

LAVIGO The Principle of Simplicity.













"SUSTAINABLE DESIGN IS THE SYMBIOSIS  
OF IDENTITY, FUNCTIONALITY, AND SIMPLICITY."

Jürgen Schubert, STRUCTURELAB Architekten

Waldmann 





## **A CONVERSATION WITH ARCHITECT JÜRGEN SCHUBERT ON THE DEVELOPMENT OF LAVIGO.**

### **How would you describe your work as an architect? What are your goals?**

Our office is guided by a passionate, visionary, and holistic approach to architecture and design. Our projects range from office, industrial, and residential buildings to brand-specific, temporary architecture through to smaller-scale products. The goal is always to deliver a customized, sustainable, and distinctive solution. The development of the LAVIGO luminaire system is representative of this holistic approach and the resulting positive synergies.

### **What connects your designs? Is there a universal style?**

The binding element in our work is on one hand the development of meaningful spatial and functional structures and on the other hand a distinctive and identifying external form using innovative technologies and materials.

### **What fascinates you about the topic of light?**

Light breathes life into rooms, its interaction with the architecture is what defines the character of the building and the interior space. Developing lighting solutions for work stations is therefore in our view both a fascinating and responsible task as good lighting has a major impact on the well-being and performance of employees. A professional working environment

and pleasant atmosphere that focus on the person and his or her individual needs are absolutely critical in this respect.

### **What makes for good office lighting design?**

#### **How is an architect's approach characterized in this respect?**

LAVIGO is a systematically developed luminaire system "by architects for architects". In terms of its development, the luminaire was designed from a holistic perspective, rather than in isolation. All parameters relating to modern office concepts, decors, and furniture systems were also actively considered in this respect together with Waldmann's expertise in lighting technology. The interplay between well-engineered design and inno-

vative technology and the consideration of current and future requirements of office work stations is what characterizes a good and above all sustainable office lighting design in our opinion.

### **What characterizes LAVIGO? What is the story behind the design?**

Our goal was to design a luminaire that would be modular in terms of use and have a timeless, minimalistic form that would fit into any architectural context and create a unity of design with the respective work station and ideally also the overall project. From a design perspective this means that all critical elements are based on and characterized by the simple form of the rectangle with slightly rounded edges. This gives the luminaire head and post a particularly uniform appearance.





Jürgen Schubert is with Jürgen Gendriesch and Alexander Prang, Founders and Managing Partners of STRUCTURELAB Architekten, Düsseldorf

Despite the focus on simplicity, it was particularly important to us that the luminaire would have a creatively compact, light-weight, and elegant luminaire head. The luminaire head is captivating with its extremely flat installation height and evokes an image of a floating tube thanks to its linear profile cross-section. The central horizontal seam further characterizes the luminaire head and reflects the light distribution and dual option of direct and indirect light. Visible operating elements such as push buttons and light sensors are flush-mounted and allow a high degree of user comfort thanks to intuitive operation.

Another typical feature of LAVIGO is that the luminaire head is fastened securely to the post on one of the front faces, projecting to give a floating appearance in the room. Apart from the positive functional and creative aspects, this also offers advantages in relation to the modularity of

the system. Various office configurations, for example single, double, and bench work stations, can therefore be accommodated with ease.

When it came to developing LAVIGO, what we and Waldmann wanted was a solution that would excel from a lighting perspective. The lighting technology expertise of Waldmann played a decisive role in this. Numerous test assemblies, light simulations, and optimizations were performed – all the while as we searched for the perfect, efficient light at the work station.

### **What is the way forward in the area of office lighting design? What is your vision?**

Office lighting design is developing in line with the available lighting technology. New technologies, such as LED, OLED, etc. are enabling ever flatter luminaire heads with just a small portion of the necessary technology. The design will become increasingly less characterized in the future by the space requirements of the light technology components. Our vision takes us in the direction of simple, floating light modules with minimalistic design, modular construction, and creatively reduced mounting – multifunctional is also conceivable through combination with other components and media, such as

acoustics or sensors for interior spaces. Lighting technology aspects that promote a pleasant atmosphere and well-being of employees will become even more important in the future.





