LIGHT FOR CARING HEROES

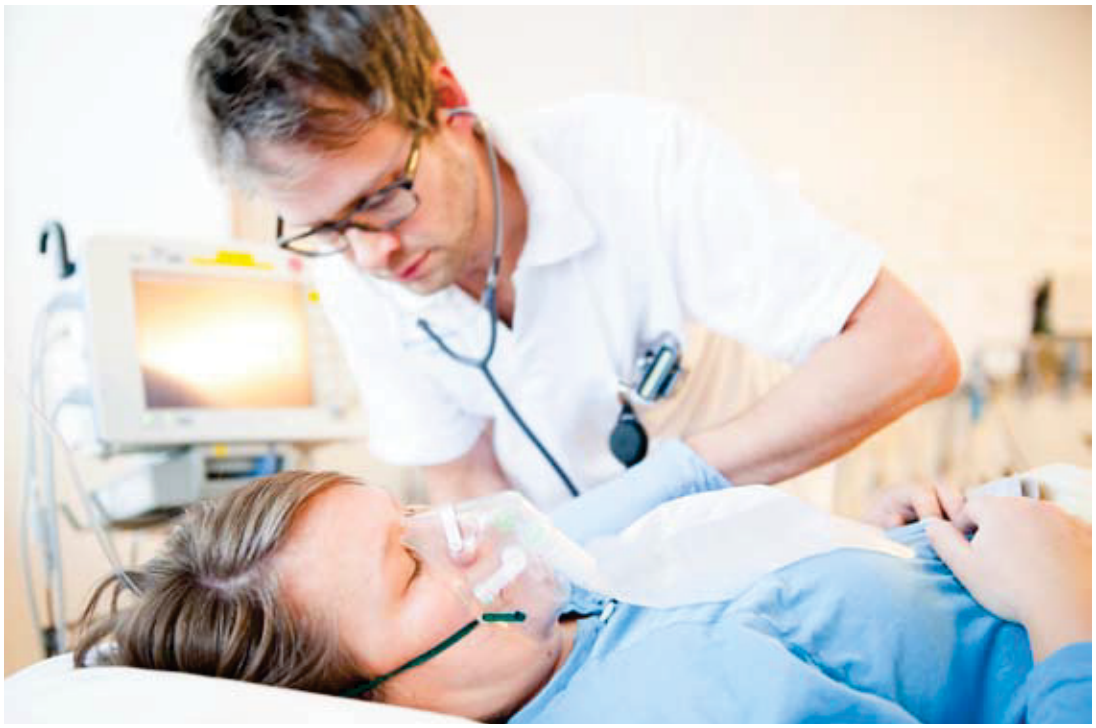
Fagerhult's lighting prescriptions for staff, patients and society

FAGERHULT

When the unthinkable happens they are there for us. Those who save lives and care for others. God knows it's not easy. Medical decisions must be made in an instant. Sampling, medication and management of advanced technology requires concentration. Administration and record-keeping demands constant attention. At the same time, they shall have time, and energy, to be fellow human beings. This goes on day and night, around the clock, year in and year out. And it is stressful, both professionally and emotionally. Therefore deserve everyday heroes in care the best possible light available. Fagerhult.

It happens in an instant. For a few seconds, it is very quiet. Then ... the sound of other cars, agitated voices and sirens far away.

The stress is palpable when the paramedics come rushing in. The decisions made now are a matter of life and death. The hospital staff must rely on their knowledge and experience, and their decisions must be based on what they see. In these moments they need the best possible light to accurately appraise the situation and make the right decisions; high but glare-free and with exceptional colour rendering.



What is the colour and tone of the patient's skin? How are the eyes reacting? When working with a patient in a serious condition, the level and quality of light is crucial.

In the corridor

The lights pass overhead as the bed is rolled through the corridor on the way to X-ray. The situation is stable but the possibilities of internal injuries still need to be investigated.

To minimise discomfort from glare- place the luminaires against the wall.

Vidi provides an indirect light distribution on the ceiling and walls, supplemented on the opposite wall by Wallwing for additional vertical light and guidance.

Having control over your own life is important for all of us. However, when we end up in hospital, planned or unplanned, this control can be passed over to the hands of others. This stressful situation is magnified by being in an environment which we do not recognise. Transport through the corridor is extra sensitive and disorientating and glaring light only heightens this discomfort. Large contrasts between bright and dark areas should be avoided with the glare from the luminaires kept firmly under control. It's equally important that the light levels are good, in general at least 200 lux, so that the staff can clearly see what is in front of them and the cylindrical illuminance has to be considered to facilitate easy visual communications. A space with vertical illumination provides both the required levels of light for the visual task whilst safeguarding against glare. A lighting solution which dims the light to a basic level at night, but rises once presence has been detected, is both an efficient and effective system within a corridor.

Notor recessed LED offers an unbroken line of general light, with Pleiad G3 Wallwashers providing a higher proportion of vertical light on the adjacent wall.

In the staff room

It's been a stressful shift with many emergencies. Now the situation is under control the focus moves towards monitoring the patient's progress and providing the best possible care for their recuperation. One of the nurses takes a break in the staffroom. She yawns, pours another cup of coffee, sits down and scrolls through yesterday's newspaper. After a while, she feels refreshed and ready to see to her patients.

A staffroom with stimulating colours and lighting design is essential, regardless of the time of day. It's the staffs own relaxing bubble, a place when they can talk with their peers and take some timeout. This space requires a combination of direct and indirect light distributions. Focusing on the vertical light helps the eye take in a higher level of light and helps maintain alertness and freshness amongst the staff. Suspended luminaires contribute towards a cosier environment with pleasant shadows, while also addressing the requirements for cylindrical illuminance. This ambient can be further reinforced by using a light source with a warmer colour temperature.

Supplementing daylight sensors with manual controls permits the staff to regulate their own lit space, increasing cortisol levels and alertness during the night shift.

Suspended Tibi is a round beam luminaire with a direct/indirect distribution. Additional vertical light is supplied via Pleiad Wallwasher G3 with Zest LED positioned in the kitchenette.

Appareo provides a diffused glare-free, direct/indirect light. Wall 1 enhances the light levels on the ceiling, while Pleaid wallasher G3 provides a higher proportion of vertical light. Zest LED is used in the kitchenette area.

In the entrance

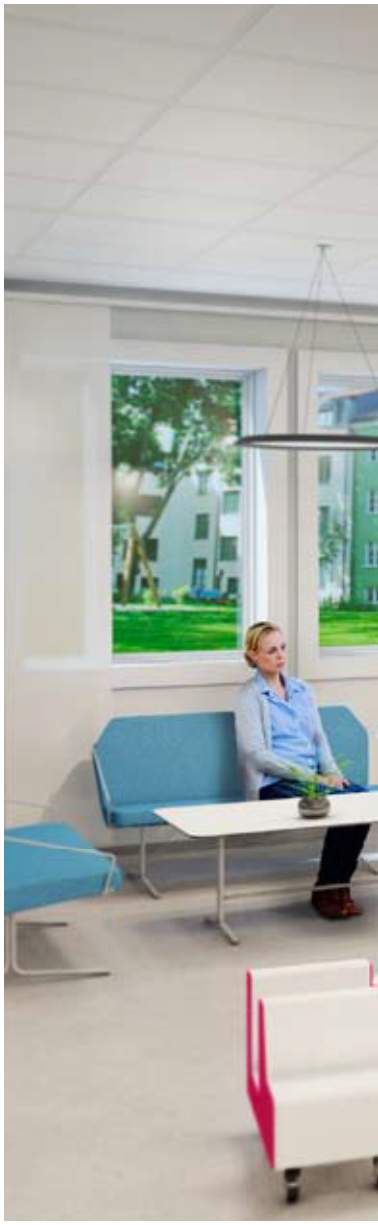
The family of the patient are here, understandably worried. No-one really knows what happened or where in the hospital their relatives are. The staff at the information kiosk ask them to take a seat while they investigate.

Suspended Tibi luminaires provide the general levels with a direct/indirect distribution, complemented by Appareo over the workstation. The system has been optimised with daylight and presence control to regulate the light levels and reduce the energy consumed.

With the exception of emergency cases, all patients, friends and relatives pass through the hospitals entrance. In situations which can be anxious and uncomfortable a welcoming, bright and spacious environment can help people relax. This necessitates a good, glare-free light to make it easy to find information and navigate further into the hospital.

In the waiting room

Waiting can be a draining process, with minutes feeling like hours biding time until information is delivered. Despair, hope or joy, these spaces can be a collage of emotion.



Suspended Appareo Circle provides a balanced combination of direct and indirect light. Recessed Pleiad Wallwasher G3 enhances vertical light and accentuates the photo wall.

For either patients or visitors the design of a waiting room can play a significant role in reducing the feeling of frustrations while increasing the sense of security. Daylight makes us feel more comfortable. During the darker periods, the balance created by a direct/indirect light distribution contributes towards a bright and glare-free environment. Providing light on the vertical surfaces helps increase the level of light the eye can intake, while research has shown nature and vegetation has a positive effect on stress and increased well-being. If there are limited options to see the natural environment outside within the space, adding plants or images within the interior can help compensate and contribute to a more harmonious room.

Recessed Pozzo LED acts as a light well or skylight the ceiling, helping to create a feel of natural light where there maybe limits on the real thing. Recessed Pleiad Wallwasher G3 offer more vertical light and accentuate the photo wall.

A pleasant, glare-free lighting is essential for the staff to do their work. However, its equally as important to create a calm and safe environment that gives patients the opportunity to rest and heal.

In the patient room

The immediate danger is over. The diagnosis is concussion, multiple rib fractures on the left side, a slight lung contusion and a few superficial wounds, the prognosis however is good. The patient recovers, managing to get some intermittent sleep. Their rest is broken by the nurse doing her rounds. The light causes the patient to wake-up but once the nurse leaves the room, it's dimmed down to a comfortable red-orange tone. Despite a reduction in pain relief, the patient relaxes and falls asleep. The doctor comes into check on the progress of the wounds but no sooner has the patient started to doze off again there is a knock at the door. The relatives are here.

