a Canadian grower building a new high-performance medicinal cannabis cultivation facility is presented. The order is for the ELIXIA LED lighting solution.

On March 20, it is announced that a cannabis grower in New England, USA ordered Heliospectra's EOS series through the value-added reseller Griffin Greenhouse Supplies. The order is valued at approximately 5.8 MSEK. In April, two additional orders worth 4.6 MSEK and 5.87 MSEK are presented.

On March 29, an order valued at approximately 1.7 MSEK from the iconic Kew Royal Botanic Gardens, owner of the largest and most diverse collection of living plants in the world and listed as a UNESCO world heritage site, is presented. The order is for the fully adjustable ELIXIA series.

On April 26, it is announced that the helioCORE™ light control system is available to order. helioCORE™ enables automatic cultivation environments, monitoring and yield forecasts as well as high-quality crops all year round. helioCORE™ is compatible with LED lightings in the ELIXIA and DYNA series.

On April 3, it is announced that 5 Letters DOO, Macedonia's first certified cannabis cultivation facility, placed an order valued at approximately 1.5 MSEK for EOS LED lightings. On June 4, an additional order valued at 1.5 MSEK is presented.

On May 7, Heliospectra and ABB presents a collaboration in integrated solutions for increased productivity and sustainability in commercial greenhouses and controlled cultivation environments in the Middle East and Africa. The collaboration also enables joint technology development and the creation of educational programs in sustainable agriculture.

On May 24, it is announced that the new lightbar series (later named SIERA) will be displayed at GreenTech in June. SIERA is suitable for vertical farming, with several spectrum variants to promote different crops and phases in the growth cycle, from propagation to full-scale indoor production.

On June 14, an order valued at approximately 3.7 MSEK from Medical 420, a state-of-the-art medicinal cannabis facility in Macedonia, is presented.

On Jul 16, it is announced that Heliospectra's executive team is expanded with Hanna Rüdél as VP, Technical Services. Hanna has more than 18 years of B2B experience within the international food industry.

On August 8, an order valued at approximately 1.3 MSEK from Ljusgårda AB, a company focusing on producing sustainable and eco-conscious vegetables using vertical farming, is presented.

On September 11, it is announced that Danish Cannabis Pharm has placed an order valued at approximately 1.4 MSEK. The order is for ELIXIA LED lightings and the HelioCORE™ control system and will be used at a high-tech production facility under construction in Randers.

On October 30, an order valued at approximately 1.2 MSEK from a leading medicinal research facility in Spain, focusing on phytotherapy research, is presented. The order is for ELIXIA LED lightings.

On November 2, it is announced that a global Fortune 500 Ag Tech-company in North America, and a long-term customer of Heliospectra, has placed a new order for the company's EOS series valued at 1.2 MSEK.

On November 16, an order from Macedonian F&M 2017 DOO, for the construction of a new state-of-the-art cannabis facility, is presented. The order is valued at approximately SEK 2.4 million and is for ELIXIA lightings and the helioCORE™ control system.

On November 19, it is announced that the John Innes Centre, a world-leading UK research centre in speed breeding, has ordered additional ELIXIA and EOS lightings valued at approximately 1.3 MSEK. They will be used in a new greenhouse area with a lighting environment completely controlled by the helioCORE™ control system.

In June 2018, Heliospectra rebranded its product portfolio. The new product names are used throughout the important events section on this page.



## Comments from Heliospectra's CEO Ali Ahmadian

*As the demand for horticulture LED lighting solutions continues to rapidly scale, commercial food producers, AgTech companies, research organizations and medicinal plant cultivators have increasing interest in automated light controls and vertical farming to optimize their growing space. And as growers have now been using LED technologies and applications in day-to-day operations, the proven results achieved with Heliospectra products result in requests for more advanced controls, crop-specific light spectra and collaboration with growers to incorporate their inputs and feedback into our new solutions and expanding product portfolio.*

As our customers experience the high level of expertise and support, we provide, they recognize Heliospectra as a brand they can trust and as a forward-thinking, full-service solutions provider who delivers technical expertise, high-quality and reliable LED lighting equipment, and a sophisticated, business-focused helioCORE™ light control system.

In addition to introducing world-class solutions to the horticulture, greenhouse and vertical farming markets, Heliospectra now collaborates even more closely with our customers across six continents to plan and prepare facility designs, consult on infrastructure projects and logistics, and implement and install lighting with helioCORE™ control systems. And our collaborations continue long after the plants are established to ensure that our growers and customers are achieving superior crop performance and harvest results, 365 days a year.

As we expanded our production and manufacturing supply chain in 2018, Heliospectra will enjoy more freedom and flexibility in product design and engineering as demonstrated with the introduction of our new SIERA light bar series with five different spectra variants. The ability to deliver exceptional product quality at even larger volume and quantities will help us grow our business and target larger customers and orders with much faster turnaround and response.

helioCORE™ continues to receive international acclaim, awards and attention as the market-leading control system that can master even the most challenging automation and dynamic light requirements. And our helioCARE™ technical services portfolio provides education, expert advice and cultivation training before, during and after implementation. We are receiving strong and increasing interest in Heliospectra's software and service offerings.

Our collaboration and strategic partnership with ABB expand the electrical and automation services we now offer as part of our full-service solutions in the Middle East, Asia, North America and other high growth regions across the globe. Moreover, together with



ABB we will build on our helioCORE™ platform, which enable us to offer opportunity to integrate additional automation and control features for growers and operations teams. By deepening the AI and machine learning capabilities, we will offer our customers the ability to make even more data-driven decisions.

Our customer-focused efforts and new product initiatives have already started contributing to higher profit margins, increased interest from larger companies in the commercial food sector, and a more effective sales process that presents our technical knowledge and expertise from the initial introduction to installation and implementation.

In 2019, we are taking the next step by working in even closer geographic proximity to our customers in key regions. Our new Heliospectra business entity and sales presence in Canada will play an integral role, and I will personally spend more time in North America during this next year to establish our organisation and initiate new relationships with partners and customers. Heliospectra will also establish multiple reference projects in the food sector in 2019 with close customer cooperation to highlight grower success and the full capabilities of our company's technologies.

Finally, I would like to thank the many investors who participated in our rights issue that was completed in April 2019. This funding will enable us to fully complete Heliospectra's transformation into a world-class company positioned for monumental growth, while building a long-term cash flow through our market-leading services and product solutions.

Ali Ahmadian,  
CEO, Heliospectra AB (publ)

## Heliospectra's history 2006 – 2018

### 2006– 2007

- The company is established
- Heliospectra's first fully controllable lamp is developed and tested at customer facilities
- The first patent application is submitted

### 2009

- Spiral shaped lamp is developed and tested

### 2010

- The company's first internet-based lamp is developed and tested at customer's facilities

### 2012

- Helio L4A is launched on the market

### 2014

- Heliospectra's LX60 Series is launched
- The company is listed at Nasdaq First North
- The company's share is listed for trade in the USA through an ADR program
- Heliospectra's first patent in the USA is approved

### 2015

- The company's first patent in Canada is approved
- Launch of the E60 Series as well as the company's lightbar

### 2016

- Launch of a water-cooled LX60 for installation at a research station at the South Pole (Antarctica)
- The largest customer in the USA reports excellent results using Heliospectra's lamps

### 2017

- Ali Ahmadian, with experience from leading positions at major food companies such as Tetra Pak, assumes the position as the company's new CEO
- HelioCORE™ – a market leading light control system that provides growers with increased control and enables standardization of crop quality, harvest cycles and yield is presented

### 2018

- Heliospectra and ABB initiates a collaboration in integrated solutions, including lighting, electricity and automation, with focus on the Middle East and Africa
- The new SIERA lightbar series is presented at GreenTech in Amsterdam





## About Heliospectra

Heliospectra develops and offers complete solutions within intelligent lighting and cultivation optimization based on decades of world-leading Swedish research. The company's services and products are aimed at customers in sectors including cultivation of medicinal plants, food and herbs, microgreens and research and development companies in need of precise control over factors such as light intensity and wavelength type.

The unique HelioCORE™ light control system, that opens up a whole new range of opportunities in dynamic light adaptation, was presented in 2017. The system enables improved and automated work processes, taking factors such as natural light flux and current demand for different crops into consideration.

In 2018, helioCARE™ was launched as a portfolio of technical services including education, planning, implementation and follow-up consultancy. Additionally, a collaboration with ABB was initiated to increase the integration of electricity and automation solutions on selected markets.

By including the control system helioCORE™ and the service solution helioCARE™ in its offering, Heliospectra has strengthened its position as a global leader and innovator in lighting and cultivation optimization, with potential to create very strong and stable cash flows over time.



## Complete lighting solutions for optimal cultivation, research and development

Heliospectra's combination of flexible and high-quality LED lighting products, the unique helioCORE™ light control system and helioCARE™ technical services constitutes a complete and globally leading offering in lighting solutions.

By utilizing the company's solutions, customers can achieve several advantages:

### Enhanced quality

By optimizing the spectrum and light intensity during each part of the cultivation cycle, crops with the best possible taste, consistency, size and nutritional or medical content are created.

### Accelerated harvest

Optimal lighting conditions from propagation to harvest makes it possible to accelerate growth and thus reduce time to harvest in all seasons of the year.

### Increased yield

Optimized cultivation processes with effective LED lightings reduces the time to harvest, allowing more frequent harvests. Increased quality also reduces waste during production, while the durability of the plants increases.

### Standardized/optimized harvests

With the helioCORE™ light control software, growers are able to control production by choosing to minimize time to harvest, maximizing yield or adapting the cultivation in real time based on for example electricity prices or current demand.



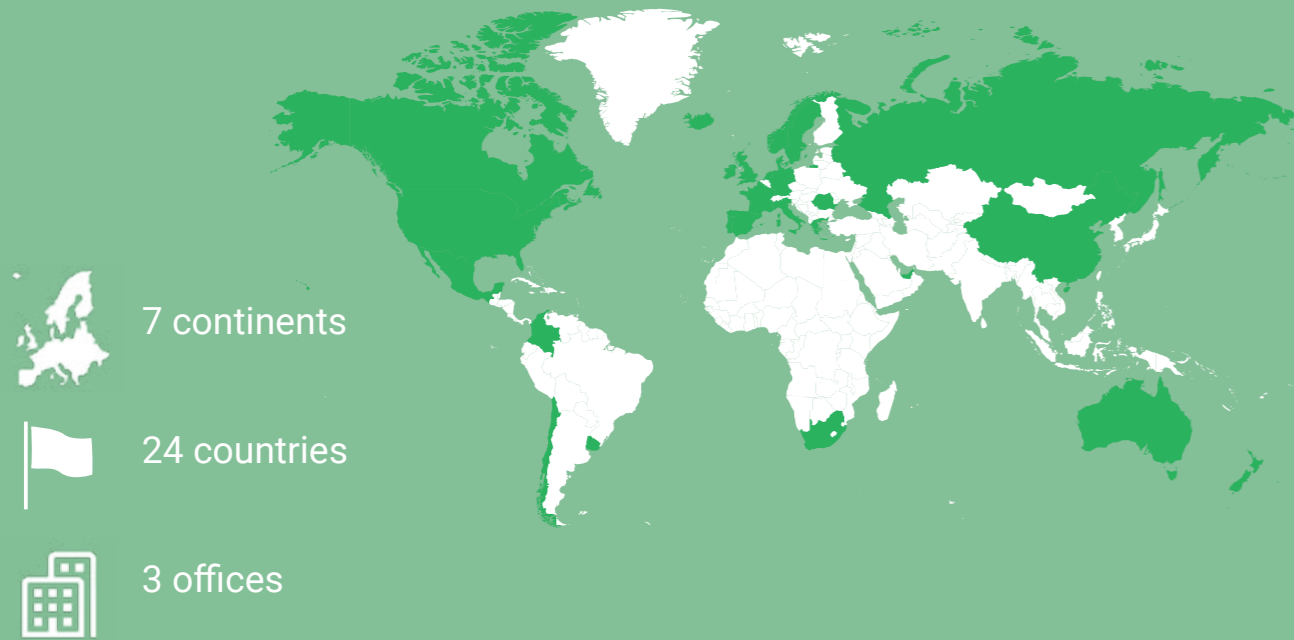
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# Geographic customer overview

Heliospectra's intelligent LED lighting solutions are used on every continent of the world, including Antarctica. This has created a truly global presence and customer base for the company.

Heliospectra has delivered lighting solutions to customers in all of the countries marked in green



## A global and diverse customer base

By targeting several different market segments all over the world, from food companies to growers of medicinal plants and research and agrotechnology companies, Heliospectra has established a broad and well-diversified customer base.



## Business areas and revenue model

At present, Heliospectra offers products and services in three business areas: sales and rental of its proprietary LED lightings, subscriptions for the unique light control system helioCORE™ including connected measuring modules, and technical helioCARE™ services covering education and optimization of growth processes before, during and after installation.

In addition to these customer-related revenue sources, Heliospectra is continuously working on qualifying the company for non-diluting financing such as research grants for different development projects from Swedish and international governments and organizations.

The helioCORE™ market launch during the spring of 2018, and the productization of the company's

technical services under the helioCARE™ name, enables Heliospectra to intensify its efforts to increase its share of income from recurring revenues. This is expected to create a much stronger and more stable cash flow over time, as well as deepened and more long-term customer relations.



## Services and products

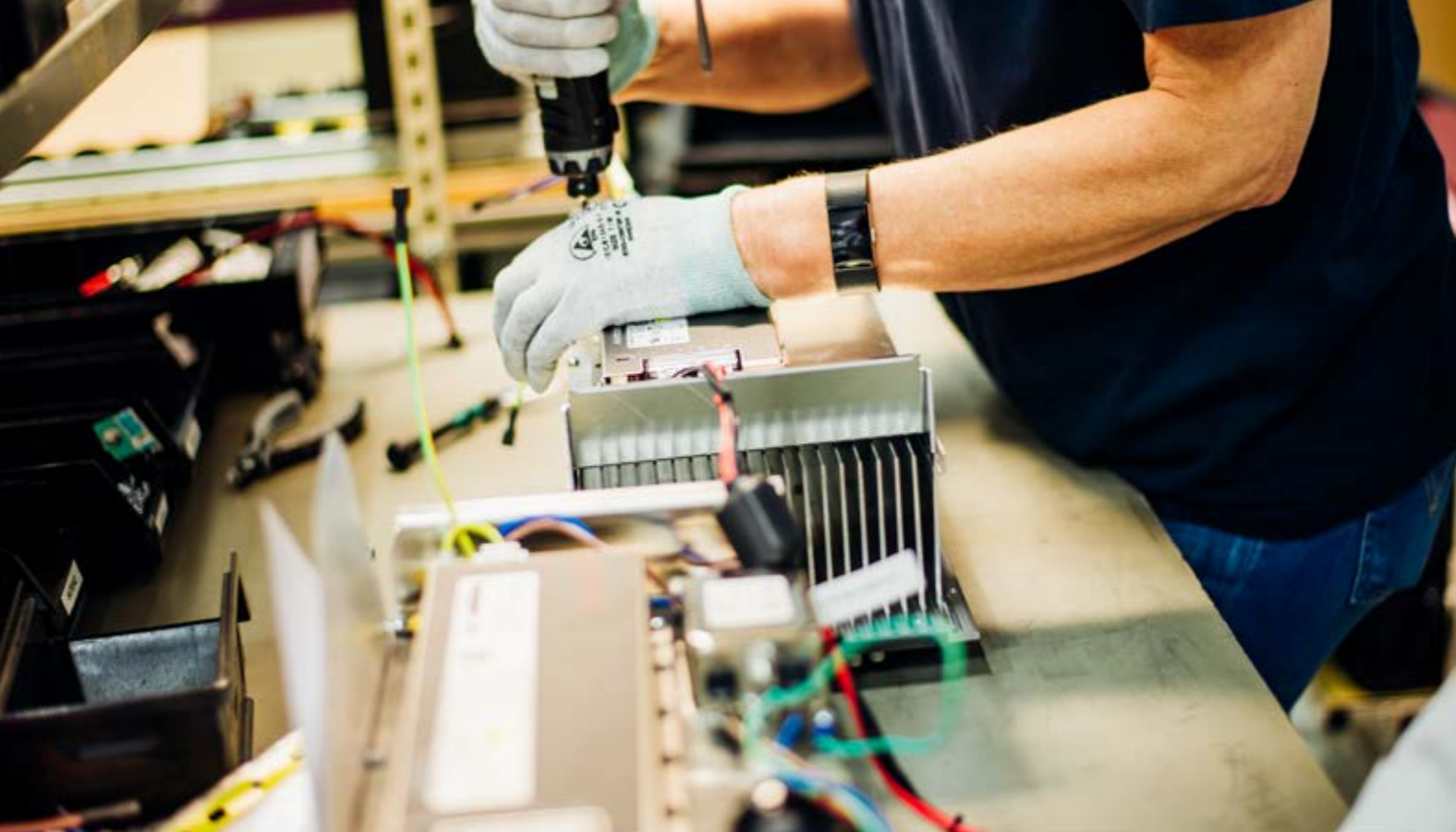


“  
**W**ith its flexible LED lighting solutions, a comprehensive range of helioCARE™ services, and the unique and powerful helioCORE™ light control system, Heliospectra has consolidated its position as a globally leading provider of innovative cultivation solutions.”

