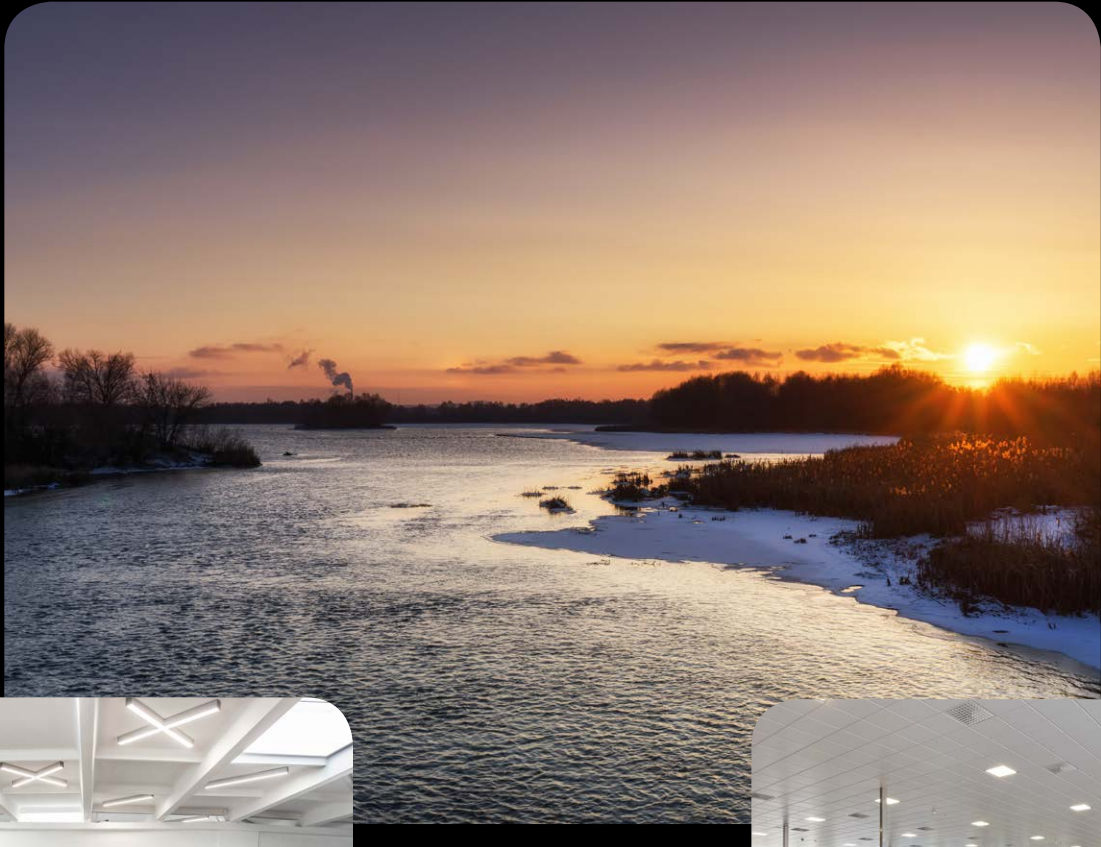


LUXIONA



Human Centric Lighting

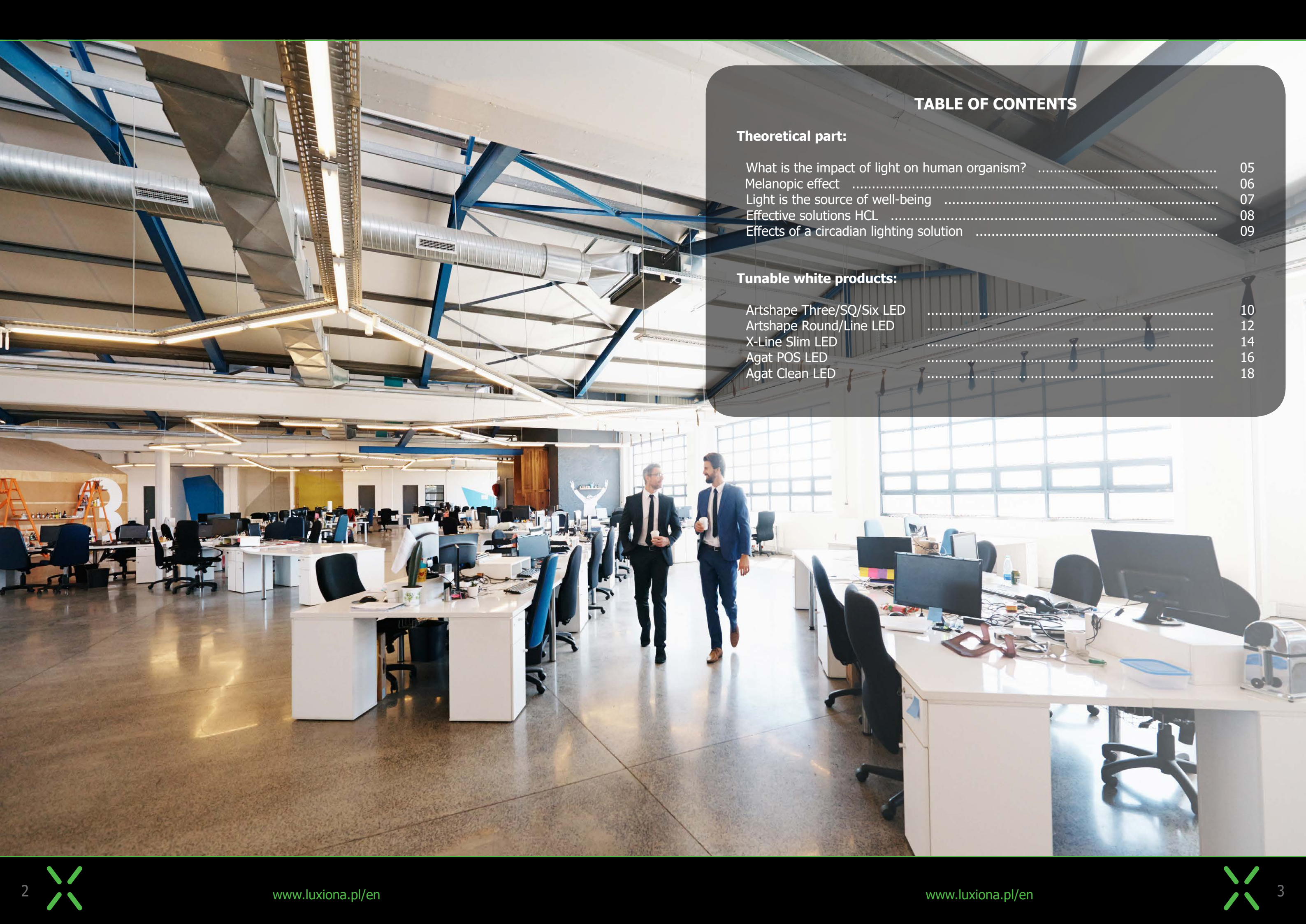


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Melanopic effect

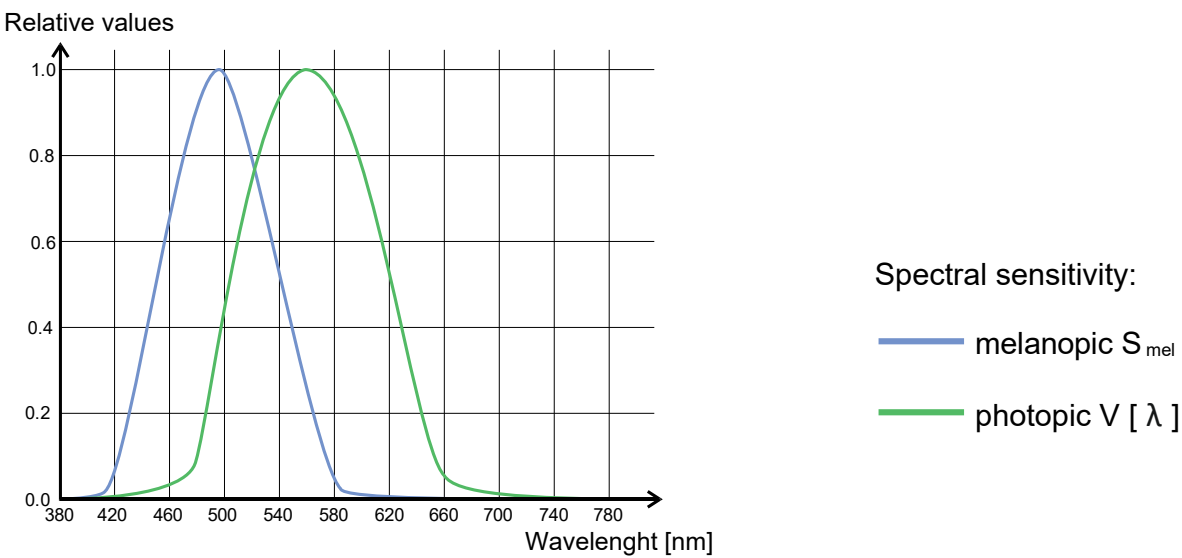
The melanopic effect determines the circadian effect of a light source and influences the wellness of human beings. The melanopic values describe how strong the melanopin-containing retinal ganglion cells (ipRGC) are stimulated by