

OF F I C E

architectural lighting

More than 30 years of innovative lighting solutions for architecture. Whether office, retail or gallery, solutions made by Seeger are project-specific and creative. Directing attention, creating comfortable atmosphere, motivation and guidance; we develop holistic lighting solutions for your project – Seeger technical lights, Germany, www.seeger-licht.de

AR TEC TUR



This catalogue

This catalogue only has LED luminaires. Why? We believe the time has come for LED and that almost any lighting task can be solved with LED. We've decided to lay the foundations for the future, and what we began many years ago as pioneers now forms our concept: focusing entirely on the continual development and expansion of our LED luminaire portfolio. Continuous development in close cooperation with architects and lighting designers enables us to implement your lighting concept precisely tightly focussed.

In this way we can respond quick an flexible to progresses in LED-technologies, and continue to offer state-of-the-art luminaires for all requirements in the future as well.

Imprint

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TIMELINE

Foundation of the company „Seeger Licht- und Leuchten“ wholesale business in Dortmund, Germany as a specialist wholesale dealer with lighting design.

1984

Warehouse and production space expanded of 3000 m².

2000-07

Launching of LED technology. Development and construction of LED-based luminaires.

2008

1992

Rebranded to „Seeger technische Leuchten“. Manufacturing location moves to Ringofenstraße, Dortmund-Aplerbeck. Production and development with 1500 m².

2006

Name changed to „Seeger technische Leuchten e. K.“

2015

Relocation to new office and production building in Hildebrandstraße, Dortmund. New ergonomic and ESD-protected production line. Expansion of development- and control department.

ENGINEERING
LIGHTING DESIGN
SALES CONSULTING
DEVELOPMENT OF LENS
ELECTRONICS DEVELOPMENT
SHEET METAL WORKING
QUALITY MANAGEMENT
PROJECT MANAGEMENT
PRODUCT DESIGN

CURIOSITY IDEALISM
COMMUNICATION SKILLS
OR INNOVATION LIGHTING TECHNOLOGY
REFERENCE FOR TECHNICAL DESIGN
STRATEGIC VISION FOR SUSTAINABLE
SOLUTIONS ON HIGH-PERFORMANCE
FLEXIBILITY AUTHENTIC

OUR CORE EXPERTISE

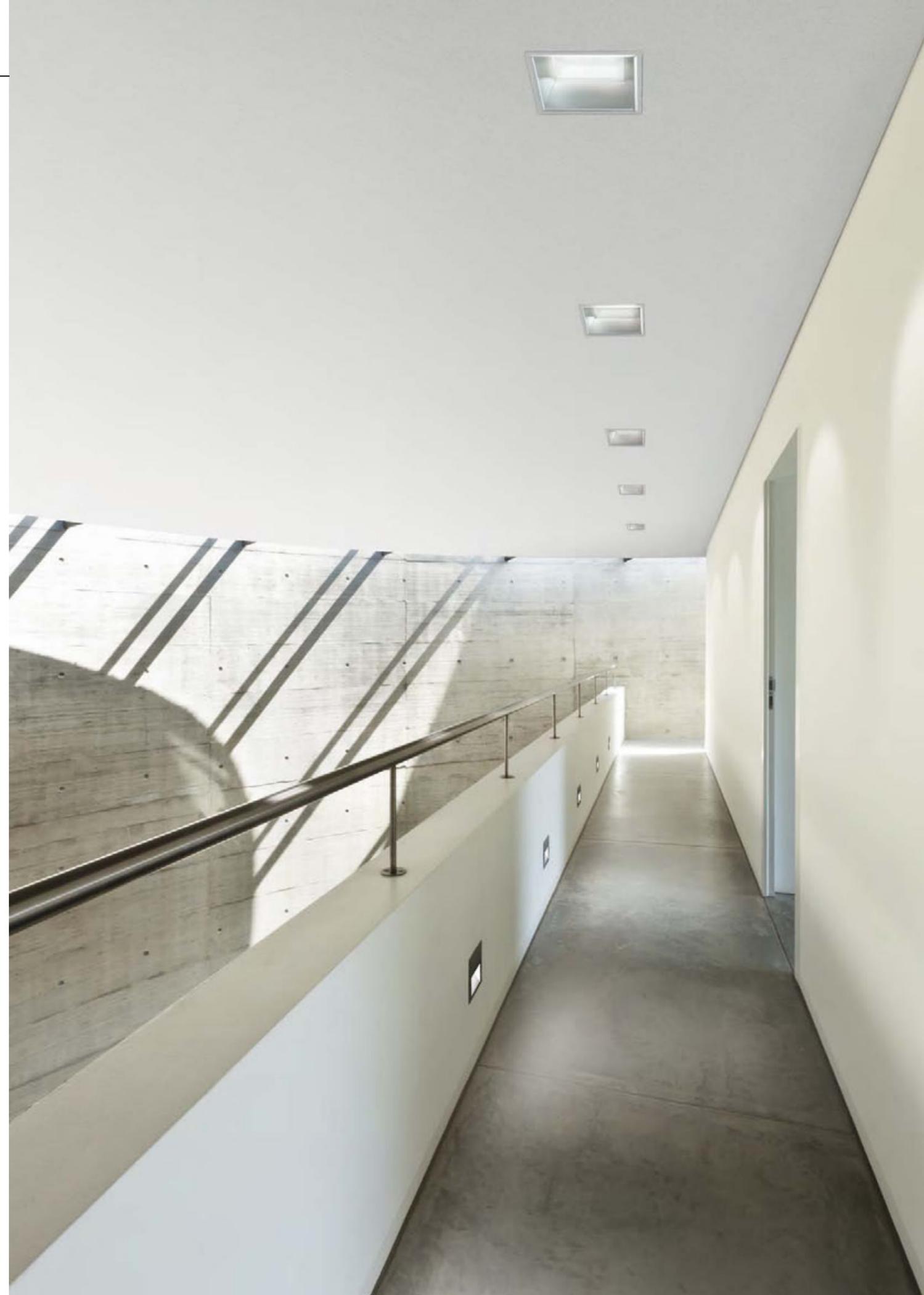
We plan your projects hand-in-hand with architects, and with our continuous contact to lighting designers and customers we create your project-specific lighting solutions. Constructional framework conditions, interior designs and utilisation profiles flow into optimum planning solutions in tight cooperation with our customers. Trained employees, supported with state-of-the-art software and hardware, ensure realistic visualisations and rapid response times with any necessary modifications. In addition to continuously improving our existing assortment, our construction department also develops project-specific custom solutions.

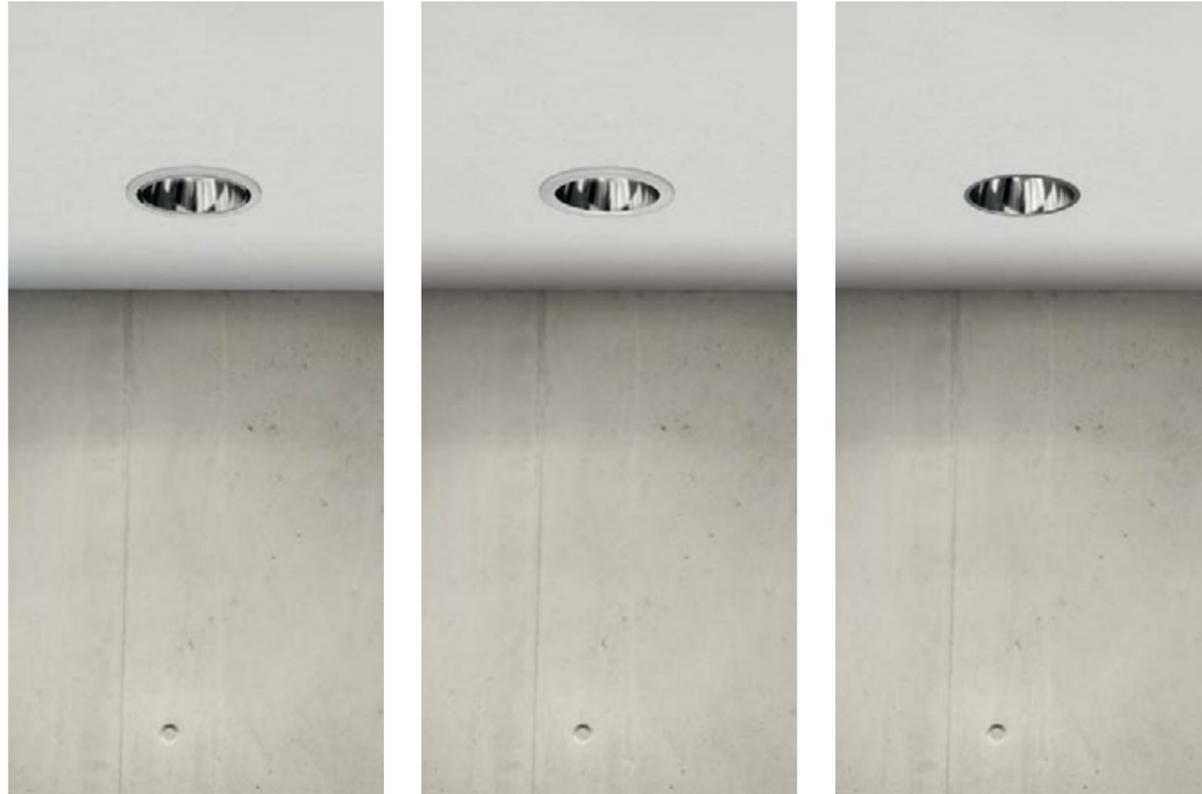
Our in-house production facilities are also able to rapidly produce prototypes and samples from drawings. In this way we respond flexibly to customer wishes and complex applications as determined by the lighting design. Company production workshops have a total area of 1,300 m², and trained personnel and state-of-the-art equipment provide high levels of care and safety. We guarantee high „Made in Germany“ quality thanks to use of selected materials sourced from German suppliers.



Theater an der Wilhelmshöhe, Lingen







Luminaire covers

To meet various design requirements, three different luminaire conclusions are available for recessed downlights. These are based on a particularly narrow **standard ring** with a recessed reflector.

The **Changing ring system** consisting of an easy-to assemble base ring can be adapted to many different multifunctional accessories.

▶ To order the Changing ring system please add "CR" to the order code.

A special highlight is the plastered-in installation of luminaires. Our **Trimless system** enables discreet, ceiling-flush or slightly recessed luminaire mounting. This requires a separately ordered plastering frame.

▶ To order the Trimless-System please add "TR" to the order code.

Standard Ring

Narrow luminaire conclusion ring in one piece. Discreetly recessed reflector rim.



Changing Cover Ring

Changing ring system in 2 parts where the luminaire is delivered with a fixed ring. One separate cover ring which is fastened by a bayonet lock.

▶ Please add **CR** to the order code.



Trimless-System

The plastering frame is covered by the reflector edge. The reflector edge is either flush with the ceiling or recessed.

▶ Please add **TR** to the order code.





Trimless, flush

The plastering frame is covered by the lip of the reflector. The reflector edge sits in a slight recess and finishes flush with the ceiling.

Trimless, recessed

Edge-less installation using a plastering frame with a mounting sleeve. This sleeve is plastered over and painted in the final ceiling colour on site.

Trimless Mounting-System

The Trimless mounting system is used if the downlights should be an integral component of the architecture. The system perfects this contemporary design concept thanks to its completely frameless luminaire mounting.

The Trimless system features optimised versions for various ceiling systems and on-site situations. This ensures that architectural design concepts can be implemented without technical problems.

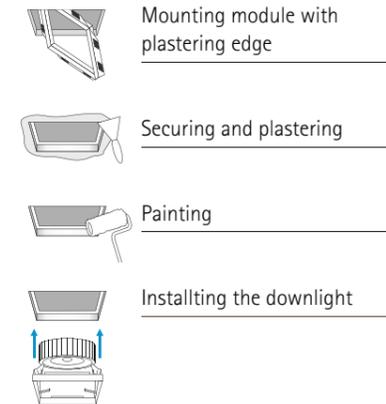


► The trimless installation in cast concrete ceilings can be realised using specially developed cast-in housings. The use of a variable core element means this is also possible with bare concrete ceilings.

Plaster mounting

Luminaire adapted to suit the ceiling system using a separate mounting frame. Optionally for flush installation or recessed installation. The plastering frame is fixed in the ceiling cut-out that was produced on site and is secured using drywall screws. Fitting to the ceiling system is performed on site. Luminaire housing for subsequent installation into finished ceiling.

► The optional Changing frame is not normally included, please order separately.