“  
**L**ong-lasting and high-quality LED diodes reduces the need for maintenance, and in turn the operational costs.”







## New production partner in Sweden – for optimal performance and quality

*In 2018, Heliospectra improved its product development process. At the same time, the company has moved its manufacturing to a new, Swedish production partner with a higher manufacturing capacity.*

These changes are expected to create several advantages:

### Improved possibilities in production design

Heliospectra has strengthened the company's resources in development and design of new products, both inhouse and in collaboration with external specialists in product design. The new SIERA lightbar series and the revolutionary modular lightings series MITRA, that were presented in the spring of 2019, are two recent examples on Heliospectra's leading abilities in innovation and development.

### Improved delivery capacity

With a manufacturing partner that is able to adjust to significant volumes with intact product quality, Heliospectra becomes more attractive for larger potential customers. This is important as the company is aiming to establish more relations with larger customers during the coming years.

“

Heliospectra is now well prepared to satisfy a substantial increase in demand while keeping the quality intact in every step all the way to the customer, from volume purchases of components and modules to the assembly, quality testing and delivery of the complete solution.

## Interview with Peter Emanuelsson, Heliospectra's VP Supply Chain

*According to Peter Emanuelsson, the upgrade to a new production facility in Ronneby is an important step in Heliospectra's efforts to maintaining high quality and efficiency in the company's production and delivery chain while increasing its capacity.*



### What are the advantages of your new production facility?

“We have secured a high-quality and scalable production capacity in Sweden, so that we are ready to meet a continued growth and demand. When choosing manufacturing facility, we prioritized finding a production partner with a similar mindset to our own when it comes to high quality aspirations and a drive to continuously improve the process. It was also important to secure robust transportation options, including being close to railroads, maritime routes and international flight routes.”

### Is it important that the production stays in Sweden?

“In addition to the geographical closeness to our research and development operations, our customers expect us to produce our products in an environment with the highest quality standards. Sweden is also a global leader in waste management, and at the forefront when it comes to adapting its industries to environmental standards, which is completely in line with Heliospectra's strong sustainability focus.”

### Can you list some concrete examples on how this sustainability focus can be seen in your production and delivery chain?

“When purchasing material, we choose local and/or regional options whenever possible, and this becomes even more important if the material is bulky and heavy. To minimize production waste, we are also working on achieving a high level of quality for all included components. This, together with a structured control procedure for these components when they arrive, secures an efficient flow throughout the production chain. We are also using well-established packaging solutions to minimize the risk of products being damaged during transport.”

### Can you describe your strategy for adjusting purchases and production capacity to current demand?

“We are continuously working on reducing our lead-times for critical components. This increases our flexibility and our ability to rapidly ramp up the production volume. In addition to this, we have also made sure that our production partner is not running at their maximum capacity, so that they are able to increase their capacity with minimal effort when needed.”



## Our product families

### ELIXIA

The ELIXIA series is adapted for commercial greenhouses with a need for long operating hours in harsh environments, and they are primarily sold to traditional growers of vegetables and flowers, as well as cultivators of medicinal plants. The lightings are compatible with the helioCORE™ light control system, and they are equipped with a completely variable frequency spectrum and newly developed optics that optimize the light image on different surfaces and in different application areas. They are also available in variants designed to be mounted at a distance of approximately 0.5 meters and 2.0 meters, respectively. The latter version makes it possible to supplement natural sunlight while at the same time achieving the desired results from spectrum variation.



### EOS

The EOS series is developed with a focus on commercial greenhouse growers. The lightings have a fixed instead of a dynamic spectrum, and they are therefore suitable for customers in need of an intense and standardized high-quality spectrum. Variants are offered with Heliospectra's G or C spectrum, making the EOS series suitable for both green and flowering plants.














### DYNA

The DYNA series is mainly suited for the research and development market. Its wavelength spectrum and light intensity can be programmed with high accuracy, both static and dynamic over time, and even more advanced functions are available when connecting the lightings to the helioCORE™ light control system. DYNA customers include universities, research institutes and agrotechnology companies that develop and offers products such as seeds, nutrients and pesticides. Heliospectra's lighting solutions are so established in the research sector that the products are specified in applications for research grants.



### SIERA

The SIERA series is a lightweight and durable (IP67-rated) lightbar that redefines the possibilities in vertical farming. SIERA's flexible design makes it easy to quickly mount or adjust, and with five different spectrum variants, it is suitable for many different crops and growing conditions. The SIERA lightbar can be used at all stages of the plant cycle, and it can be used as the only light source for indoor cultivation.

Product family	ELIXIA	EOS	DYNA	SIERA	
Type	High Voltage Top Light/ Top Light	High Voltage Top Light/ Top Light	Research Light	Light bar	
Power	525 W / 630 W	525 W / 630 W	420 W	48 W / 42 W	
Spectrum	C plate  450nm, 660nm, 735nm, 5700K	G plate  450nm, 660nm, 5700K	Research plate 	 Red light- Stem elongation/ shelf life  Blue light- compact growth/ vitamine content  Propagation  Indoor cultivation  Grafting/healing	
Optics	The Top Lights come with two optional spectrum compositions: 01 – for indoor 02 – for greenhouse		Base reflector and high transparency clear acrylic glass plate		
Variable spectrum	✓	—	✓	Dimmable	
Application	 Indoor cultivation	 Greenhouse cultivation	 Industrial use	 Research	 Indoor cultivation
Can be used with helioCORE™	✓	—	✓	Update under development	



## helioCARE™ – Heliospectra’s technical services

Heliospectra has a team with renowned experts in biology, plant research, software development, technical adaptation and light consultancy. Based on this, customers are offered valuable services and education before, during and after the installation of a new cultivation facility or lighting solution.

Thanks to the collaboration with ABB, that was initiated in 2018, Heliospectra can also offer knowledge and services in electricity and more extensive automation on selected growth markets.

### Light analysis and customized light strategies

Intelligent LED lightings and the helioCORE™ light control system enables advanced lighting optimization. In order to really benefit from this potential, Heliospectra designs tailored lighting strategies, independent if the goal is to increase yield, improve quality or alter the morphology of the crop. Especially new customers have much to gain from taking advantage of Heliospectra’s long experience.

### Installation design and support

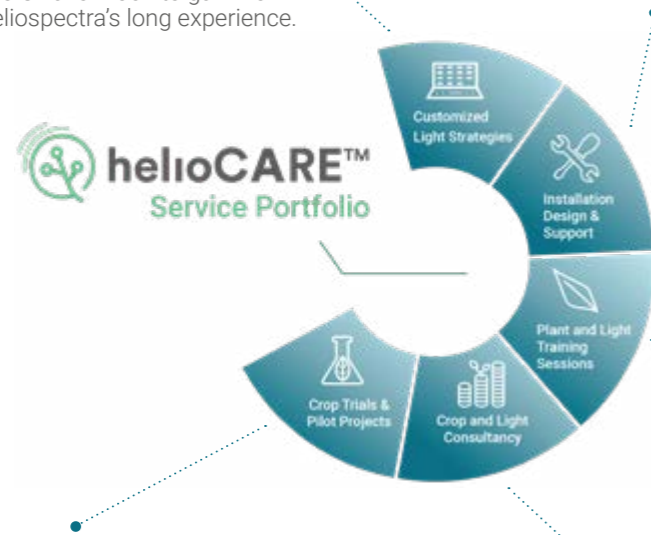
In order to achieve optimal lighting results over time, it is crucial that the installation is designed and adapted with regard to the actual conditions, including the available power supply. Heliospectra’s experts calculate, measure and plan the project to make sure that the installation and operation will run seamlessly without any disruption in production.

### Plant and light training sessions

Based on their extensive experience, Heliospectra’s experts’ design customized training programs based on the specific needs and requests. The training can be conducted before or after the installation to raise the practical knowledge of the employees about for example growth optimization and lighting strategies.

### Crop trials and pilot projects

Using customized crop research, Heliospectra enables growers to accelerate their growth processes and achieve specific crop performance objectives. This includes, for example, producing plants with longer shelf life or with improved cold tolerance. For larger customers, Heliospectra also conducts pilot projects to ensure that the new solutions are optimized before large-scale implementation.



### Crop and light consultancy

Heliospectra can provide harvest and lighting specific consultancy based on the company’s knowledge from more than a decade of cultivation research.

## Interview with Johan Lindqvist, researcher/helioCARE™ consultant

Johan Lindqvist is one of the well-merited researchers now using their knowledge as a part of Heliospectra’s helioCARE™ service offering. He sees the launch of helioCARE™ as a natural development of the strategy to become a complete supplier of lighting solutions based around the helioCORE™ light control system.



### Can you tell us about your role in the Technical Services team?

“I have been working at Heliospectra for 3.5 years as a researcher on our R&D projects until this fall. I then joined the Technical Services team, which offers our helioCARE™ services. In R&D, I focused on light and crop research as well as the development of control systems, and now one can say that I am working on applying what I previously developed.”

“The Technical Services team consists of several experts with different related areas of expertise, such as botany, biology, chemistry and technology. This enables us as a team to offer advanced services that can help growers to achieve the best possible results. Our close customer relations also provide us with recurring information from the industry on what is currently in demand, which enables us to development of our services and products in a more efficient manner.”

### Can you describe Heliospectra’s development in 2018 in the consultancy field?

“Since Technical Services/helioCARE™ became a dedicated resource in 2018, we have been able to refine and package our offer in a better way than before. We are also improving our skills when it comes to listening to our customers, and what they need to achieve the results they are aiming for, which has led to stronger customer relations.”

“Our customers have a wide range of basic growing conditions, as well as production targets, which means that it is rarely possible to offer a standard solution. In addition to this, every greenhouse is unique, even though the differences can be large or small. Not that we have both light control via helioCORE™ and our helioCARE™ service solutions at our disposal, we are in an optimal position to offer a complete solution that sets us apart from our competitors.”

### What is your view on how the helioCORE™ control system has improved during this period?

“HelioCORE™ has become more advanced, and it is now an even more powerful tool when we use our research and knowledge to create actual results in our customers’ greenhouses. What we are able to do today would definitely not have been possible to the same extent without helioCORE™.”

### What can be expected when it comes to the continued development of the helioCARE™ service package?

“Our ambition is to become even better at reaching out to our customers and sharing our knowledge through, for example, educational training and seminars. Even though our customers are increasing their knowledge level, we are now able to offer opportunities at such a high level that specific training is usually needed to be able to best utilize our solutions.”

“The fact that customers are becoming more knowledgeable, with higher demands as a result, is definitely an advantage for Heliospectra as we are leading the development of more advanced lighting solutions. In a way one could say that the customers are starting to catch up and really understand us, which makes it possible for us to continue our refinement of the cultivation and lighting industry together with them.”

## helioCORE™ – a globally-unique light control system

The unique helioCORE™ light control system, launched in the spring of 2018, puts a powerful and precise tool in the hands of growers and researchers aiming to achieve optimal results.

The helioCORE™ system consists of a central control unit with software, and light sensors that are placed in the cultivation area. By being offered as a subscription solution, including different modules to control the lighting, helioCORE™ has become an important part of Heliospectra's strategy to increase its share of recurring revenues.

### Always optimal light conditions

Most growers need to take varying parameters into account, such as the amount of natural light, different steps in the growth cycle and customer demand. Researchers are also in need of being able to adjust and replicate tests with high accuracy. This means that the majority of Heliospectra's customers has a lot to gain from using helioCORE™ as a way to always maintain optimal light conditions based on the current situation.

### Multiple light zones and automated light response

helioCORE™ can receive signals from multiple light sensors simultaneously, allowing the division of a growing area into multiple light zones. They can then be adapted independently for uses such as different crops or stages in the growth cycle. The system's automatic light response keeps each zone within the desired ranges, and different strategies and logs can be saved to discover optimal settings for the best possible results.

### Strong customer interest in all business areas

Since its launch, helioCORE™ has been well-received by customers and the cultivation industry as a whole. Several agreements have been signed with customers in all of the company's three focus areas: medicinal cultivation, growing of food products and research and development. Based on this, Heliospectra sees strong potential in the system and the possibility to develop additional modules that will increase its attractiveness.

## Future-proof modular design

helioCORE™ is currently offered with three different software modules:



The DLI module allows growers to optimize plant growth and adjust the use of lighting based on Daily Light Integral (DLI) targets.



The On-target module maximizes the plants' active photosynthesis with dynamic light response based on defined light intensity targets.



The Schedule module allows customers to control and create automated schedules and light strategies across the whole growth cycle of the plant.



Every grower wants to improve business performance and achieve premium produce prices or negotiation advantages in the marketplace. helioCORE™ is the first and only light control solution that enables our customers and growers to forecast quotas, standardize production and increase year-round yields with predictable, repeatable results.

## Interview with Hanna Rüdel, VP Technical Services



Hanna Rüdel has over 18 years of B2B experience from the international food industry, with a focus on development and commercialization of new product concepts, customer-driven development, and go-to-market strategies. As VP Technical Services, she is responsible for helioCARE™, Heliospectra's service offering that complements the company's leading product portfolio.

### How has the creation of helioCARE™ improved Heliospectra's total offering?

"Heliospectra has leading research expertise in light optimization, light influence and how the growth of different crops can be optimized and controlled at its disposal. With the help of helioCARE™, we can offer this expertise to our customers, from project planning to implementation and start-up and during the continued work on continuous production improvements. This enables us to establish closer relationships with our customers and build mutual trust at an early stage, while at the same time contributing with substantial value in addition to the delivery of lighting and control systems."

### Has the helioCARE™ service package become more important since the launch of the helioCORE™ light control system?

"Optimizing the cultivation when upgrading to a better lighting solution is always important, but as helioCORE™ adds a whole new level of control, it becomes even more relevant to also use helioCARE™. When doing so, our customers can be sure that they are using the lighting solution in the best way possible, and that they get maximum value from their investment."

"With helioCORE™ in combination with helioCARE™, Heliospectra has a unique offering that is way ahead of the competition, and we are noticing a strong interest from customers when they understand the possibilities that helioCORE™ opens up."