Lighting a patient room can be very complex, addressing the requirements for both working and recuperation. The staff need adequate light to assess, treat, medicate and

One luminaire for two tasks – Eira combines a general and examination light in a single fitting. The functional benefits of installation, maintenance and usability are enhanced by its highly aesthetic design which contributes towards a less clinical feel in the ward. Access to gas and electrical outlets provided by Aluflex 15, situated at the beds headboard. Tuneable white (2700–6500 K), Pleaid G3 Wallwashers provide an additional ambient light on the walls.

Multifive Medical is a recessed luminaire combing an asymmetrical fluorescent light with LED spotlights for reading. Pleaid Wallwasher G3 can switch colour temperatures between warm and cool light. This solution is supplemented with the supply unit ELG and a cabinet luminaires Zest LED.

keep records, while the patient needs a calm, stress-free environment that feels safe and caring. Any solution has to offer a combination of general, examination, ambient and reading light to achieve the optimal result for all scenarios.

Preset levels for examination and rest make it easier for the staff to control the light and undertake their tasks promptly and professionally, keeping the periods of high levels at a minimum and the patient as undisturbed as possible. Dependent upon the type of clinic, the light levels for observation must be 500–1000 lux on the bed, ideally with a good ambient light on the walls and ceiling. The light reflected vertically from the wall increases the light the pupil intakes and keeps the staff fresh and alert. All without glare. When the staff are no longer in the room, the light can be controlled to a warmer, restful colour temperature that enhances the patient's circadian rhythm. The less the patient's circadian rhythm is disturbed, the better the conditions for sleep and recovery. Therefore it is important that the patient receives a lot of light – natural or artificial – during the day while ensuring they aren't severely affected by intense light during the night.
A pleasant, glare-free light is essential for the staff to do their work while creating a calm and safe environment for patients to rest and heal.

Daylight is the best solution but when access is limited, a well-planned artificial light scheme can help replicate our experience of natural light.

Recessed Pozzo LED is used in conjunction with Pleiad Wallwasher G3, which can change between warm and colour colour temperatures. Additional reading and examination light is supplied via Aluflex 600 recessed into Aluflex 15.

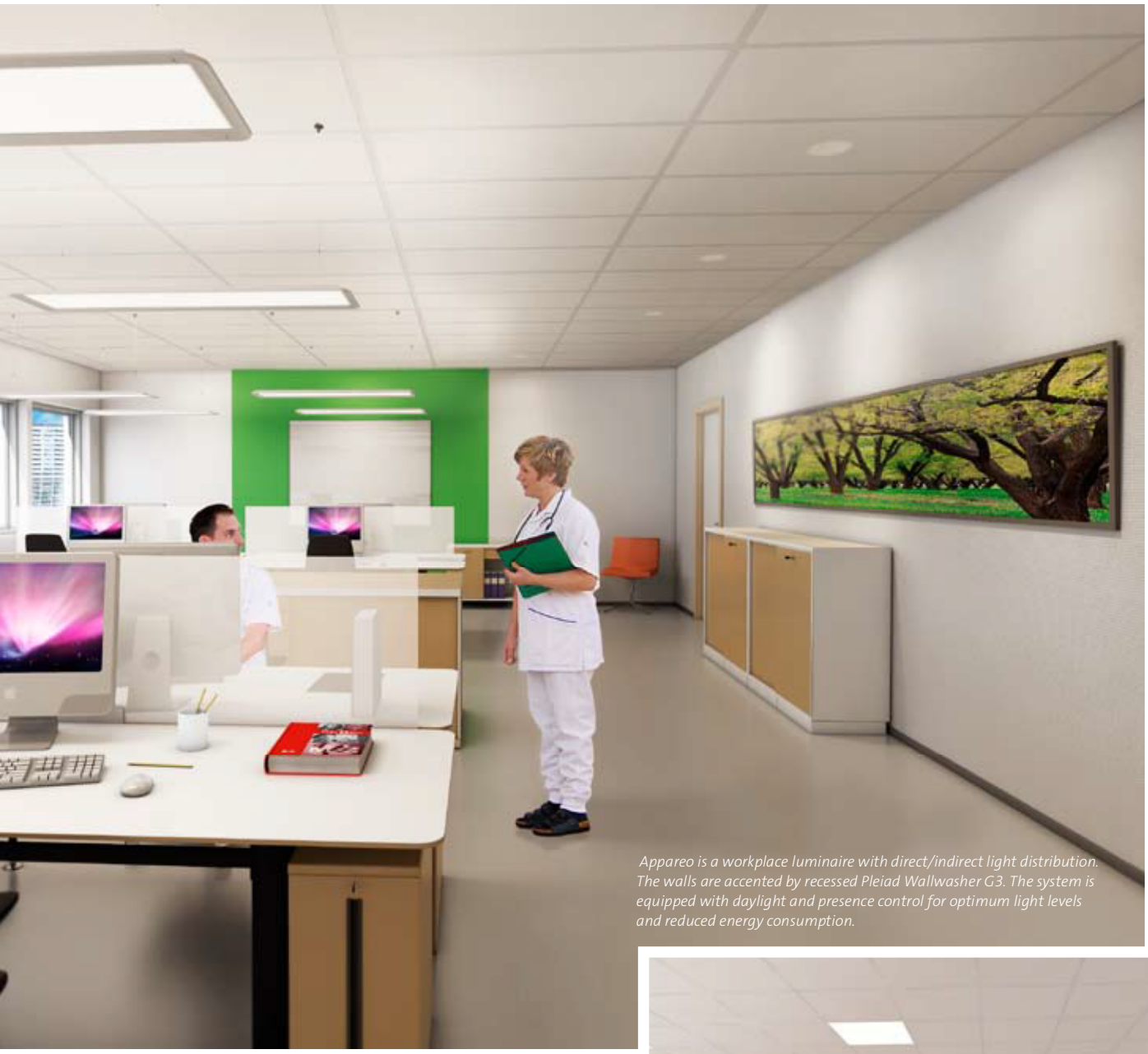
The general light levels are provided by Multilume Flat with a tuneable white function – making it possible to change the colour temperature from warm to cold. Additional reading and examination light is provided by Aluflex 600 with the ambient light levels via Pleiad Wallwasher G3. Multilume Flat with tuneable white is available Q3 2013.

In the office

There is no escaping administration. Following her rounds, the Doctor heads to the office to up-date the records and provide information for her colleagues on the next shift.

"A well planned ambient light toward the room's ceiling and walls can increase the wellbeing of the people in the room. This is dependent upon the lighting simulating how we perceive the sky outside, which has been our lighting norm for millions of years."

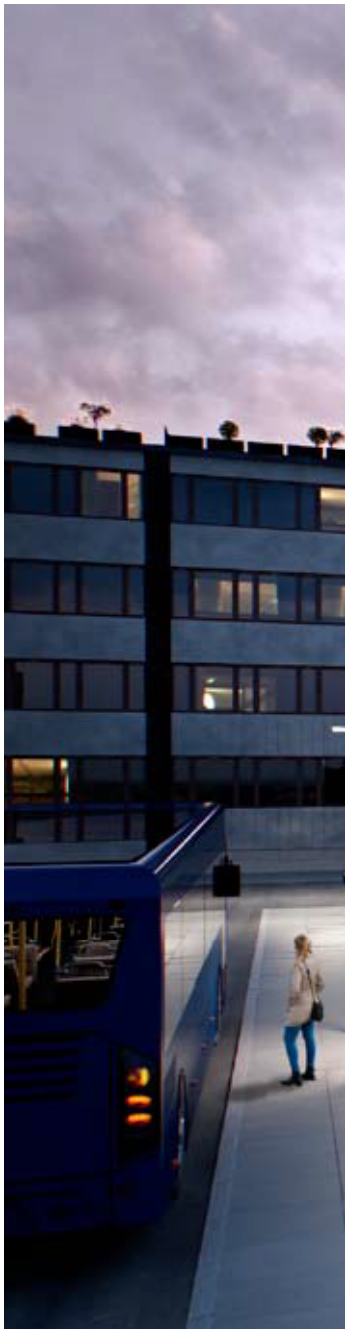
Tommy Govén, Research Director, Fagerhult



Appareo is a workplace luminaire with direct/indirect light distribution. The walls are accented by recessed Pleiad Wallwasher G3. The system is equipped with daylight and presence control for optimum light levels and reduced energy consumption.

A well-lit office space contributes towards a positive working environment where everyone feels comfortable and energised for the tasks ahead. Daylight is equally as important for administrative tasks as other applications within the hospital. A suspended luminaire can provide the necessary 500 lux on the desk surface while ensuring a good cylindrical illuminance. As the work in these areas involve screens, it is imperative that the luminaire selected shields the viewer from glare. An indirect distribution on the ceiling and accent lighting on the walls helps the eye to take in the light while creating an increased feeling of space.

Recessed Multilume Flat, with a large lit surface, provides a well shielded working and general light. The ambient light is enhanced with Pleiad Wallwasher G3. A G5 desk luminaire supplements the fittings within the room to offer individual control of the light.



Outdoor

After a long and demanding shift, the nurse has passed over responsibilities to her colleagues. On her route to the bus, she recalls the day's events with satisfaction. Despite everything it's been a good day, the right decisions were made and the patients are doing well. Now it's time for some well deserved rest. It will be nice to get home!

The driveways are lit via Conledo, with Azur bollards used in the little park area. Rondo G2 Power is recessed in the canopy with Rondo G2 Power Twin lighting the façade on the entrance sides.

Read more on Fagerhults study of resident's perception of the quality of light, accessibility and danger – comparing LED with conventional exterior light sources. Linda Kuhn, Maria Johansson, Thorbjörn Laike and Tommy Govén, 2011.

The area leading into the hospital has the dual role of providing both a welcoming and guiding route into the building. The visitors should quickly and easily be able to identify where the entrance doors are and any ramps, stairs and direction signs are clearly visible and well-lit. The road leading from the bus stops and car parks need to ensure a sense of security throughout the day. Combining multiple fixtures of different heights can help create individual areas within the wider space.