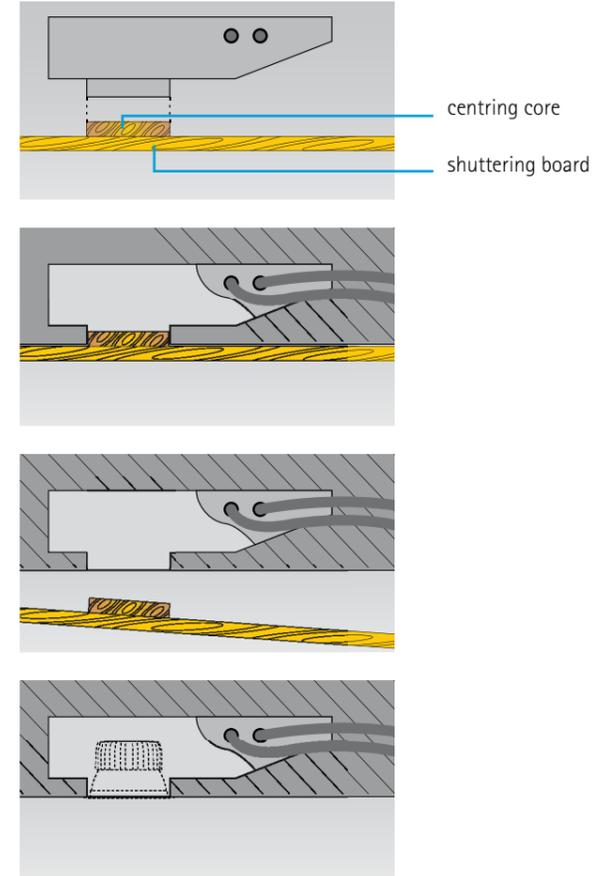


Trimless Luminaire System

Installed flush with the ceiling or even recessed into it without any visible edge, these luminaires recede into the background, simply leaving discreet ceiling openings identifiable as the source of light. The exact lu-



minaire detail and the necessary accessories have been optimised and adapted to suit the respective on-site situation as dictated by the building



Concrete Housing

The use of concrete housings allows recessed-mounted luminaires to be harmoniously integrated into the ceiling. Special adaptations also enable specific stress requirements to be met. This includes extended concrete inlets.

Specification

Sturdy one-piece housing made of galvanized sheet-steel with a slanted concrete run. 2 to 4 entries for conduit. Attached throat can be extended as required. Maximum height 35mm. Fixing tabs for nailfastening to the wooden formwork. When installing in bare concrete ceilings, fixing with internal centring discs must be provided. Please order separately.

► **Concrete Housing, Flat**

Article No. 0898.xxxx (whereby xxxx = luminaire Article no.) Can be used for standard downlights. Suitable for concrete ceilings and, where centring plates are used, suitable for fairfaced concrete ceilings.



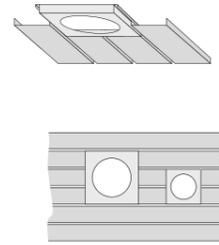
► Concrete housing with polystyrene hard foam centring core for recessed installation (see figure, p.16)



Concrete Housing

The use of concrete housings allows recessed-mounted luminaires to be harmoniously integrated into the ceiling. Special adaptations also enable specific stress requirements to be met. This includes extended concrete inlets up to a maximum of 35mm in order to guide the armoring underneath the fitting. Flat or round fittings (with highly reduced volume) are available,

depending on the ceiling situation. If round concrete castings are being used, only specially adapted downlights can be used.

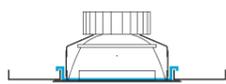


Integration into any system

Differing ceiling systems require different mounting solutions. For integrative installation into strip ceilings we offer the possibility of mounting the desired downlight discreetly into the existing system – whether this is a round or angular construction.

Almost any type of existing ceiling system can be used without major effort. We would be pleased to inform you about technical details and specifications following a brief consultation.

Added-on modular plate

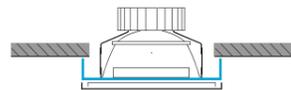


Before ordering please consult us for technical details.

Modular Panels

The integration of recessed luminaires into panel ceilings M100 is made possible with modular panels. (Other ceiling systems available on request.) The modular panels are mounted into the ceiling construction tool-free. The downlight is subsequently mounted into the ceiling section. When using the added-on modular panels the luminaire ring is replaced by this modular panel. The luminaire cover ring is therefore made redundant.

Frame for semi-recessed mounting

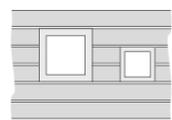
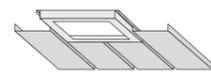
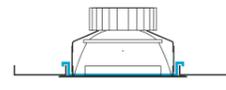


Semi-recessed mounting is only possible with a cover ring. Changing ring system P. XX

Semi-Recessing Frame

Reduction of recessing height due to semi-recessing frame up to 40mm possible. Project related supply of appropriate tilting adaptors for recessed luminaires in slant ceilings is possible.

Modular plate for panel ceilings



3-Field 2-Field

Perfect light – perfect protection

In certain applications, electronic components must be specifically protected. Our glass inserts provide this protection. All glass inserts feature increased splash water protection. When installed in closed ceiling systems, luminaires with permanently glued-in glass covers attain protection mode IP 43 from below.

protection pane, clear



protection pane, satin-frosted



protection pane, partially frosted in centre



protection pane, partially frosted at edge



Saftey lighting

Independent luminaire inserts for emergency and safety lighting can be implemented in the downlights. Integration is with or without single battery in non-maintained operation. The wide spectrum of system elements covers various solutions for emergency lighting in case of mains failure, as well as safety markings for designating escape paths in maintained operation and directive luminaires. The simple inspection possibility of supplementary elements makes use of single batteries highly simple.



LED Emergency Module

Specific components such as monitoring modules, AC/DC switching points, address modules and individual batteries can be integrated for the emergency lighting function.

Emergency lighting installations are specified in many public buildings and places of work. Reliable orientation must always be ensured even in the case of power failures. Emergency luminaires and escape sign luminaires also provide the preconditions for

reliably designating escape paths in emergencies. They also facilitate access to fire-fighting equipment and protection systems. This may prevent panic and rescue human life.



Charge monitoring

The charge control lights up upon connection to the power network. The integrated emergency light battery is correctly charged. The multi-level charging system enables charging behaviour matched to the battery. The three methods of charging (initialisation charging, rapid charging and maintenance charging) are activated automatically.

Normal operation

The downlight is switched on and the charge control lights up. The battery is also continuously charged in normal operation.

Emergency light supply

The specified functional test is implemented directly on the luminaire without tools at the freely accessible push-button.



Emergency lighting unit:
Single battery with control LED



Monitoring component



Change-over relays



Rescue- and Guideposts

Additional signs can be easily integrated in continuous circuits or into reference luminaires by using optical lighting accessories.

Choose your design!



► **Downlight with optical system**

The optic of the DIFFUS LED consists of an acrylic glass diffuser on the room side for the diffuse light component and a parabolic reflector for high luminance levels below the luminaire.

CR with IP 43

Protection pane, clear partially frosted at edge, protected against spraying water.



LED Downlights round

- › luminaire housing made of aluminium and steel
- › visible parts available powder-coated in accordance with RAL
- › aluminium reflector (Al99.99), high polished
- › passive cooling system
- › LED COB-Array, L90/B10 – 50000 hrs

- › Small Flux LED-Type 81
- › Mid Flux LED-Type 82
- › High Flux LED-Type 83
- › Ultra Flux LED-Type 84

	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
RD 120 CO Ø 145 OD Ø 165	12130	81	1470 lm	1580 lm	1610 lm	1640 lm	15 W
		82	2050 lm	2210 lm	2250 lm	2290 lm	20 W
		83	2810 lm	3020 lm	3070 lm	3150 lm	25 W
		84	3520 lm	3800 lm	3870 lm	3950 lm	35 W
RD 140 CO Ø 165 OD Ø 190	12140	81	1480 lm	1590 lm	1620 lm	1650 lm	15 W
		82	2060 lm	2230 lm	2270 lm	2310 lm	20 W
		83	2820 lm	3040 lm	3090 lm	3160 lm	25 W
		84	3540 lm	3810 lm	3890 lm	3960 lm	35 W
RD 135 RD 140 CO Ø 195 OD Ø 220	12150	81	1530 lm	1650 lm	1680 lm	1710 lm	15 W
		82	2140 lm	2310 lm	2350 lm	2400 lm	20 W
		83	2930 lm	3160 lm	3210 lm	3280 lm	25 W
		84	3680 lm	3960 lm	4040 lm	4120 lm	35 W
RD 125 CO Ø 145 OD Ø 165	12830	81	1700 lm	1830 lm	1860 lm	1900 lm	15 W
		82	2370 lm	2560 lm	2610 lm	2660 lm	20 W
		83	3240 lm	3490 lm	3550 lm	3630 lm	25 W
		84	4070 lm	4380 lm	4470 lm	4550 lm	35 W
RD 125 CO Ø 165 OD Ø 190	12840	81	1700 lm	1830 lm	1860 lm	1900 lm	15 W
		82	2370 lm	2560 lm	2610 lm	2660 lm	20 W
		83	3240 lm	3490 lm	3550 lm	3630 lm	25 W
		84	4070 lm	4380 lm	4470 lm	4550 lm	35 W
RD 140 RD 170 CO Ø 190 OD Ø 190	12100	81	1120 lm	1200 lm	1220 lm	1250 lm	15 W
		82	1560 lm	1680 lm	1710 lm	1750 lm	20 W
		83	2130 lm	2300 lm	2340 lm	2390 lm	25 W
		84	2680 lm	2890 lm	2940 lm	3000 lm	35 W

Technical changes reserved and errors excepted!



LED Downlights square

- › luminaire housing made of aluminium and steel
- › visible parts available powder-coated in accordance with RAL
- › aluminium reflector (Al99.99), high polished
- › passive cooling system
- › LED COB-Array, L90/B10 – 50000 hrs

- › Small Flux LED-Type 81
- › Mid Flux LED-Type 82
- › High Flux LED-Type 83
- › Ultra Flux LED-Type 84

	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
<p>RD 130</p> <p>CO 150x150 OD 165x165</p>	10130	81	1580 lm	1700 lm	1730 lm	1760 lm	15 W
		82	2210 lm	2380 lm	2420 lm	2470 lm	20 W
		83	3010 lm	3250 lm	3300 lm	3370 lm	25 W
		84	3780 lm	4070 lm	4150 lm	4230 lm	35 W
<p>RD 140 RD 150</p> <p>CO 178x178 OD 190x190</p>	10140	81	1600 lm	1720 lm	1750 lm	1780 lm	15 W
		82	2230 lm	2410 lm	2450 lm	2500 lm	20 W
		83	3050 lm	3290 lm	3340 lm	3410 lm	25 W
		84	3830 lm	4120 lm	4200 lm	4280 lm	35 W
<p>RD 145 RD 150</p> <p>CO 208x208 OD 220x220</p>	10150	81	1510 lm	1620 lm	1650 lm	1680 lm	15 W
		82	2110 lm	2270 lm	2310 lm	2360 lm	20 W
		83	2880 lm	3100 lm	3150 lm	3220 lm	25 W
		84	3610 lm	3890 lm	3960 lm	4040 lm	35 W
<p>RD 130</p> <p>CO 150x150 OD 165x165</p>	10160	81	1730 lm	1860 lm	1890 lm	1930 lm	15 W
		82	2410 lm	2600 lm	2650 lm	2700 lm	20 W
		83	3300 lm	3550 lm	3610 lm	3690 lm	25 W
		84	4140 lm	4460 lm	4540 lm	4630 lm	35 W
<p>RD 140 RD 150</p> <p>CO 178x178 OD 190x190</p>	10170	81	1730 lm	1860 lm	1900 lm	1940 lm	15 W
		82	2420 lm	2610 lm	2660 lm	2710 lm	20 W
		83	3310 lm	3560 lm	3620 lm	3700 lm	25 W
		84	4150 lm	4470 lm	4550 lm	4640 lm	35 W
<p>RD 145 RD 150</p> <p>CO 208x208 OD 220x220</p>	10180	81	1740 lm	1870 lm	1900 lm	1940 lm	15 W
		82	2430 lm	2620 lm	2670 lm	2720 lm	20 W
		83	3320 lm	3580 lm	3640 lm	3710 lm	25 W
		84	4170 lm	4480 lm	4570 lm	4660 lm	35 W

Technical changes reserved and errors excepted!



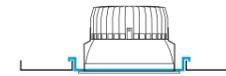
Various Covers for Various Tasks

Insertion panes made of diverse materials in various finishes. Whether satinized or opal for spreading light, an even and soft light is always given. Also in glass or acrylic version for protection. All insertion panes offer protection against splashing water, thereby attaining protection class IP43 from the underside when mounted into a closed ceiling system. Also suitable as theft and vandalism protection.

CAPPUCCIO

Decorative ancillary glasses are mounted on an changing cover ring with 3-point fastening. The glasses are completely or partially frosted. These optical light accessories discreetly brighten the ceiling. Easy cleaning and maintenance is possible because the cover ring can be removed tool-free.

Added-on modular plate

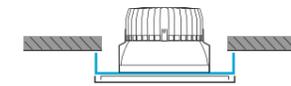


Before ordering please consult us for technical details.

Modular Panels

The integration of recessed luminaires into panel ceilings M100 is made possible with modular panels. Other ceiling systems available on request. The modular panels are mounted into the ceiling construction tool-free. The downlight is subsequently mounted into the ceiling section. When using the added-on modular panels the luminaire ring is replaced by this modular panel. The luminaire cover ring is therefore made redundant.