### In 2019 and onwards, you will invest a lot of resources in pilot trials aimed at the food industry. Can you tell us your thoughts on ramping up these efforts?

"Pilot trials in cultivation must be designed in a smart way if we want to get the data we are after. It usually takes an individual design with consideration to specific growth conditions. By becoming even more structured in our process, we expect to be able to collect more and better data, and thus being able to continue to refine and broaden our extensive knowledge and data bank with different crops and conditions."

### In May, you presented a collaboration with the technology giant ABB to strengthen your offering on emerging markets. What advantages has it brought to date?

"Partners like ABB are invaluable when reaching out to customers in different parts of the world. ABB can put Heliospectra in contact with relevant people and companies virtually anywhere. During the year, we have worked a lot in the Middle East, where our cooperation has been of great value."

"ABB can also help us design solutions in, among other things, electricity and energy supply. When we get questions from customers on how to solve the energy supply for their cultivation facilities, it is a strong competitive advantage to have ABB as our partner, as we can offer a complete solution together with them."

### How is it to cooperate with such a large company as ABB?

"The collaboration itself is working very well. We have established mutual trust with rapid turn-around times in the communication, and a genuine interest in each other's areas of expertise. I have previously been involved in several collaborations with large companies as the representative of a small company, and I know for a fact how challenging it can be. Considering this, I think that Heliospectra's partnership with ABB is unique also in this way when summing up how far we have come in a relatively short time."

### How would you be able to deepen the collaboration with ABB in the future?

"ABB has a comprehensive product portfolio in automation and energy supply, and we see no limitations when it comes to our cooperation. A potential way forward could be to connect helioCORE™ with modules and data flows from ABB in, for example, the supply of electricity. For large vertical farming facilities, it would be interesting to also benefit from ABB's knowledge in robotics and automation. One ambition is to be able to develop a fully automated solution that covers the entire process from cultivation to harvesting and packaging from Heliospectra/ABB."



## Heliospectra's customers

### Three areas that complement each other

*Heliospectra is currently focusing on three customer groups: companies in the food industry, including growers of vegetables, herbs and microgreens, growers of medicinal plants such as cannabis, and research entities and agrotechnology companies.*

The sales process is primarily targeting larger customers with a substantial need to standardize and establish a more optimal and automated cultivation process from start to finish. Even though the LED lightings used by each customer group have differences in functionality and design, Heliospectra is able to offer its service solutions helioCORE™ and helioCARE™ in all of these segments.

By covering several industries, Heliospectra is also able to continuously adjust its marketing and sales activities based on the existing and expected demand.

“  
Even though they operate in different sectors, the basic need is universal: all customers want solutions that create ideal lighting and cultivation conditions.”

## Cultivation of medicinal plants

*The market for cultivating cannabis and other medicinal plants continues its strong growth as more and more countries update their legislation.*

The global legal cannabis market was worth 12.9 billion USD in 2018, and it is expected to grow to 32 billion USD 2022, corresponding to an average annual growth of 27.5 percent in 2017 – 2022. USA is still the largest single market by a large margin, with a 90 percent market share in 2017, but as new legislation becomes active in several European countries it is expected that USA's share will decrease to 73 percent in 2022.<sup>1</sup> North America is the most important region for Heliospectra, but the company has also received several orders in Macedonia in 2017-2018, and a first order from a Danish grower was presented in 2018.

In Sweden, the legislation has so far been adjusted to allow some use of cannabis-based products such as the MS treatment Sativex. However, all cultivation of cannabis is prohibited.

### More greenhouse cultivation and automation

Traditionally, cannabis growers have often grown crops indoors with artificial lighting as the only light source, but as the market matures, the use of greenhouse cultivation has also increased. There is also a rising demand from growers for cultivation solutions that adapts automatically to the different phases of the growth cycle. This means that Heliospectra's products and service offerings within helioCARE™ and helioCORE™ are perfectly aligned with current market trends.

Even though there are a number of companies delivering LED lightings in different price ranges, providers of conventional HPS lamps that are cheaper to buy but not to use in the long term are still the major competitors for Heliospectra. For customers with a demand for a low initial cost, Heliospectra offers renting of the LED lightings, which is also contributing to the implementation of the company's strategy to increase the revenue share from recurring income.

### Major North American focus through Heliospectra Canada, Inc.

Heliospectra's new Group company in Canada, that was presented in the spring of 2019, forms the foundation of a major effort to deepen the company's business contacts in North America and close more deals from cannabis growers and customers in other key segments. With a stronger physical presence in this key region, combined with a market leading service offering that has been proven to work very well for cannabis cultivation, Heliospectra is certain it has strong potential to grow with the cannabis market as well as to increase its market share in the coming years.

<sup>1</sup> The Arcview Group, The State of Legal Marijuana Markets, 2018



### Heliospectra's solutions offers:

- Cultivation with increased density
- More frequent and standardized harvests
- Improvement of crop quality and amount of active substances
- LED lightings with less heat generation compared to HPS lamps, which minimizes the need for ventilation and electricity costs
- Improved working environment with an optimized light spectrum

## Case: Central Maine Flower

### Central Maine Flower: accelerated harvests, improved quality and lower electricity costs

Central Maine Flower is a medical marijuana grower located in Bangor, Maine in the USA. The company uses a high-quality system for hydroponic farming and a highly controlled growing environment. This, in combination with the owners extensive growing experience, makes it natural to aim for the best possible production quality.

A regulatory framework with a limitation on the maximum number of customers at any given time is another reason why Central Maine Flower is working to continuously improve its production. The best way to keep and satisfy customers is to be able to constantly offer a medical product with the same high standard every time.

Central Maine Flower knew of Heliospectra from its solid research background, and the company was convinced that they had found a qualified partner with high credibility to assist with the upgrade to an individually adapted LED lighting solution.

Thanks to the upgrade to Heliospectra's high-quality LED lightings, Central Maine Flower was able to achieve several improvements valued by customers as well as the owners. They included increased density, 7 to 14 days harvest acceleration as well as improved crop quality. The combination of these improvements led to an increased oil production with a higher proportion of active content. At the same time, the company was able to reduce its water use and its electricity costs due to the fact that LED lighting produces less heat and consumes less power than conventional cultivation lamps.

The Central Maine Flower staff also appreciated the improved working environment that the upgrade entailed, including a new light spectrum that made it easier to work and take samples in an efficient way.

“

LED technology not only brings cost savings in water and electricity supply, it also gives us the ability to control the space to a greater extent, which has helped us to improve on every stem.”

- Ryan Aubin, former Master Grower, Central Maine Flower



## Cultivation of vegetables, herbs and microgreens

*The Earth's population continues to grow while the urbanization trend continues, and more and more people want to eat local and organic food.*

In 2014, around 54 percent of the earth's population lived in urban areas, and according to the UN, 80 percent of all people will be living in cities by 2050. This growing and increasingly urban, and to some extent more selective, population is putting pressure on the traditionally conservative food cultivation industry to use more effective and automated processes.

As a consequence, the number of innovative, technically driven companies with short decision paths are growing in the food industry. This includes urban vertical farmers focusing on microgreens and organic greenhouse cultivators producing for example tomatoes and other vegetables. The market for vertical farming is expected to grow with around 30 percent annually until 2023.<sup>1</sup> At the same time, there is a large potential in the traditional greenhouse sector, including in the southern hemisphere. Heliospectra is noticing an increasing interest here, even though the decision processes are often quite long.

### Reference projects planned for 2019

The larger food companies are often more focused on quality than price when they implement a technology shift, which is very much in line with Heliospectra's offering. Many companies are also interested in the possibility to cultivate specific crop qualities by using the spectrum and intensity of the light. As an example, it is possible to increase sensitive crop's ability to tolerate cold conditions, and the production can be adjusted to demand to minimize waste. A part of the capital from the share issue that Heliospectra conducted in 2019 will be used for reference project with larger food growers. This will enable the company to present concrete results.

The helioCORE™ and HelioCARE™ service offerings, Heliospectra's collaboration with ABB in Africa and the Middle East, and the expanded presence in North America via the recently formed group company Heliospectra Canada Inc. is also expected to contribute to an increased customer interest from major food companies in 2019 and beyond. This customer group also welcomes Heliospectra's upgraded production process, which among other things allows for high-quality delivery of larger volumes.

### Strong potential in food cultivation and increased presence in North America

Heliospectra also sees great potential in the more innovative segments of the food industry. In 2018, the company received several orders from Ljugårda, a Swedish company using hypermodern hydroponic vertical cultivation that is completely free of pesticides. Ljugårda uses products from Heliospectra's ELIXIA series, and in 2018, Heliospectra launched the SIERA series which is also well-suited for vertical farming.



## Case: Greenbelt Microgreens

### Greenbelt Microgreens: fresh and flavorful leafy greens and microgreens 365 days a year

Greenbelt Microgreens, founded by Ian Adamson, needed to optimize its cultivation facility of 15 different varieties of organic microgreens and living lettuce in a 3.5 acre state-of-the-art greenhouse. After a period with bad yields, the company turned to Heliospectra and a new goal was set: the upgrade to LED lighting would secure Greenbelt's delivery of fresh, flavorful and highest quality arugula and microgreens to more than 400 retail stores across Toronto, Canada, 365 days a year.

Pairing Heliospectra's Elixia adjustable spectrum LED grow lights with the helioCORE™ control system, Greenbelt ensured their plants received the precise amounts of light needed despite seasonal changes in natural daylight. Maintaining consistent harvest of grams per tray was key for retail sales.

"Quite simply, we receive less hours of light and less light intensity in the winter than we do in the summer.

This creates challenging seasonal swings in our production numbers and our greenhouse space planning," says Alice Farris, Head Grower at Greenbelt Microgreens.

Sustainability is an important aspect of Greenbelt's business vision. Ian Adamson and his team grow in living soils using only organic cultivation methods. The helioCORE™ and real-time response enabled Greenbelt to gain immediate control for consistent production, yields and crop quality, 365 days a year.

"For Greenbelt Microgreens, it was never a question of if we required supplemental lighting, but when we would do it. Seasonal supplemental lighting maintains our crop quality and allows us to meet continual retail demand and accurately forecast our yields," says Alice Farris.

Since this project was made, Greenbelt has re-focused the business on cannabis cultivation.

<sup>1</sup> Horticulture Lighting Market: Global Forecast until 2023

## Case: John Innes Centre

### World leading speed breeding achieves wheat generation in 8-9 weeks with ELIXIA and helioCORE™

The earth's population is constantly growing, and so is the need for sustainable, reliable and efficient food production. The researchers at the John Innes Centre, a renowned independent centre in plant science, genetics and microbiology in the UK are well aware of this. They conduct research in the promising area of speed breeding which has the potential to increase food production. In this project, the centre has started to use ELIXIA LED grow lightings from Heliospectra, as ELIXIA in combination with helioCORE™ offers high precision and automatization of light conditions.

By upgrading traditional HPS lamps to Heliospectra's ELIXIA LED grow lightings and HelioCOR™ light control software, John Innes Centre was able to apply a 22-hour photoperiod and controlled temperature regime in their speed breeding project. This led to an accelerated seed-to-seed generation time of just 9 weeks and improved the crop quality in their wheat research.

"The project has been an immense success, and the team was able to achieve wheat generation from

seed-to-seed in just 8-9 weeks, considerably faster than the usual four to five months under HPS lamps with 16 hours of light or in a naturally lit spring/summer glasshouse," says Brande Wuff, project leader of John Innes Centre's project in crop genetics.

The nature of plant and microbial science research requires sites such as the John Innes Centre to maintain controlled growing environments which often consume lots of energy. However, by replacing the traditional lamps with LED lighting from Heliospectra, the research team recognized significant cost reductions as the upgrade resulted in a 15% reduction in energy consumption, despite an extended photoperiod.

John Innes Centre will continue to upgrade the lighting in the remaining glasshouses, rooms and cabinets to LEDs with Heliospectra's HelioCORE™ control software, and they have a large number of lamps that still need to be replaced

## Research & agrotechnology companies

Research companies and agrotechnology companies that uses lighting optimization represents a significant and growing market. Between 2014 and 2020, the market growth for research cultivation was 23 percent.<sup>1</sup>

Heliospectra's flexible and high-quality LED lightings and the helioCORE™ light control system are perfectly suited for these applications. With LED lights from the DYNA series, researchers gain individual control over different wavelengths including UVA light, and helioCORE™ enables automation and repetition of advanced dynamic programs. ELIXIA and EOS lightings are also used in this segment.

### Promising deliveries to leading agrotechnology company

Potential customers in the agrotechnology sector include small, innovative companies as well as large entities active in areas such as the development of new crops and fertilizers. Monsanto, Syngenta, Bayer, Dupont and BASF are examples of companies in the latter group. In 2017 and 2018, Heliospectra received several orders from a globally leading Fortune 500 company in the agrotechnology sector,

and thus important reference projects that can be used in discussions with potential customers.

### World-leading research entities choose Heliospectra

Heliospectra has a strong reputation in the research world with contributions to a number of projects, including robust lighting solutions for research projects at the German Space Agency and NASA.

In 2017, a commercially important order was received from the prestigious John Innes Centre, a UK research entity receiving international acclaim for its progress in speed breeding. It was followed by additional orders from prestigious research centres in 2018, including The Royal Botanical Gardens in Kew and King Abdullah University of Science and Technology (KAUST) in Saudi Arabia. The Royal Botanical Gardens in Kew is a UNESCO World Heritage Site and the owner of the largest and most diverse collection of living plants in the world.

After establishing itself as a leading supplier to both agrotechnology and research companies, Heliospectra is now aiming to establish long-term commercial relations with additional large companies in the coming years.

### Heliospectra's solutions offer:

- Accurate control of wavelengths and light intensity
- Quality products with constant parameters over time
- Automatic light control that enables advanced, dynamic programs
- Access to Heliospectra's leading expertise in cultivation optimization
- Alterations/optimization of crop properties and different parts of the growing cycle

<sup>1</sup> LED Grow Light Market – Forecast to 2020 - MarketsandMarkets







## Research and development

*A large part of Heliospectra's research and development is carried out in customer projects, but the company is also running internal projects as well as projects with research entities. Development is primarily focused on three different areas:*

### Cultivation optimization and specific crops

By increasing the understanding on how different properties and growth cycles can be optimized, in general as well as for specific crops, the company can build the foundation for even better customer projects and the next generation of lightings and software solutions. The company has its own growth facilities and laboratory in connection with its offices in Gothenburg for this purpose, while also collaborating with entities such as RISE (Research Institute of Sweden) and Sweden's Agricultural University (SLU).

### Optimal lighting environment and lighting

Research on lighting, and its effect on growth processes in detail, is an area where the company collaborates with Chalmers University of Technology in the iLight project that is partly funded by Mistra Innovation. Heliospectra retains all rights to the innovations and results generated from the project. With this research, Heliospectra can develop next-generation LED lightings for its different customer segments.

### Biofeedback and self-adjusting systems

Research on lighting, and its effect growth on processes in detail, is an area where the company collaborates with Chalmers University of Technology in the iLight project that is partly funded by Mistra Innovation. Heliospectra retains all rights to the innovations and results generated from the project. With this research, Heliospectra can develop next-generation LED lightings for its different customer segments.

## Intellectual property rights

### Patents and patent applications

Heliospectra's strategy is to apply for patents that covers the more advanced inventions in the company's lighting system. At present, Heliospectra's patent portfolio consists of one (1) patent for spectrum optimization with granted patents in a number of countries (a patent family). Additionally, the company has seven (7) pending patent applications. In addition to spectrum optimization, the patent applications are focused on the following areas: tracking and control of plant growth, stress detection and system integration and support. In addition to the seven patent applications, ongoing development work is conducted to create new inventions that can lead to additional patent applications.