light. In analogy to the definition of the V (λ) curve for the spectral sensitivity of the photoreceptor cells, Smel (λ) expressing the spectral sensitivity for these photoreceptors was defined.

According to this, the melanopic luminous flux describes the radiant flux of a light source, evaluated with the spectral sensitivity of the melanopic (non-visual) photoreceptors.

The melanopic factor describes the ratio between the melanopic and the photometrically effective amount of radiation. This factor is higher when a light spectrum stimulates the non-visual system more strongly.

Daylight-equivalent values practically represent a benchmark with reference to natural daylight.

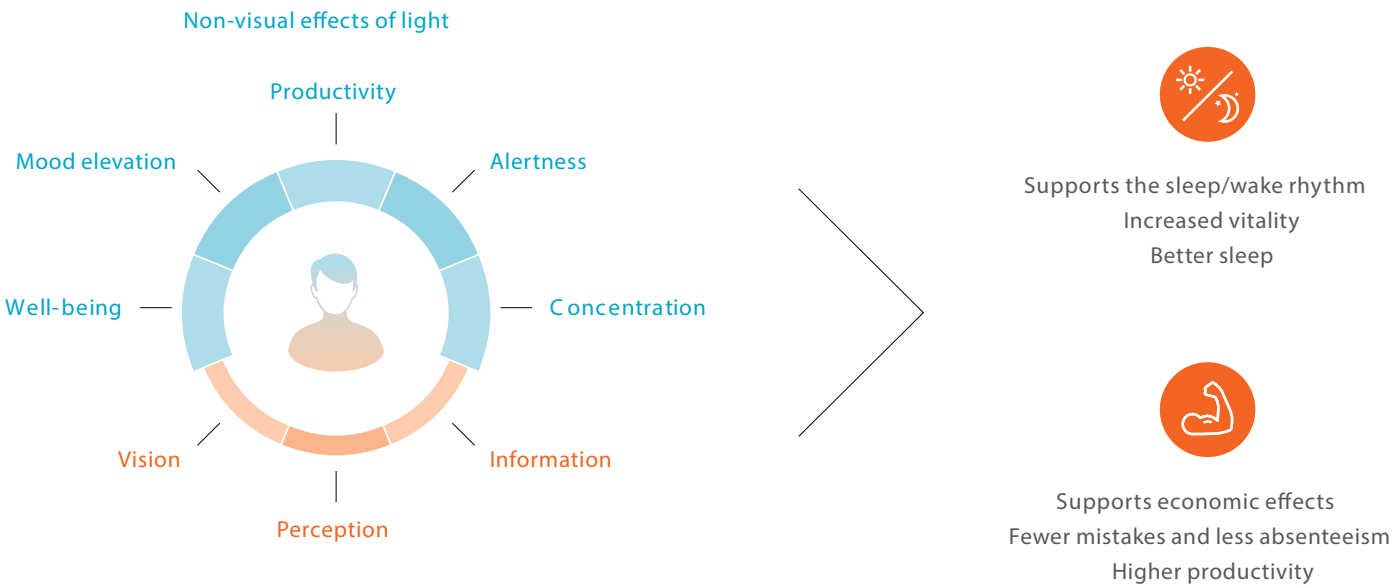
Thus, the melanopic daylight-equivalent luminous flux related to 1000 lm states how many lumen of daylight are needed to achieve an equally large non-visual stimulation as with the mentioned artificial light.