The general light levels are provided via pole-tops while the bollards facilitate orientation along the walkways and pavements. Façade lighting not only accentuates the building, it softens the transition between in and outdoors. This can be supplemented by wall and ceiling luminaires to provide a comfortable level of vertical light while ensuring the signage is easy to view.

Light and health in health care

Light is a powerful source of energy in work, healing and life in general. Research has shown that natural light plays a significant role in the work and wellbeing of healthcare professionals, not to mention patient recoveries. A well lit space not only reduced discomfort and suffering, it can also save money.

The important balance between darkness and light

The circadian rhythm, a biological process which regulates the alteration between sleep and wakefulness, is primarily controlled by light. The human circadian rhythm is approximately 24 hours, and to keep this rhythm undisturbed, it is important that the balance between light and darkness, sleep and awake is maintained. When exposed to constant light or darkness our rhythm is disturbed, for instance shift-work or travelling through different time zones.

More alert staff and faster healing

Several international studies in healthcare have shown that increased levels of natural light creates a pleasant working environment and makes the nursing staff feel better [1].
Additional research states nurses who reside in daylight for at least three hours per day, feel less stressed than those with less exposure. The availability of daylight in the early hours of the morning and the night/day light cycles are key factors in the circadian rhythm. For staff working the day shift, the right levels of light contribute towards increased alertness and better sleep quality at night. By the same principle, a disturbed circadian rhythm affects both patient comfort and recovery. A lack of sleep increases stress, weakens the immune system and can lead to respiratory problems and disturbances in body temperature. This will of course affect healing and prolong their hospitalisation.

Suppresses depression and shorten length of stay

Research has shown that light, daylight or bright artificial light, suppresses depression. It has highlighted the effectiveness of light therapy, stating that in some instance the results are comparable to those you may get with antidepressants drugs.[5] Other studies have found that depressed patients recover better in rooms with more daylight. [6]

Reduced pain and consumption of analgesics

Patients experience less pain if their rooms have good access to daylight, which may reduce the need for pain relief. A study carried out with surgical patients compared those in areas with a higher degree of natural light with patients who had rooms in the same building which were in shadow. The patients who got more daylight experienced less pain and lower stress levels, consuming 22 percent less painkillers. Something that reduced drug costs in a corresponding degree. [7]

Lower risk of inaccurate dosing

A good working light is important for all professions, but the management of advanced technology and medicine magnifies these requirements in healthcare. A study of hospital pharmacies shows that the risk of an incorrect mixing ratio was 37 percent higher at light levels from 450 to 1000 lux on the working surfaces. When the light level was increased to 1500 lux the pharmacists made far fewer mistakes. [8]

Sources. A large part of the information is taken from a Swedish report "The good ward", a final report from Program for technical standard (PTS Forum) and the Centre for healthcare architecture, Chalmers 2011. 1. Verderber and Reuman, 1987, Mrockzek et al., 2005, 2005. 2. Alimoglu och Donmez, 2005. 3. Rhea, 2004. 4. Wallace et al., 1999. Krachman et al., 1995; Parthasarathy and Tobin, 2004. 5. Golden et al., 2005. 6. Beauchemin and Hays, 1996; 1998; Benedetti et al., 2001. 7. Walch et al., 2005 8. Buchanan et al., 1991.

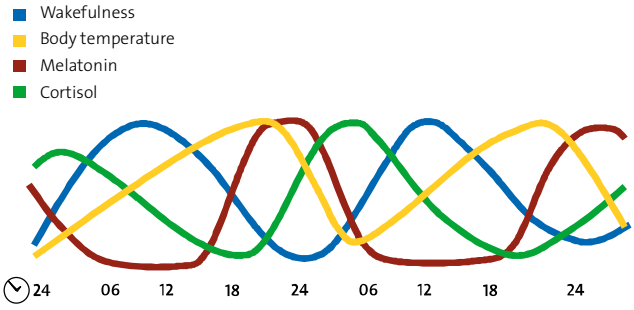
Can good lighting compensate low daylight levels?

Together with researchers at Lund University, Fagerhult has clarified the relationship between light, alertness, wellbeing and performance.

In 2002 new findings were presented that changed the parameters of research into lighting. A U.S. research team had identified a third receptor on the retina. This receptor was the link between the eye's intake of light and our hormonal system, a connection which had remained elusive for numerous years. The research scientifically confirmed what we all already knew: that daylight makes us more alert and feel better. This then posed the question, are these findings also applicable to artificial light? And, if so, what type of light is of greatest importance for our wellbeing?

Measuring of hormone levels

Fagerhult has conducted a variety of research projects, encompassing both laboratory and field studies. Since 2005, we have been working in conjunction with Lund University and Torbjorn Laike, who is internationally renowned for his research into the non-visual effects of light. Due to their levels of high public interest, funding has been provided by The Swedish Energy Agency to support these projects. In the different studies, we examined how subjects react to different light levels and light spectrums, visually, biologically and emotionally. Recording how they managed the visual task, how they react hormonally and how they experience light emotionally. Their cortisol levels were measured, as this is connected to the production of the alertness hormone, to see how this was affected by the light levels.



The important ambient lighting

The results show that what we call ambient light, i.e. light onto the walls and ceiling, is of great importance. This is because the human eye is accustomed to receiving the largest share of light vertically from the sky. Direct light into the eye might result in glare, causing the pupil to constrict and limit the intake of light.

Studies show that people feel better, are more alert and work best at an ambient light level of about 100 cd/m^2. Through a 2009 field study, undertaken in a middle school in London, we could pinpoint that an ambient light of around 100 cd/m^2 could improve student performance, alertness and well-being. We are all positively influenced by light, even if it is artificial. But the obvious fact is that a combination of a daylight and good artificial light is the very best – not least from an energy point of view!

Read more about research where Fagerhult partisipated
Preferred luminance distribution in working areas – T. Govén et al 2002
The background luminance & colour temperatures influence on alertness & mental health – T. Govén et al 2007
The influence of ambient light on the performance, mood, endocrine system and other factors of school children – T. Govén et al 2011
The impact of lighting controls on energy consumption of lighting in classrooms – T. Govén et al 2011
The experience of ambient light from common light sources with different spectral power distribution – Light emitting diodes (LED) vs. 3-phosphorus fluorescent tubes (T5) – T. Govén et al 2012

Can the right lighting shorten hospitalisation?

It was one of the questions at the forefront of a study at Södra Älvsborgs Hospital in Borås. Can variations in the colour and intensity of light help intensive care patients to find their way back to their circadian rhythm?

The circadian rhythm of patients in intensive care is often disrupted by heavy medication or anaesthesia. With the assistance of lighting, the research team hope to help patients find a faster means of achieving a good balance between sleep and wakefulness. The four year research project is led by Berit Lindahl, Senior Lecturer at the School of Health Sciences at the University of Borås:

Berit Lindahl. *Foto: Marie Ullnert.*

"In the hospital's intensive care unit we have designed a test room; a calm environment equipped with indirect light that mirrors the pattern of daylight in regards to colour temperature and intensity. An approach, we hope, will help patients maintain their circadian rhythm. We also hope that this "circadian lighting solution" will help limit the occurrence of postoperative delirium, the use of pain-killers and, in an ideal world, shorten the length of stay. Due to the design of the lighting solution, the staff had to make some concessions in terms of light levels during the night. We use lower light levels than normal in order not to stimulate cortisol production but, of course, without compromising patient safety," says Berit Lindahl.

The lighting concept.

Imitates daylight

In addition to supplying the luminaires for the test project, Fagerhults Head of Research, Tommy Govén, worked with Torbjörn Laike at Lund University to provide the industry expertise.

"The lighting imitates daylight. In the early morning the light is more intense and cold, then slightly reduced for the rest of the morning. Between 11 am and 1 pm the light is dimmed down to a warmer colour temperature and lower light levels. The intensity of light and colour temperature is reduced gradually in the late afternoon to make the patient ready to face the night," says Tommy Govén.

The luminaires are equipped with "tuneable white", which enables the colour temperature to be adjusted from 2700 Kelvin to 6500 Kelvin, or from warm to cold light. The intensity can also be controlled from 0 lux to 1,000 lux.

"The light is mainly ambient, i.e. directed to walls and ceilings. The idea is that we will help the body to get started with the production of the stress hormone cortisol. The production of melatonin, which controls our sleep, is more difficult to influence. Therefore, it is important to avoid high and stressful light levels at night as much as possible."

How we work for better lighting in healthcare

Christer Liljegren, Product and Application Manager, Health & Care.

Time, energy and commitment - employees in healthcare put their whole soul into the job of helping other people. Our goal is to make the staff's job easier. That's why we work closely with healthcare providers, staff and researchers. Based on their latest insights, we create new, innovative lighting solutions.

"One of the clearest trends right now is the shift from multi-patient rooms to single patient rooms" says Christer Liljegren, product manager at Fagerhult.

"The reason, of course, is the greatly reduced risk of infection. This approach however, requires a more flexible care room. This was one of the inspirations behind the development of Eira, a LED luminaire that makes it possible to quickly switch from general light to examination light in the same luminaire. Eira is an excellent example of how close collaboration and research can provide innovation for future healthcare environments. Together with the renowned lighting design firm of Speirs + Major, we have created THE flexible LED luminaire to solve several tasks. Put simply, we want to make it easy for everyone to follow the lighting standard EN 12464."

Right now there also a major focus on energy savings, with more and more people investing in energy-efficient lighting technologies and solutions for advanced lighting control.

"It's not just about efficiency. Research has shown that we need higher levels of the right type of light for staff to perform well and for patients to feel good. This is where our LED luminaires fits in, they provide the opportunity to increase light levels and still save energy."

Cooperation makes innovative new light

Eira was created together with Speirs + Major, grounded in their vision for how modern healthcare lighting should perform. The luminaire provides a controlled, focused light, packaged within a slim, aesthetic glowing form for a less clinical feel. Its dual optic provides a diffused light which is comfortable to view even at the highest output, supplemented by a unique performance ring, instantly providing higher levels of light for both examination and emergency requirements.