## MINIMALISTIC FORM, MAXIMUM FUNCTIONALITY. LAVIGO ENSURES PERFECT, EFFICIENT LIGHTING AT THE WORKPLACE.

The simple designs are the ones that outlive all trends and still possess their validity tomorrow. This is why the design of the LAVIGO free-standing LED luminaire is resolutely limited to a rectangular form. Designed by the architects at STRUCTURELAB in Düsseldorf, LAVIGO combines classic design with innovative technology.

The flat luminaire head with a horizontal seam imparts elegance and airiness. The clear, reduced design gives the luminaire a homogeneous overall image, making LAVIGO compatible with a number of furniture systems and an ideal luminaire for the modern office.

Available in three different performance classes and a range of connection and model variants, LAVIGO can fulfill different planning and workplace requirements. The PULSE daylight and presence sensor technology can be integrated to ensure optimized energy consumption. PULSE TALK also enables wireless communication between several luminaires as an option, thus preventing islands of light. In the biodynamic version, PULSE VTL simulates natural daylight in the workroom and positively impacts people.







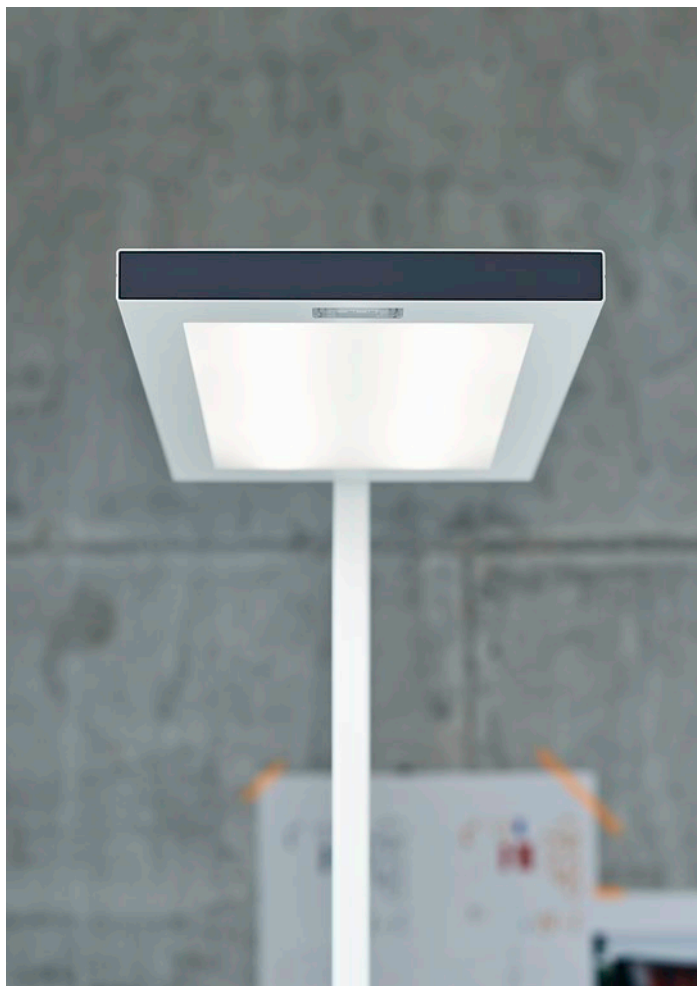




A simple rectangle – no other geometric shapes were necessary in order to create a characteristic, fully self-contained design. This consistently reduced design gives LAVIGO the homogeneous overall appearance of a well conceived whole.

The luminaire head captivates with its extremely flat installation height. Projecting freely in the room, it imparts a sense of lightweight, floating elegance. The luminaire head is further distinguished by the central horizontal seam, which expresses the dual function of the luminaire – direct light for the desk and indirect light for the work-room.

LAVIGO's front and rear sides differ only with respect to the tubular section, which naturally combines with the luminaire head to create a harmonious overall impression. A number of luminaires placed in a row therefore also convey a uniform image.











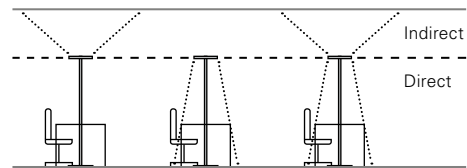






The operating elements do not detract from LAVIGO's simple, minimalistic appearance. Flush-mounted in the tubular section, the push button is positioned at an ideal height – whether sitting or standing. LAVIGO boasts intuitive operation. The direct and indirect light share can be regulated independently of one another, providing excellent user comfort that promotes efficiency in the workplace.