Cylinder for semi-recessed mounting

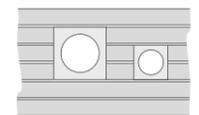
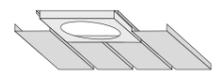
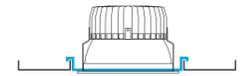


Semi-recessed mounting is only possible with a cover ring. Changing ring system P. XX

Semi-Recessing Cylinder

Reduction of recessing height due to semi-recessing cylinder up to 40mm possible. Project related supply of appropriate tilting adaptors for recessed luminaires in slant ceilings is possible.

Modular plate for panel ceilings



3-Field 2-Field



CR with IP 43
01100.xxx.20 Acrylic, clear
01120.xxx.20 Hardened security glass, clear



CR, Standard
01000.xxx.12
CR for open downlight



CR with IP 43, Acryl
01270.xxx.20
Acrylic opal, frosted



CR with fixing bolt
01160.xxx.13
CR for open downlight with CAPPUCIO glass accessories



CR with IP 43, HSG-Glass
01180.xxx.20
Protection pane, clear partially frosted in centre



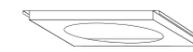
HSG-Glass, partially frosted
46000.xxx
Decorative glass, clear partially frosted in centre



CR with IP 43, HSG-Glas
01210.xxx.20
Protection pane, clear partially frosted at edge



HSG-Glass, partially frosted
46100.xxx
Decorative glass, clear partially frosted at edge



Modular Panels
08010.165 CO Ø 145
08010.190 CO Ø 165
08010.220 CO Ø 195



Positioning tracks paired
08050.165 CO Ø 145
08050.190 CO Ø 165
08050.220 CO Ø 195



Semi-Recessing Cylinder
08000.165 CO Ø 145
08000.190 CO Ø 165
08000.220 CO Ø 195



Plastering frame
08950.165 CO Ø 145
08950.190 CO Ø 165
08950.220 CO Ø 195

► To specify the luminaire size replace the placeholders .xxx with the ring size (Example: 01270.220.20)



Various Covers for Various Tasks

Insertion panes made of diverse materials in various finishes. Whether satinized or opal for spreading light, an even and soft light is always given. Also in glass or acrylic version for protection. All insertion panes offer protection against splashing water, thereby attaining protection class IP43 from the underside when mounted into a closed ceiling system. Also suitable as theft and vandalism protection.



CAPPUCCIO

Decorative ancillary glasses are mounted on an changing cover frame with 4-point fastening. The glasses are completely or partially frosted. These optical light accessories discreetly brighten the ceiling. Easy cleaning and maintenance is possible because the cover ring can be removed tool-free.



CF mit IP 43
01600.xxx.20 Acrylic, clear
01620.xxx.20 Hardened security glass, clear



CF, Standard
01500.xxx.12
CF for open downlight



CF mit IP 43, Acryl
01720.xxx.20

Acrylic opal frosted



CF with fixing bolt
01500.xxx.13
CF for open downlight with CAPPUCCIO glass accessories



CF mit IP 43, ESG-Glas
01660.xxx.20

Hardened security glass, frosted



HSG-Glass, partially frosted
01800.xxx.20

Decorative glass, frosted



CF with IP 43, HSG-Glass
01890.xxx.20

Protection pane, clear partially frosted in centre



HSG-Glass, partially frosted
01900.xxx.20

Decorative glass, clear partially frosted at edge

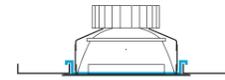


CF with IP 43, HSG-Glas
01790.xxx.20

Protection pane, clear partially frosted at edge

► To specify the luminaire size replace the placeholders .xxx with the ring size (Example: 01270.220.20)

Added-on modular plate

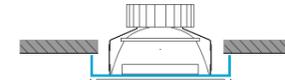


Before ordering please consult us for technical details.

Modular Panels

The integration of recessed luminaires into panel ceilings M100 is made possible with modular panels. (Other ceiling systems available on request.) The modular panels are mounted into the ceiling construction tool-free. The downlight is subsequently mounted into the ceiling section. When using the added-on modular panels the luminaire ring is replaced by this modular panel. The luminaire cover ring is therefore made redundant.

Frame for semi-recessed mounting

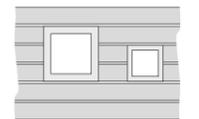
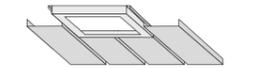
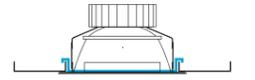


Semi-recessed mounting is only possible with a cover ring.Changing ring system P. XX

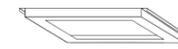
Semi-Recessing Frame

Reduction of recessing height due to semi-recessing frame up to 40mm possible. Project related supply of appropriate tilting adaptors for recessed luminaires in slant ceilings is possible.

Modular plate for panel ceilings



3-Field 2-Field



Modular Panels
09010.165 CO 145 x 145
09010.190 CO 178 x 178
09010.220 CO 208 x 208



Positioning tracks paired
09050.165 CO 145 x 145
09050.190 CO 178 x 178
09050.220 CO 208 x 208



Semi-Recessing Frame
09000.165 CO 145 x 145
09000.190 CO 178 x 178
09000.220 CO 208 x 208

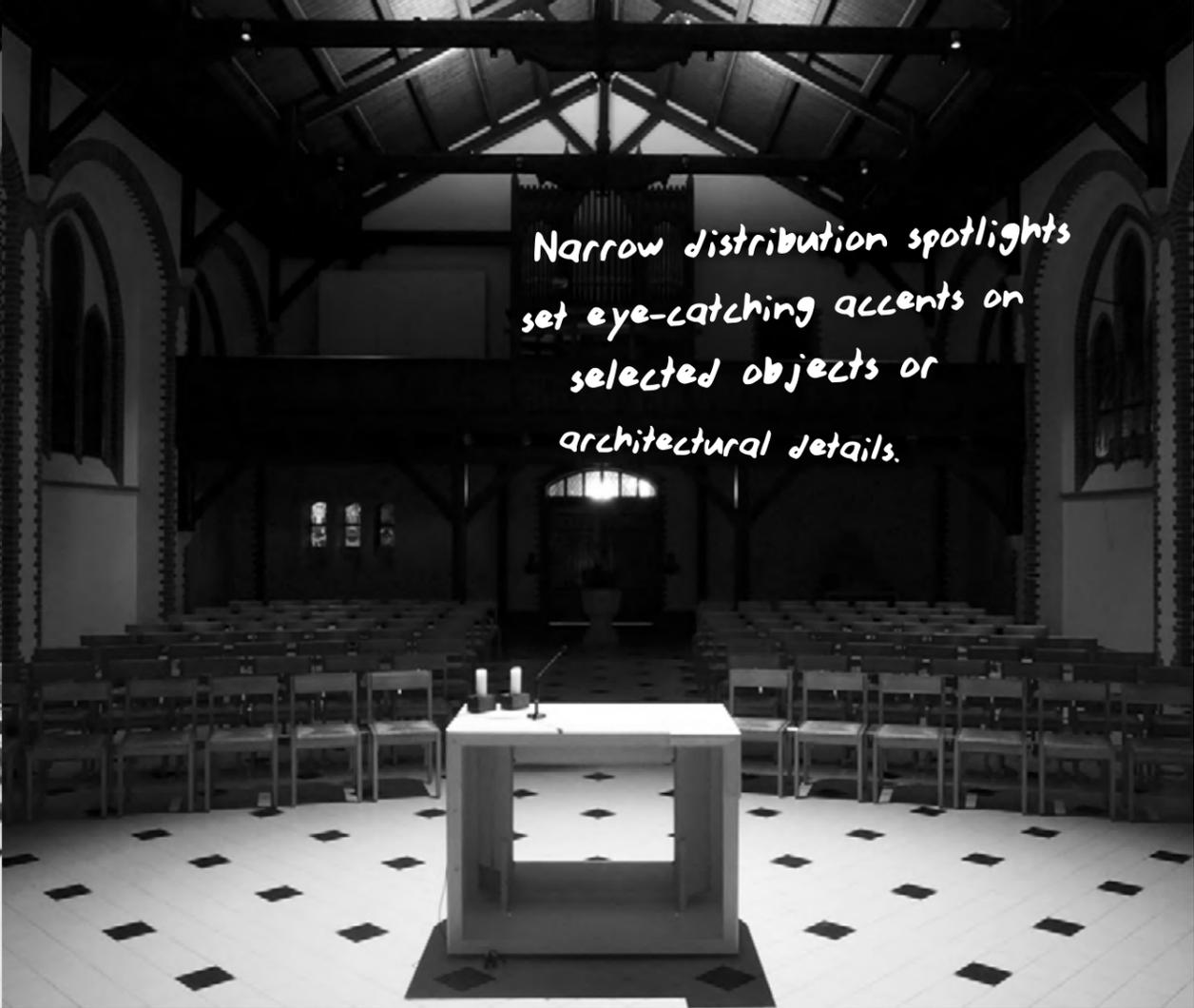


Plastering frame
09950.165 CO 145 x 145
09950.190 CO 178 x 178
09950.220 CO 208 x 208

Church illumination
St. Antonius, Hamm



High-output spotlights provide comfortable illuminance levels in the working plane even from high mounting heights.



Narrow distribution spotlights set eye-catching accents on selected objects or architectural details.



A suitable light atmosphere is available for any application thanks to flexible switching and dimming options.



Modern lighting tools blend harmoniously into the architecture and support a pleasantly calm spatial effect.

The neo-Gothic brickwork St. Antonius Church in Hamm, Germany dates from the year 1896, and is located directly on the Römer-Lippe route that attracts a high number of tourists thanks to its Roman culture and water experience. As part of the extensive refurbishment work the lighting system in the church was also updated. The holistic lighting design focused on photometric quality and energy efficiency to equal amounts.

Flexible and precise LED spotlights

The installed LED spotlights blend unobtrusively into the architecture and were set precisely to the lighting requirements of the space. They emit uniform, glare-free general lighting according to requirements or set expressive highlights.

Programmed light scenes

A light control system enables switching and dimming of luminaire groups in the church. Preprogrammed light scenes can be called using the control panel in the sacristy or a remote control, for example „baptismal service“ or „admission lighting“.



These LED spotlights can fulfil completely different tasks – ranging from glare-free general lighting to variable, point-precise light accents. The spotlights can be rotated through 350° and tilted between 30° and 50°. The product range was designed as flexible lighting tools and features a uniform luminaire design with three variants, two sizes and five light distribution characteristics.



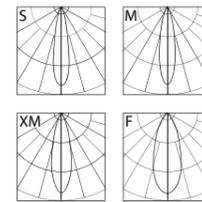


LED recessed spotlights

- › luminaire housing made of aluminium and steel
- › surface powder-coated in accordance with RAL
- › aluminium reflector (Al99.99), high polished
- › with glare-reducing protective glass
- › passive cooling system

- › pan-and-tilt adjustment; 355°/ 30°
- › LED COB-Array, L90/B10 – 50000 hrs

- › Small Flux LED-Type 11, 16
- › Mid Flux LED-Type 12, 17
- › High Flux LED-Type 18



	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
RD 140 	28080	11	1080 lm	1130 lm	1170 lm	1200 lm	13 W
		12	1480 lm	1540 lm	1600 lm	1640 lm	17 W
RD 180 	28090	16	1970 lm	2060 lm	2140 lm	2190 lm	17 W
		17	2700 lm	2810 lm	2920 lm	3000 lm	23 W
		18	3900 lm	4070 lm	4230 lm	4330 lm	33 W

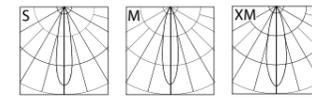
Technical changes reserved and errors excepted!