Outside of the patient room, Eira is equally as suited to corridors or nursing stations. Using both optics during the day, for general and task lighting, switching to the performance ring during the night provides good working conditions without lighting the entire area and disturbing the patients.

Mark Major and Andrew Howis, Speirs + Major

"Our goal was to deliver light that allows staff to work simply and efficiently, but it was primarily about creating the best possible experience for the patient."

Andrew Howis, Speirs + Major

Eira

Sustainable H&C solutions

Sustainability issues are increasingly important in our world and particularly within healthcare facilities. While research shows that we need higher light levels in order to feel good, we also want to save energy and reduce our environmental impact. Fagerhults approach to lighting offers you the best of both worlds; create better lit environments with greater energy efficiency.

Energy consumption is rising and because lighting is a large percentage of the energy used, we strive to create smart systems which lower the impact.

Sustainability is not simply about the energy that is being consumed, how we manage our resources is equally as important. The issue is complex and that is why we follow the emergence of international environmental classification systems, such as BREEAM and LEED, extra carefully. BREEAM (BRE Environmental Assessment Method) was established in 1990 and is today the most common system in Europe. BREEAM has evaluation tools for different types of buildings, where the environmental performance is assessed in various fields. It states the minimum requirements for project management, building energy use, indoor climate with ventilation and lighting, water management, waste management, and land use and the impact on the local environment.

Fagerhult and the environment

Crystal Clear is Fagerhults environmental initiative – our way of limiting the environmental impact as much as possible. Through our long history of innovation, we have always adopted new energy-saving technologies at an early stage, much like we are doing now with LED technology. We use materials that can be easily recycled and we have also mapped some typical products so that we know the CO_2 impact throughout their life cycle.

We want our products to help make a better environment to live and work in. With our expertise, we create light that stimulates alertness, wellbeing and performance. Light makes people feel good – for us it is crystal clear!

Crystal Clear

FAGERHULT
SUSTAINABILITY

Why choose Fagerhult?

Jeroen Bosch – hospital, Holland

- We know the scientific relationship between light and health, partnering with leading authorities in the field and conducting our own research projects.
- With more than 40 years of experience in lighting and medical supply units for healthcare, we are a reliable and stable partner that takes responsibility for our solutions – both now and in the future.
- Our Health and Care products are developed by a dedicated team. We have the resources required to follow trends and research in the field and apply them to our solutions.
- Offering a full range of lighting and medical supply units for patient rooms, intensive care units, surgery and general areas; we can assist on the entire spectrum. From hospitals to nursing homes and specialty clinics.
- We provide consultation and support to staff, operators, developers, consultants and contractors throughout the process, for new-builds, refurbishments and extensions.
- As a pioneer in energy efficient and environmentally friendly lighting we use the latest technology and innovative solutions for controls to create lighting that consumes less energy and saves money.
- As a specialist in LED, you can always be sure of the quality, efficiency and service life. We have a holistic view of technology and the lit experience.

Skånes University hospital, Malmö, Sweden.

Notor in Skånes University hospital, Malmö, Sweden.

Beatrix hospital, Holland.

Åbo hospital, Finland.

Kalmar hospital ICU, Sweden.

Oskarshamns hospital, Sweden.

Application guide

Think of this!

Ambient light. We feel at our best in natural light. Our 'light norm' is the celestial sphere that extends from the ground to the horizon and further upwards. Our eyes take in light coming vertically from the side and from above. Therefore, a large part of the light should be reflected from the walls and ceilings, a distribution referred to as ambient light. A suitable ambient light is 100 cd/m^2.

Glare. In nature we avoid looking directly at the sun, because it is uncomfortable and we get blinded. Glare makes us tired, we see poorly and work poorly, you can also get headaches. To avoid these scenarios it is important that all light is glare free.

Intensity. Intense light triggers the production of the stress hormone cortisol, disturbing the patients circadian rhythm. However, the staff requires an adequate level of light to perform their tasks efficiently and accurately. A good guideline is 100 cd/m^2 in ambient light and 500 lux for desk work.

Colour Temperature. By changing the colour temperature, it is possible to imitate daylight. Cold light makes you more alert and warm light calms you down. Today there are luminaires with a "tuneable white" function which makes it possible to vary the light between cold and warm.

	Eira	MultiFive Medical	Aluflex 600	Amalia LED	Pleiad G3	Appareo	Tibi	Multilume Flat	Vidi	Wallwing	Zest LED	Discovery Space LED	Nixi	Lepo	Multilume Hydro	Indigo Ed2 Perfo Hygiene	DTI	Avion	Pozzo LED	Rondo G2 Power	Conledo	Azur LED	Kaptur LED	G5
Care rooms	●	●	●	●	●			●			●					●			●					
Clean room															●	●							●	
Communication areas	●				●		●	●	●	●		●	●	●					●				●	
General lighting	●				●	●	●	●		●		●	●	●			●		●					
Office					●	●		●									●	●	●					●
Outdoor																				●	●	●	●	

Eira

A unique LED luminaire, developed in collaboration with Speirs + Major to address the needs of contemporary lighting in healthcare. Its slim glowing form combines a general and examination light in the same luminaire, while contributing towards a more domestic feel in wards, corridors and nurse stations.

Eira provides an excellent general light, with a level of ambient light on the ceiling and wall. The opal shade softly diffuses the light so it's comfortable to view, even at its highest output. Equipped with an innovative performance ring, the same fitting can instantly provide a focused downlight for emergency and examination requirements. The high-quality LED modules offer exceptional efficiency and longevity, further enhanced by its dual functionality which reduces the time required for installation and maintenance.

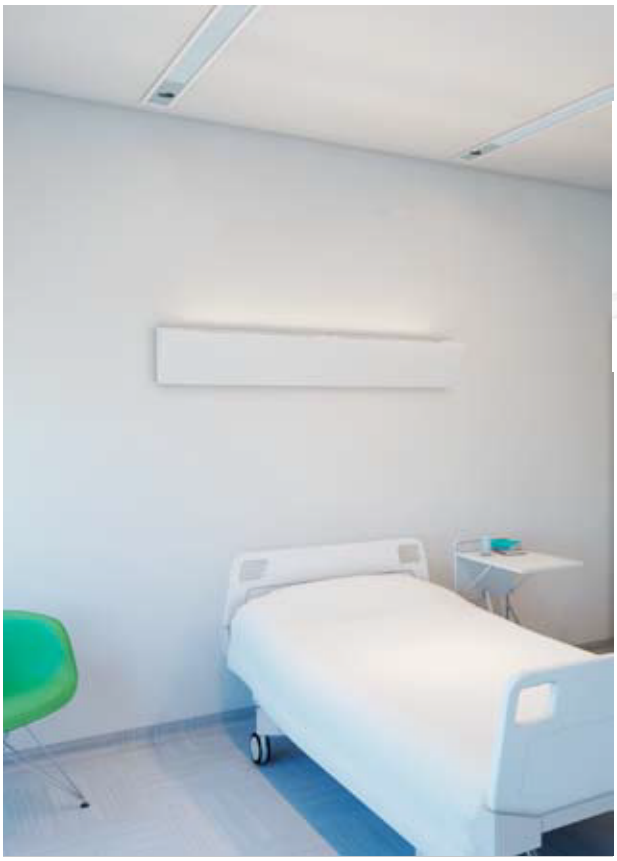
Luminaire			
∅	Colour temp., K	System, W	
Surface mounted			
550	4000	65	**56780-402**
550	3000		**56781-402**
400	4000	35	**56782-402**
400	3000		**56783-402**
Recessed			
550	4000	65	**56784-402**
550	3000		**56785-402**
400	4000	35	**56786-402**
400	3000		**56787-402**

For current information on output and luminous flux, please refer to our website.

LED information			
Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*
4000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*

Accessories	
Assembly plate ∅ 400, 600-module visible T-bars	**94070**
Assembly plate ∅ 550, 600-module visible T-bars	**94071**

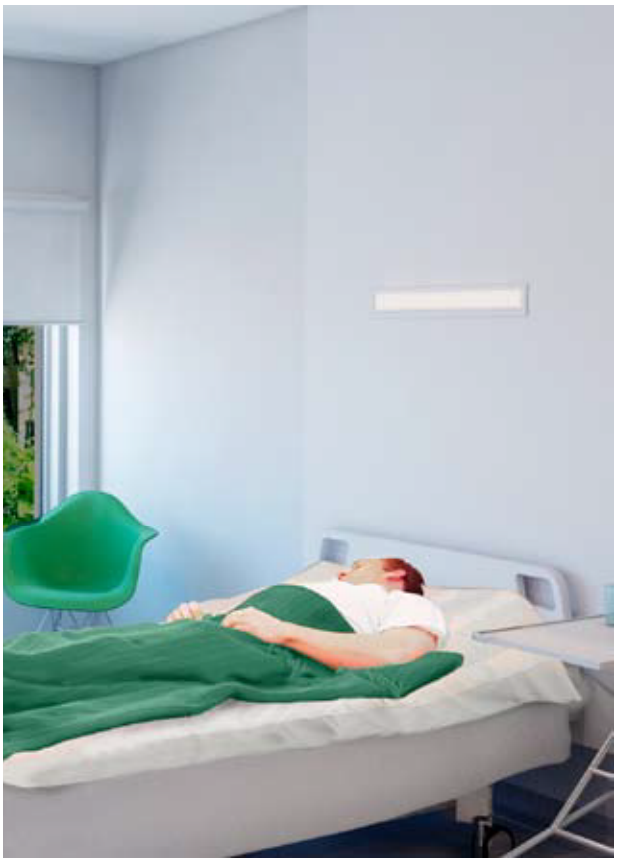
MultiFive Medical



MultiFive Medical is a brand new way of lighting wards, based on a combination of T5 and LED light sources.

Two luminaires are placed in parallel to the bed with the T5 creating an asymmetric examination light over the bed. The angled LED serves as a reading light for the patient.