LAVIGO's subtly rounded corners and edges are easier on the eye and at the same time pleasant to the touch.



Direct and indirect light can be switched and dimmed separately









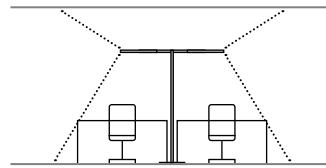




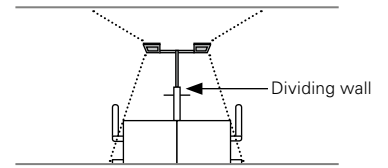


Perfectly balanced:  
All parameters in relation to modern office concepts, furniture systems, and decors were actively considered in the development of LAVIGO. The variants with two luminaire heads are also testament to this. Up to four work stations can be illuminated with one centrally positioned LAVIGO TWIN-T.

When laterally positioned, the LAVIGO TWIN-U can supply light to two desks situated opposite each other. The model is designed such that no shadowing is created even with dividing walls with shelf surfaces at a third level.



The LAVIGO TWIN-T illuminates up to four work stations.



The LAVIGO TWIN-U avoids shadowing with dividing walls.

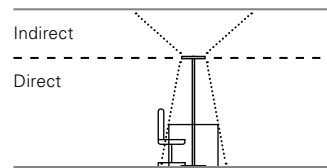






Available in three performance classes (49, 75, and 109 W), LAVIGO can be adapted to all different types of lighting technology requirements. All variants offer extremely high lighting efficiency of far in excess of 100 lumen per watt. Thanks to new, more powerful LED lamps, LAVIGO has a higher share of indirect light than comparable luminaires. This reduces the amount of direct light needed, creates more even basic lighting and is more pleasing to the eye.

Furthermore, the direct light share uses light-amplifying CDP micro prisms including light forming technology, which provides optimal glare protection. Ideal requirements therefore for concentrated, efficient working. LAVIGO can also be used in combination with intelligent Waldmann lighting management systems (see pages 29 to 31). The required sensor is flush-mounted in the bottom of the luminaire head.



LAVIGO offers a higher share of indirect light than comparable luminaires.



**LAVIGO with one luminaire head.**



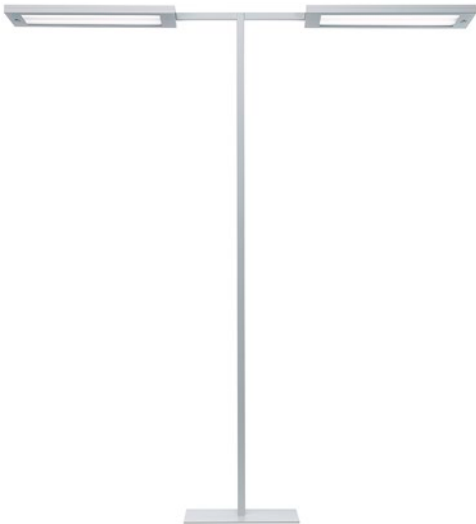
**Color combination 1**

- Base, tubular section: White
- Luminaire head: White
- Front face of luminaire head: Flint gray

**Color combination 2**

- Base, tubular section: Silver
- Luminaire head: White
- Front face of luminaire head: Silver

**LAVIGO TWIN-T with two luminaire heads.**



**Color combination 1**

- Base, tubular section: White
- Luminaire head: White
- Front face of luminaire head: Flint gray

**Color combination 2**

- Base, tubular section: Silver
- Luminaire head: White
- Front face of luminaire head: Silver

**LAVIGO TWIN-U with two luminaire heads.**



**Color combination 1**

- Base, tubular section: White
- Luminaire head: White
- Front face of luminaire head: Flint gray