Light is the source of well-being



Today, modern lighting offers more than just optimum visibility. With innovative concepts for Tunable White and Human Centric Lighting, Luxiona Poland uses the many positive effects of light in order to create more pleasant working environments. Improve the quality of life with light quality by using efficient lighting systems.





Biologically effective light for balance and well-being

In the modern working world, human beings and their concerns have become increasingly important. Lighting supports this trend with groundbreaking concepts for Human Centric Lighting (HCL), which focus on humans and the optimal light for their needs. For example, they bring the natural course of daylight and its biological effects into indoor areas. This is achieved by using artificial light with the right brightness and color temperature to supplement the daylight. The interplay of light and room climate creates an atmosphere that has a positive impact on the well-being of humans as well as on their productivity and health.

The right light at the right time

Referring to the artificial light of an HCL solution, the timeline shows the change in color temperature over the day. Biologically effective light with a high blue content activates us from morning to lunchtime and also when we hit a performance "low" in the afternoon. Towards evening, the color temperature gets warmer.



A balanced internal clock

The sunlight synchronizes the day/night rhythm, our internal clock, which regulates our body in a 24-hour rhythm. By simulating the impact of natural daylight, biologically effective artificial light synchronizes humans with the outside world. As light color and brightness of the lighting are adjusted according to the changes in daylight by means of intelligent lighting control and sensor technology, the internal clock of humans is stabilized. They feel more alert, can concentrate better and are more vital.

More alert, active and productive

While the color and intensity of the light is manually controlled in applications for Tunable White, HCL solutions dynamically adjust the brightness and color temperature of the lighting to the natural course of daylight – from activating cold white to relaxing warm white. In order to make use of the biological impact of light, suitable luminaires have to be chosen for the HCL concept. In addition, parameters such as daylight level, room structure and user profile have to be considered. Studies have shown that dynamic lighting solutions simulating the natural course of daylight significantly improve concentration and productivity as well as alertness and quality of sleep.



Influence of dynamic lighting on the merely visual and non-visual effects of light:

Non-visual effects of light:

- Mood elevation, Alertness, Productivity, Well-being, Concentration

Visual effects of light:

- Vision, Information, Perception

Supports the sleep/wake rhythm: Increased vitality, Better sleep

Supports economic effects: Fewer mistakes and less absenteeism, Higher productivity



Dynamic adjustment over the day

Daylight with a higher blue content has the most influence on our internal clock as blue light has an activating impact. Therefore, a great amount of light with at least 5,300 K and a higher blue content is used to increase performance during the day, whereas warm light with color temperatures below 3,000 K is suitable for the evening. Improve the quality of life with light quality – profit from innovative HCL concepts!