Luminaire			
FDH		Length	
1×35/49/80 + 500 lm LED-spot	Left	1800	**23131**
1×35/49/80 + 500 lm LED-spot	Right	1800	**23133**
1×35/49/80		1500	**23135-368**



Aluflex 600

Aluflex 600 provides reading light and a supplementary examination light at the head-end of the patient's bed. Based on energy-efficient LED technology the well shielded light is framed with a stylish aluminium profile.

Aluflex 600 is the perfect alternative to luminaires attached to arms for reading and examinations. Its sealed design is easy to clean and, due to the LED light source, requires minimal maintenance in regards to lamp replacement. Aluflex 600 is for mounting on a medical supply unit.

Luminaire				
System, W	Colour temp., K	Luminous flux, lm	Efficiency, lm/W	
40	4000	2676	67	**74600-402**
40	3000			**74601-402**
40	4000	2655	66	**74602-402**
40	3000			**74603-402**

For current information on output and luminous flux, please refer to our website.

LED information			
Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 3 SDCM*
4000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 3 SDCM*

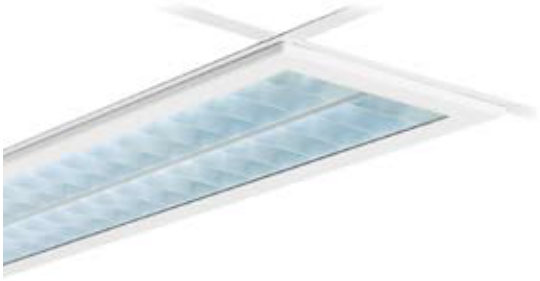
Amalia LED

The Amalia reading lamp is a powerful LED luminaire focusing on design and functionality. Its plastic coated spring arm helps facilitate simple cleaning.

Amalia is available in three versions: S4 with articulated arm, S7 with fixed arm and S8 for mounting on bedposts. The reading light function provides a full 1000 lx, suitable for basic examinations with a power consumption of only 9 W. The built-in night light, situated at the top of the lamp head, offers an addition feature as standard.

Luminaire	
Amalia 9 P S4, with friction hinge	**74594**
Amalia 9 P S7, without friction hinge	**74595**
Amalia 9 P S8, without friction hinge for mounting on beds	**74596**

Multilume Hydro



Environments with strict hygiene requirements must also have highly effective lighting and Multilume Hydro was specifically developed to address these needs. Not only does it provide professional work lighting, it also simplifies maintenance as it is easy to service and clean.

Luminaire				
FDH	kg	Module		
Recessed IP 65/50				
3×13/14	9.1	600×600	**23040**	■
4×13/14	9.2	600×600	**23041**	■
4×20/24	9.2	600×600	**23059**	■
2×25/28	9.4	300×1200	**23042**	■
2×25/28	13.9	600×1200	**23044**	■
3×25/28	14.3	600×1200	**23045**	■
4×25/28	14.5	600×1200	**23046**	■
2×32/35	11.7	300×1500	**23043**	■
Surface mounting IP 65				
2×25/28	9.7	300×1200	**23047**	■
2×32/35	12.1	300×1500	**23048**	■
2×50/54	9.4	300×1200	**23083**	■

Suffix code	
■ **-368**	DALI/Phase-pulse control
■ **-436**	DALI/DSI/switchDIM

Add suffix code to the end of the luminaire part number to indicate required function. Only one suffix can be added.

Indigo Ed2 Perfo Hygiene

The clean, simple design of Indigo Ed2 Perfo Hygiene makes a clear statement. Indigo Ed2 is the only luminaire in the Indigo concept with a predominantly indirect light distribution, offering a high degree of visual comfort within the room.

Luminaire			
FDH	kg	Visible T-bars (VTB)	
Module 600×600			
4×13/14	7.3	**24538**	■
4×20/24	7.3	**24539**	■

Suffix code
■ **-368** DALI/Phase-pulse control

Add suffix code to the end of the luminaire part number to indicate required function.

Vidi

Vidi is an innovative corridor lighting solution based on a totally new way of providing light. By increasing the proportion of incidental light it is possible to create a more varied experience and a clearer sense of space. Vidi is available in three models; ceiling, corner and wall luminaires, with different light distribution and mounting options. All presented in a contemporary, minimalist design.

The concept has been developed for optimal lighting ergonomics and satisfies the EN-12461-1 requirements for ceiling and wall luminance, as well as other visual aspects.

Vidi 1

FDH	kg		
1×13/14	1.8	**17330**	■
1×21	2.5	**17331**	■
1×20/24	1.8	**17332**	■
1×25/28	3.2	**17333**	■
1×32/35	3.8	**17334**	■
1×45/49	3.8	**17335**	■
1×50/54	3.2	**17336**	■

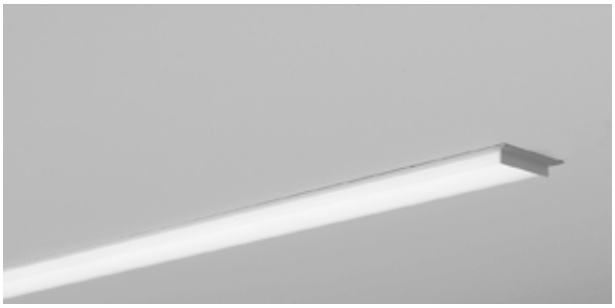
Vidi 2

FDH	kg		
1×13/14	2.2	**17340**	■
1×20/24	2.2	**17341**	■
1×25/28	3.7	**17342**	■ ●
1×32/35	4.8	**17343**	■ ●
1×45/49	4.8	**17344**	■ ●
1×50/54	3.7	**17345**	■ ●

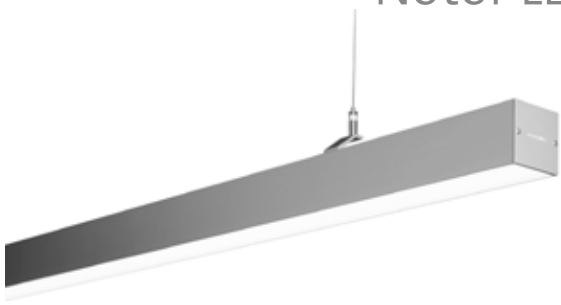
Suffix code

■	**-299**	DALI
■	**-436**	DALI/DSI/switchDIM
●	**-367**	e-Sense ActiLume master luminaire

Add suffix code to the end of the luminaire part number to indicate required function. Only one suffix can be added.



Notor LED



Notors slim, minimalist profile has now been up-dated with an exciting modern twist. The original compact design has been equipped with LEDs to achieve the possibilities and demands for lines of light within a room.

Surface mounted, recessed or suspended, each version is available with a range of connectors, with the scope to create various patterns and shapes with light.

Notor LED

Modular length	Colour temp., K	System, W	Luminous flux, lm	Efficiency, lm/W	kg	Start/Single	Continuous
Straight luminaire							
600	4000	11	880	77	2.0	**26370** ■	**26373** ■
1200	4000	22	1880	85	3.0	**26371** ■	**26374** ■
2400	4000	44	3740	85	6.0	**26372** ■	**26375** ■
Illuminated corner							
Right							
600×600	4000	22	1760	80	3.0	**26392*** ■	**26390** ■
Left							
600×600	4000	22	1760	80	3.0	**26393*** ■	**26391** ■

** Only for suspension and in closed systems.*
For current information on output and luminous flux, please refer to our website.

Notor recessed LED, Opal flush

Modular length	Colour temp., K	System, W	Luminous flux, lm	Efficiency, lm/W	kg	Single	Start	Continuous
Straight luminaire								
600	3000	12	874	73	1.9	**22609*** ■	**22615** ■	**22621** ■
1200	3000	22	1798	82	3.7	**22610** ■	**22616** ■	**22622** ■
2400	3000	44	3596	82	7.4	**22611** ■	**22617** ■	**22623** ■
600	4000	12	874	73	1.9	**22612*** ■	**22618** ■	**22624** ■
1200	4000	22	1798	82	3.7	**22613** ■	**22619** ■	**22625** ■
2400	4000	44	3596	82	7.4	**22614** ■	**22620** ■	**22626** ■
Illuminated corner								
600×600	3000	22	1798	82	3.5			**22632** ■
600×600	4000	22	1798	82	3.5			**22633** ■

** Not possible to be mounted as single luminaire in ceilings with visible T-bars (VTB).*
For current information on output and luminous flux, please refer to our website.

Notor recessed LED, Opal dropped

Modular length	Colour temp., K	System, W	Luminous flux, lm	Efficiency, lm/W	kg	Start	Single/Cont./End
Straight luminaire							
600	3000	12	906	75	1.9	**22963** ■	**22969*** ■
1200	3000	22.1	1856	84	3.7	**22964** ■	**22970** ■
2400	3000	44	3712	84	7.4	**22965** ■	**22971** ■
600	4000	12	906	75	1.9	**22966** ■	**22972*** ■
1200	4000	22.1	1856	84	3.7	**22967** ■	**22973** ■
2400	4000	44	3712	84	7.4	**22968** ■	**22974** ■
Illuminated corner							
600×600	3000	22.1	1856	84	3.5		**22630** ■
600×600	4000	22.1	1856	84	3.5		**22631** ■

** Not possible to be mounted as single luminaire in ceilings with visible T-bars (VTB).*
For current information on output and luminous flux, please refer to our website.

LED information

Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 85*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*
4000 K	*≥ 80*/ ≥ 85***	*L_{70} 50.000 h*	*MacAdam 4 SDCM*

Suffix code

■ **-402** DALI

Add suffix code to the end of the luminaire part number to indicate required function.

Wallwing

Wallwing is a discreet luminaire which enhances the spatial experience in general areas such as corridors and stairwells.

The minimalist, flat design offers the dual functionality of increasing the ambient light levels with a downlight to aid navigation. The large model, with two wings, provides a wide spread of light across the wall, enhancing the experience within the space. The smaller version can be engraved with room numbers on the illuminated surface, for an aesthetic and functional alternative to general signage.