LED recessed spotlights

- › luminaire housing made of aluminium and steel
- › surface powder-coated in accordance with RAL
- › aluminium reflector (Al99.99), high polished
- › with glare-reducing protective glass
- › passive cooling system
- › pan-and-tilt adjustment; 355°/ 30°
- › LED COB-Array, L90/B10 – 50000 hrs

- › Small Flux LED-Type 11, 16
- › Mid Flux LED-Type 12, 17
- › High Flux LED-Type 18



	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
RD 120							
RD 180							

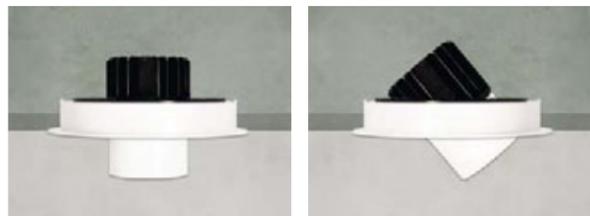
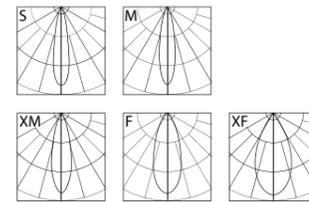


LED recessed spotlights

- › luminaire housing made of aluminium and steel
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- › aluminium reflector (Al99.99), high polished
- › with glare-reducing protective glass
- › passive cooling system

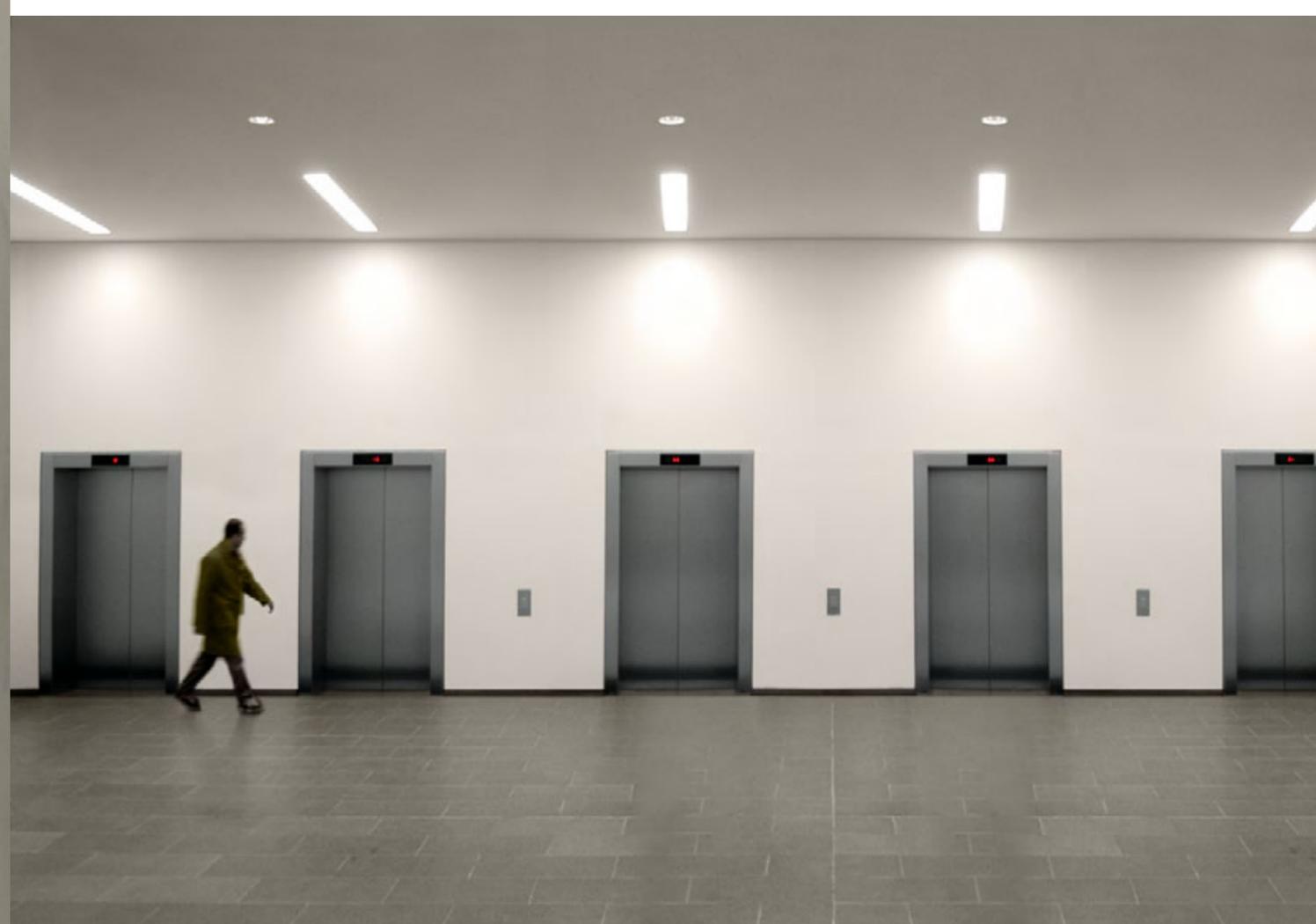
- › pan-and-tilt adjustment; 355°/ 40°
- › LED COB-Array, L90/B10 – 50000 hrs

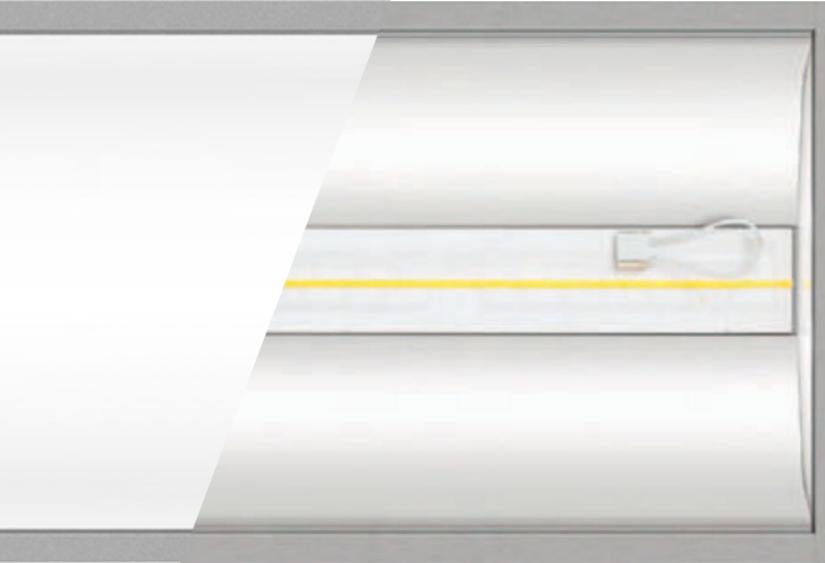
- › Small Flux LED-Type 11, 16
- › Mid Flux LED-Type 12, 17
- › High Flux LED-Type 18



	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
RD 80 	28060	11	1080 lm	1130 lm	1170 lm	1200 lm	13 W
		12	1480 lm	1540 lm	1600 lm	1640 lm	17 W
RD 110 	28170	16	1970 lm	2060 lm	2140 lm	2190 lm	17 W
		17	2700 lm	2810 lm	2920 lm	3000 lm	23 W
		18	3900 lm	4070 lm	4230 lm	4330 lm	33 W

Technical changes reserved and errors excepted!





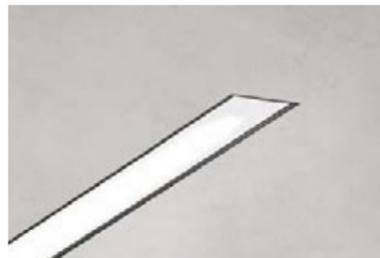


LED RAIL Strip Lighting

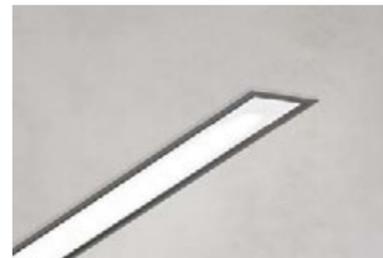
The single luminaires are constructed of sharp-edged, drawn aluminium extrusion. LED arrays featuring COB ceramic technology are used. Available versions consist of HE (High Efficiency), HO (High Output), HP (High Performance) and H+ (High Efficiency Eco). The luminaires can be integrated both vertically and horizontally into walls and ceilings.

The single luminaires are available either frameless or with a filigree, all-round edge. Covers consist of an opal acrylic glass diffuser for general lighting or a microprismatic cover of transparent polycarbonate. The microprismatic cover is suitable for the standard-compliant illumination of DSE workstations.

RAIL strip lighting, frameless



RAIL strip lighting, with frame



LED RAIL Light lines

Housing of sharp-edged, drawn aluminium extrusion. Version with narrow, all-round edge for installing in plasterboard ceiling cut-outs. Surface decoratively anodised in accordance with E6EV1. Alternatively available in satin-matt white powder-coated. One-piece luminaire, with end cap, cover and photometric system. Prepared for mounting in accordance with mounting system M. Equipped with ceramic technology LEDs, high service life, L90B10 at 50,000h. 3

Step MacAdam. With integrated electronic control units. Wired ready for connection with 3-pole connection terminal.

Full-surface luminaire cover via clip profile. With opal acrylic glass diffuser or with DSE workstation-compliant prismatic cover of polycarbonate. (CAT)

Mounting options

Various mounting options are available for installation in suspended ceilings. Please see below for an overview of the most commonly used systems. Project specific solutions are also possible and are solved by our design team.

- Mounting systems:**
- 

SYSTEM K
Mounting on stud bolts
 - 

SYSTEM H
Mounting on auxiliary construction
 - 

SYSTEM M
Mounting with stirrup



Profile covers

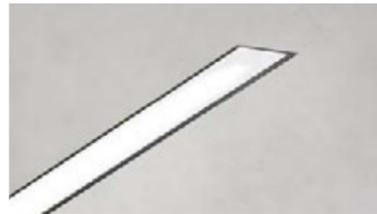
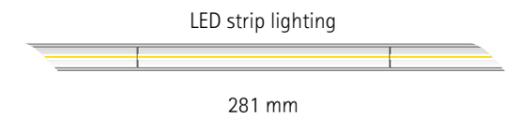
Three different covers can be specified for light inserts with direct light distribution. This enables both uniform planar lighting and the standard-compliant illumination of workstations. All covers were designed for optimum light output ratios and maximum glare control.



Shadow-free illumination

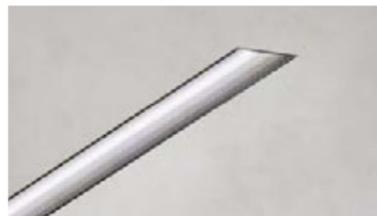
LED RAIL has no dark zones at the light source transitions. The system was designed specifically for non-interrupted light lines. The luminous diffuser surface is seamless and with shadow-free illumination.

LED strip lighting for shadow-free acrylic cover



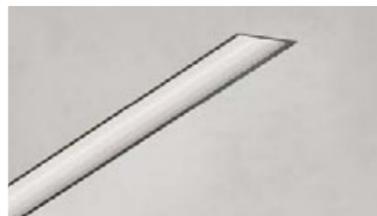
Diffusor, opal

Opal acrylic diffuser with satin matt surface. Illumination without points or shadowing, with high transmission factor. With diffuse light distribution for pleasant, glare-free light.



Prismatic-Diffusor

Surface with microprismatic structure for luminance minimisation. Optic for glare-free light with increased brilliance.



Prismatic-Diffusor, opal

Microprismatic cover as with the prismatic diffuser but with additional opal diffuser for a homogeneous appearance and increased luminance reduction.

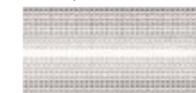
Profile covers

Profile covers are cut by the millimetre according to the specific order. Supply dimensions can be freely specified with a maximum production length of 6 m. Cutting costs are calculated separately for the blank sections. Profile cross-sections are calculated per metre. We would be pleased to support and design your desired geometry.

Diffusor



Mikroprismatic



Mikroprismatic opal



Blank cover; available in aluminium or powder-coated in accordance with RAL

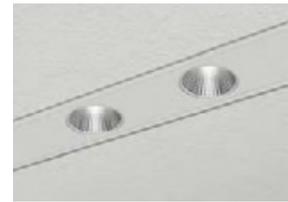


Dual Light

To provide scenic light, spotlight inserts are available. Highly diverse lighting moods can be created by using different light sources. Diffuse and pin-pointed light are combined as a double function in one luminaire. The even ambient light produced by the LED strip lighting is complemented by additional, independent switch- and controllable lighting.

Spotlight units

Recessed modules with fixed or adjustable spotlight units enable highly effective accent light. Various beam angles and outputs are available. To ensure the requisite cooling, ventilation must be provided via ventilation elements in the profile. Required minimum lengths must be observed.



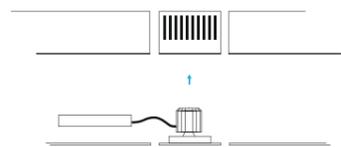
Fixed spotlight inserts



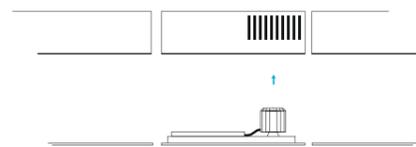
Adjustable spotlight inserts



Spotlight with lens optic



Short ventilation element for LED RAIL spotlight inserts with separated control gear.



Long ventilation element for LED RAIL spotlight inserts with integrated control gear.



The LED RAIL light line features almost unlimited applications – it can be used for light guidance, as general lighting and for designing interiors. A variety of connection elements for the profiles enables wide design flexibility for the line layouts. Individual connector elements can be supplied on request.

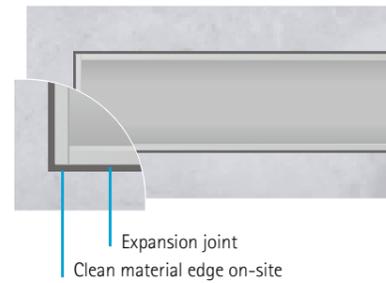
► Extensive installation and mounting options allow integration into highly diverse ceiling systems.



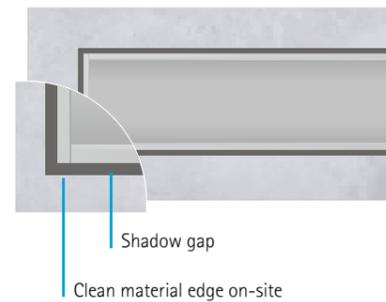
LED RAIL Mounting options

Various mounting options are available for installation purposes. Please see below for an overview of the most commonly used systems. Project specific solutions are also possible and are solved by our design team.

The plastered-in mounting allows the luminaire to be fully integrated into the building structure. To achieve a perfect result, the luminaires must be mounted and fitted with the utmost care. The expansion joint mentioned here is an absolute necessity.