### Additional intellectual property rights

Heliospectra tries to protect products and processes that are not advanced or original enough to be patented in other ways. This can be done through trademark protection or pattern/design protection. If an asset cannot be protected in any other way, it can be done by keeping the information a trade secret that is not shared with customers and partners. This category includes, for example, the code and the algorithms used in the company's software for light control and usage of feedback from the hardware.

## Sales and distribution

Heliospectra sells both directly and through smaller retailers. On key markets, such as greenhouses in Europe and medicinal plants in North America, the company has its own sales teams, and in 2019 the company will further increase its presence in North America through the recently formed subsidiary Heliospectra Canada Inc.

Heliospectra has also signed agreements with several distributors. As Heliospectra wants to be in control of where the company's products end up and how they are used, the number of distributors and partners is kept low. This way, the company can make sure that the installations are successful and that the customers understand how to best use the products. This is important as reference cases are often used during sales processes.



# Market trends and outlook

## The market for cultivation lighting

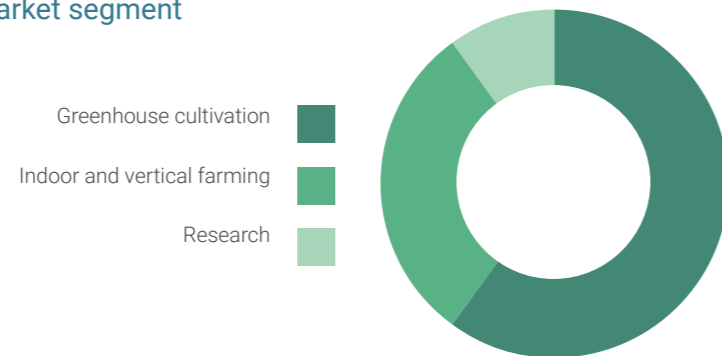
Cultivation lighting is used either to compensate for natural light variations in for example greenhouses, or as a replacement for natural sunlight in controlled indoor cultivations. There are various different lighting techniques to compensate for the lack of sunlight. These include; fluorescent, metal halide, HPS and LED. The total value for the cultivation lighting market was estimated at USD 3.8 billion in 2017.

As more applications are added, and LED lightings are increasing their market shares, the market is expected to grow to USD 8.6 billion in 2022, corresponding to an average annual growth of around 18 percent. The establishment of vertical cultivation modules, enabling a more effective use of the available area and thus more

plants per square meter, is then expected to double the market value to USD 17.2 billion during 2022 to 2027.

HPS lamps still make up the majority of existing installations, although LED lightings are increasing their markets shares. The value of the market for LED lightings used in cultivation is estimated to grow between 2015 and 2020, with an annual average growth of about 27 percent. This corresponds to a market value of USD 1.9 billion in 2020.<sup>2</sup>

## Application areas in Heliospectra's market segment



Source: Heliospectra's inhouse estimations

## Market trends

### A growing global population

The global population is expected to reach 10 billion people by 2050. In order to feed the world's population during the next forty years, it is estimated that the food production must be increased by 70 percent. At the same time, cultivable land is becoming an increasingly limited resource. This means that the agricultural sector and food producers are facing several new challenges and need to streamline their cultivation techniques to meet the increased need.<sup>1</sup> Among other things, this is expected to be achieved through increased use of cultivation in greenhouses or indoors without natural sunlight combined with vertical structures for optimal use of the available area.

### Legislation and governmental support

HPS lamps require large amounts of electricity, and greenhouse growers are among the largest electricity

consumers in Europe. Governments all over the world are therefore keen to speed up the transition to the much more energy-efficient LED technology by using subsidies and also tougher legislation over time. This development can be seen especially in Europe, the US and in China, and may lead to a faster conversion process for greenhouse growers in the future. The first regulation to phase out halogen lamps came into effect on September 1, 2018 in the EU. The phase-out refers to halogen lamps with "Class-D" in favor of LED lamps in EU member countries.<sup>3</sup>

### Electricity costs cause European growers to choose LED lighting

The use of greenhouses is widespread in Europe, to a large extent because natural sunlight is insufficient for a large part of the year. However, European growers are threatened by growers outside of Europe with lower production costs.

1 Yole Development, November 2017

2 LED Grow Light Market – Forecast to 2020 – MarketsandMarkets

Energy consumption is the single largest contributing cost for European growers, which has led to a focus on optimizing energy consumption.<sup>4</sup> The largest market growth is expected to come from new installations. These are driven by the emergence of new cultivation methods, such as vertical and indoor cultivation.

### Urbanization and indoor cultivation

In 2014, approximately 54 percent of the world's population lived in metropolitan regions, and according to the UN, about 80 percent of the population will be living in cities by 2050. The demand for food is increasing in these areas, while the available cultivable land around the cities is limited or decreasing. This drives various new initiatives such as vertical and indoor cultivation. For example, vacant office buildings are converted to indoor cultivation facilities in the Netherlands. These new ways of growing plants in urban areas can deliver fresh and local vegetables and fruits to people living in cities. Urban farming also reduces the environmental impact by reducing the need for transports. However, all urban farming requires a controlled environment, artificial lighting and automated solutions which in turn drives the demand for LED lightings and smart cultivation systems.<sup>5</sup>

### Vertical farming

A new trend in the agricultural industry is the introduction of vertical farming in urban environments. It is the limited availability of cultivation areas in the urban environments that drive the development of new methods for optimal use of available areas. Vertical farming are indoor cultivations in which the plants are stacked on top of one another. In these cultivations, artificial lighting is the only source of light for the plants. Vertical farming facilities are designed to maximize the cultivation capacity in restricted areas, and to use control systems to optimize the growing conditions. Cost efficiency and energy consumption are important factors for these cultivations, with focus on the lifetime of installed lamps and equipment, as well as optimal lighting conditions to stimulate photosynthesis. The market for vertical cultivation is expected to increase by around 30 per cent annually until 2023.<sup>6</sup>

### Competitors

Not switching from HPS to LED lighting, with the initial cost and the additional work this implies, remains Heliospectra's strongest competitor for existing greenhouses.

3 The European Commission, Phase-out of inefficient lamps (2018)

4 AERU, Energy optimisation in European Greenhouses – Greenenergy

5 World Urbanization Prospects: The 2014 Revision, 2014.

6 Horticulture Lighting Market: Global Forecast until 2023

In the LED lighting market for cultivation, Heliospectra competes with both major traditional lighting manufacturers who have entered the market for LED lightings and companies whose products target the greenhouse market more directly. The market is fragmented, with a large number of smaller manufacturers that have chosen slightly different paths. Some focus on simpler and more limited LED solutions to complement HPS lamps, while others, like Heliospectra, focus on products which seek to completely replace HPS lighting. In this segment, where the company's direct competitors are found, there are large differences when it comes to technical level and functionality. The simplest products have a static light spectrum, while the more advanced products allow dimming and control of different wavelengths in order to control the light blend.

The largest providers on the market are currently Philips, Orbitech, Lumigrow, Illumitex, Fluence and Hortilux, together with Osram, GE Lighting and Eye Iwasaki. Additionally, there are several other companies competing with traditional lighting. Heliospectra has a clear competitive advantage by offering a complete concept that makes it possible to both understand, install and control the LED lighting in an optimal way.



## Outlook

*With a complete lighting solution, including sales of LED lighting, helioCARE™ technical services and the HelioCORE™ light control system since the spring of 2018, Heliospectra is well-equipped to continue its strong growth phase that was initiated in 2017.*

The company sees great possibilities to continue receiving orders from cannabis growers, while at the same time gradually increasing the share of customers from the food sector in 2019 and beyond. The research and development segment continue to look promising considering the many orders received from a large agricultural engineering company, as well as from several internationally renowned research centres.

Heliospectra expects North America and Europe to remain as the most important geographic markets for the company also in 2019 and thereafter, while its increased presence in North America is expected to contribute to a growing demand also from larger companies.

The updated offering, with renting of LED lighting, helioCARE™ technical services and the helioCORE™ light control system, is expected to increase the company's share of recurring revenues during the following years, while also facilitating a significant amount of additional sales to existing customers. However, the sales of LED lighting will most likely account for the majority of the company's turnover also in 2019.

With its new, complete and market-leading concept, Heliospectra also expects that many customers will upgrade to its solutions from competing products, a trend that started in 2017.

## Product and service launches in the spring of 2019

*In the spring of 2019, two important news items were announced that are expected to improve Heliospectra's sales numbers in line with the company's outlook as presented above.*

- In May, the revolutionary MITRA LED lighting series was introduced, providing the first completely modular LED platform on the market. MITRA is optimized for plants craving an intensive light, such as cannabis and tomatoes, and it is available in square and linear configuration. The square configuration is optimized for vertical farming, while the linear is created to minimize shading in greenhouses. Together, they offer almost endless configuration possibilities. MITRA is delivered in three spectrum configurations: wide spectrum, vegetative spectrum and blooming spectrum.

- In May, the 600 W High Voltage ELIXIA was presented as an addition to Heliospectra's successful ELIXIA Series. It is aimed at growers in markets including Canada where there is a substantial demand for lightings in a high voltage configuration.

### ELIXIA 600W HV



### MITRA



## Expected milestones in 2019

- Formation of a new subsidiary in Canada – achieved in Q1
- Conducting a share issue of 52.7 MSEK – achieved in Q1/Q2
- Launch of the completely modular MITRA lighting solution – achieved in Q2
- Launch of the 600 W High Voltage ELIXIA – achieved in Q2
- Launch of helioCORE™ 2.0 – planned for Q4

# The people behind Heliospectra

## The board



**Andreas Gunnarsson**

**Chairman of the Board since 2016**

Andreas Gunnarsson has extensive experience in starting up and operating growth companies in the technology sector. He is also chairman of the board in CorPower Ocean AB, WRAP International AB and Lamera AB, member of the board in SolarWave AB and alternate in Minesto AB and Pergamum AB. Andreas has studied at Jönköping International Business School.

**Born: 1974 Elected: 2011**

**Holding: 22,968 shares**



**Anders Ludvigson**

**Member of the Board**

Anders Ludvigson has significant industry experience as co-owner and vice president of Ludvig Svensson AB, the world's largest manufacturer of curtains for the green house industry. He has previously held the position as CEO for their operations in the Netherlands. Additional assignments includes chairman of the board in Ludvigson Invest AB, Aktiebolaget Olga Ludvigson, Heliospectra Personal AB, Aktiebolaget Ludvig Svensson and Ludvigson Hus & Mark AB. Alternate in Harpebo Fastighets AB, Ytterås Fastigheter AB, Ludvigson properties AB and Kinna Nya Arvidsgården AB. Anders holds a MSc in production management and investment analysis from the Institute of Technology at Linköping University.

**Born: 1970 Elected: 2007**

**Holding: 0 shares**



**Staffan Hillberg**

**Member of the Board**

Staffan Hillberg was the company's CEO between 2010 – 2017. He has led several growth companies to international expansion and listing, including Heliospectra. Under his leadership the company was also, as the first Nordic company, listed at the OTC market in the USA through an ADR solution. Staffan is currently co-owner of Wood & Hill Investment AB that focuses on buyouts and real estate investments. Additional assignments include member of the board in Fysiken Fastigheter AB, Fysiken Fastigheter Holding AB, Zinzino AB, Villa Säfvehöjd Aktiebolag, Fastighetsaktiebolaget Mesulan, Zinzino Nordic AB, GreenByte AB, Stallet Fastighets AB, PS Finance Group AB, LUXBRIGHT AB, Wera Hill AB and Stallet Fastighets Holding AB.

**Born: 1964 Elected: 2017**

**Holding: 8,500 shares**

**Related legal party: 74 754 shares (Wood & Hill Investment AB)**



**Martin Skoglund**

**Member of the Board**

Martin Skoglund is one of the founders of Heliospectra. He is also co-founder of Chalmers Innovation and the founder of Wood & Hill Investment AB that focuses on buyouts and real estate investments. Additional assignments include chairman of the board in Svensk Dataförvaltning Aktiebolag, AB Blåbergsholmen, Stallet Fastighets AB, Stallet Fastighets Holding AB, SDF Invest AB and SDF Holding AB. Martin holds a MSc and an MBA from the School of Business, Economics and Law at the University of Gothenburg.

**Born: 1966 Elected: 2006**

**Holding: 47,437 shares**

**Related legal party: 74 754 shares (Wood & Hill Investment AB)**



**Göran Linder**

**Alternate**

Göran Lindner is the CEO of Midroc New Technology AB, Midroc Invest AB and Midroc Finans AB and has several board assignments in addition to his position in Heliospectra. These include member of the board in Midroc New Technology AB, Midroc Finans AB and Midroc Invest AB. Also, member of the board in Powercell Sweden AB, Promore Pharma AB, Crunchfish AB, Nilsson Special Vehicles AB, Minesto AB, Minesto Warrants One AB, M&J by Malin & Johanna AB, Pergamum AB and Powercell Warrants One AB. Alternate in Lamera AB, Air to Air Sweden AB, Heliospectra Personal AB and Solarwave AB.

**Born: 1962 Elected: 2011**

**Holding: 0 shares**



**Staffan Gunnarsson**

**Member of the Board**

Staffan Gunnarsson has extensive leadership experience in starting and operating leading companies. He is currently holding numerous positions in the Weland Group, including CEO and board member in Weland Stål AB and Weland Fastighetsbolag. Additional assignments include chairman of the board in Sandåker 5 Fastighetsförvaltning AB, Svenems Interiör AB and Melodia Medical AB, member of the board in Häfla Skogar Aktiebolag, Ulricehamns Maskinservice Aktiebolag, Fastigheten Stålet 1 i Ulricehamn AB, Laserstans i Ulricehamn AB, Maku Fastighetsförvaltning AB and G Staffan G AB.

**Born: 1947 Elected: 2018**

**Holding: 0 shares**



**Jens Helgesson**

**Alternate**

Jens has a leading role in the Weland Group since 1989. Additional current assignments include purchasing and property manager at Weland Stål AB.

**Born: 1966 Elected: 2018**

**Holding: 0 shares**

# The persons behind Heliospectra

## Management group



**Ali Ahmadian**

CEO

Ali combines his passion for people and technology with 20 years of international business leadership experience to his position at the helm of Heliospectra. Ali is globally recognized for his successful track record of developing new business and delivering profitable growth in a multitude of geographies. He has lived and worked in five different countries on three different continents over the course of his career. Highly skilled in integrating cultural and commercial experiences, he excels in establishing partnerships with different stakeholders and driving diverse teams to peak performance. Prior to joining Heliospectra, Ali was vice president of Tetra Pak in Asia Pacific and served as a member of Tetra Pak's global executive team.

Born: 1976

Holding: 17,000 shares

**Hanna Rüdell**

Vice President of Technical Services

Hanna's entrepreneurial approach, drive and business-oriented mindset has led her to an extensive 18 years of experience in B2B development within the international food industry. She has excelled in selling new technology for food production globally, as well as in running customer projects from idea and concept development to implementation and starting up factory production. She is highly performance driven, with a successful leadership strategy based on trust, courage and constant progress. Before joining Heliospectra, she held executive leadership positions as Mivac AB.

Born: 1976

Holding: 0 shares



**Peter Nyberg**

Head of Technology and Development

Peter Nyberg is the head of the company's R&D department and the development of helioCORE™ and light control. He has built and been responsible for engineering and development groups in several industries, including telecom, the car industry and mobile applications for international markets. Peter holds a MSc in computer science from Chalmers University of Technology.

Born: 1976

Holding: 0 shares



**Hans Naess**

CFO

Hans has 30 years of experience as an auditor, CFO and head of economy at global, market-leading companies including CMA-CGM, Zimmer Biomet, Global Blue and PWC. Before joining Heliospectra, Hans held the position as head of economy at Volvo Bussar.