Luminaire						
System, W	Colour temp., K	Luminous flux, lm	Efficiency, lm/W	kg	**White**	**Black**
Double shade						
18	3000	1244	69	1.5	**64001-402**	**64002-402**
18	4000	1244	69	1.5	**64011-402**	**64012-402**
Single shade						
9	3000	545	61	1.1	**64005-402**	**64006-402**
9	4000	620	69	1.1	**64015-402**	**64016-402**

For current information on output and luminous flux, please refer to our website.

LED information			
Colour temp. (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*
4000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*

Multilume Flat

Multilume Flat is general lighting with LED, designed for recessed installation in suspended ceilings. The micro-prismatic Delta diffuser provides a highly controlled light pattern that meets the standard requirements of 3000 cd/m² for computer work. The Opal alternative provides a crisp light and a somewhat whiter surface.

During Q3 2013, the fixture will be available with "tunable white" function which makes it possible to change the colour temperature from warm to cooler light or with RGB control for creating colour effects.

Multilume Flat Delta

Length	Width	Colour temp., K	System, W	Luminous flux, lm	Efficiency, lm/W	kg	
Visible T-bars (VTB)							
300	300	3000	11	843	77	2.4	**22405** ■
300	300	4000	11	922	84	2.4	**22393** ■
600	600	3000	42	3671	88	6.5	**22407** ■
600	600	4000	44	4278	97	6.5	**22395** ■
1200	300	3000				6.2	**22406** ■
1200	300	4000				6.2	**22394** ■
Concealed T-bars (HB)/D-edge, symmetrical attachment of ceiling boards							
600	600	3000	42	3671	88	6.5	**22409** ■
600	600	4000	44	4278	97	6.5	**22397** ■

For current information on output and luminous flux, please refer to our website.

Multilume Flat Opal

Length	Width	Colour temp., K	System, W	Luminous flux, lm	Efficiency, lm/W	kg	
Visible T-bars (VTB)							
300	300	3000	11	994	90	2.4	**22402** ■
300	300	4000	11	1082	98	2.4	**22390** ■
600	600	3000	42	4093	97	6.5	**22404** ■
600	600	4000	44	4481	102	6.5	**22392** ■
1200	300	3000				6.2	**22403** ■
1200	300	4000				6.2	**22391** ■
Concealed T-bars (HB)/D-edge, symmetrical attachment of ceiling boards							
600	600	3000	42	4093	97	6.5	**22408** ■
600	600	4000	44	4481	102	6.5	**22396** ■

For current information on output and luminous flux, please refer to our website.

LED information

Colour temp. (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*
4000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*

Suffix code

■ **-03** Connection cable with earthed plug, RKK 3×0.75 mm², L=2.5 m.

■ **-402** DALI

Add suffix code to the end of the luminaire part number to indicate required function. Only one suffix can be added.

Pozzo LED

With its combination of technology and aesthetics Pozzo is unique and offers the opportunity to develop exciting concepts for both small and very large areas. The diffuser is vertically adjustable and can be used as the light well in the retracted position, or lowered to align with the ceiling.

Pozzo provides a large area illusion – the room is amplified and feels lighter than the luxmeter shows.

Pozzo LED					
∅	Colour temp., K	System, W	Luminous flux, lm	Efficiency, lm/W	
Delta					
350	3000	21	1267	60	**24825** ■
450	3000	33	2304	70	**24826** ■
550	3000	45	3222	72	**24827** ■
350	4000	21	1356	65	**24838** ■
450	4000	34	2491	73	**24839** ■
550	4000	46	3391	74	**24840** ■
Opal					
350	3000	21	1276	61	**24822** ■
450	3000	33	2300	70	**24823** ■
550	3000	45	3068	68	**24824** ■
350	4000	21	1357	65	**24835** ■
450	4000	34	2480	73	**24836** ■
550	4000	46	3283	71	**24837** ■

For current information on output and luminous flux, please refer to our website.

LED information			
Colour temp. (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 3,5 SDCM*
4000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 3,5 SDCM*

Suffix code
■ **-402** DALI

Add suffix code to the end of the luminaire part number to indicate required function.

Tibi

Tibi produces a crisp, radiant light, floating in the space with its distinct form. Its classical super ellipse shape is maximised with advanced LED technology to create a stunning light experience. Its extensive range includes ceiling and wall luminaires which have been optimised to use the most functional control system on the market.

Luminaire							
∅	Colour temp., K	System, W	Luminous flux, lm	Efficiency, lm/W	kg	**Brushed aluminium**	**Black**
Pendant							
400	4000	25	1653	65	3.3	**54770-402**	**54775-402**
600	4000	65	5414	83	5.7	**54771-402**	**54776-402**
800	4000	72	6328	87	9.0	**54772-402**	**54777-402**
Ceiling/Wall							
400	4000	27	1708	63	3.0	**56770-402*** ■	**56775-402*** ■
600	4000	49	3744	76	6.0	**56771-402*** ■	**56776-402*** ■

** Other suffix code replaces -402.*
For current information on output and luminous flux, please refer to our website.

LED information			
Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
4000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*

Suffix code
■ **-439** e-Sense Detect absence dampening
■ **-440** e-Sense Move absence dampening

Add suffix code to the end of the luminaire part number to indicate required function. Only one suffix can be added.

Lepo

Lepo is a decorative T5 luminaire which offers a combination of energy efficiency and balanced illuminance. By combining the three different sizes it is possible to create eye catching luminaire clusters.

Lepo is designed to spread a pleasant general light making it ideal for applications such as lobbies, receptions and cafes. As the light sources are not exposed at any angle it is also an excellent solution for staircases.

Luminaire

FDH	Height	kg		
2×13/14	680	2.7	**54580**	■
2×21	980	3.7	**54581**	■
2×25/28	1280	4.5	**54582**	■

Suffix code

■ **-436** DALI/DSI/switchDIM

Add suffix code to the end of the luminaire part number to indicate required function.

Appareo

It's magic. The luminaire is lit, but where is the light source? Appareo is a suspended luminaire that drives LED technology to the extreme limits of design -rectangular or circular- without compromising on the requirements for efficiency and ergonomics.

In Appareo we have successfully combined the need for work and ambient lighting in a single luminaire, thanks to new and exciting technology.

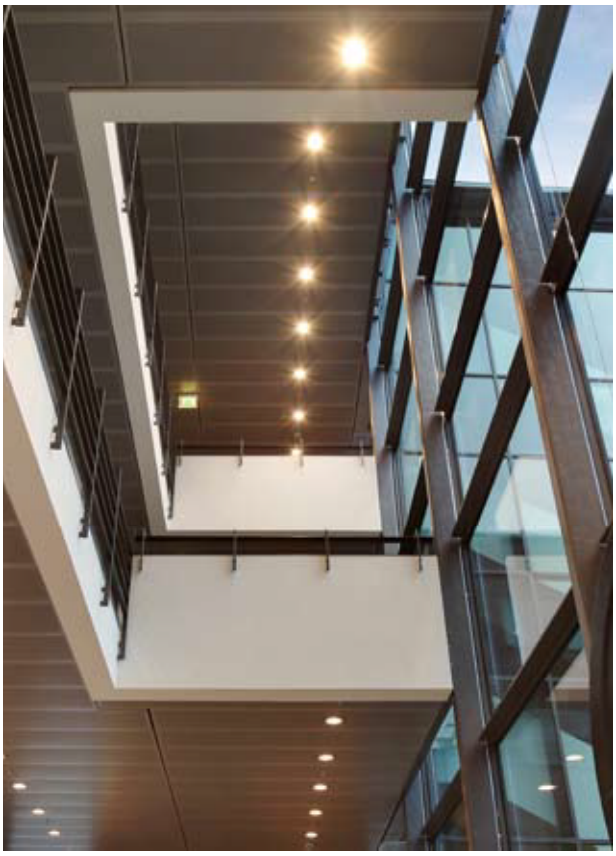
Luminaire							
System, W	Colour temp., K	Lightdistr.	Luminous flux, lm	Efficiency, lm/W	kg	**White**	**Black**
Rectangular							
65	4000	40/60	5210	80	4.7	**11070-*** ■	**11071-*** ■
Circular							
54	4000	40/60	4747	86	4.6	**53751-402**	**53752-402**

** Luminaire must be completed with desired function. See table with suffix codes.*
For current information on output and luminous flux, please refer to our website.

LED information			
Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
4000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*

Suffix code
■ **-402** DALI
■ **-442** e-Sense ActiLume single luminaire

Add suffix code to the end of the luminaire part number to indicate required function. Only one suffix can be added.



Pleiad G3

Pleiad G3 is a complete LED lighting concept. Focusing on light quality, ergonomics and energy efficiency, Pleiad G3 has now been expanded to include a surface mounted version. Its innovative reflector technology harnesses the efficiency of the LED light source without affecting the perception and quality of the light. Longevity and performance is complimented with a time conscious, tool-free assembly to offer a truly economical solution with a realistic payback time.

Pleiad SLD G3, recessed

LED-module, lm, W	Colour temp, K	Luminous flux, lm	Efficiency, lm/W	Reflector	kg		
Wide beam							
1100, 12	3000	890	60	Specular	1.5	**77950**	■
1100, 12	3000	845	57	Matt	1.5	**77951**	■
1100, 11	4000	850	57	Specular	1.5	**77952**	■
1100, 11	4000	811	55	Matt	1.5	**77953**	■
2000, 24	3000	1454	57	Specular	1.5	**77955**	■
2000, 24	3000	1392	56	Matt	1.5	**77956**	■
2000, 22	4000	1579	62	Specular	1.5	**77957**	■
2000, 22	4000	1558	61	Matt	1.5	**77958**	■
2000, 30	2700–6500			Specular	1.5	**77975**	
2000, 30	2700–6500			Matt	1.5	**77976**	
3000, 39	3000	2162	54	Specular	1.5	**77960**	■
3000, 39	3000	2156	54	Matt	1.5	**77961**	■
3000, 35	4000	2198	59	Specular	1.5	**77962**	■
3000, 35	4000	2172	59	Matt	1.5	**77963**	■
Medium beam							
1100,12	3000			Matt	1.5	**77493**	■
1100,11	4000			Matt	1.5	**77494**	■
2000, 24	3000			Matt	1.5	**77495**	■
2000, 22	4000			Matt	1.5	**77496**	■
3000, 39	3000			Matt	1.5	**77497**	■
3000, 35	4000			Matt	1.5	**77498**	■

For current information on output and luminous flux, please refer to our website.