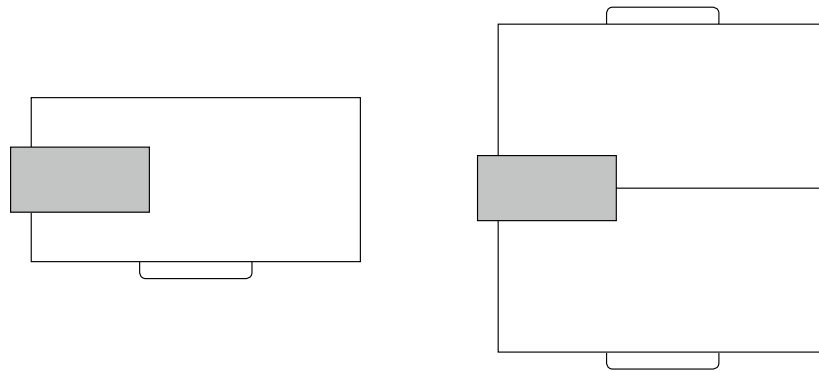
**Color combination 2**

- Base, tubular section: Silver
- Luminaire head: White
- Front face of luminaire head: Silver



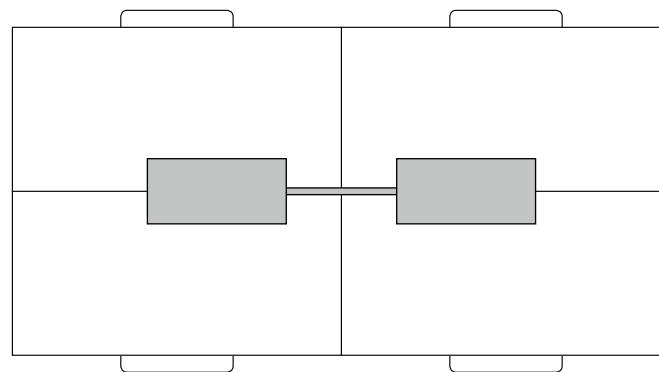
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Suitable for one or two work stations  
when positioned laterally depending  
on the light consumption.



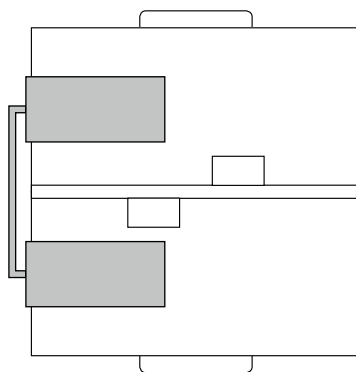
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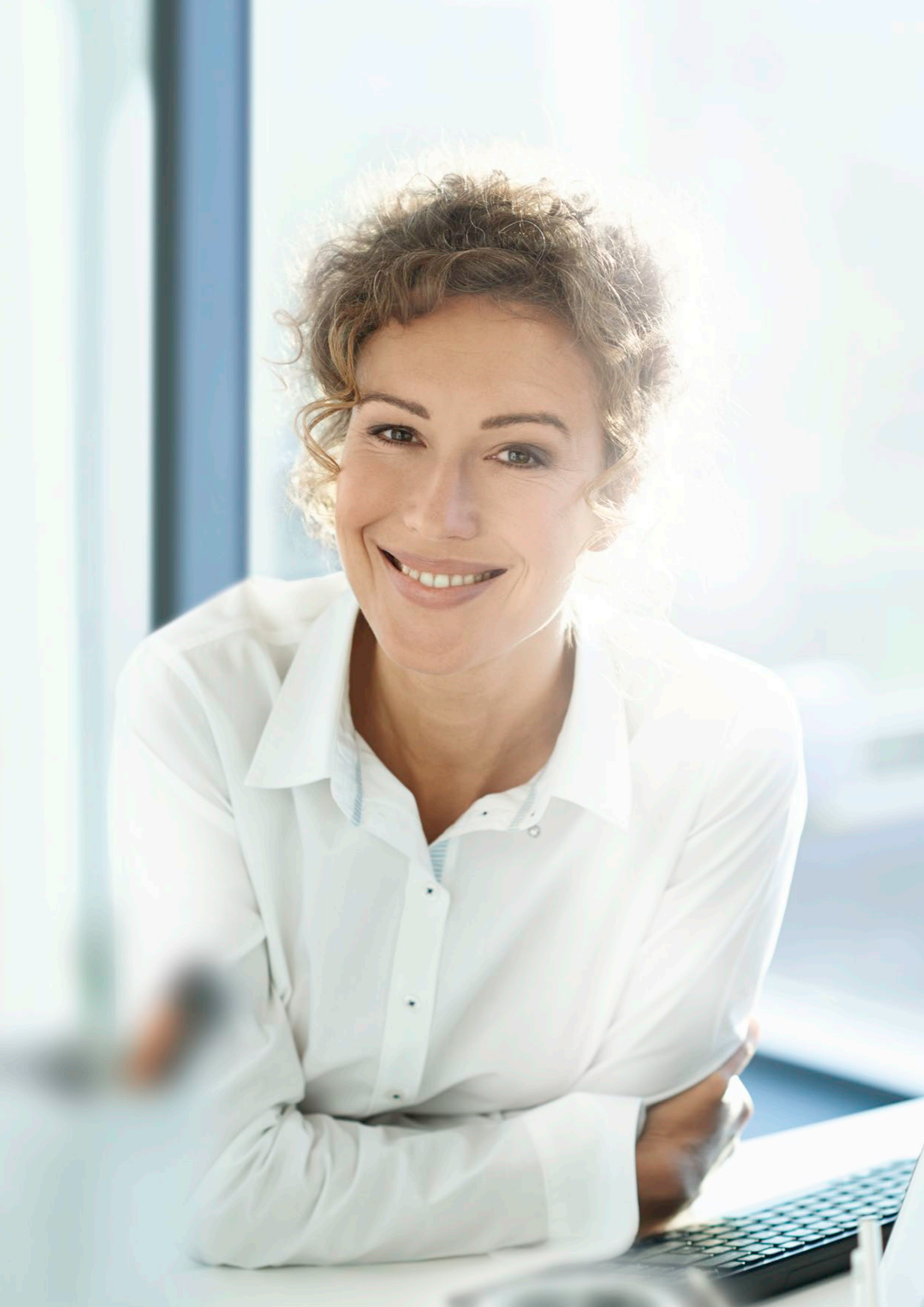
Suitable for up to four work stations  
when positioned centrally.