Born: 1963

Holding: 15,000



**Peter Emanuelsson**

Supply Chain Director

Peter Emanuelsson is responsible for the company's purchasing and logistics and has contributed to an increased focus on sustainability since he was recruited to this position in 2016. He has over 20 years of experience in international trade, project management, sales, and strategic sourcing from positions at companies including Ericsson.

Born: 1965

Holding: 0 shares



**Rebecca Nordin**

Global Marketing Director

Rebecca Nordin is responsible for the company's strategic marketing and communication to investors. She has a background with focus on building brands and communication in the sectors for appliances and LED lightings for indoor environments. Rebecca holds a Master of Science in Marketing and Consumption from the School of Business, Economics and Law in Gothenburg. Previous positions include Junior Marketing Manager at Vestel Germany GmbH.

Born: 1986

Holding: 0 shares



**Karin Dankis**

Director of Product Management and Engineering

Karin Dankis works strategically on Heliospectra's product portfolio and long-term product offerings. She holds an MSc in Automation and Mechatronics from Chalmers University of Technology in Gothenburg with focus on product development. Previous positions include Product Manager & Interim Marketing Manager at Heliospectra AB.

Born: 1989

Holding: 0 shares



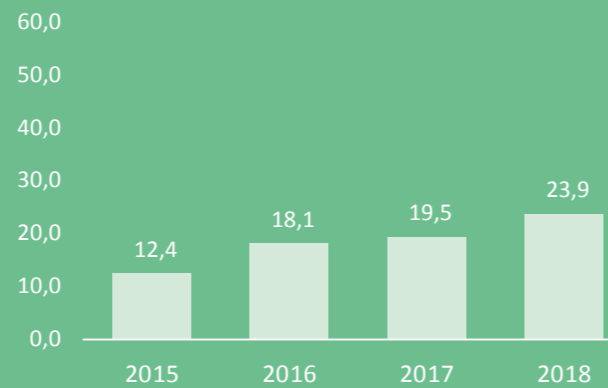
# Directors' report and financial reports

During recent years, Heliospectra has shown strong progress towards becoming a powerful and sustainable company, with a growing share of recurring revenue from module subscriptions and service offerings.

## Sales and total operating costs

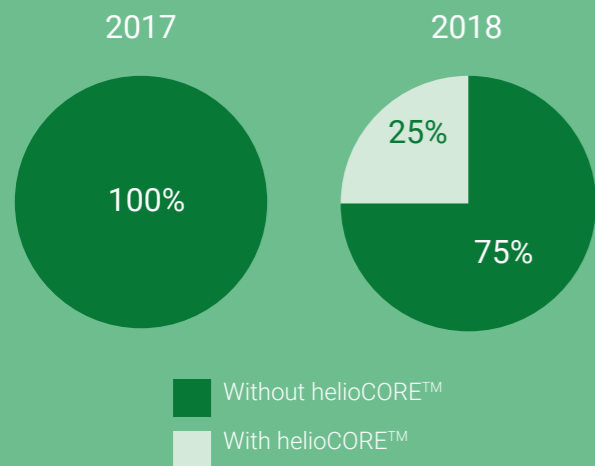


## Personnel expenses

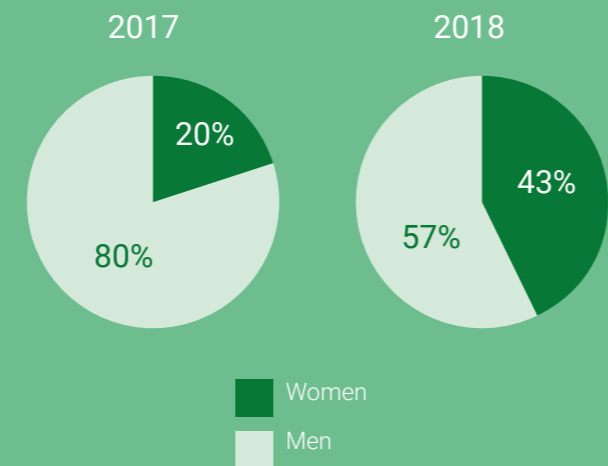


## Share of major orders including helioCORE™

(Refers to orders communicated in press releases under respective year)



## Gender distribution in the group management (incl. CEO)



# Directors' report

## Operations

Heliospectra AB (publ) is the global leader in intelligent lighting technology, light control systems and related services for greenhouse and controlled plant growth environments. With the vision to make commercial crop production more connected and resource-efficient, Heliospectra integrates customized LED spectral strategies with real-time response and artificial intelligence to create predictable and reliable business forecasts and harvest results. Founded in 2006, Heliospectra is committed to helping growers and commercial producers across six continents consistently increase yields and produce crops with quality appearance, superior nutritional or medicinal value and longer shelf life, harvest after harvest. Heliospectra is the recipient of multiple international awards and recognitions.

## The share and ownership structure

The Heliospectra share has been listed on NASDAQ First North Stockholm since June 18, 2014. In October 2014, trading in the Heliospectra share also began in the USA through an ADR program. The main owners of the company are the Weland Group and Midroc New Technology AB. As of December 31, 2018, Heliospectra's share capital amounted to SEK 3,511,158 consisting of 35,111,576 shares with a quota value of SEK 0.10.

## Significant events during the year

### Q1 (January–March)

- Canadian cannabis facility deploy Heliospectra LED grow lights for a high performance medicinal cannabis cultivation facility in Eastern Canada. The order for the Heliospectra LX60 intelligent LED lighting solution is valued at SEK 5.5 million (USD 651,200).
- Heliospectra showcased the company's intelligent lighting solutions, technical services, and new helioCORE™ light control system at IPM Essen and Fruit Logistica in Berlin.
- AcquiFlow, a value-added reseller, selects Heliospectra Intelligent LED Lighting Solutions to scale cannabis cultivation facilities for leading Canadian licensed producer. The producer is based in Ontario. The order value is SEK 524,000 (USD 63,547).
- Griffin Greenhouse Supplies, a value-added reseller, secures a large order for Heliospectra in North America. The order is for Heliospectra's E60 series and the order value amounts to approx. SEK 5.8 million (USD 698,000).
- Iconic Kew Royal Botanic Gardens retrofits greenhouse with Heliospectra's intelligent LX60 LED lighting solutions. The lamps will be installed in one of Kew's plant nurseries for tropical plants replacing traditional HPS lamps. The order value is SEK 1.7 million (USD 150,000).

### Q2 (April–June)

- Griffin Greenhouse Supplies expands controlled environments Agriculture installation of Heliospectra LED lighting solutions, with a second order for the E60 C plate full-spectrum series LED grow lights. The order value is SEK 4.6 million (USD \$549,000).
- Griffin Greenhouse Supplies and the New England controlled environments agriculture installation standardize on Heliospectra LED Lighting with third order for the E60 C plate full-spectrum series LED grow lights. The order value is SEK 5.7 million (USD 686,510).

Heliospectra officially launches helioCORE™ as the new light control system becomes available for order all over the world.

- 5 Letters DOO secures order for Heliospectra LED lighting solutions. The order is for additional E60 series LED grow lights as the company scales medicinal cannabis cultivation in Resen, Macedonia. The order value is SEK

1.5 million (USD 179,760).

- ABB and Heliospectra AB join forces in the Middle East and Africa. The companies are joining forces to explore innovative solutions that will boost the productivity and the sustainability of greenhouse and controlled environment agriculture produce industry in the Middle East and Africa.

- Heliospectra AB introduces next generation lightbar at GreenTech Amsterdam.

- 5 Letters DOO Facility scales with Heliospectra lighting solutions. The second order is for additional E60 series LED grow lights as the company scales medicinal cannabis cultivation in Resen, Macedonia. The order value is SEK 1.5 million (USD 184,550).

- Macedonian Cultivation Facility standardize on Heliospectra LED Technology. The order is for Heliospectra's E60 and LX60 LED grow lights and valued at SEK 3.7 million (USD 432,643).

- Heliospectra annual meeting was held on June 14 2018. Staffan Gunnarsson was appointed new director and Jens Helgesson was elected new deputy director.

### Q3 (July–September)

- Heliospectra features helioCORE™ light control system and new series of lightbars at Cultivate'18 in Columbus, Ohio.
- Heliospectra AB expands executive team with Vice President, Sales and Marketing and Vice President, Technical Services. Hanna Rüdél starts as Vice President, Technical Services, from August 2018.
- Ljusgård AB Invests in Heliospectra's innovative LED lighting solutions. The company, located in Tibro, Sweden, focuses on sustainable, eco-conscious vertical farming. The order is for Heliospectra's fully adjustable ELIXIA LED lighting solution and the order value is SEK 1.3 million (USD 143,552).
- 5 Leters DOO in Macedonia expands their facility and places an additional order on Heliospectra's EOS series LED grow lights. The order value is SEK 1.6 million (USD 179,760).
- Australian cannabis researcher and producer invests in Heliospectra's innovative LED lighting solutions. The order is for Heliospectra's fully adjustable ELIXIA LED lighting solution and the order is valued at SEK 660,000 (USD 78,000).
- King Abdullah University of Science and Technology (KAUST), a private international graduate-level institution located on the Red Sea, chooses Heliospectra for new speed breeding project. The order value is SEK 540,000 (USD 58,700).
- Danish company Cannabis Pharm automates their growth environment with Heliospectra's intelligent LED lighting and helioCORE™ control software. The order value is SEK 1.4 million (USD 154,000).

### Q4 (October-December)

- Leading Spanish research facility invests in Heliospectra's LED lighting solutions for medicinal plant research. The order is for Heliospectra's fully adjustable ELIXIA LED lighting solution and the value is SEK 1.2 million (EUR 117,855).
- Global Fortune 500 AgTech leader selects Heliospectra intelligent LED lighting solutions. The year-end order is for Heliospectra's EOS series lamps and the order value is SEK 1.2 million (USD 134,850).
- Heliospectra announces the cancellation of a 5 Leters DOO order. The order value was SEK 1.6 million (USD 179,760).
- Heliospectra announces a new order from F&M 2017 DOO. The company is starting a new state-of-the-art medicinal cannabis facility in Macedonia. The order is for Heliospectra's fully adjustable spectrum ELIXIA LED grow lights and HelioCORE™ light control software. The order value is SEK 2.4 million (EUR 250,300).

- John Innes Centre continues retrofit with new order of Heliospectra intelligent lighting solutions. This order of ELIXIA and EOS lights complements the previous orders made by the customer. The order value is SEK 1.3 million (GBP 113,600).

## Financial trends

### Sales and performance

Net sales amounted to KSEK 45,370 (36,039). The operating loss amounted to KSEK -33,251 (-33,089), signifying a negative operating margin. The loss after tax was KSEK -33,303 (-33,171) equivalent to SEK -0.95 (-0.94) per share.

### Financial position

Operating cash flow was KSEK -25,588 (-29,511). Total cash flow was KSEK -29,468 (-32,307). At the end of the period, the Group's cash and cash equivalents amounted to KSEK 11,165 (40,633). As of December 31, 2018, equity to assets ratio was 38 percent (65).

### Investments

Investments during the year totaled KSEK 3,280 (2,296). The investments can be divided into KSEK 2,639 (2,173) for intangible assets and KSEK 641 (123) for tangible assets. The investments into intangible assets refer to capitalized R&D - expenses and patents. The investments in tangible assets concern office equipment.

### Employees

At the end of the fiscal year, the number of employees totaled 30 (23).

## Significant events after the end of the period

- Heliospectra's helioCORE™ light control system gains recognition by the American Society of Agricultural and Biological Engineers with a 2019 AE50 Award for "Outstanding Innovations in Product or System Technology".
- Heliospectra's Technical Services portfolio is re-branded under helioCARE™.
- Leading European research facility continues investment in Heliospectra's intelligent LED Lighting Solutions. The company is expanding its greenhouse production, and has placed an additional order of Heliospectra's fully adjustable ELIXIA LED lighting solution. The value of the new order is SEK 2.0 million (EUR 189,000).
- In April 2019, Heliospectra conducted a new share issue of approximately SEK 52.7 million with preferential rights for existing shareholders. The terms of the issue stated that 3 existing shares entitled to subscription of 1 new share at the price of SEK 4.50. The rights issue was 100 percent covered through subscription and guarantee commitments by the company's largest shareholders, the Weland Group and Midroc New Technology.

- Through the rights issue, Heliospectra's share capital was increased by SEK 1,170,386 by the issuing of 11,703,858 shares. The subscription rate was 76 % whereby the guarantors subscribed for the remaining 24 %. After the preferential rights issue, the Weland Group and Midroc New Technology increased their ownership positions to 39 % and 11.5 % respectively.
- On May 8, Heliospectra announced the launch of the new MITRA series, the horticulture market's first truly modular LED lighting solution. Designed for high light crops, including cannabis and vine crops, the initial linear and square fixture modules can be easily combined and customized for any growing environment.

## Risks

### Competition

The industry Heliospectra operates in is research intensive. General research and development in the areas where the company seeks to do business can negatively affect the company's ability to sell its products, as other methods or technologies may prove more successful. Moreover, several of the competitors may have greater financial resources than Heliospectra.

### Employees and key individuals

Heliospectra's business depends on its ability to recruit, train and retain qualified employees. If key employees leave the company, this may, at least in the short term, have a negative impact on the business.

### Research and Development

Heliospectra's research in plants and light may produce unexpected and undesirable results. This may lead to a reconsideration of the concept and its development, and that additional research and development must be carried out at significant expense, or cease altogether.

### Components and supplier dependency

Heliospectra is extremely dependent on one particular component and currently has production located with one specific provider. Price increases for the component or problems with the supplier can affect production negatively.

### Regulatory decisions

The marketing of products based on Heliospectra's technology may require the company, its collaborative partners and/or subcontractors, to receive relevant permits from the competent authorities. There is no guarantee that such permits will be granted, issued in time or that they have the anticipated scope.

### Intellectual property rights and patents

Among the things Heliospectra's competitiveness is dependent on is the company's ability to obtain, maintain and defend patents and intellectual property rights for the protection of its products. Patentability criteria for inventions in the field of lighting technology and intelligent lighting systems are generally difficult to assess. There is a risk that Heliospectra cannot obtain patents for its technology and that patents and other intellectual property rights do not provide adequate protection. Any disputes concerning patents can be costly. Heliospectra is also dependent on its

developed software and it can be difficult to protect itself fully against unauthorized dissemination of information regarding the company's trade secrets.

### Product liability and production capacity

The sale of products is always associated with risks that the products do not measure up, or that customers in some other way become dissatisfied with results after using the product. Customers may well have claims for compensation based on product warranties to an extent greater than Heliospectra's calculations anticipate.

### Additional financing needs

Heliospectra has reported operating losses since the business was started and cash flow is expected to remain negative until steady revenues are generated. Through a rights issue in April 2019, the company raised SEK 52.7 million, but it cannot be entirely ruled out that additional capital injections may be needed in the future. If a future capital need arises, it is not certain that capital can be obtained and there is a risk that the terms will be unfavorable.

### Currency risks

Heliospectra operates in a global market with much of its sales and purchases in currencies other than SEK. The sale and purchase of raw materials takes place primarily in USD and EUR, but also in other currencies. The Group's purchases of services take place partly in SEK, but also in other currencies.

### Credit risk

Heliospectra has adopted policies whereby sales may only take place to customers with satisfactory payment histories and/or who are considered to be adequately solvent. However, the risk that the company will suffer credit losses can never be excluded.