Pleiad Compact G3, surface mounted

LED-module, lm, W	Colour temp, K	Luminous flux, lm	Efficiency, lm/W	Reflector	kg		
1100, 12	3000	868	59	Specular	1.3	**77930**	■
1100, 12	3000	852	58	Matt	1.3	**77931**	■
1100, 11	4000	834	56	Specular	1.3	**77932**	■
1100, 11	4000	818	55	Matt	1.3	**77933**	■
2000, 24	3000	1499	59	Specular	1.3	**77935**	■
2000, 24	3000	1466	57	Matt	1.3	**77936**	■
2000, 22	4000	1583	62	Specular	1.3	**77937**	■
2000, 22	4000	1569	62	Matt	1.3	**77938**	■

For current information on output and luminous flux, please refer to our website.

Pleiad Compact Basic G3, recessed

LED-module, lm, W	Colour temp, K	Luminous flux, lm	Efficiency, lm/W	Reflector	kg		
1100, 20	3000	715	37	Specular	1.1	**77880**	●
1100, 20	3000	705	36	Matt	1.1	**77881**	●
1100, 18	4000	740	38	Specular	1.1	**77882**	●
1100, 18	4000	725	37	Matt	1.1	**77883**	●

For current information on output and luminous flux, please refer to our website.

Pleiad SLD G3, surface mounted

LED-module, lm, W	Colour temp, K	Luminous flux, lm	Efficiency, lm/W	Reflector	kg		
1100, 12	3000	890	60	Specular	3.0	**72460**	■
1100, 12	3000	845	57	Matt	3.0	**72461**	■
1100, 11	4000	850	57	Specular	3.0	**72462**	■
1100, 11	4000	811	55	Matt	3.0	**72463**	■
2000, 24	3000	1454	57	Specular	3.0	**72464**	■
2000, 24	3000	1392	56	Matt	3.0	**72465**	■
2000, 22	4000	1579	62	Specular	3.0	**72466**	■
2000, 22	4000	1558	61	Matt	3.0	**72467**	■

For current information on output and luminous flux, please refer to our website.

Pleiad SLD Basic G3, surface mounted

LED-module, lm, W	Colour temp, K	Reflector	kg		
1100, 12	3000	Specular	3.0	**72470**	
1100, 12	3000	Matt	3.0	**72471**	
1100, 11	4000	Specular	3.0	**72472**	
1100, 11	4000	Matt	3.0	**72473**	

For current information on output and luminous flux, please refer to our website.

Pleiad Wallwasher G3

LED-module, lm, W	Colour temp, K	Reflector	kg		
1100, 12	3000	Specular	1.6	**77990**	■
1100, 11	4000	Specular	1.6	**77992**	■
2000, 24	3000	Specular	1.6	**77991**	■
2000, 22	4000	Specular	1.6	**77993**	■
2000, 30	2700–6500	Specular	1.6	**77994**	

For current information on output and luminous flux, please refer to our website.

LED information Pleiad SLD G3, Pleiad Compact G3, Pleiad Wallwasher G3

Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 3 SDCM*
4000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 3 SDCM*

LED information Pleiad SLD Basic G3, Pleiad Compact Basic G3

Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 5 SDCM*
4000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 5 SDCM*

Suffix code

■ **-365** TouchDIM/DALI

● **-03** Connection cable with earthed plug, RKK 3×0.75 mm², L=2.5 m.

● **-111** Standard. Wieland GST18i3 (3-way). One outlet socket.

Add suffix code to the end of the luminaire part number to indicate required function. Only one suffix can be added.

Avion

Avion has a delicate beauty masking a robust design. An elegant flow of light which creates an impression of weightlessness, designed to act as a striking solitary luminaire, or to form a system where its long dimensions create a fascinating linear interaction.

Avion 50

FDH	Lightdistr	White/black	Grey/white	
Beta				
1×25/28	50/50	**29141**	**29171**	■
1×32/35	50/50	**29142**	**29172**	■
1×45/49	50/50	**29143**	**29173**	■
1×50/54	50/50	**29144**	**29174**	■
2×25/28	50/50	**29146**	**29176**	■ ● ●
2×32/35	50/50	**29147**	**29177**	■ ● ●
2×45/49	50/50	**29148**	**29178**	■
2×50/54	50/50	**29149**	**29179**	■
Delta				
2×25/28	50/50	**29396**	**29406**	■ ● ●
2×32/35	50/50	**29397**	**29407**	■ ● ●
2×45/49	50/50	**29398**	**29408**	■
2×50/54	50/50	**29399**	**29409**	■
Lamell				
1×25/28	50/50	**29121**	**29151**	■
1×32/35	50/50	**29122**	**29152**	■
1×45/49	50/50	**29123**	**29153**	■
1×50/54	50/50	**29124**	**29154**	■
2×25/28	50/50	**29126**	**29156**	■ ● ●
2×32/35	50/50	**29127**	**29157**	■ ● ●
2×45/49	50/50	**29128**	**29158**	■
2×50/54	50/50	**29129**	**29159**	■

Avion 20 with two pull switches separate direct/indirect

FDH	Lightdistr.	White/black	Grey/white	
Beta				
3×25/28	20/80	**29191-17**	**29211-17**	■●▲
3×32/35	20/80	**29192-17**	**29212-17**	■●▲
3×45/49	20/80	**29193-17**	**29213-17**	■●▲
Lamell				
3×25/28	20/80	**29181-17**	**29201-17**	■●▲
3×32/35	20/80	**29182-17**	**29202-17**	■●▲
3×45/49	20/80	**29183-17**	**29203-17**	■●▲

Other suffix code replaces -17.

Suffix code

- ■ **-368** DALI/Phase-pulse control
- ■ **-409** Phase-pulse control, one pull-cord
- ■ **-436** DALI/DSI/switchDIM
- ● **-218** e-Sense smartSWITCH absence detector
- ● **-219** e-Sense smartSWITCH on/off
- ● **-220** e-Sense smartSWITCH with pull dim-switch
- ● **-384** e-Sense ActiLume with single luminaire pull dim-switch
- ● **-367** e-Sense ActiLume master luminaire
- ▲ **-410** Phase-pulse control, two pull dim-switch

Add suffix code to the end of the luminaire part number to indicate required function. Only one suffix can be added.

DTI

DTI is a luminaire range that covers any needs for general and task lighting across most projects. The luminaires moves across the spectrum, from direct light to a combination of both direct and indirect light.

With a clean discreet design, easy installation, good energy efficiency and excellent lighting comfort, DTI is a comprehensive economic lighting solution to suit most applications.

DTI type 1 Beta

FDH	kg	Light dist.		
1-cell luminaire				
1×13/14	2.6	100/0	**28801**	■
1×25/28	2.8	100/0	**28807**	■ ●
1×32/35	3.0	100/0	**28809**	■ ●
1×45/49	3.0	100/0	**28813**	■
1×50/54	2.8	100/0	**28815**	■
1×73/80	3.0	100/0	**28817**	■
2×13/14	2.6	100/0	**28802**	■
2×25/28	2.8	100/0	**28808**	■ ●
2×32/35	3.0	100/0	**28810**	■ ●
2×45/49	3.0	100/0	**28814**	■
2×50/54	2.8	100/0	**28816**	■
2×73/80	3.0	100/0	**28818**	
2-cell luminaire				
2×25/28	3.8	100/0	**28835**	■ ●
2×32/35	4.0	100/0	**28836**	■ ●
1-cell luminaire asymmetrical				
1×25/28	2.8	100/0	**28971**	■
1×32/35	3.0	100/0	**28972**	■
1×45/49	3.0	100/0	**28973**	■
1×50/54	2.8	100/0	**28974**	■

DTI type 2 Beta

FDH	kg	Light dist.		
1-cell luminaire				
1×25/28	2.8	50/50	**28821**	■ ● ▲ ●
1×32/35	3.0	50/50	**28823**	■ ● ▲ ●
1×45/49	3.0	50/50	**28829**	■ ▲
1×50/54	2.8	50/50	**28825**	■ ▲
1×73/80	3.0	50/50	**28827**	■ ▲
2×25/28	2.8	50/50	**28822**	■ ● ▲ ●
2×32/35	3.0	50/50	**28824**	■ ● ▲ ●
2×45/49	3.0	50/50	**28830**	■ ▲
2×50/54	2.8	50/50	**28826**	■ ▲
2×73/80	3.0	50/50	**28828**	
2-cell luminaire				
2×25/28	3.1	50/50	**28838**	■ ● ▲ ●
2×32/35	3.1	50/50	**28839**	■ ● ▲ ●

Suffix code

■	**-368** DALI/Phase-pulse control
■	**-436** DALI/DSI/switchDIM
●	**-309** e-Sense smartSWITCH absence detector
●	**-314** e-Sense smartSWITCH on/off
●	**-382** e-Sense ActiLume master luminaire
●	**-315** e-Sense smartSWITCH
●	**-385** e-Sense ActiLume with single luminaire pull dim-switch
▲	**-409** Phase-pulse control, one pull-cord

Add suffix code to the end of the luminaire part number to indicate required function. Only one suffix can be added.

G5

G5 is an LED-based desk luminaire that provides supplementary working light and increases the employees' ability to influence their own lit environment. A discreet and stylish luminaire housing enables G5 to blend into many different types of environment and design themes. The user-friendly desk clamp makes it easy to move the luminaire when required.

Luminaire

System, W	Colour temp, K	Luminous flux, lm	Efficiency, lm/W	
8	3000	247	29	**62005**

For current information on output and luminous flux, please refer to our website.

LED information

Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 5 SDCM*

Discovery Space LED

The round beam Discovery family is ideal for many areas of application, thanks to its robust construction and light control options.

Discovery Space LED can be surface and semi-recessed mounted.