HCL and melanopic effects

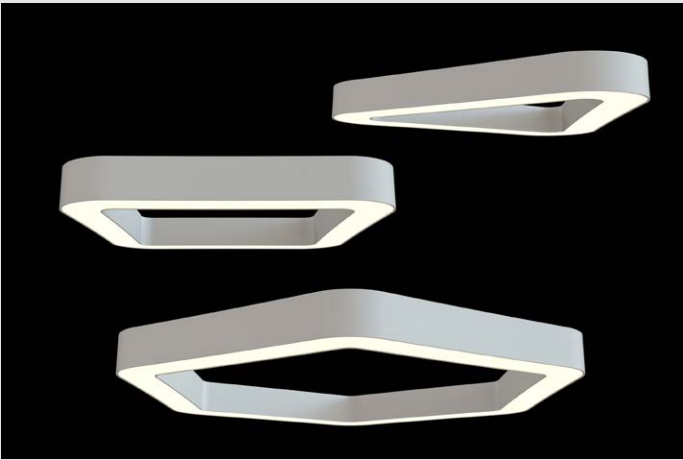
When designing an HCL-ready luminaire, the spectral evaluation of the optical radiation in the visible range has to be carried out in order to evaluate the melanopic effects of light. This evaluation depends on various parameters, which has led to the use of "HCL" in place of the term "biologically effective light". These parameters include:

- Brightness compared to glare
- Color temperature and spectral deviations due to the application of reflector/optics material and constant current amplitude dimming
- Filter effect of applied covers/diffusers, e.g. made of glass
- Transmission, reflection and absorption of walls
- Possible impact of daylight (glare)
- Different characteristics of the user (pupil diameter, age etc.)

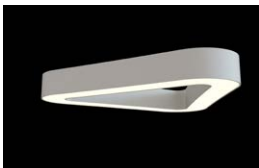
Detailed information can, for example, be found in the standards DIN SPEC 5031-100 and DIN SPEC 67600.


HCL approaches have to be considered as an interdisciplinary interaction of various factors, which go beyond the mere lighting solution. In addition to the ergonomics at hand, architectural structure and interior design also have an impact on the individual.


ARTSHAPE THREE/SQ/SIX LED tunable white



- Glamorous look which imparts modern character interiors
 - Housing of the luminaire made of the aluminium profile
 - Production of EDGE variant luminaire
 - Three sizes: small, medium, large
 - Perfectly even surface emitting
 - Possibility of illuminance control and tunable white control
 - Suspended mounting or ceiling mounting
-
- Lifetime of LED sources: 60000 h L80/B10
 - SDCM = 4
 - Operating temperature range: 5 ÷ 30° C
 - Slings 1,5 m available as a set with the luminaire
 - Type of diffuser: PLX (opalised diffuser PMMA)
 - Power supply: tunable white driver

Picture	Name	Size	Luminaire power* [W]	LED Flux* [lm]	Color of light [K]	CRI*
	ARTSHAPE THREE 4000 TW	small	38	3960	2700 ÷ 6500	>80
	ARTSHAPE THREE 6000 TW	medium	57	5880	2700 ÷ 6500	>80
	ARTSHAPE THREE 8000 TW	large	77	8040	2700 ÷ 6500	>80

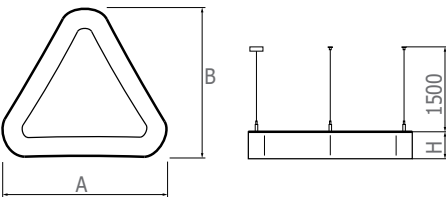
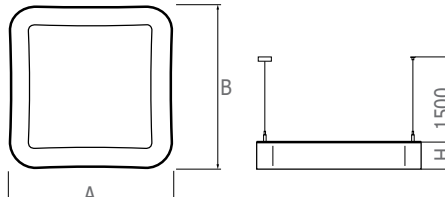
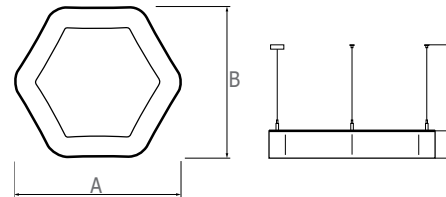
Picture	Name	Size	Luminaire power* [W]	LED Flux* [lm]	Color of light [K]	CRI*
	ARTSHAPE SQ 5500 TW	small	52	5400	2700 ÷ 6500	>80
	ARTSHAPE SQ 8000 TW	medium	75	7800	2700 ÷ 6500	>80
	ARTSHAPE SQ 10000 TW	large	100	10440	2700 ÷ 6500	>80