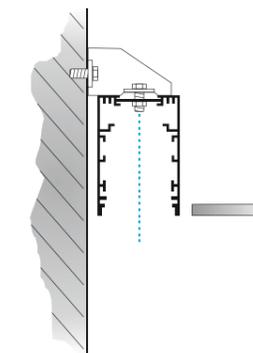


As an alternative to the abovementioned flush-plastered mounting, the installation with shadow gap is also recommendable. A cleanly finished ceiling cut-out can be easily produced using precast plaster parts or plaster rails. Various concrete installation housings are also available for our strip lights.

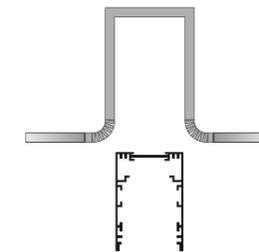
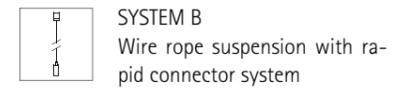
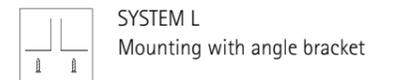
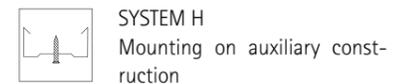
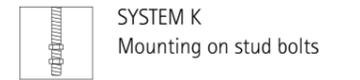
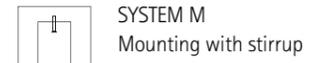
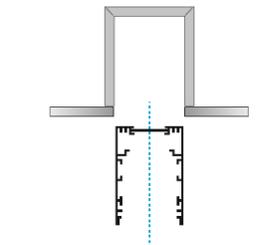


Using individually precast, shaped plaster parts produces a unified appearance of the ceiling system and luminaire. The shaped plaster parts are designed to fit the luminaires to be installed, ensuring uncomplicated installation by the specialist fitters.

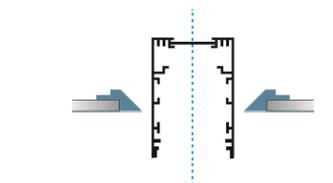
The variety of shapes is limitless, giving the designer every possibility to be creative. We are happy to provide support for the technical implementation and can name suppliers once the requirements have been fixed.



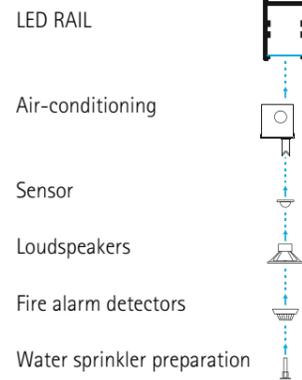
Wall-mounting the luminaire with wall bracket with predefined offset from wall. Fitting to the ceiling with joint. Ceiling finished with finishing profile.



Ceiling cut-out to be produced on-site by the ceiling builder. Ceiling finished with finishing profile.



Ceiling cut-out produced very exactly on-site using solid ceiling plaster profiles.



Air Conditioning Technology

In addition to the harmonious design styling, the combination of air conditioning and lighting technology also reduces installation time by reducing the ceiling cut-outs. System adaptors allow the integration of additional elements at the same time fulfilling various climatic demands. A spatial separation of individual technical elements guarantees highly efficient individual functions. Controllable integration of air input and output.

Fire Alarm Detectors

In principle conventional fire alarm detectors can also be integrated as a system element into LED RAIL profiles. To ensure conformity with the current German VDE Guidelines, the possibility of integration must be checked in detail and must be confirmed by the fire alarm detector manufacturer with a certificate of compliance (German regulation for the German market).

Water Sprinkler

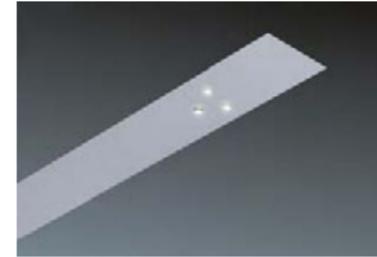
System adaptors allow the installation of a covering plate with 50mm cut out hole. Avoiding frictional connected luminaire the installation of suspended screen sprinklers and the supply of the sprinkler pipes can be realized. A certificate of compliance by the water sprinkler manufacturer is recommended.

Special Equipment

Besides the mentioned basic elements further technical elements can be integrated in addition to the indicated basic modules. This includes: video monitors; alarm and sensor technology; revision elements for control valves and maintenance elements.

Sound

Wide band loudspeakers with 100-Volt-Technology are available as a system element. A bayonet lock allows them to be integrated, aligned and reversed.



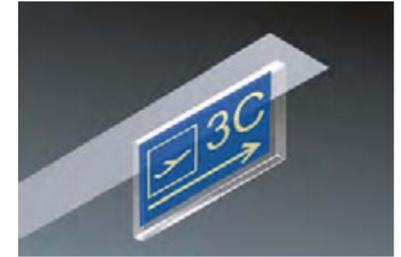
Safety Luminaires

Independent luminaire inserts with or without single batteries are integrated as system elements in a non-maintained circuit. A wide variety of wattages allows the emergency lighting units to be used as safety or secondary lighting.



Rescue signs

Rescue signs can be integrated in continuous circuits or into reference luminaires by using optical lighting accessories. Easy revision of the additional elements allows usage of single batteries.



Guideposts

Beside Emergency- and Mandatory signs, also information- and guidepost can be integrated in the lighting system.



LED Emergency Module

Specific components such as monitoring modules, AC/DC switching points, address modules and individual batteries can be integrated for the emergency lighting function.



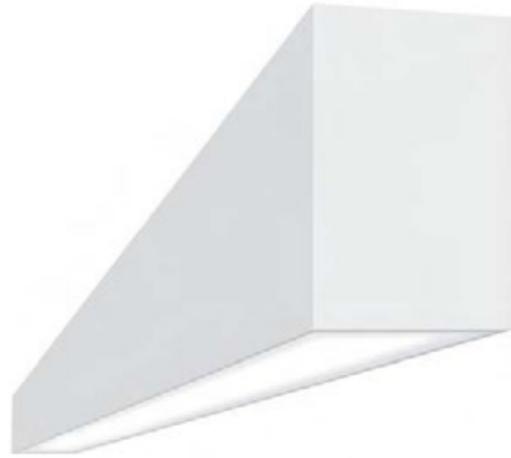
Emergency lighting unit:
Single battery with control LED



Monitoring component



Change-over relays



LED RAIL strip lighting, frameless

- › made of sharp-edged extruded aluminium sheath
- › surface anodized aluminium
- › surface also available in powder-coated in accordance with RAL
- › cover available in acrylic opal or prismatic
- › plaster mounting or mounting with shadow gap
- › prepared for mounting system M
- › LED COB-Array, L90/B10 – 50000 h

- › Small Flux LED-Type 03
- › Mid Flux LED-Type 04
- › High Flux LED-Type 05



	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power		
RD 100	[]	 CO 70 x 578 OD 68 x 575 	17512	03	1200 lm	1250 lm	1280 lm	1330 lm	15 W
			04	1690 lm	1750 lm	1790 lm	1850 lm	20 W	
			05	2300 lm	2390 lm	2440 lm	2540 lm	28 W	
RD 100	[]	 CO 70 x 872 OD 68 x 870 	17513	03	1800 lm	1870 lm	1920 lm	1990 lm	20 W
			04	2530 lm	2620 lm	2680 lm	2780 lm	28 W	
			05	3450 lm	3590 lm	3670 lm	3810 lm	40 W	
RD 100	[]	 CO 70 x 1152 OD 68 x 1150 	17514	03	2410 lm	2500 lm	2560 lm	2660 lm	25 W
			04	3380 lm	3500 lm	3580 lm	3700 lm	36 W	
			05	4600 lm	4780 lm	4890 lm	5080 lm	52 W	
RD 100	[]	 CO 70 x 1432 OD 68 x 1430 	17515	03	3010 lm	3130 lm	3200 lm	3320 lm	30 W
			04	4220 lm	4380 lm	4470 lm	4630 lm	44 W	
			05	5750 lm	5980 lm	6120 lm	6350 lm	64 W	
RD 100	[]	 CO 70 x 578 OD 68 x 575 	17522	03	1440 lm	1500 lm	1540 lm	1590 lm	15 W
			04	2030 lm	2100 lm	2150 lm	2230 lm	20 W	
			05	2760 lm	2870 lm	2940 lm	3050 lm	28 W	
RD 100	[]	 CO 70 x 872 OD 68 x 870 	17523	03	2170 lm	2250 lm	2310 lm	2390 lm	20 W
			04	3040 lm	3160 lm	3230 lm	3340 lm	28 W	
			05	4140 lm	4310 lm	4410 lm	4580 lm	40 W	
RD 100	[]	 CO 70 x 1152 OD 68 x 1150 	17524	03	2890 lm	3010 lm	3080 lm	3190 lm	25 W
			04	4060 lm	4210 lm	4300 lm	4460 lm	36 W	
			05	5530 lm	5750 lm	5890 lm	6110 lm	52 W	
RD 100	[]	 CO 70 x 1432 OD 68 x 1430 	17525	03	3620 lm	3760 lm	3850 lm	3990 lm	30 W
			04	5080 lm	5260 lm	5380 lm	5570 lm	44 W	
			05	6910 lm	7190 lm	7360 lm	7640 lm	64 W	

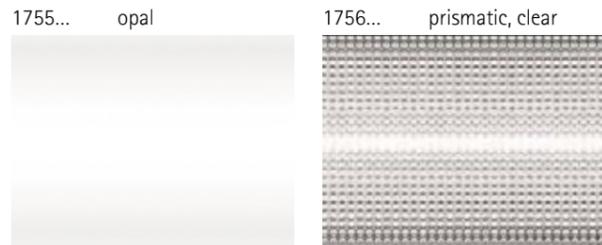
Technical changes reserved and errors excepted!



LED RAIL strip lighting with frame

- › made of sharp-edged extruded aluminium sheath
- › surface anodized aluminium
- › surface also available in powder-coated in accordance with RAL
- › cover available in acrylic opal or prismatic
- › plaster mounting or mounting with shadow gap
- › prepared for mounting system M
- › LED COB-Array, L90/B10 – 50000 h

- › Small Flux LED-Type 03
- › Mid Flux LED-Type 04
- › High Flux LED-Type 05



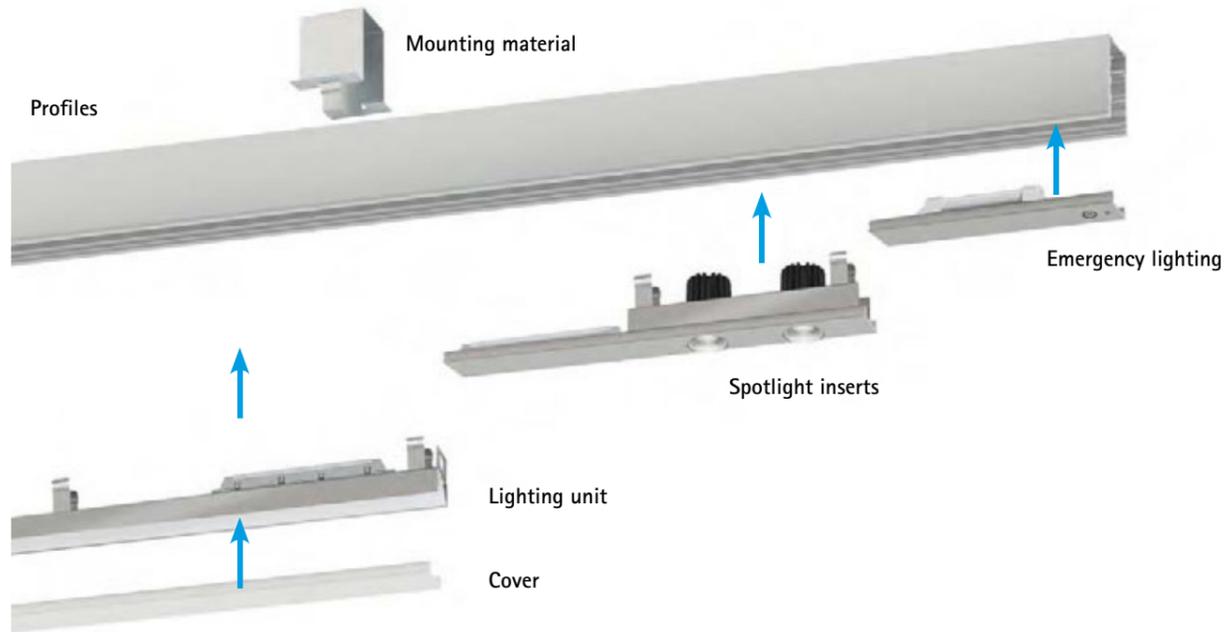
Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
RD 100	03	1200 lm	1250 lm	1280 lm	1330 lm	15 W
	04	1690 lm	1750 lm	1790 lm	1850 lm	20 W
	05	2300 lm	2390 lm	2440 lm	2540 lm	28 W
RD 100	03	1800 lm	1870 lm	1920 lm	1990 lm	20 W
	04	2530 lm	2620 lm	2680 lm	2780 lm	28 W
	05	3450 lm	3590 lm	3670 lm	3810 lm	40 W
RD 100	03	2410 lm	2500 lm	2560 lm	2660 lm	25 W
	04	3380 lm	3500 lm	3580 lm	3700 lm	36 W
	05	4600 lm	4780 lm	4890 lm	5080 lm	52 W
RD 100	03	3010 lm	3130 lm	3200 lm	3320 lm	30 W
	04	4220 lm	4380 lm	4470 lm	4630 lm	44 W
	05	5750 lm	5980 lm	6120 lm	6350 lm	64 W
RD 100	03	1440 lm	1500 lm	1540 lm	1590 lm	15 W
	04	2030 lm	2100 lm	2150 lm	2230 lm	20 W
	05	2760 lm	2870 lm	2940 lm	3050 lm	28 W
RD 100	03	2170 lm	2250 lm	2310 lm	2390 lm	20 W
	04	3040 lm	3160 lm	3230 lm	3340 lm	28 W
	05	4140 lm	4310 lm	4410 lm	4580 lm	40 W
RD 100	03	2890 lm	3010 lm	3080 lm	3190 lm	25 W
	04	4060 lm	4210 lm	4300 lm	4460 lm	36 W
	05	5530 lm	5750 lm	5890 lm	6110 lm	52 W
RD 100	03	3620 lm	3760 lm	3850 lm	3990 lm	30 W
	04	5080 lm	5260 lm	5380 lm	5570 lm	44 W
	05	6910 lm	7190 lm	7360 lm	7640 lm	64 W

Technical changes reserved and errors excepted!