## Corporate Governance

Heliospectra AB is a Swedish public company listed on NASDAQ First North Stockholm since June 18, 2014. The company is a public limited company and is regulated by Swedish law, mainly by the Swedish Companies Act and the Swedish Annual Accounts Act. Additional rules and recommendations regarding corporate governance are found above all in the Stock Exchange's regulations, the Swedish corporate governance code (the Code) as well as in the statements of the Swedish Securities Council. In addition to legislation and the rules and recommendations, it is the articles of association that form the basis for the governance of the company's operations. At present, the Code need not be applied by companies whose shares are listed on First North. While it is not mandatory for Heliospectra, the company is committed to comply with the Code's principles.

## Annual General Meeting

The Annual General Meeting (AGM) must be held no later than six months from the end of the financial year. Shareholders who are registered in the shares ledger and who have notified their participation in time have the right to take part in the meeting. Heliospectra's AGM 2018 took place on June 14 in Gothenburg. The AGM passed resolutions on the approval of financial statements, the election of Board members and auditors, and a resolution on remunerations to Board members and auditors, guidelines for remunerations to the company's senior executives, guidelines for the appointment of a nomination committee.

## Nomination committee

The Nomination Committee is tasked with preparing proposals for the following matters for submission to the AGM for resolution: Proposals for Chairman of the meeting; for Board members and Board Chairman, remunerations for Board members for committee work; proposals to auditors, fees for the company's auditors and proposals for the composition of the nomination committee.

The 2018 AGM passed a resolution on guidelines for the establishment of a nomination committee. The nomination committee must comprise three persons. Each of the company's two biggest shareholders in terms of voting rights as of September 30, 2018, is entitled to appoint one member of the Committee. None of the two people appointed in this regard may be a member of the Board. Additionally, the nomination committee must include one Board member appointed by the Board, who will also be the convener. Should any of the two members of the nomination committee who have been appointed by the two largest shareholders in terms of votes leave their assignment prematurely, the shareholder who appointed the leaving member shall be entitled to appoint a new member. Should any of the two largest shareholders, in terms of votes, sell all, but not part, of their shares in the company before the nomination committee has completed its assignment, then the third largest shareholder in terms of votes must appoint a new member instead.

The nomination committee's mandate runs until a new nomination committee is appointed. No compensation will be paid to nomination committee members, but they have the right to reimbursement for reasonable and necessary expenses incurred for nomination committee work.

## The nomination committee for the 2019 AGM consists of:

- Göran Larsson, appointed by the Weland Group (the Chairman of the Nomination committee).
- David Sundin, appointed by Midroc New Technology AB.
- Andreas Gunnarsson, convener, appointed by Heliospectra AB.

## Auditor

The company's auditor is Mikael Glimstedt, practicing at Frejs Auditors AB in Gothenburg, authorized public accountant and member of FAR.

## The board

### Board composition

According to the articles of association, the Board of Heliospectra AB must comprise no fewer than three and no more than nine members, with a maximum of five alternates. Board members are appointed one year at a time. In 2018, Heliospectra's Board comprised five members and one alternate (two alternates after June 14). Andreas Gunnarsson was Chairman. Of the regular Board members, five are independent of the company and company management and two are independent of the company's major shareholders.

### The work of the Board

The Board oversees the work of the CEO and is responsible for ensuring that the organization, management and guidelines for the company are properly set up. The Board is also responsible for ensuring the company's compliance with laws, regulations and internal policies. Furthermore, the Board is responsible for developing and monitoring the company's strategies and major investments, and for approving the budget and annual accounts.

In 2018, the Board held five ordinary meetings and five extraordinary meetings. The work of the Board follows the rules of procedure adopted at the statutory meeting. Each ordinary Board meeting discusses the minutes from the previous meeting, business developments since the previous meeting and the company's financial position and its financial performance. The Board receives written information on an ongoing basis concerning the business and external issues that are important for the company. In 2018, the Board paid particular attention to strategy, brand and organization.

### Rules of procedure

In accordance with the Swedish Companies Act, the Board has adopted written rules of procedure for its work and written instructions on reporting to the Board. The rules of procedure and reporting instructions are evaluated, updated where necessary and approved annually. Any allocation of responsibilities among Board members must be described in the rules of procedure. The Board holds ordinary meetings that follow a program established by the rules of procedure that includes fixed decision points as well as other items as necessary. When necessary, the Board also holds extraordinary meetings upon request of a Board member or the CEO. The reporting instructions make clear when and how information that is necessary for the Board's ongoing assessment of the company's and the Group's financial situation must be assembled and reported

to the Board. Reporting instructions provide the Board with data for following up plans and budgets etc. According to the current rules of procedure, the Board must, after the statutory Board meeting following the AGM, meet on at least six scheduled occasions during the fiscal year.

### Processes for evaluating board performance

The Chairman is responsible for the evaluation of the work of the Board. The evaluation is performed annually. Among the items examined are the Board's working methods, the number of meetings and their effectiveness, the time for preparation, available specific expertise and opportunities for individual Board members to influence the work of the Board. The findings are taken into account in the nomination process for the subsequent year's AGM.

## CEO and management

Group management in Heliospectra consists of CEO, CFO, CTO, VPSC, VPTS, Global Marketing Director and Director of Product Management and Engineering.

The CEO is responsible for day-to-day operations, preparing and implementing strategies, addressing organizational issues and following financial developments.

Measures that are of an unusual nature or of great importance with regard to the scope and nature of the company's business, fall outside of day-to-day management and must therefore be prepared and presented to the Board for resolution. The work and role of the CEO and the division of responsibilities between the Board and the CEO are described in more detail in a written instruction approved by the Board (known as the CEO Instructions).

Together with the Board Chairman, the CEO draws up a notice to attend and a proposal for the agenda, assembles necessary decision data and participates in Board meetings.

### Remunerations to senior executives

The Board as a whole has chosen to take responsibility for remuneration issues in the company.

### Salary and other benefits

Remunerations to senior executives must comprise a fixed salary and a pension. The fixed salary is usually reviewed once per calendar year. No variable salaries are paid. In addition, senior executives have the right to customary non-monetary benefits such as occupational health services. Other benefits may be offered in individual cases.

### Pension

Senior management should be offered pension terms that include a defined contributions scheme with premiums based on the full basic salary. Pension provisions are individual and must be in relation to basic salary.

### Severance benefits

The period of notice may not exceed one year if the termination takes place on the part of the company, or no

more than six months if the termination takes place on the part of the senior executive. In case of termination on the part of the company, severance pay may also be paid in an amount equal to no more than six months' salary.

The Board has the right to deviate from the guidelines if there are particular reasons for this in individual cases. Salaries and remunerations to the CEO and other senior executives in 2018 are described in Note 6 on page 63.

## Remunerations to the Board

The fee to the Board approved in 2018, amounted to SEK 546,000. The 2018 AGM resolved that the remuneration to the Board Chairman will be paid as four price base amounts equivalent to SEK 182,000 per year, and to the other Board members as two price base amounts equivalent to SEK 91,000 per Board member per year.

### Auditors' fees

Compensation for Heliospectra's auditors is paid at approved hourly rates. In 2018, fees paid to Frey's Revisorer AB were in the amount of SEK 125,000.

## Internal controls

The Board must make sure that the company has good internal control and formalized procedures ensuring that the policies established for financial reporting and internal control are complied with and that the company's financial reporting is set up in accordance with the law, applicable accounting standards and other requirements resulting from the company's status as listed.

The company's internal control structure is based on the allocation of responsibilities between the Board and the CEO. The CEO must, through the good offices of the CFO, ensure that the members of the Board are provided with special financial reports on a monthly basis along with any other information necessary for tracking the company's financial situation.



# The share

Heliospectra's share was listed on NASDAQ First North Stockholm on June 18, 2014. Registered share capital as of December 31, 2018 amounted to SEK 3,511,158, split between 35,111,576 shares at a quota value of SEK 0.10. All shares in Heliospectra carry one vote per share. All outstanding shares are common shares and confer the same right to Heliospectra's assets and profits.

## Share statistics 2018 (Nasdaq First North)

Heliospectra's share closed at SEK 3.04 on the first day of trading in 2018. The last price paid in 2018 was SEK 6.82, corresponding to a market capitalization of SEK 239,5 million. The highest price paid in 2018 was SEK 10.35 and was noted on January 15, and the lowest was SEK 4.32 on January 2. Heliospectra shares were traded for approximately SEK 352.4 million during the year. Average trading in the share was approximately MSEK 1.4 per day and the turnover rate per share was 1.31.

## American Deposit Receipts (ADR)

Heliospectra has established an American Deposit Receipt (ADR) program in the USA with the Bank of New York Mellon as depository. The company's ADR is traded in the USA on the OTC market under the ticker symbol HLSPY. An ADR program allows U.S. investors to trade in the company's shares through a special depository held by the depository. Each ADR corresponds to a share issued in the Swedish market. The Bank of New York Mellon has hired a special asset manager to hold the underlying share in the Swedish market.

Share price development in 2018 (the stock, listed on First North)



Share price development in 2018 (ADR, listed on the OTC market in the US)



## Share capital development

Since the beginning of 2005 until December 31, 2018, parent company share capital developed as shown in the table below.

	Registration date	Share capital	Accumulated Share capital	Number of shares	Number of accumulated shares	Quota value
The company's formation	05-12-27	100,000	100,000	1,000	1,000	100
New share issue	07-01-10	36,000	136,000	360	1,360	100
New share issue	09-03-12	82,500	218,500	825	2,185	100
New share issue	11-03-23	47,100	265,600	471	2,656	100
New share issue	11-09-29	180,500	446,100	1,805	4,461	100
New share issue	12-08-20	105,900	552,000	1,059	5,520	100
New share issue	13-05-13	61,000	613,000	610	6,130	100
New share issue	13-08-06	61,000	674,000	610	6,740	100
New share issue	13-10-08	59,100	733,100	591	7,331	100
New share issue	13-12-09	47,300	780,400	473	7,804	100
New share issue	14-01-30	15,600	796,000	156	7,960	100
New share issue	14-02-28	72,000	868,000	720	8,680	100
New share issue	14-04-07		868,000		8,680,000	0.1
New share issue	14-06-16	511,120	1,379,120	5,111,195	13,791,195	0.1
New share issue	15-08-22	100,000	1,479,120	1,000,000	14,791,195	0.1
New share issue	15-09-10	150,000	1,629,120	1,500,000	16,291,195	0.1
New share issue	15-09-10	8,000	1,637,120	80,000	16,371,195	0.1
New share issue	15-09-30	225,100	1,862,220	2,251,001	18,622,196	0.1
New share issue	16-12-28	1,648,938	3,511,158	16,489,380	35,111,576	0.1

## Ownership structure

Below are the 10 largest shareholders in Heliospectra as of December 31, 2018. The total number of shareholders are around 6,569.

SHAREHOLDERS	NUMBER OF SHARES	EQUITY INTEREST, %
Weland Värdepapper AB	6,952,841	19.8%
Weland Stål AB	5,114,811	14.6%
Midroc New Technology AB	3,547,686	10.1%
Adma Förvaltnings AB	2,000,000	5.7%
Insurance company, Avanza Pension	1,804,655	5.1%
Bank of New York Mellon, corp. W9	1,429,332	4.1%
PIBA AB	386,000	1.1%
Magowny Invest AB	340,689	1.0%
Arnewid, Andreas	302,740	0.9%
Nordnet Pensionsförsäkring AB	302,176	0.9%
Other owners	12,930,646	36.8%
<b>TOTAL:</b>	<b>35,111,576</b>	<b>100.0%</b>

## Share-Based Incentive Programs, Share Warrants and Convertibles

The Extraordinary General Meeting on March 30, 2015, resolved to issue no more than 137,912 warrants. The subscription right to the warrants with the exception of shareholders' preferential rights belongs to Viridian Capital & Research, LLC. Each warrant confers the right to subscribe for one new share at the price of SEK 17.88 during the period February 27, 2015 through February 27, 2020. At full subscription, the dilution effect may amount to around 0.7 percent.

The Annual General Meeting of June 14, 2017 approved a stock warrant program for senior executives and personnel. It comprises 770,000 warrants, where each warrant confers the right to subscribe for one new share during the period September 1, 2019 through October 31, 2019. Based on this, dilution will be around 2 percent.

The Extraordinary General Meeting of March 12, 2019 approved a stock warrant program for senior executives and key employees. It comprises 1,000,000 warrants, where each warrant confers the right to subscribe for one new share during the period March 1, 2021 through April 30, 2021. Based on this, dilution will be around 2%. In April, a transfer of 905,000 stock warrants was executed to a total of 25 senior executives and key personnel within the group.

### Dividend Policy

Heliospectra's Board does not intend to propose any dividend in the next few years. The intention is for any future profits to be reinvested in the business.

### Financing

In April 2019, Heliospectra conducted a new share issue of SEK 52.7 million with preferential rights for existing shareholders. The terms of the issue stated that 3 existing shares entitled to subscription of 1 new share at the price of SEK 4.50. The rights issue was 100 percent covered through subscription and guarantee commitments by the company's largest shareholders, the Weland Group and Midroc New Technology.

Approximately 30 percent of the proceeds are intended to be used to further strengthen the company's financial position while the remaining capital is intended to be placed against the following prioritized objectives:

40% for strategic repositioning of the business model to increase the share of recurring revenues which will expand the company's addressable market and stabilize future cash flows,

20% to showcase the new business model through reference cases with strategic customers, primarily in the food sector; and 10% for continued product development in vertical farming.

The preferential rights issue increased Heliospectra's share capital by SEK 1,170,386 through the issuing of 11,703,858 shares. The subscription rate was 76 % whereby the guarantors subscribed for the remaining 24 %. After the preferential rights issue, the Weland Group and Midroc New Technology increased their ownership positions to 39 % and 11.5 % respectively.

### Distribution of shareholdings

Holdings	Number of shareholders
1 – 500	3,708
501 – 1000	1,043
1001 – 5000	1,393
5001 – 10000	222
10001 – 15000	66
15001 – 20000	51
20001 –	86

**Change in equity**

		Share capital	Other capital contributed	Other s.c. Incl. profit for the year
<b>GROUP</b>				
Opening balance	2018-01-01	3,511	239,575	-194,783
Effect of error correction				207
Adjusted opening balance	2018-01-01	3,511	239,575	-194,576
Profit/loss for the year				-33,303
<b>Total equity</b>	<b>2018-12-31</b>	<b>3,511</b>	<b>239,575</b>	<b>-227,879</b>

		Share capital	Fund for development expenditure	Profit brought forward
<b>PARENT COMPANY</b>				
Opening balance	2018-01-01	3,511	0	44,798
Fund for development expenditure				
Retroactive application			3,402	-3,402
Changes for the year			1,830	-1,830
Profit/loss for the year				-33,493
<b>Total equity</b>	<b>2018-12-31</b>	<b>3,511</b>	<b>5,232</b>	<b>6,073</b>

**Proposed appropriation of retained earnings**

The Board and CEO propose that non-restricted equity

Profit brought forward	39 565 470
Loss for the year	-33,493,328
<b>Total</b>	<b>6,072,142</b>
To be appropriated as follows	
Carried forward	6,072,142
<b>Total</b>	<b>6,072,142</b>

With regard to the company's financial position and performance in other respects, refer to the following income statement and balance sheet, as well as the accompanying notes.