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Suitable for two work stations with  
dividing wall when positioned laterally.







## INTELLIGENT LIGHTING SOLUTIONS FOR THE OFFICE ENVIRONMENT: LAVIGO TOGETHER WITH WALDMANN LIGHTING MANAGEMENT SYSTEMS.

Already efficient in terms of operation, LAVIGO can save even more energy when the luminaires are combined with a Waldmann lighting management system. The presence of persons is reliably detected within a defined field by means of passive infrared motion sensors with the classic presence sensor PULSE PIR.

The highly sensitive detection sensor PULSE HFMD detects even the smallest movements within a defined area. A sensitive sensor system regulates the amount of lighting from the luminaires based on the level of daylight. This can reduce energy consumption of individual luminaires by up to 50% when compared to the installed output. Additional energy-saving potential can also be achieved with universal system communication by using PULSE KNX or PULSE LON system components with other subsystems (shade, heating, and air conditioning).

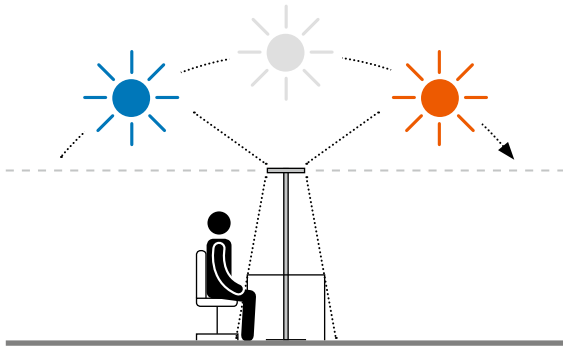
PULSE TALK creates a pleasant lighting scenario without islands of light. The innovative wireless module allows a number of luminaires to communicate with each other in groups, react to the presence of people and adjust light accordingly. The result is a better working atmosphere and enhanced ability to perform. In addition, LAVIGO can exchange the presence information it gets from PULSE PIR or PULSE HFMD in relation to building automation with other systems also, allowing it to become part of an intelligent building.

Biodynamic light from the Waldmann Group has been used successfully for many years in the area of senior care. Waldmann is now extending the concept of biologically effective light management to the workplace with PULSE VTL. It activates in the morning, just like daylight, and positively impacts well-being and performance in a natural way throughout the entire day.



## PULSE VTL

- Biodynamic light for the modern office
- Used successfully for elder care for more than ten years
- Supports the effects of natural light in interior spaces
- Simulates the natural light in accordance with the time of day
- Activates in the morning and positively impacts performance and well-being
- Can be combined with PULSE TALK and PULSE HFMD



The "inner body clock" determines waking and sleeping phases, pulse rate, blood pressure, and mood – a rhythm of biological processes that is considerably controlled and supported by light.