System luminaires

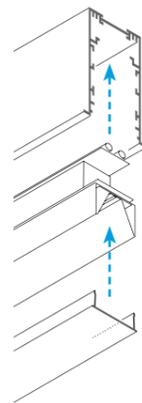
With LED RAIL system luminaires, system components are compiled according to project needs. This enables continuous light channel systems matched to the architecture. The modular selection of system components enables lighting solutions accor-

ding to the specific designs of the lighting designer. Detailed planning of the system can be directly and simply implemented. Functional additions can also be subsequently installed with ease.



An empty profile is installed in the ceiling to be retroactively configured with the different luminaire inserts. To achieve seamless, shadow-free illumination, light inserts are butted together. Light-distributing diffusers with opal, satin matt surfaces form the termination of the luminaire. Despite high transmission, the luminaire cover is uniformly illuminated without points or shadows. Luminaire covers are also available with a microprismatic surface. The mi-

croprisms achieve effective glare control. These covers are suitable for the standard-compliant illumination of DSE workstations. The light channels can also accommodate spotlights, blank elements and technical elements. The channels also have sufficient space for cable runs.



Luminaire profiles

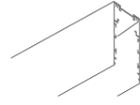
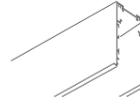
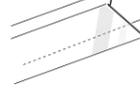
- › profiles for ceiling installation with or without frame
- › made of sharp-edged extruded aluminium sheath
- › surface anodized aluminium
- › surface also available in powder-coated in accordance with RAL
- › prepared with mounting holes for mounting system M
- › supply dimensions freely specifiable to 6 m
- › millimetre-precise cuts

Opal cover

- › for the planar lighting of general areas
- › uniform, shadow-free illuminated surface
- › high transmission factor
- › diffuse light distribution

Prismatic cover

- › for standard-compliant illumination of DSE workstations
- › cover available in acrylic opal or prismatic
- › high brilliance with glare-free light
- › uniform appearance of light

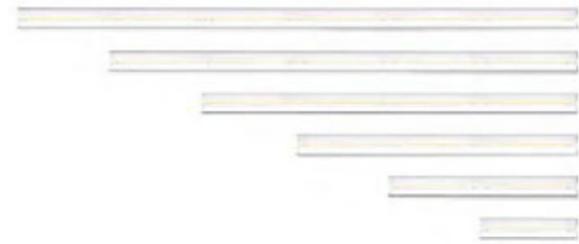
Profiles	
	RD = 100 B = 68 CO = 70
	Frameless 17600.xxx Luminaire profile, empty in xxx cm 17601.000 Sawed cutting
	RD = 100 B = 80 CO = 70
	With frame 17610.xxx Luminaire profile, empty in xxx cm 17601.000 Sawed cutting
Cover	
	Acrylic Diffusor opal 17640.xxx Cover in xxx cm 17600.000 Sawed cutting
	
	Microprismatic opal 17670.xxx Cover in xxx cm 17600.000 Sawed cutting
	

LED Lighting units

- › luminaire modules for installing in empty profiles
- › reflectors for homogeneous, shadow-free illumination
- › 281 mm module dimensions
- › modules available from 1-length to 6-length
- › control units optionally static or regulable

› LED COB-Array, L90/B10 – 50000 hrs

- › Small Flux LED-Type 03
- › Mid Flux LED-Type 04
- › High Flux LED-Type 05

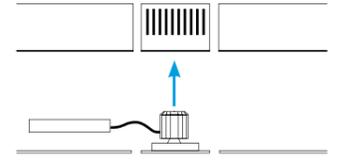


LED Spotlight units

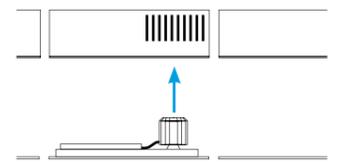
- › made of sharp-edged extruded aluminium sheath
- › available with separated or integrated control gear
- › mounting preparation ex-works as system-integrated component
- › wired ready for connection with heat-resistant cable
- › different reflectors available

▶ Reflector order code:

- S = Spot
- M = Medium
- F = Flood



Short ventilation element for LED RAIL spotlight inserts with separated control gear.



Long ventilation element for LED RAIL spotlight inserts with integrated control gear.

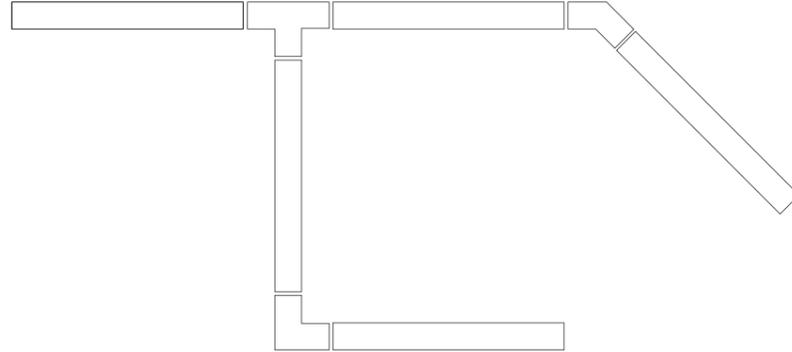
	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
	17711	03	770 lm	800 lm	820 lm	850 lm	10 W
		04	1080 lm	1120 lm	1145 lm	1185 lm	12 W
		05	1470 lm	1530 lm	1565 lm	1625 lm	16 W
	17712	03	1540 lm	1600 lm	1640 lm	1700 lm	15 W
		04	2160 lm	2240 lm	2290 lm	2370 lm	20 W
		05	2940 lm	3060 lm	3130 lm	3250 lm	28 W
	17713	03	2310 lm	2400 lm	2460 lm	2550 lm	20 W
		04	3240 lm	3360 lm	3435 lm	3555 lm	28 W
		05	4410 lm	4590 lm	4695 lm	4875 lm	40 W
	17714	03	3080 lm	3200 lm	3280 lm	3400 lm	25 W
		04	4320 lm	4480 lm	4580 lm	4740 lm	36 W
		05	5880 lm	6120 lm	6260 lm	6500 lm	52 W
	17715	03	3850 lm	4000 lm	4100 lm	4250 lm	30 W
		04	5400 lm	5600 lm	5725 lm	5925 lm	44 W
		05	7350 lm	7650 lm	7825 lm	8125 lm	64 W
	17716	03	4620 lm	4800 lm	4920 lm	5100 lm	36 W
		04	6480 lm	6720 lm	6870 lm	7110 lm	52 W
		05	8820 lm	9180 lm	9390 lm	9750 lm	76 W

	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
	Adjustable spotlight inserts						
	17731	120 mm		940 lm			11 W
	17732	220 mm		2 x 940 lm			2 x 11 W
	17733	400 mm		3 x 940 lm			3 x 11 W
	17741	350 mm		940 lm			11 W
	17742	450 mm		2 x 940 lm			2 x 11 W
	17743	650 mm		3 x 940 lm			3 x 11 W
	Fixed spotlight inserts						
	17751	120 mm		940 lm			11 W
	17752	220 mm		2 x 940 lm			2 x 11 W
	17753	400 mm		3 x 940 lm			3 x 11 W
	17761	350 mm		940 lm			11 W
	17762	450 mm		2 x 940 lm			2 x 11 W
	17763	650 mm		3 x 940 lm			3 x 11 W
	Spotlight with lens optic						
	17771	120 mm		940 lm			11 W
	17772	220 mm		2 x 940 lm			2 x 11 W
	17773	400 mm		3 x 940 lm			3 x 11 W
	17781	350 mm		940 lm			11 W
	17782	450 mm		2 x 940 lm			2 x 11 W
	17783	650 mm		3 x 940 lm			3 x 11 W

RAIL System connectors

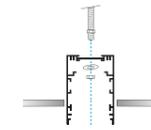
- › numerous design possibilities
- › T-connector for expansion
- › corner connector for 90° angle
- › corner connector possible for modified angles
- › mounting systems for all ceiling systems

Example of use:

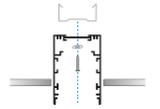


RAIL System connectors

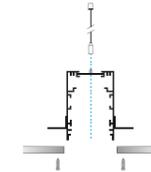
- › numerous design possibilities
- › compensation cover for perfect fitting
- › various fixing and suspension possibilities



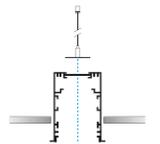
SYSTEM K
Mounting on stud bolts



SYSTEM H
Mounting on auxiliary constru



SYSTEM L
Mounting with angle bracket



SYSTEM B
Wire rope suspension with rapid connector system



LED RAIL frameless



LED RAIL with frame

Mounting system:



End cover
Art.-No.: 17620.99



End cover
Art.-No.: 17630.99



T-Connector
Art.-No.: 17620.95



T-Connector
Art.-No.: 17630.95



L-Connector angle 90°
Art.-No.: 17620.93



L-Connector angle 90°
Art.-No.: 17630.93



L-Connector special angle
Art.-No.: 17620.90



L-Connector special angle
Art.-No.: 17630.90



SYSTEM K
Mounting on stud bolts



SYSTEM H
Mounting on auxiliary constru.



SYSTEM M
Mounting with stirrup



SYSTEM L
Mounting with angle bracket



Spacing cover
Art.-No.: 17640.99



Straight connector
Art.-No.: 17620.98



Mounting brackets, system M
17500.80 for slab thickness 12 mm
cut-out width 72 mm



Wire-rope suspension, system B
17621.11 wire rope L = 1000 mm
17621.12 wire rope L = 2000 mm



Wire-rope suspension with canopy and cable
17621.21 wire rope L = 1000 mm
17621.22 wire rope L = 2000 mm



Through-wiring, 3-pole
17703.04 for LED RAIL 400 mm
17703.10 for LED RAIL 1000 mm
17703.20 for LED RAIL 2000 mm
17703.30 for LED RAIL 3000 mm



Through-wiring, 5-pole
17705.04 for LED RAIL 400 mm
17705.10 for LED RAIL 1000 mm
17705.20 for LED RAIL 2000 mm
17705.30 for LED RAIL 3000 mm

Oliver Bienkowski
Chief Executive and enthusiastic
mover of the „Caveman internatio-
nal“ advertising agency as well as
officer-in-charge of the PixelHEL-
PER Foundation.

OLIVER BIENKOWSKI



Since the attempted coup in July 2016, the Turkish government has been vehemently opposed to anti-government journalists and media. The passports of journalists were seized and authors were taken into custody. Over 130 media companies have already been closed, including 29 book publishers that were also expropriated. With this projection, PixelHELPER prompted the German government and European Commission to take a stance regarding the situation in Turkey, and both instances must actively demand unlimited freedom of opinion in their decisions, actions and statements. Freedom of

expression is a human right and cannot be negotiated. Furthermore, affected journalists and authors require rapid help from Germany and Europe, for example for the unbureaucratic issuing of emergency aid visas. Journalists, authors and publishers as well as books, magazines and newspapers provide an important contribution to democracy and freedom, and for this reason PixelHELPER decisively supports freedom of opinion, information and the press.

LIGHT AS A SPOKESPERSON

Oliver Bienkowski is driven by the desire to leave the world in a better condition than he found it. As a consequence, after his work for the special advertising agency Caveman he committed himself as a light artist at PixelHELPER. Inspired by the principles of the freemasons, this international charitable organisation is active for human rights and minorities. A central medium with the temporary actions of the artists' collective is light, and by designing projections, PixelHELPER takes a stance about selected events in global politics. The luminous messages can be coordinated quickly and specifically to the location, topic and projection surface. People respond to light. As a consequence, light is the ideal design medium to arouse attention, stimulate contemplation and initiate active participation.