**CONSOLIDATED INCOME STATEMENT (KSEK)**

Amount (KSEK)	Note	2018	2017
<b>Operating income</b>	2		
Net sales		45,370	36,039
Other operating income		615	729
<b>Total operating income</b>		<b>45,985</b>	<b>36,768</b>
<b>Operating expenses</b>	2		
Goods for resale		-30,057	-22,347
Other external expenses	3-4	-22,480	-22,993
Personnel expenses	5-6	-23,854	-19,476
Depreciation of tangible and amortization of intangible assets	7	-2,725	-4,319
Other operating expenses		-120	-722
<b>Operating profit/loss</b>		<b>-33,251</b>	<b>-33,089</b>
<b>Profit/loss from financial items</b>			
Interest expenses and similar profit/loss items	8	-52	-82
<b>Profit/loss before tax</b>		<b>-33,303</b>	<b>-33,171</b>
Tax		0	0
<b>Profit/loss for the year</b>		<b>-33,303</b>	<b>-33,171</b>
Of which attributable to			
Parent company's shareholders		-33,303	-33,171
Minority shareholding		0	0

## Consolidated balance sheet (KSEK)

Amount (KSEK)	Note	2018-12-31	2017-12-31
<b>ASSETS</b>	1		
<b>Non-current assets</b>			
Intangible assets			
Capitalized expenditure for development similar items	9	15,316	14,934
<b>Total intangible assets</b>		<b>15,316</b>	<b>14,934</b>
Tangible assets			
Property, plant and equipment	10	1,309	1,148
<b>Total tangible assets</b>		<b>1,309</b>	<b>1,148</b>
<b>Total assets</b>		<b>16,625</b>	<b>16,082</b>
<b>Current assets</b>			
Inventories			
Finished goods and goods for resale		5,499	7,589
<b>Total inventories</b>		<b>5,499</b>	<b>7,589</b>
Current receivables			
Accounts receivable		3,644	6,017
Current tax assets		78	78
Other receivables		1,720	1,940
Prepaid expenses and accrued income	12	1,427	1,986
<b>Total current receivables</b>		<b>6,869</b>	<b>10,021</b>
Cash and cash equivalents		11,165	40,633
<b>Total current assets</b>		<b>23,533</b>	<b>58,243</b>
<b>TOTAL ASSETS</b>		<b>40,158</b>	<b>74,325</b>

## Consolidated balance sheet (KSEK)

Amount (KSEK)	Note	2018-12-31	2017-12-31
<b>EQUITY AND LIABILITIES</b>			
<b>Equity</b>			
Share capital	13	3,511	3,511
Other capital contributions		239,575	239,575
Other equity		-194,576	-161,612
Profit/loss for the year		-33,303	-33,171
Equity attributable to parent company shareholders		15,207	48,303
Minority shareholding		0	0
<b>Total equity</b>		<b>15,207</b>	<b>48,303</b>
<b>Provisions</b>			
Other provisions		550	0
<b>Total provisions</b>		<b>550</b>	<b>0</b>
<b>Non-current liabilities</b>	15.17		
Other liabilities		9,800	10,400
<b>Total non-current liabilities</b>		<b>9,800</b>	<b>10,400</b>
<b>Current liabilities</b>			
Advance payments from customers		3,342	4,292
Accounts payable		6,035	7,895
Other liabilities	17	1,837	1,020
Accrued expenses and deferred income	16	3,387	2,415
<b>Total current liabilities</b>		<b>14,601</b>	<b>15,622</b>
<b>TOTAL EQUITY AND LIABILITIES</b>		<b>40,158</b>	<b>74,325</b>

## Parent company income statement (KSEK)

Amount (KSEK)	Note	2018	2017
Operating income	2		
Net sales		45,370	36,662
Other operating income		615	520
<b>Total operating income</b>		<b>45,985</b>	<b>37,182</b>
Operating expenses	2		
Goods for resale		-30,057	-22,347
Other external expenses	3-4	-28,875	-29,762
Personnel expenses	5-6	-17,649	-13,161
Depreciations, amortizations and impairments of intangible assets	7	-2,725	-4,319
Other operating expenses		-120	-722
<b>Operating profit/loss</b>		<b>-33,441</b>	<b>-33,129</b>
<b>Profit/loss from financial items</b>			
Interest expenses and similar profit/loss items	8	-52	-305
<b>Profit/loss before tax</b>		<b>-33,493</b>	<b>-33,434</b>
Tax		0	0
<b>Profit/loss for the year</b>		<b>-33,493</b>	<b>-33,434</b>

## Parent company balance sheet (KSEK)

Amount (KSEK)	Note	2018-12-31	2017-12-31
<b>ASSETS</b>	1		
<b>Non-current assets</b>			
Intangible assets			
Capitalized expenditure for development and similar items	9	15,316	14,934
<b>Total intangible assets</b>		<b>15,316</b>	<b>14,934</b>
Tangible assets			
Property, plant and equipment	10	1,309	1,148
<b>Total tangible assets</b>		<b>1,309</b>	<b>1,148</b>
Financial assets			
Participations in subsidiaries	11	82	82
<b>Total financial assets</b>		<b>82</b>	<b>82</b>
<b>Total assets</b>		<b>16,707</b>	<b>16,164</b>

Amount (KSEK)	Note	2018-12-31	2017-12-31
<b>Current assets</b>			
Inventories			
Finished goods and goods for resale		5,499	7,589
Total inventories		5,499	7,589
Current receivables			
Accounts receivable		3,644	6,016
Receivables from subsidiaries		2,180	1,821
Other receivables		1,772	2,019
Prepaid expenses and accrued income	12	1,427	1,986
Total current receivables		9,023	11,842
Cash and cash equivalents		10,186	38,735
<b>Total current assets</b>		<b>24,708</b>	<b>58,166</b>
<b>TOTAL ASSETS</b>		<b>41,415</b>	<b>74,330</b>

## Parent company balance sheet (KSEK)

Amount (KSEK)	Note	2018-12-31	2017-12-31
<b>EQUITY AND LIABILITIES</b>			
<b>Equity</b>			
<b>Restricted equity</b>			
Share capital	13	3,511	3,511
Fund for development expenditure		5,232	0
<b>Total restricted equity</b>		<b>8,743</b>	<b>3,511</b>
<b>Non-restricted equity</b>			
Profit brought forward		39,566	78,232
Profit/loss for the year		-33,493	-33,434
<b>Total non-restricted equity</b>		<b>6,073</b>	<b>44,798</b>
<b>Total equity</b>		<b>14,816</b>	<b>48,309</b>
<b>Provisions</b>			
Other provisions		550	0
<b>Total provisions</b>		<b>550</b>	<b>0</b>
<b>Non-current liabilities</b>			
Other liabilities	15, 17	9,800	10,400
<b>Total non-current liabilities</b>		<b>9,800</b>	<b>10,400</b>
<b>Current liabilities</b>			
Advance payments from customers		3,342	4,292
Accounts payable		7,683	7,894
Other liabilities	17	1,837	1,020
Accrued expenses and deferred income	16	3,387	2,415
<b>Total current liabilities</b>		<b>16,249</b>	<b>15,621</b>
<b>TOTAL EQUITY AND LIABILITIES</b>		<b>41,415</b>	<b>74,330</b>

## Cash flow statement (KSEK)

Amount (KSEK)	Group		Parent company	
	2018	2017	2018	2017
<b>OPERATING ACTIVITIES</b>				
Profit/loss after financial items	-33,303	-33,171	-33,493	-33,434
Adjustments for items not included in the cash flow				
Impairment, depreciation and amortization, assets	2,725	4,319	2,725	4,319
Other items not included in the cash flow	219		12	
<b>Cash flow from operating activities before changes in working capital</b>	<b>-30,359</b>	<b>-28,852</b>	<b>-30,756</b>	<b>-29,115</b>
Cash flow from changes in working capital				
Change in inventories	2,090	589	2,090	589
Change in operating receivables	3,152	-4,021	2,819	-4,312
Change in operating liabilities	-471	2,773	1,178	2,772
<b>Cash flow from operating activities</b>	<b>-25,588</b>	<b>-29,511</b>	<b>-24,669</b>	<b>-30,066</b>
<b>INVESTMENT ACTIVITIES</b>				
Activation of capitalized expenditures	-2,639	-2,173	-2,639	-2,173
Acquisition of property, plant and equipment	-641	-123	-641	-123
<b>Cash flow from investing activities</b>	<b>-3,280</b>	<b>-2,296</b>	<b>-3,280</b>	<b>-2,296</b>
<b>FINANCING ACTIVITIES</b>				
Change in non-current liabilities	-600	-500	-600	-500
<b>Cash flow from financing activities</b>	<b>-600</b>	<b>-500</b>	<b>-600</b>	<b>-500</b>
<b>Cash flow for the year (Cash and cash equivalents)</b>	<b>-29,468</b>	<b>-32,307</b>	<b>-28,549</b>	<b>-32,862</b>
Cash and cash equivalents at the beginning of the year	40,633	72,940	38,735	71,597
<b>Cash and cash equivalents at the end of the year</b>	<b>11,165</b>	<b>40,633</b>	<b>10,186</b>	<b>38,735</b>

## Notes

## NOTE 1 | Accounting policies

This annual report has been prepared in accordance with the Swedish Annual Accounts Act and also in accordance with the Swedish Accounting Standards Board's general guidelines BFAR 2012:1 Annual Accounts and Consolidated Accounts (K3). The accounting policies are unchanged from those of the preceding year.

All amounts are presented in thousands of SEK (KSEK) unless specified. Assets, provisions and liabilities have been valued at cost unless otherwise stated.

## Consolidated accounts

## Subsidiaries

Subsidiaries are companies in which the parent company, either directly or indirectly, has more than 50 percent of the votes, or in some other way has a controlling influence. Control exists when the parent company has a right to affect the financial and operating policies of a company in order to gain benefits from its activities. Accounting for business combinations based on the unit principle. This means the acquisition analysis is prepared at the time the acquirer gains a controlling influence. As of this point in time, the acquirer and the acquired unit are regarded as an accounting unit. Applying the unit principle means that all assets (including goodwill), liabilities, income and expenses are included in their entirety even in the case of partly-owned subsidiaries.

The cost of the subsidiary is estimated to be the sum of the fair value at the acquisition date for paid assets with the addition of incurred and assumed debt and equity instruments, expenditures that are directly attributable to the acquisition, and any additional purchase sum. Fair value is determined in the acquisition analysis, with some exceptions, at the time when the identifiable assets, liabilities and minority interest are acquired. Minority interest is measured at fair value at the acquisition date. The acquired company's earnings and expenditure, identifiable assets and liabilities, and any goodwill or negative goodwill, are included in the consolidated financial statements as of the date of acquisition.

## Elimination of transactions between Group companies and associated companies

Intra-group receivables and liabilities, income or expenses, and unrealized gains or losses arising from transactions between Group companies, are eliminated in their entirety.

## Intangible assets and property plant and equipment

Intangible assets and tangible assets are reported at cost less accumulated amortization, depreciation and impairment charges. Cost also includes expenses directly attributable to the acquisition in addition to the actual purchase price.

	Useful Life
Capitalized expenditure for development and similar items	5 YEARS
Property, plant and equipment	5 YEARS

## Capitalized expenditure for development and similar items

Development expenses calculated as an average cost in the operation are capitalized and booked by project (new product/projects). Once sales of an object begin, its capitalized expenditures are depreciated. Depreciation continues during the object's sales life, however no more than 5 years. In the event of the withdrawal/termination of an object, an impairment charge is made for the entire remaining balance for the object and its cost is reversed to the income statement.

## Subsequent expenditure

Subsequent expenditure that fulfils the asset criterion is included in the asset's carrying amount. Expenses for ongoing maintenance and repairs are recognized as costs when incurred.

## Depreciation

Straight-line depreciation is made over asset's estimated useful life since it reflects the expected depletion of the asset's future financial distributes. Depreciation is recognized as a cost in the income statement. Consideration has been given to the estimated residual value, determined at the time of acquisition at the then prevailing price level.

### Impairments – property, plant and equipment; intangible assets and participations in Group companies

At each closing date, appraisals are made as to whether there is any indication that an asset's value is lower than its carrying amount. If such an indication exists, the recoverable amount of the asset is calculated.

The recoverable amount is the higher of fair value less selling expenses or value-in-use. When calculating value-in-use, the present value is calculated based on the future cash flows that the asset is expected to generate in operating activities as well as when it is sold off or scrapped. The discount rates used are pre-tax and reflect current market assessments of the time value of money and the risks relating to the asset. A previous impairment loss is reversed only if the reasons that formed the basis for the calculation of the recoverable value at the latest impairment have changed.

### Foreign currency

Monetary items denominated in foreign currencies are translated at the closing rate. Non-monetary items are not restated but presented at the price at the time of acquisition. Foreign currency differences that arise when settling or translating monetary items are reported in the income statement for the financial year during which they arise.

### Inventories

Inventories are entered at cost or net realizable value, whichever is the lower. Obsolescence is thus taken into account. Cost is calculated according to the first-in, first-out principle. In addition to expenditures for the purchase, cost also includes expenses for bringing the goods to their present location and condition.

### Financial assets and liabilities

Financial assets and liabilities are reported in accordance with Chapter 11 (Financial instruments valued at cost) of BFNAR 2012:1.

#### Recognition and derecognition on the balance sheet

A financial asset or financial liability is recognized in the balance sheet when the company becomes a party to the contractual provisions of the instrument. A financial asset is derecognized in the balance sheet when the contractual right to the cash flow from the asset has ceased or been settled. The same applies when the bulk of the risks and benefits associated with the holding

are transferred to another party and the company no longer exerts control over the financial asset. A financial liability is derecognized in the balance sheet when the agreed obligation has been fulfilled or ceased.

#### Valuation of financial assets

Financial assets are measured at cost at initial recognition, including any transaction expenses that are directly attributable to the acquisition of the asset. Accounts receivable and other receivables that constitute current assets are valued individually at the amount expected to be received. Financial assets are valued after initial recognition at cost less any impairment losses and plus any appreciation.

#### Valuation of financial liabilities

Non-current financial liabilities are measured at accrued cost. Expenditures directly attributable to the raising of loans have been used to adjust loan costs. Current liabilities are recognized at cost.

### Remunerations to employees

#### Employee benefits Post-employment

##### Classification

Post-employment benefits are classified as defined contribution plans.

In defined contribution plans fixed fees are paid to another company, usually an insurance company, and [Heliospectra] no longer has any obligation to the employee once the fee is paid. The size of the employee's post-employment benefits is dependent on the fees paid to the plan and the return on capital generated by the contributions.

### Defined contribution plans

The charges for defined contribution plans are expensed. Unpaid fees are reported as liabilities.

### Provisions

A provision is recognized in the balance sheet when the company has a legal or informal obligation resulting from a previous event and it is likely that an outflow of resources is required to settle the obligation and a reliable estimate of the amount can be made.

At initial recognition, provisions are measured at the best estimate of the amount required to settle the obligation on closing day. Provisions are reviewed on each closing date.

A provision is measured at the present value of the future payments necessary to settle the commitment.

### Income

The inflow of economic benefits that the company has received or will receive for its own account is recognized as revenue. Income is recognized at the fair value of the consideration received or which will be received, less any discounts.

### Sale of goods

When goods are sold, revenue is recognized when the following criteria are met:

- it is probable that the economic benefits associated with the transaction will flow to the company,
- the revenue can be calculated in a reliable way,
- the company has transferred the significant risks and benefits associated with ownership of the goods to the purchaser,
- the company no longer has a level of involvement in day-to-day management usually associated with ownership and nor does it exercise any real control over the goods sold, and
- the expenditures incurred or which can be anticipated to occur as a result of the transaction can be measured reliably.

## Note 2 | Group disclosures

### Intra-group sales and purchases

Of the parent company's total purchases and sales measured in SEK, 11.4 percent (16.1) of purchases and 0 percent (0) of sales were with other companies in the entire group of companies to which the company belongs.