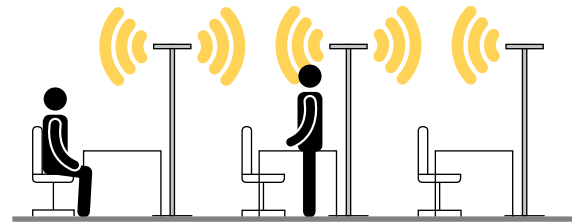
The PULSE VTL lighting management system ensures a natural lighting effect for office areas that do not get adequate daylight. It simulates the daylight pattern in terms of illuminance and color and

supports the biological rhythm in a natural way. This positively impacts well-being and performance at the work station naturally and without the need for intervention.



## PULSE TALK

- Innovative wireless module
- Several luminaires can communicate with one another
- Pleasant lighting scenario without islands of light
- Compact module that is child's play to install, program, and operate
- Better working atmosphere and enhanced ability to perform
- Can be combined with PULSE VTL, PULSE HFMD, and PULSE PIR



Changing presence situations of employees in offices with presence and daylight dependent controlled luminaires allow islands of light to develop: The employee's own desk is illuminated but not the remainder of the room. These so-called islands are prevented by the innovative PULSE TALK wireless module. Luminaires assigned to different areas and groups can communicate with one another. If a luminaire in a group registers presence, it

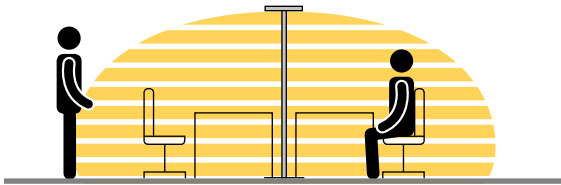
sends this information to the rest of the group members. These then light the immediate office surroundings at a pleasant basic level. Increased user comfort with minimal effort: The wireless module can also be retrofitted in just a few simple steps.





### PULSE HFMD

- Innovative, highly sensitive multi-channel presence and daylight sensor system
- Even the smallest movements are captured
- Temperature-independent operation
- The amount of lighting is adjusted based on the level of daylight
- Reduced energy consumption by individual luminaires by up to 50%
- Can be combined with PULSE VTL and PULSE TALK



The PULSE HFMD (High Frequency Motion Detector) sensor system developed by Waldmann is unique. The innovative, highly sensitive system detects even the smallest movement within a definable area. Accordingly, the luminaires switch on when someone enters the room and automatically switch off again when the person leaves.

Furthermore, the amount of lighting is adjusted based on the level of daylight. The energy consumption of indi-

vidual luminaires can be reduced by up to 50% in this way when compared to the installed output. PULSE HFMD operates independently of temperature, analyzes a larger detection area and detects presence, even if there is an absence of significant movements over a certain period of time.

### PULSE PIR

- Classic presence and daylight sensor system
- Temperature-dependent operation on a passive infrared basis
- The luminaire only switches on when presence is detected or there is not enough daylight
- Up to 50% energy savings possible
- Can be combined with PULSE TALK



The PULSE PIR daylight and presence sensor operates is temperature-dependent. The presence of persons is reliably detected within a defined field by means of passive infrared motion sensors. The luminaires are consequently only switched on if the sensor registers a presence in the room and the daylight is no longer sufficient.

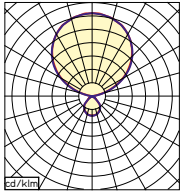
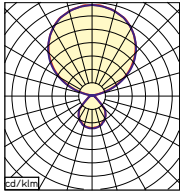
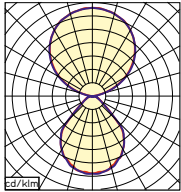

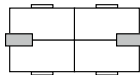

This intelligent technology leads to significant energy savings.