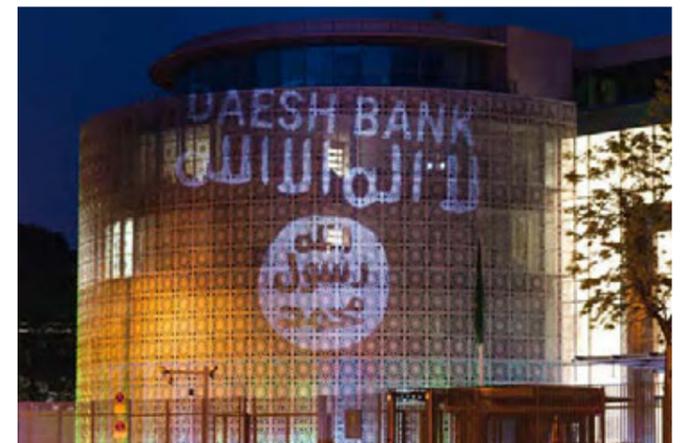


Photo: Martin Peterdamm Photography + PixelHELPER

This light art cartoon on the facade of the Saudi Arabian Embassy in Berlin shows the flag of ISIS and the logotype „Daesh Bank“, and with this campaign PixelHELPER criticises financing of the terror and commits itself to releasing the blogger Raif Badawi. „Daesh“ is the Arabian abbreviation for „Islamic state in Iraq and Greater Syria“.



Tossing, seeing, tasting.

Eduard Hitzberger, one of Switzerland's top-rated chefs with 18 Gault Millau points and two Michelin stars, realises his vision of high quality fast food with his new „Hitzberger“ fast food concept. His motto consists of goodbye to junk food and hello to tasty, healthy food at fair prices. The newly opened Hitzberger location in the main Zurich railway station radiates in

a pleasantly warm light colour of 2700 Kelvin. The café and take-away thus become a calm oasis in the busy ShopVille of the station. The corporate lighting of Hitzberger achieves individuality and a high recognition factor at the new site. LED spotlights are used in ceiling-suspended tracks. The LEDs significantly cut energy consumption compared to the

previously used halogen spots. Lighting situations for the seasonally changing product spectrum can be adapted thanks to flexible positioning of the luminaires along the track and the possibility of exchanging reflectors without tools. Despite the ceiling being already overloaded with building service installations, the lighting designers aimed for a flexible lighting concept, and tracks

with lengths adapted to the ceiling layout proved to be the perfect solution. As a result many problems could be solved during the design phase, thus helping to maintain the tight time schedule for luminaire mounting.



Flooded with light

The retail areas previously used differently were combined to a single space for the Hitzberger Café and take-away. The open restaurant landscape created in this way consists of the three areas of bakery sales area, café and lounge. That meant that the lighting design was faced with three essential tasks - it needed to create good visual conditions in the work areas for kitchen and sales, ensure attractive illumination of the goods displayed and also create an inviting atmosphere for guests. The bakery sales area is surrounded on three sides by fenestration at room height, creating much window space and also providing customers with an unlimited view into the interior space flooded with light. Goods are displayed in glass cabinets placed directly on the sales counters, and these are illuminated by the recessed spotlights 1228. The luminaires were aligned with high precision to avoid reflections on the glass surfaces, exclude glare for customers and guarantee a clear view of the baked goods. In the café area the suspended acoustic ceiling was raised



Architecture, interior design: lehnertomaselliarchitekten
Ladenbau: Hans Rickenbacher AG Ladenbau optimal.

in places to break up the low room height. Pendant luminaires with large textile shades emphasise this central room section and also generate an atmosphere of well-being. Guests have a good view from here into all the restaurant areas. Sales in the bakery or activity at the buffet can be followed and a glance can be taken of the new lounge and

then right out to the main road. In order to modify the light ambience at any time according to room utilisation, all luminaires in the guest room and bar area are DALI-dimmable.



Fried egg rice with beef and veggies

2 servings

Prep. time: 20-30 minutes + cooking time of rice approx. (20 minutes)

Ingredients:

500 g cooked jasmine rice
200 g beef, diced
2 eggs, beaten to mix
1 onion, finely diced
1/2 bell pepper, finely diced
3 TS soy sauce
1 TSP toasted sesame oil
100 ml water
1 scallions, finely chopped
Pepper

Beef marinade:

2 TS soy sauce
1 TSP toasted sesame oil
1 TS cornstarch
Pepper

Directions:

1. Heat pan and add 1 TS oil. Add beef and sear, take out after 5 minutes.
2. Add 1 TS oil to the pan. Add eggs and stir, take them out when cooked.
3. Add 1 TS oil to the empty pan. Braise onion and bell pepper lightly for 5 minutes. Add the cooked rice and gradually 100 ml water to the pan and stir until grains separate.
4. Mix with beef and eggs and keep stirring until heated.
5. Stir in soysauce, sesame oil and scallions. Salt and pepper to taste.

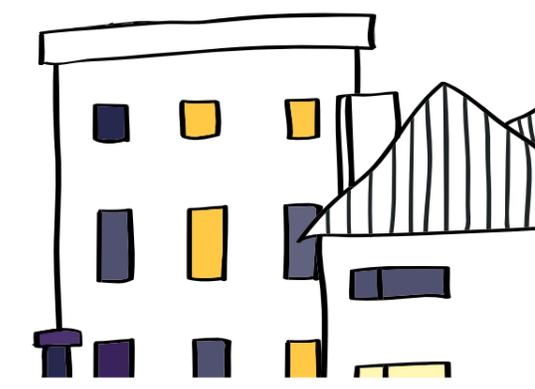


STREETLIGHTS IN GERMANY

1 NIGHT
1 MILLION
DEAD
INSECTS

10 MILLION

LESS FATAL
CASUALTIES
THANKS TO LED



A field survey was carried out in 2010 over 18 nights concerning six different road lighting installations and their level of attraction to nocturnally active insects. The luminaires are mainly flown to by butterflies and dipterous insects with the size less than 2mm. An LED light source with a colour temperature of 3000 K proved to be least attractive for the insects, luring an average of 40 organisms each night. Double the amount were attracted by LEDs with 6000 K. HCI-TT high pressure metal halide lamps (3000 K) had the poorest performance with around 370 insects per night. Wavelengths attractive for insects occur less in the

spectrum of LED light sources, and more precise light control is also possible with LED luminaires. This means less light pollution that attracts insects.

LED light is therefore significantly more insect-friendly. This is an ecological benefit of outdoor LED lighting, but is also interesting for interiors – LED light sources attract less insects into offices and residential rooms in warm summer nights with open windows.

P

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The „Hidden Places“ project consists of various single installations with which Philipp Geist aims to plant hidden and forgotten locations into the public consciousness again.

L

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The lighting design prize 2013 in the light art category was awarded to Ph. Geist for his „Time Drifts“ installation on the occasion of the Luminale 2012.

P

G

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Stiftung Bauhaus Dessau, 2014

THE VISION OF PRETTY FICTION

Philipp Geist's impressive light installation gained global attention. He illuminated the statue of Christ in Rio de Janeiro and the Royal Palace at Bangkok. The artist often works with typography and phrases to create abstract images via multiple superimpositions and repeats in his lighting installations and projection art. Philipp Geist has already implemented many light installations and exhibitions around the world.

In 2014 he created a video-mapping installation on the Prellerhaus and West Bridge on the occasion of the colour celebrations at the Dessau Bauhaus. The project artistically integrated quotes and terms from Oskar Schlemmer's texts and figurine-like works. Geometric, spatial shapes such as squares, cubes, interrupted surfaces, lines and rays were superimposed as part of a continual process. They came together to create an overall image to be dispersed a moment later, and complex image architectures were created that were constantly in a state of flow.

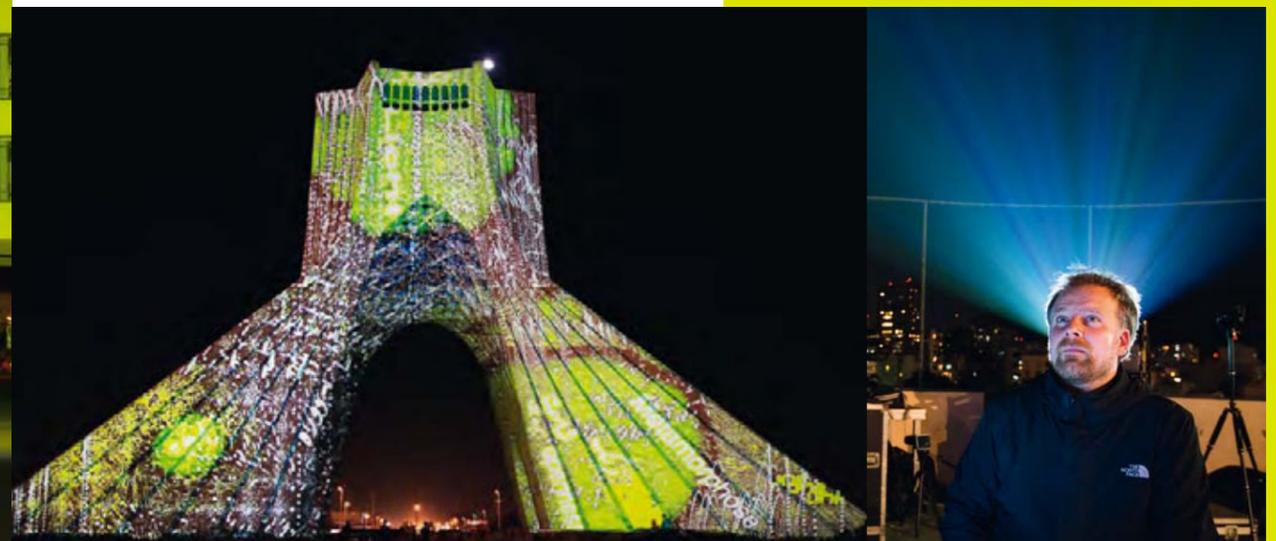
In October 2015 Philipp Geist displayed his full-covering, painterly „Gate of Words“ video mapping installation on the Azadi Tower in Tehran, Iran over a period of three days. He projected coloured words and phrases about the topics of peace, freedom, space and time in various languages, together with abstract image compositions, onto this landmark of the modern city of Tehran. Visitors themselves became a part of the video mapping installation and were also able to previously send in their associations about the themes.



Santa Marta / Rio de Janeiro
Videos Installation by Philipp Geist

PHILIPP GEIST STUDIO

Web: www.videogeist.de
E-Mail: mail@videogeist.de



Azadi Tower, Teheran, 2015





MAXIMUM VISUAL COMFORT
FOR CHALLENGING TASKS

WHEN SETTING UP AND OPERATING PLACES OF WORK, MINIMUM ILLUMINANCE VALUES MUST BE COMPLIED WITH IN ACCORDANCE WITH APPROPRIATE TECHNICAL REGULATIONS. BECAUSE DAYLIGHT IS NOT ALWAYS AVAILABLE IN SUFFICIENT QUANTITIES IN TERMS OF LOCATION AND TIME, SUPPLEMENTARY ARTIFICIAL LIGHTING IS NEEDED TO ENSURE THE HEALTH AND SAFETY OF EMPLOYEES. IT'S A MATTER OF ENABLING IDEAL VISION AND AVOIDING ANY RISK OF ACCIDENTS OR INJURY TO HEALTH. THE DEMANDS MADE ON LIGHTING CAN BE DIFFERENT IN ACCORDANCE WITH THE VISUAL TASK AND THE VARIOUS FIELDS OF ACTIVITY, BUT THE AIM IS ALWAYS TO ENABLE THE EFFECTIVE, EFFICIENT MASTERING OF THE WORK TASK AND EXCLUDE EXCESSIVE STRAIN ON THE EYES.

SUFFICIENT LIGHT ACHIEVES POSITIVE EFFECTS ON HEALTH, WORK PERFORMANCE AND SATISFACTION OF THE WORKERS, AND THEREFORE LONG-TERM BENEFITS IN TERMS OF QUALITATIVE WORK RESULTS.

IN ACTION WE SHOW DIVERSITY AT ARCHITECT@WORK

ARCHITECT@WORK is the name of an internationally successful exhibition format designed exclusively for architects, interior designers, engineering consultancies and other planning bodies. Around 200 selected producers present themselves according to a specific topic across various towns and cities, demonstrating their innovations as part of a unique exhibition layout. A framework programme is also organised with talks and special shows. Free catering, a lounge and a library create a pleasant and relaxed atmosphere.

Seeger – Technische Leuchten participated in ARCHITECT@WORK 2015 in Düsseldorf with resounding success. We will also be participating in the future at various exhibition locations.



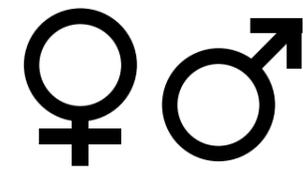
Important topics on the Seeger - Technische Leuchten fair stand were colour rendition and colour temperature.

Colour rendition

The provision of natural colour rendition is an important aspect of good lighting and an important quality characteristic of light. Artificial light should ensure the truest colour rendition possible. This is measured using the colour rendition properties. The Colour Rendering Index (CRI) is used for characterisation. The larger the colour rendering index, CRI or Ra value, the more natural the colours that are reproduced.