## Note 3 | Auditor's fees and compensation

	Group		Parent company	
	2018	2017	2018	2017
Audit assignment	116	127	116	127
Tax advice	0	10	0	10
Other services	9	3	9	3
<b>Total</b>	<b>125</b>	<b>140</b>	<b>125</b>	<b>140</b>



**Note 4 | Operational leasing**

	2018-12-31	2017-12-31	2018-12-31	2017-12-31
Leasing contracts where the company is the lessee Future minimum lease charges in respect of non-cancelable operating leases				
Within 1 year	1,779	755	1,779	755
Between one and five years	6,759	0	6,759	0
Later than five years	0	0	0	0
<b>Total</b>	<b>8,538</b>	<b>755</b>	<b>8,538</b>	<b>755</b>
The financial year's expensed leasing fees including rent	1,133	911	1,133	911

The company's most significant leasing agreements consist of rental agreements for premises.

**Note 5 | Employees and company management**

	Group		Parent company	
	2018	2017	2018	2017
<b>Average number of employees</b>				
<b>Total</b>	<b>30</b>	<b>23</b>	<b>24</b>	<b>18</b>
<b>The gender balance in senior management</b>				
Board members			5	5
<b>Of whom men</b>			<b>5</b>	<b>5</b>
CEO and company management	7	5	7	4
<b>Of whom men</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>

**Note 6 | Salaries, other remunerations and social costs, including pension costs**

	Group		Parent company	
	2018	2017	2018	2017
<b>Pay and other remunerations</b>				
Members of the Board and CEO	1,570	1,254	1,570	1,254
Other employees	15,605	13,260	10,324	7,918
<b>Total salaries and benefits</b>	<b>17,175</b>	<b>14,514</b>	<b>11,894</b>	<b>9,172</b>
Pension costs in respect of members of the Board and CEO	430	306	430	306
Pension costs relating to other	699	282	639	258
Other social security charges	4,649	3,169	3,789	2,741
<b>Total social security charges</b>	<b>5,778</b>	<b>3,757</b>	<b>4,858</b>	<b>3,305</b>
Obligations for pensions and similar benefits to Board members and the CEO	0	0	0	0

**Note 7 | Amortization of intangible assets and depreciation of tangible assets**

	Group		Parent company	
	2018	2017	2018	2017
Capitalized expenses for development and similar items	2,256	3,758	2,256	3,758
Property, plant and equipment	469	561	469	561
<b>Total</b>	<b>2,725</b>	<b>4,319</b>	<b>2,725</b>	<b>4,319</b>

**Note 8 | Interest expenses and similar profit/loss items**

	Group		Parent company	
	2018	2017	2018	2017
Interest expenses, others	52	82	52	305
<b>Total</b>	<b>52</b>	<b>82</b>	<b>52</b>	<b>305</b>

**Note 9 | Capitalized expenditure for development and similar works**

	Group		Parent company	
	2018-12-31	2017-12-31	2018-12-31	2017-12-31
Opening cost	30,023	27,850	30,023	27,850
Acquisitions	2,639	2,173	2,639	2,173
<b>Closing accumulated cost</b>	<b>32,662</b>	<b>30,023</b>	<b>32,662</b>	<b>30,023</b>
Opening depreciation	-15,089	-11,331	-15,089	-11,331
Depreciation for the year	-2,257	-3,758	-2,257	-3,758
<b>Closing accumulated depreciation</b>	<b>-17,346</b>	<b>-15,089</b>	<b>-17,346</b>	<b>-15,089</b>
<b>Closing carrying amount</b>	<b>15,316</b>	<b>14,934</b>	<b>15,316</b>	<b>14,934</b>

**Note 10 | Property, plant and equipment**

	Group		Parent company	
	2018-12-31	2017-12-31	2018-12-31	2017-12-31
Opening cost	5,782	6,615	5,858	6,615
Acquisitions	640	123	640	123
Disposals and retirements	-3,173	-956	-3,173	-880
<b>Closing accumulated cost</b>	<b>3,249</b>	<b>5,782</b>	<b>3,325</b>	<b>5,858</b>
Opening depreciation	-4,634	-5,029	-4,710	-5,029
Disposals and retirements	3,162	956	3,162	861
Depreciation for the year	-468	-561	-468	-542
<b>Closing accumulated depreciation</b>	<b>-1,940</b>	<b>-4,634</b>	<b>-2,016</b>	<b>-4,710</b>
<b>Closing carrying amount</b>	<b>1,309</b>	<b>1,148</b>	<b>1,309</b>	<b>1,148</b>

**Not 11 | Shares and participations in group companies**

	Parent company	
	2018-12-31	2017-12-31
Opening cost	82	82
Closing accumulated cost	82	82
<b>Closing carrying amount</b>	<b>82</b>	<b>82</b>

The corporate ID numbers and registered offices of subsidiaries are set out below.

**Company, corporate id number, head office**

	Number of shares	Participation (%)	Carrying amount
Heliospectra Personal AB, 556904-7243, Gothenburg	1,000	100	50
Heliospectra Inc, 5290422, USA	5,000,000	100	32

Refers to the equity interest of capital, which also corresponds to the percentage of votes of the total number of shares.

**Note 12 | Prepaid expenses and accrued income**

	Group		Parent company	
	2018-12-31	2017-12-31	2018-12-31	2017-12-31
Prepaid rents/leasing	380	213	380	213
Other items	1,047	1,773	1,047	1,773
<b>Total</b>	<b>1,427</b>	<b>1,986</b>	<b>1,427</b>	<b>1,986</b>

**Note 13 | Share capital**
**Parent company**

	2018-12-31	2017-12-31
Number of shares	35,111,576	35,111,576
Quota value	SEK 0.10	SEK 0.10

### Note 14 | Proposed appropriation of profits

The Board and CEO propose that non-restricted equity, SEK 6,072,142, is to be appropriated as follows:

Parent company

	2018-12-31
To be appropriated as follows	6,073
<b>Total</b>	<b>6,073</b>

### Note 15 | Non-current liabilities

Group Parent company

	Group		Parent company	
	2018-12-31	2017-12-31	2018-12-31	2017-12-31
With maturities longer than five years from closing date	9,000	8,600	9,000	8,600
<b>Total</b>	<b>9,000</b>	<b>8,600</b>	<b>9,000</b>	<b>8,600</b>

### Note 16 | Accrued expenses and deferred income

Group Parent company

	Group		Parent company	
	2018-12-31	2017-12-31	2018-12-31	2017-12-31
Salaries and vacation pay	1,683	1,025	1,683	1,025
Accrued social security charges	860	459	860	459
Other items	844	931	844	931
<b>Total</b>	<b>3,387</b>	<b>2,415</b>	<b>3,387</b>	<b>2,415</b>

### Note 17 | Pledged assets

Group Parent company

	Group		Parent company	
	2018-12-31	2017-12-31	2018-12-31	2017-12-31
Other pledged assets	6,050	6,050	6,050	6,050
<b>Total pledged assets</b>	<b>6,050</b>	<b>6,050</b>	<b>6,050</b>	<b>6,050</b>

Gothenburg, May, 2019

Andreas Gunnarsson  
Chairman of the Board

Ali Ahmadian  
Chief Executive Officer

Martin Skoglund  
Member of the Board and  
Co-founder

Staffan Hillberg  
Member of the Board and  
Co-founder

Anders Ludvigsson  
Member of the Board

Staffan Gunnarsson  
Member of the Board

Our audit report was issued in May, 2019

Frejs Revisorer AB

Mikael Glimstedt  
Certified Public Accountant

# Audit report

## To the annual general meeting of Heliospectra AB (publ)

Corporate ID number 556695-2205

## Report on the annual accounts and consolidated financial statements

### Opinion

We have audited the annual accounts and consolidated financial statements of Heliospectra AB (publ) for the financial year 2018.

The company's annual accounts and consolidated financial statements are included in the printed version of this document on pages 42-69.

In our opinion the annual accounts and consolidated financial statements have been prepared in accordance with the Swedish Annual Accounts Act and in all material respects fairly present the parent company's and Group's financial position as of 2018-12-31 and their financial performance and cash flows for the year in accordance with the Swedish Annual Accounts Act. The administration report is consistent with the other sections of the annual accounts and the consolidated accounts.

We therefore recommend that the AGM adopt the income statement and balance sheet for the parent company and the Group.

### Basis for our opinion

We have conducted the audit in accordance with International Standards on Auditing (ISA) and auditing standards generally accepted in Sweden. Our responsibility according to these standards is described in more detail in the section entitled Auditor's responsibility. We are independent of the parent company and the Group in accordance with professional ethics in Sweden and we have otherwise fulfilled our professional ethical responsibilities under these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate as a basis for our opinions.

### Information other than financial statements and consolidated financial statements

The annual accounts are drawn up in two versions; a formal version that only contains the statutory sections and a printed version, which in addition to the statutory sections also contains other information on pages 1-41. The formal version is sent to the Swedish Companies Registration Office and registered. The printed version is communicated to the market through printed documents and via the website. The Board and the CEO are responsible for the other information. Our opinion in respect of the annual accounts and consolidated financial statements does not cover this information, and we make no substantiating statement concerning this other information.

In the context of our audit of the annual accounts and consolidated financial statements, it is our responsibility to read the information identified above and consider whether the information is materially inconsistent with the annual accounts and consolidated financial statements. In this review, we also take into account the knowledge we otherwise obtained during the audit as well as assesses whether the information otherwise seems to contain material misstatements. If, based on the work that has been done with regard to this information, we conclude that the second information contains a material misstatement, we are obliged to report it. We have nothing to report in this regard.

### Responsibilities of the Board and the Chief Executive Officer

The Board and CEO are responsible for ensuring the annual accounts and the consolidated financial statements are prepared and that they give a true and fair view in accordance with the Swedish Annual Accounts Act.

The Board and the CEO are also responsible for the internal control they deem necessary for the preparation of annual accounts and consolidated financial statements that do not contain material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board and the CEO are responsible for assessing the ability of the company and the Group to continue operations.

They inform, as appropriate, on the conditions that may affect the ability to continue operations and to make a going concern assumption. However, the going concern assumption does not apply if the Board and CEO intend to liquidate the company, cease operations or have no realistic alternative but to do so.

### Auditor's responsibility

Our goal is to achieve a reasonable degree of certainty as to whether the annual accounts and consolidated financial statements as a whole do not contain any material misstatement, whether due to fraud or error, and to submit an audit report that contains our opinions. Reasonable assurance is a high degree of certainty, but there is no guarantee that an audit performed in accordance with ISA and other generally accepted auditing standards in Sweden will always detect a material misstatement, should such be present. Misstatements may occur due to fraud or error, and are considered to be material if they severally or jointly can be reasonably expected to affect the economic decisions that users make on the basis of the annual accounts and the consolidated financial statements. As part of an audit under ISA, we use professional judgment and maintain a professionally skeptical attitude throughout the audit. We also:

- identify and assess the risks of material misstatement in the annual accounts and consolidated financial statements, whether due to fraud or error; draw up and carry out audit procedures, inter alia on the basis of these risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinion. The risk of failing to detect a material misstatement due to fraud is greater than for a material misstatement due to error, because the fraud may include conduct in collusion, falsification, deliberate omissions, incorrect information or waived internal controls.
- gain an understanding of the part of the company's internal controls that is relevant to our audit in order to draw up audit measures that are appropriate with regard to the circumstances, but not in order to express an opinion on the effectiveness of the internal controls.
- evaluate the suitability of the accounting policies used and the reasonableness of the Board and CEO's assumptions in the annual accounts and their related disclosures.
- draw a conclusion concerning the suitability of the Board and CEO's use of the going concern assumption when preparing the annual accounts and the consolidated financial statements. We also draw a conclusion based on the audit evidence obtained, as to whether there is any material uncertainty factor relating to events or conditions that may cast significant doubt on the company's and the Group's ability to continue operations. If we conclude that there is a significant uncertainty factor, we must use the audit report to draw attention to the information in the annual accounts and consolidated financial statements about the significant uncertainty factor or, if such information is insufficient, modify our opinion on the annual accounts and the consolidated financial statements. Our conclusions are based on the audit evidence obtained up to the date

of the audit report. However, future events or circumstances may mean that a company and a group can no longer continue operations.

- evaluate the overall presentation, structure and content of annual accounts and consolidated financial statements, including the information, and whether the annual accounts and consolidated financial statements reflect the underlying transactions and events in a way that gives a true and fair view.
- obtain sufficient and appropriate audit evidence with respect to the financial information for the units or business activities within the group in order to provide an opinion with regard to the consolidated financial statements. We are responsible for the control, supervision and execution of the Group audit. We are solely responsible for our opinion.

We have to inform the Board about, inter alia, the date, planned scope and direction of the audit. We must also inform about significant observations made during the audit, including any significant weaknesses in internal control that we may identify.

## Report on other legal and regulatory requirements

### Opinion

In addition to our audit of the annual accounts and the consolidated financial statements, we have also audited the Board and CEO's management of Heliospectra AB (publ) for the year 2018 and also the proposed appropriation of the profit or loss. We recommend to the AGM that the profit be allocated in accordance with the proposal in the administration report and that the members of the Board and the Chief Executive Officer be discharged from liability for the financial year.

### Basis for our opinion

We have conducted the audit in accordance with auditing standards generally accepted in Sweden. Our responsibility in this regard is described in detail in the section entitled Auditor's responsibility. We are independent of the parent company and the Group in accordance with professional ethics in Sweden and we have otherwise fulfilled our professional ethical responsibilities under these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate as a basis for our opinions.

### Responsibilities of the Board and the Chief Executive Officer

The Board is responsible for the proposal for the appropriation of the company's profit or loss. Among the things considered in the proposal are an assessment of whether the dividends are justified with regard to the requirements that the company's and Group's business nature, scope and risks place on the size of the parent company's and the Group's equity, the need for consolidation, liquidity and general position.

The Board is responsible for the company's organization and the administration of its affairs. This includes ongoing assessment of the company's and the Group's financial situation and ensuring that the company's organization is structured such that bookkeeping, asset management and the company's financial affairs are otherwise monitored in a reliable way. The CEO takes care of day-to-day administration under the Board's guidelines and instructions and must, among other things, take measures necessary for ensuring that the company's accounting is completed in compliance with legislation and that assets are managed in a satisfactory manner.

### Auditor's responsibility

Our goal with regard to the management audit, and therefore our opinion concerning discharge from liability, is to obtain audit evidence that with a reasonable degree of certainty enables us to determine whether any member of the Board or the CEO in any material respect:

- has carried out any act or been guilty of any omission that could give rise to liability for damages against the company, or
- has in some other way acted in contravention of the Swedish Companies Act, the Swedish Annual Accounts Act or the articles of association.

Our goal in regard to the proposal for the allocation of the company's profit or loss, and thus our opinion on this, is to assess with a reasonable degree of certainty whether the proposal is in compliance with the Swedish Companies Act.

Reasonable assurance is a high degree of certainty, but no guarantee that an audit performed in accordance with generally accepted auditing standards in Sweden will always detect the actions or omissions that may give rise to liability for damages against the company, or to a proposal for allocation of the company's profit or loss that is not in accordance with the Swedish Companies Act.

As part of an audit under ISA and good auditing practice, we use professional judgment and maintain a professionally skeptical attitude throughout the audit. The management review and the proposed appropriations of the company's profit or loss are based mainly on the audit of the accounts. Any additional procedures are performed according to our professional judgement based on risk and materiality. This means we focus our examination on such measures, areas and conditions as are essential for the operation and where deviations and non-compliance would have special significance for the company's situation. We review and examine decisions, decision support data, actions taken and other conditions that are relevant for our opinion concerning discharge from liability. As the basis for our opinion on the Board of Directors' proposed appropriations of the company's profit or loss, we assessed whether the proposal is in accordance with the Swedish Companies Act.

Gothenburg, May, 2019

Frejs Revisorer AB

Mikael Glimstedt  
Certified Public Accountant