Picture	Name	Size	Luminaire power* [W]	LED Flux* [lm]	Color of light [K]	CRI*
	ARTSHAPE SIX 4000 TW	small	40	4200	2700 ÷ 6500	>80
	ARTSHAPE SIX 6000 TW	medium	57	5880	2700 ÷ 6500	>80
	ARTSHAPE SIX 8000 TW	large	77	8040	2700 ÷ 6500	>80

Standard colors: ☒ RAL7016 (anthracite) ☐ RAL9016 (white) ☒ RAL9005 (black)

* - given data relate to light of colour temperature 6500 K.

Dimensions:


TYPE	A (mm)	B (mm)	H (mm)	TYPE	A (mm)	B (mm)	H (mm)	TYPE	A (mm)	B (mm)	H (mm)
THREE SMALL	630	575	80÷90	SQ SMALL	660	660	80÷90	SIX SMALL	650	592	80÷90
THREE MEDIUM	900	809	80÷90	SQ MEDIUM	930	930	80÷90	SIX MEDIUM	900	809	80÷90
THREE LARGE	1170	1043	80÷90	SQ LARGE	1200	1200	80÷90	SIX LARGE	1043	1043	80÷90




ARTSHAPE ROUND/LINE LED tunable white



- Glamorous look which imparts modern character interiors
 - Housing of the luminaire made of the aluminium profile
 - Production of EDGE variant luminaire
 - Three sizes: small, medium, large
 - **Possibility of producing a luminaire of Up&Down light distribution (only for Artshape Round)**
 - Perfectly even surface emitting
 - Possibility of illuminance control and tunable white control
 - Suspended mounting or ceiling mounting
-
- Lifetime of LED sources: 60000 h L80/B10
 - SDCM = 4
 - Operating temperature range: 5 ÷ 30° C
 - Slings 1,5 m available as a set with the luminaire
 - Type of diffuser: PLX (opalised diffuser PMMA)
 - Power supply: tunable white driver

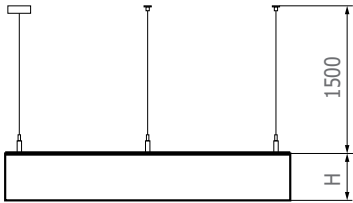
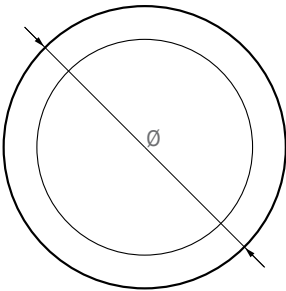
Picture	Name	Size	Luminaire power* [W]	LED Flux* [lm]	Color of light [K]	CRI*
	ARTSHAPE ROUND 4000 TW	small	42	4320	2700 ÷ 6500	>80
	ARTSHAPE ROUND 6000 TW	medium	59	6120	2700 ÷ 6500	>80
	ARTSHAPE ROUND 8500 TW	large	82	8520	2700 ÷ 6500	>80

Picture	Name	Size	Luminaire power* [W]	LED Flux* [lm]	Color of light [K]	CRI*
	ARTSHAPE LINE 1500 TW	small	14	1440	2700 ÷ 6500	>80
	ARTSHAPE LINE 3000 TW	medium	27	2760	2700 ÷ 6500	>80
	ARTSHAPE LINE 4000 TW	large	39	4080	2700 ÷ 6500	>80