Luminaire					
System, W	Colour temp, K	Luminous flux, lm	Efficiency, lm/W	kg	
Acrylic					
11	3000	650	64	1.5	**57701**
20	3000	1200	60	1.5	**57702** ■
PC					
11	3000	600	59	1.5	**57703** ●
20	3000	1150	58	1.5	**57704** ■

For current information on output and luminous flux, please refer to our website.

LED information			
Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*

Suffix code	
●	**-219** e-Sense smartSWITCH on/off
■	**-438** 1–10 V
■	**-357** e-Sense Detect on/off
■	**-439** e-Sense Detect absence dampening
■	**-431** e-Sense Move on/off
■	**-440** e-Sense Move absence dampening

Add suffix code to the end of the luminaire part number to indicate required function. Only one suffix can be added.

Nixi

Nixi embodies functionality within an excellent general lighting solution. Available in two sizes, and wall, ceiling or recessed variations, Niki offers a consistent visual appeal across numerous applications.

The balanced, opal diffuser provides a comfortable general light whilst adding a decorative element to the space. The surface mounted version provides a small output of light on the ceiling as an additional aesthetic feature. Nixi can be optimised with built-in sensors, emergency lighting and additional protection for harsh environments.

Luminaire							
∅	Colour temp, K	System, W	Luminous flux, lm	Efficiency, lm/W	kg		
Ceiling/wall							
300	4000	15	1160	77	2.2	**56740**	■
400	4000	20	1824	91	4.2	**56741**	■●
Ceiling/wall with backlight							
400	4000	27	1871	69	4.2	**56742**	■
Recessed							
300	4000	15	1160	77	2.2	**56745**	■
400	4000	20	1824	91	4.2	**56746**	■●

For current information on output and luminous flux, please refer to our website.

Emergency light						
∅	Colour temp, K	System, W	Luminous flux, lm	Efficiency, lm/W	kg	
Ceiling/wall, decentralised 3 h, self-test AT4						
400	4000	20	1824	91	4.2	**56750**
Ceiling/wall, decentralised 3 hours, self-test AT4 + DALI surveillance						
400	4000	20	1824	91	4.2	**56751**
Recessed, decentralised 3 h, self-test AT4						
400	4000	20	1824	91	4.2	**56752**
Recessed, decentralised 3 h, self-test AT4 + DALI surveillance						
400	4000	20	1824	91	4.2	**56753**

For current information on output and luminous flux, please refer to our website.

LED information			
Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
4000 K	*≥ 85*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*

Suffix code
■ **-439** e-Sense Detect absence dampening
■ **-357** e-Sense Detect on/off
● **-402** DALI

Add suffix code to the end of the luminaire part number to indicate required function. Only one suffix can be added.

Zest LED

Zest LED is an ideal solution for LED under-cupboard lighting; providing an exceptional 500 lux of glare-free light above both walls and the work surfaces.

As suitable in a domestic kitchen as in lab environments and hospitals, Zest LED can be wiped using alcohol-based cleaning agents. The dimmable model can be used to create different atmospheres and moods.

Luminaire					
Length	System, W	Colour temp, K	Luminous flux, lm	Efficiency, lm/W	
On/off via push button on the front					
600	12	3000	900	75	**18201**
1200	22	3000	1800	82	**18211**
Dimmable via push button on the front					
600	12	3000	900	75	**18202**
1200	22	3000	1800	82	**18212**
DALI alt. Phase-pulse control without push button					
600	12	3000	900	75	**18203**
1200	22	3000	1800	82	**18213**

For current information on output and luminous flux, please refer to our website.

LED information			
Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*

Kaptur LED

Kaptur is a capped industrial luminaire with LEDs that fit well in harsh and cold environments. With protection class IP 65, the fitting is an excellent choice for garages or underground corridors. Its LED solution provides easy maintenance and makes Kaptur LED luminaires a reliable and long lasting lighting solution.

Luminaire

System, W	Colour temp, K	Luminous flux, lm	Efficiency, lm/W	mm	Acryl		PC	
22	4000	2500	114	673	**34701**	●	**34711**	●
43	4000	5000	116	1283	**34702**	■ ●	**34712**	■ ●
51	4000	5500	108	1583	**34703**	■ ●	**34713**	■ ●

For current information on output and luminous flux, please refer to our website.

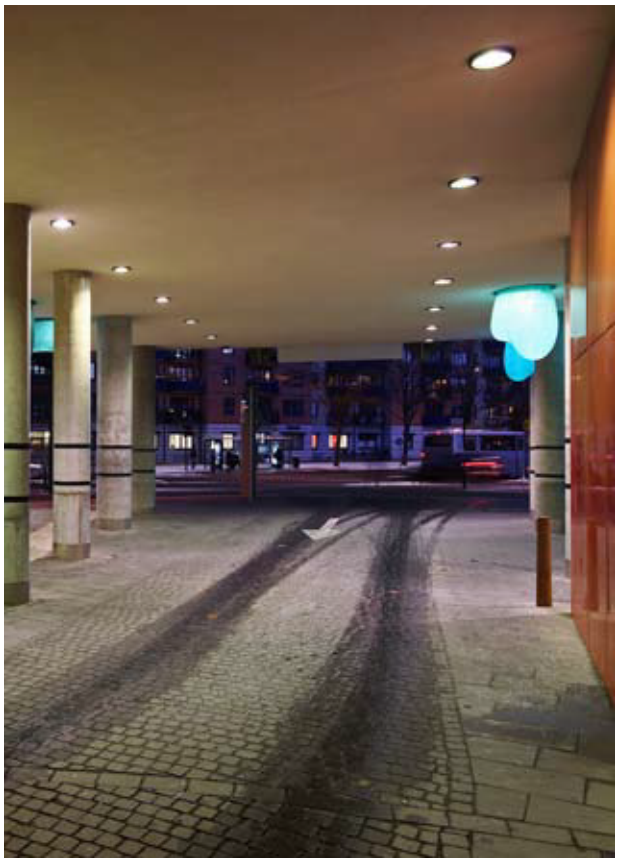
LED information

Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
4000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*

Suffix code

■	**-402**	DALI
●	**-440**	e-Sense move

Add suffix code to the end of the luminaire part number to indicate required function. Only one suffix can be added.



Rondo G2

A timeless design makes Rondo G2 the perfect choice for lighting around homes, offices, schools and other buildings. Rondo G2 has been developed exclusively for LED with a focus on energy efficiency, visual comfort and long life. The Rondo family is suitables in many environments and can be varied with two different beams.

Rondo G2 Power recessed

LED module, lm, W	Colour temp, K	Luminous flux, lm	Efficiency, lm/W		kg	Antracit grey
14, 1100	3000			Medium	2.8	**303140**
24, 2000	3000			Wide	2.8	**303141**
24, 2000	3000	1341	54	Medium	2.8	**303142**
12, 1100	4000			Medium	2.8	**303150**
20, 2000	4000			Wide	2.8	**303151**
20, 2000	4000	1530	57	Medium	2.8	**303152**

For current information on output and luminous flux, please refer to our website.

Rondo G2 Power Twin

LED module, lm, W	Colour temp, K	Luminous flux, lm	Efficiency, lm/W		kg	Antracit grey
10/14, 800/1100	3000			Medium	4.4	**303120**
10/24, 800/2000	3000			Wide	4.4	**303121**
10/24, 800/2000	3000	1341	54	Medium	4.4	**303122**
8/10, 800/1100	4000			Medium	4.4	**303130**
8/20, 800/2000	4000			Wide	4.4	**303131**
8/20, 800/2000	4000	1530	57	Medium	4.4	**303132**

For current information on output and luminous flux, please refer to our website.

LED information

Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 85*	*L_{70} 50.000 h*	*MacAdam 3 SDCM*
4000 K	*≥ 85*	*L_{70} 50.000 h*	*MacAdam 3 SDCM*

Conledo

Conledo has been developed for the latest LED technology, focusing on energy efficiency, economy and visual comfort. Prepared for the future lighting control systems, the luminaire has been designed with optimised heat dissipation for maximum life.

Conledo ensures excellent lighting along pedestrian and bicycle paths, in residential areas, city areas and parks.

Conledo

LED module, lm, W	Colour temp, K	Luminous flux, lm	Efficiency, lm	Lighting control	Light distribution	kg	**Antracit grey**
17, 1800	4000	1737	83		Symmetrical	10.2	**303001**
17, 1800	4000	1737	83	Lumistep 6	Symmetrical	10.2	**303002**
17, 1800	4000	1737	83	Lumistep 8	Symmetrical	10.2	**303003**
30, 3000	4000	2853	82	1–10 V	Symmetrical	10.2	**303012**
44, 4500	4000	4160	85	1–10 V	Symmetrical	10.2	**303013**
30, 3000	4000	2937	85	1–10 V	Wide beam	10.2	**303015**
44, 4500	4000	4405	88	1–10 V	Wide beam	10.2	**303016**

For current information on output and luminous flux, please refer to our website.

LED information

Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
4000 K	*≥ 70*	*L_{70} 50.000 h*	*MacAdam 7 SDCM*

Azur LED

Azur LED provides a dynamic and comfortable lighting solution with a well balanced light. Posttop and bollard versions fits well along walkways and give pedestrians a safe lighting.

Azur LED					
LED-module, W, lm	Colour temp, K	Luminous flux, lm	LED-module, lm, W	kg	**Antracit grey**
Bollard					
36, 1051	3500	536	24	3.5	**300946**
Post					
24, 2000	3000	1051	43	10.5	**300130**
44, 3000	3000	1576	36	10.5	**300132**

For current information on output and luminous flux, please refer to our website.

LED Information			
Colour temp, (CCT)	*Ra (CRI)*	*Life*	*Colour quality*
3000 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*
3500 K	*≥ 80*	*L_{70} 50.000 h*	*MacAdam 4 SDCM*

Fagerhult develops, manufactures and markets professional lighting systems for public environments such as offices, schools, industries and hospitals. Our operations are run with a constant focus on design, function, flexibility and energy saving solutions.

Fagerhult is part of the Fagerhult Group, one of Europe's leading lighting groups with operations in more than 15 different countries. AB Fagerhult is listed on the NASDAQ OMX Nordic Exchange in Stockholm.

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