## LAVIGO



<b>LAMP TYPE</b>	372 x LED	288 x LED	240 x LED
<b>LUMINOUS FLUX</b>	approx. 12,000 lm	approx. 8,000 lm	approx. 5,000 lm
<b>LIGHT COLOR</b>	4,000 K	4,000 K	4,000 K
<b>LIGHT DISTRIBUTION</b>			
Direct share	> 10 %	> 20 %	> 30 %
Direct / indirect light can be adjusted separately	●	●	●
<b>APPLICATION</b>			
<b>REQUIREMENT</b>	Large light calculation area e.g. desk	Large light calculation area e.g. desk	Standard light calculation area e.g. visual task
	High lighting quality Certainty in planning	High lighting quality	High energy efficiency
<b>GLARE-FREE</b>			
CDP micro prisms	●	●	●
UGR < 16 (LiTG reference room 4H / 8H)	●	●	●
Luminance ≤ 3000 cd/m² <sup>1)</sup>	●	●	●
<b>POSITION OPERATING ELEMENT</b>			
In the tube (easy to reach when sitting)	●	●	●
In the luminaire head			
<b>LIGHT MANAGEMENT</b>			
PULSE dimmable	●	●	◆
PULSE PIR	●	●	●
PULSE HFMD	●	●	◆
PULSE KNX	◆		
PULSE LON	◆		
Compatible with PULSE TALK	●	●	●
PULSE VTL			
<b>ENERGY EFFICIENCY</b>			
Minergie module luminaires	●	●	●
Luminaire light efficiency > 100 lm / W	●	●	●
Energy efficiency class lamp	A+	A+	A+
Power consumption (typical)	approx. 109 W	approx. 75 W	approx. 49 W

◆ On request

<sup>1)</sup> DIN-EN12464-1: 2011 monitor with positive polarity, normal requirements e.g. office applications  
Subject to technical changes



<b>PULSE:</b>	Waldmann light management system with PULSE control. All PULSE-based systems have the following functions in common: Intelligent operating element, automatic storage of the most recent switch and dimmer states, external switching (switched on sockets) is possible. Standby output < 0.4 W
<b>PULSE PIR:</b>	Passive infrared sensor system with presence and daylight control, standby output < 0.4 W
<b>PULSE HFMD:</b>	Multi-channel, high frequency sensor system with presence and daylight control, standby output < 0.6 W
<b>PULSE KNX:</b>	Communicative luminaire with integrated KNX/EIB component in accordance with IEC 14543, including PULSE PIR or PULSE HFMD sensor system
<b>PULSE LON:</b>	Communicative luminaire with integrated LON component in accordance with EN 14908, including PULSE PIR or PULSE HFMD sensor system
<b>PULSE TALK:</b>	Upgradeable EnOcean wireless module for avoiding islands of light and enabling an open, communicative system
<b>PULSE VTL:</b>	Simulation of daylight patterns in relation to illuminance and light color



## FROM EFFICIENCY TO SUSTAINABILITY WALDMANN SOLUTIONS

Efficient treatment of our resources and responsible planning and construction are indispensable nowadays.

"Office Efficiency" is becoming more important at the same time. That means reducing costs and increasing productivity. Light plays an important role here: It consumes energy and impacts the performance of the user. "Green" lighting therefore offers tremendous possibilities to protect resources and save energy.

Waldmann makes an essential contribution to these trends by constantly further developing its lighting concepts. Greater emphasis is placed on resource-friendly materials and processes. All products are conceived with energy efficiency in mind. A year long monitoring project carried out by ThyssenKrupp Real Estate, the University of Rosenheim, and Waldmann shows that energy savings of up to 50%

are possible by using luminaires with daylight and presence sensors.

What's more, all Waldmann solutions are examined through their entire life cycle from development to disposal. Always with the goal of using an integrative approach to maintain the balance of energy efficiency and lighting comfort. Furthermore, Waldmann is actively involved in the development of sustainability standards for buildings and the products designed for them – awarded the sustainability medal of the German Sustainable Building Council (DGNB).

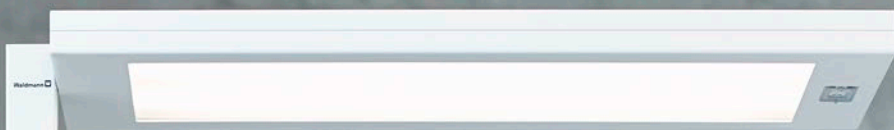
### Waldmann supports you with:

- Direct and personal support
- Concept consulting
- Lighting planning
- Profitability analysis
- Samples
- Individual financing
- Project management
- Assembly
- Integration with light management and building automation systems (DALI, LON, KNX, FUNK)
- Cleaning and maintenance

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