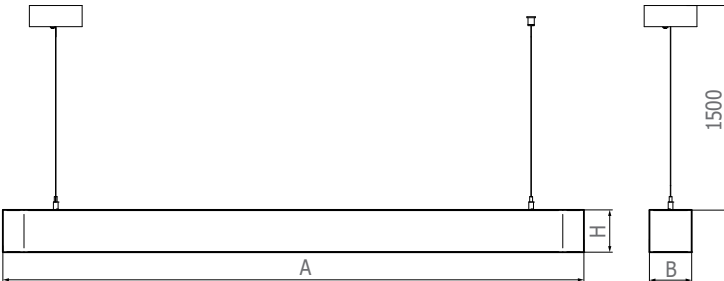
Standard colors: ☒ RAL7016 (anthracite) ☐ RAL9016 (white) ☒ RAL9005 (black)

* - given data relate to light of colour temperature 6500 K.

Dimensions:



TYPE	Ø (mm)	H (mm)
ROUND SMALL	650	80÷90
ROUND MEDIUM	900	80÷90
ROUND LARGE	1200	80÷90



TYPE	A (mm)	B (mm)	H (mm)
LINE SMALL	560	80	80
LINE MEDIUM	1100	80	80
LINE LARGE	1640	80	80



X-LINE SLIM LED tunable white

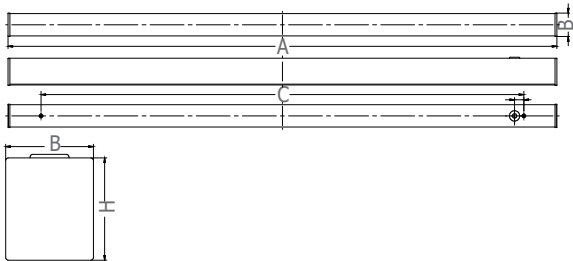


- Minimalistic and universal design
 - Aluminum profile
 - The luminaire available in various length options
 - **Possibility of producing a luminaire of Up&Down light distribution**
 - Possibility of illuminance control and tunable white control
 - Surface mounting or mounted on slings
 - Available accessories: slings
-
- Lifetime of LED sources: 50000 h L80/B10
 - SDCM = 3
 - Operating temperature range: 5 ÷ 30° C
 - Type of optics: PLX (opalised diffuser PMMA), Micro-PRM (micro prismatic diffuser PS)
 - Power supply: tunable white driver

Name	Lenght	LED flux [lm]	Luminaire power [W]	Color of light [K]	CRI
X-LINE LED 4400	1238	4304 - 4574	32 - 30	2700 - 6500	75 - 85
X-LINE LED 8800	2260	8608 - 9148	64 - 60	2700 - 6500	75 - 85

Standard colors: ☒ anodised aluminium ☒ RAL 9005 (black) ☐ RAL 9016 (white)

Dimensions:



	A (mm)	B (mm)	C (mm)	H (mm)
4400	1138	48	1000	70
8800	2260	48	2000	70

Luminaire available also in Low UGR version:



X-Line Slim LED Low UGR 4000LM L-1144
X-Line Slim LED Low UGR 8000LM L-2268

Accessories:



slings



AGAT POS LED tunable white

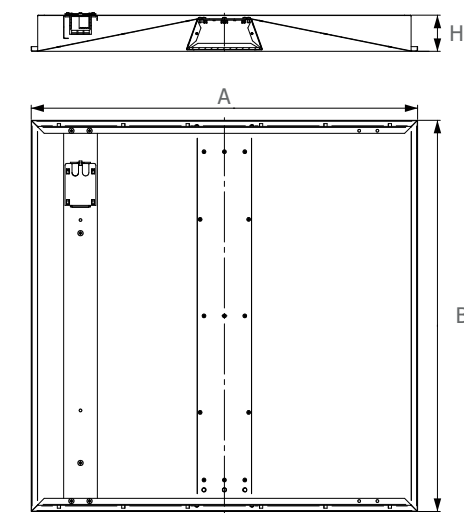


- Protection against light gleaming
 - Comfortable lighting for work station
 - Equipped with highly efficient LED light sources
 - Possibility of illuminance control and tunable white control
 - Mounting in suspended modular ceilings with visible type T24/A24 construction and in plasterboard ceilings
 - Adapting the luminaire to different types of ceilings upon request
 - Available accessories: adaptive frame for mounting in suspended plasterboard ceilings
-
- Lifetime of LED sources: 50000 h L80/B10
 - SDCM = 3
 - Operating temperature range: 5 ÷ 30° C
 - Type of optics: Micro-PRM / Micro-Line (micro prismatic diffuser)
 - Power supply: tunable white driver

Name	LED flux [lm]	Luminaire power [W]	Color of light [K]	CRI
AGAT POS LED 4400	4304 - 4574	32 - 30	2700 - 6500	75 - 85
AGAT POS LED 6600	6456 - 6861	48 - 45	2700 - 6500	75 - 85

Standard color: ☐ RAL9016 (white)

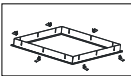
Dimensions:



TYPE	A (mm)	B (mm)	H (mm)
4400	596	596	55
6600	596	596	55

Accessories:

adaptive frame for mounting in suspended plasterboard ceilings



AGAT CLEAN LED tunable white

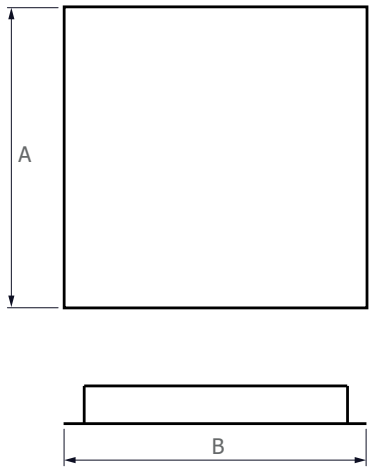


- Luminaire dedicated to be recessed for clean rooms
 - High level of protection against dust and water penetration
 - Equipped with highly efficient LED light sources
 - Possibility of illuminance control and tunable white control
 - Mounting in suspended modular ceilings with visible type T24/A24 construction and in plasterboard ceilings
 - Adapting the luminaire to different types of ceilings upon request
 - Available accessories: mounting clips for suspended plasterboard ceilings
-
- Lifetime of LED sources: 50000 h L80/B10
 - SDCM = 3
 - Operating temperature range: 5 ÷ 30° C
 - Type of optics: wide range of available diffusers
 - Power supply: tunable white driver

Name	LED flux [W]	Luminaire power [lm]	Color of light [K]	CRI
AGAT CLEAN LED 4400	4304 - 4574	32 - 30	2700 - 6500	75 - 85
AGAT CLEAN LED 8800	8608 - 9148	64 - 60	2700 - 6500	75 - 85

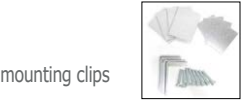
Standard color: ☐ RAL9016 (white)

Dimensions:



TYPE	A (mm)	B (mm)	H (mm)
4400	596	296	76
8800	596	596	76

Accessories:



mounting clips



LUXIONA



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LUXIONA Poland is part of the Spanish LUXIONA Group, which for 90 years has been successfully operating on the international market of the lighting industry. The mission of LUXIONA Poland is to create complementary lighting solutions, in accordance with the most recent technologies as well as legal and social requirements. For that reason, an active team constantly works on innovative technical solutions, keeping in mind the need for saving energy and protecting the environment. The team does not cease to enhance the quality of our products and the efficiency of our services, permanently analyzing the needs of our Customers.

The LUXIONA Group, including LUXIONA Poland which continues to implement the Group strategy, specializes in the composition and creation of indoor and outdoor lighting systems, basing on the vast experts' experience and the broad scope of product brands. An integral part in the offer of LUXIONA Poland are comprehensive lighting solutions, which cover both the production and design services, in the widest sense of the word, delivered by high class designers and ready to meet the requirements of, among others: architectural spaces, areas in the so-called clean rooms, commercial surfaces etc. The LUXIONA Poland team specializes in implementing projects which require an individual approach and the application of modern technologies.