Colour temperature

The colour of light from a lamp is described by the colour temperature in Kelvin (K). Sunlight does not have a constant colour temperature. Its colour changes depending on the latitude, time of day and time of year. By using different colour temperatures, it is possible to influence the ambience and the feeling of wellbeing. This makes it possible, right from the design stage, to specify whether areas or objects have a warm or cool appearance, allowing rest areas and work areas to be defined in advance.



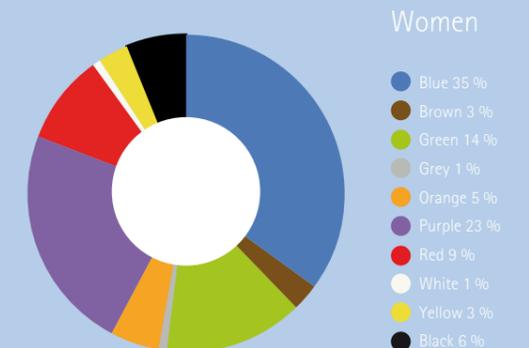
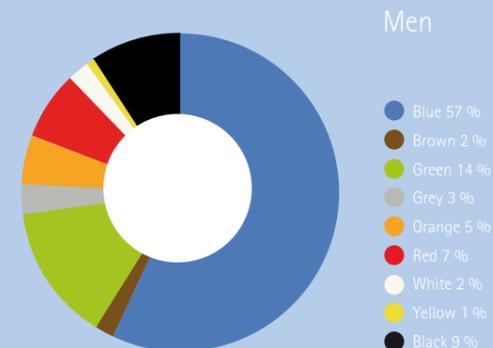
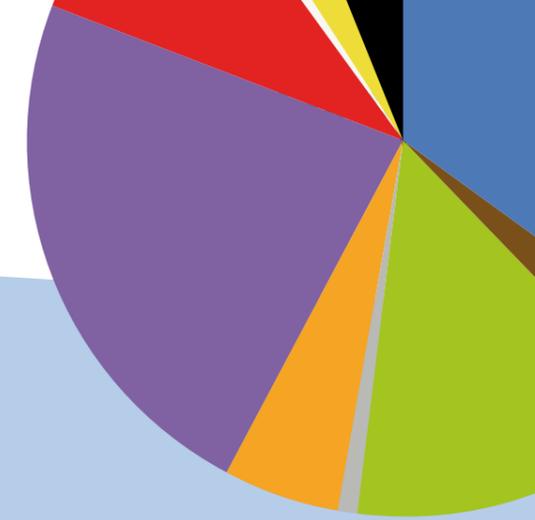
MEN'S VIEWS ARE DIFFERENT

Men and women see the world in a different way, at least when it comes down to colours. This is indicated by genetic analyses carried out by American researchers. The scientists found a surprising number of variants in the gene containing information for the red optical pigment. Because this is located on the X chromosome, the unusual diversity is noticed especially with women and helps them to achieve a somewhat higher colour differentiation capacity.

The differences between male and female test subjects were also the result of a colour test in which the researchers showed the subjects a light point in a particular colour. The observers described and specified the colour tone and what percentage of red, green, blue or yellow light the light point contained. In a further survey the test subjects were asked to adjust a colour surface so that it corresponds precisely to the colour tone of a comparative surface. The sensitivity with regard to colour tones was approximately equal for both genders, but not congruent according to the researchers.

Across almost the complete colour spectrum the men perceived the colour tones to be slightly more blueish than the women – ladies see the world in warmer tones.

Differences between the genders also exist with respect to their favourite colour – as the result of a questionnaire, more than half the men specified blue as their favourite colour. Women on the other hand tended towards more reddish blue tones. Might causes for such preferences be found in prehistoric times when people existed as hunters and collectors? Positive associations with the colour blue might be derived from the sky, presupposing no danger from bad weather conditions. Blue water could also be drunk without risk. The skilled differentiation of various red tones may have helped women in their search for ripe fruits and other edible plant parts. Another reason for this heightened level of perception is possible in a special sensitivity for the moods of people with their slightly changed facial tones.









LED Lighting unit

The luminaire inserts are equipped with COB ceramic technology LEDs. The use of this new technology increases not only the efficiency of the LEDs but also maximises the service life. Due to minimum luminous flux reduction of L90B10 at 50,000 hours service life and low 3MacAdam colour tolerance, these products are ideal for use in projects with especially long operating periods.

Reflector system

The luminaire modules feature special, highly diffuse reflectors. This innovative reflector technology achieves maximum efficiency and uniform, shadowless illumination.

Construction lengths

To avoid shadows in the profile covers, the LED modules are butted seamlessly together. The module grid size is 281mm. Modules are available from 1-length to 6-length.

Control gear

Precisely matched electronic control units supply the LED modules. The systems are available in either static or regulable versions. A DALI, Push or 1-10V interface can be specified according to requirements.



Profile luminaires

Luminaires and lighting systems made of extruded aluminium profile are indispensable for meeting the high demands of contemporary architecture. The outstanding thermal characteristics of the material and the possibility of integrating functional properties into the profile enable the development of luminaires with extremely compact dimensions and high performance potential. The high rigidity of the profiles also enables long luminaire lengths with just a few mounting points and low weight.

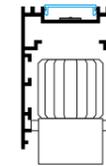


Dual light

Spotlight inserts are available for scenatic lighting. Various light atmospheres can be created by using different light sources – diffuse or point-precise light as a twin function in the luminaire. General light generated by LEDs is complemented with the individually switchable and controllable supplementary lighting.

Spotlight units

High vertical accenting is achieved by combining with modules accommodating rigid or adjustable spotlight units. Various spotlight inserts are available for supplementary lighting.



Fixed spotlight inserts



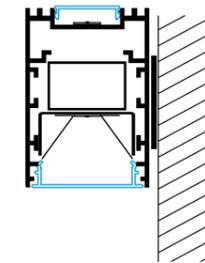
Adjustable spotlight inserts





LED RAIL wall luminaire

The compact size makes this crisp-edged aluminium profile an inconspicuous architectural detail. The versatility of the lighting technology makes it universally useable, being equally suited for lighting office and functional areas and for prestigious architecture. Many special functions are possible and can be optimised for the project.



LED RAIL surface-mounted luminaire

Multifunctional luminaire with strict geometric shape, stripped to the bare essentials, for surface mounting on the ceiling. Despite its filigree design, this product is equipped with state-of-the-art lighting technology and electronics, making it a powerful and highly efficient package. Many special functions are possible and can be optimised for the project.



LED RAIL pendant luminaire

- › direct light emission
- › made of sharp-edged extruded aluminium sheath
- › surface anodized aluminium
- › surface also available in powder-coated in accordance with RAL
- › cover available in acrylic opal or prismatic
- › suspension system B or E
- › LED COB-Array, L90/B10 – 50000 h

- › Small Flux LED-Type 03
- › Mid Flux LED-Type 04
- › High Flux LED-Type 05



	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
H 100 	95632	03	1200 lm	1250 lm	1280 lm	1330 lm	15 W
		04	1690 lm	1750 lm	1790 lm	1850 lm	20 W
		05	2300 lm	2390 lm	2440 lm	2540 lm	28 W
			OD 68 x 575 				
H 100 	95633	03	1800 lm	1870 lm	1920 lm	1990 lm	20 W
		04	2530 lm	2620 lm	2680 lm	2780 lm	28 W
		05	3450 lm	3590 lm	3670 lm	3810 lm	40 W
			OD 68 x 870 				
H 100 	95634	03	2410 lm	2500 lm	2560 lm	2660 lm	25 W
		04	3380 lm	3500 lm	3580 lm	3700 lm	36 W
		05	4600 lm	4780 lm	4890 lm	5080 lm	52 W
			OD 68 x 1150 				
H 100 	95635	03	3010 lm	3130 lm	3200 lm	3320 lm	30 W
		04	4220 lm	4380 lm	4470 lm	4630 lm	44 W
		05	5750 lm	5980 lm	6120 lm	6350 lm	64 W
			OD 68 x 1430 				
H 100 	95642	03	1440 lm	1500 lm	1540 lm	1590 lm	15 W
		04	2030 lm	2100 lm	2150 lm	2230 lm	20 W
		05	2760 lm	2870 lm	2940 lm	3050 lm	28 W
			OD 68 x 575 				
H 100 	95643	03	2170 lm	2250 lm	2310 lm	2390 lm	20 W
		04	3040 lm	3160 lm	3230 lm	3340 lm	26 W
		05	4140 lm	4310 lm	4410 lm	4580 lm	40 W
			OD 68 x 870 				
H 100 	95644	03	2890 lm	3010 lm	3080 lm	3190 lm	25 W
		04	4060 lm	4210 lm	4300 lm	4460 lm	36 W
		05	5530 lm	5750 lm	5890 lm	6110 lm	52 W
			OD 68 x 1150 				
H 100 	95645	03	3620 lm	3760 lm	3850 lm	3990 lm	30 W
		04	5080 lm	5260 lm	5380 lm	5570 lm	44 W
		05	6910 lm	7190 lm	7360 lm	7640 lm	64 W
			OD 68 x 1430 				



LED RAIL pendant luminaire

- › direct/indirect light emission
- › made of sharp-edged extruded aluminium sheath
- › surface anodized aluminium
- › surface also available in powder-coated in accordance with RAL
- › cover available in acrylic opal or prismatic
- › suspension system B or E
- › LED COB-Array, L90/B10 – 50000 h

- › Small Flux LED-Type 03
- › Mid Flux LED-Type 04
- › High Flux LED-Type 05



	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
H 100	95612	03	1800 lm	1870 lm	1920 lm	1990 lm	20 W
		04	2530 lm	2620 lm	2680 lm	2780 lm	28 W
		05	3450 lm	3590 lm	3670 lm	3810 lm	40 W
H 100	95613	03	3010 lm	3130 lm	3200 lm	3320 lm	30 W
		04	4220 lm	4380 lm	4470 lm	4630 lm	44 W
		05	5750 lm	5980 lm	6120 lm	6350 lm	64 W
H 100	95614	03	3610 lm	3750 lm	3840 lm	3990 lm	36 W
		04	5070 lm	5250 lm	5370 lm	5560 lm	52 W
		05	6900 lm	7180 lm	7340 lm	7620 lm	76 W
H 100	95615	03	4820 lm	5000 lm	5130 lm	5320 lm	50 W
		04	6760 lm	7010 lm	7160 lm	7410 lm	72 W
		05	9200 lm	9570 lm	9790 lm	10170 lm	104 W
H 100	95622	03	2170 lm	2250 lm	2310 lm	2390 lm	20 W
		04	3040 lm	3160 lm	3230 lm	3340 lm	28 W
		05	4140 lm	4310 lm	4410 lm	4580 lm	40 W
H 100	95623	03	3620 lm	3760 lm	3850 lm	3990 lm	30 W
		04	5080 lm	5260 lm	5380 lm	5570 lm	44 W
		05	6910 lm	7190 lm	7360 lm	7640 lm	64 W
H 100	95624	03	4340 lm	4510 lm	4620 lm	4790 lm	36 W
		04	6090 lm	6320 lm	6460 lm	6690 lm	52 W
		05	8290 lm	8630 lm	8830 lm	9170 lm	76 W
H 100	95625	03	5790 lm	6020 lm	6170 lm	6390 lm	50 W
		04	8130 lm	8430 lm	8610 lm	8920 lm	72 W
		05	11060 lm	11510 lm	11780 lm	12230 lm	104 W

Technical changes reserved and errors excepted!



LED RAIL surface-mounted luminaire

- › made of sharp-edged extruded aluminium sheath
- › surface anodized aluminium
- › surface also available in powder-coated in accordance with RAL
- › cover available in acrylic opal or prismatic
- › prepared for mounting system M
- › LED COB-Array, L90/B10 – 50000 h

- › Small Flux LED-Type 03
- › Mid Flux LED-Type 04
- › High Flux LED-Type 05



	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power	
H 100 	 OD 68 x 575		18312 03	1200 lm	1250 lm	1280 lm	1330 lm	15 W
			04	1690 lm	1750 lm	1790 lm	1850 lm	20 W
			05	2300 lm	2390 lm	2440 lm	2540 lm	28 W
H 100 	 OD 68 x 870		18313 03	1800 lm	1870 lm	1920 lm	1990 lm	20 W
			04	2530 lm	2620 lm	2680 lm	2780 lm	28 W
			05	3450 lm	3590 lm	3670 lm	3810 lm	40 W
H 100 	 OD 68 x 1150		18314 03	2410 lm	2500 lm	2560 lm	2660 lm	25 W
			04	3380 lm	3500 lm	3580 lm	3700 lm	36 W
			05	4600 lm	4780 lm	4890 lm	5080 lm	52 W
H 100 	 OD 68 x 1430		18315 03	3010 lm	3130 lm	3200 lm	3320 lm	30 W
			04	4220 lm	4380 lm	4470 lm	4630 lm	44 W
			05	5750 lm	5980 lm	6120 lm	6350 lm	64 W
H 100 	 OD 68 x 575		18302 03	1440 lm	1500 lm	1540 lm	1590 lm	15 W
			04	2030 lm	2100 lm	2150 lm	2230 lm	20 W
			05	2760 lm	2870 lm	2940 lm	3050 lm	28 W
H 100 	 OD 68 x 870		18303 03	2170 lm	2250 lm	2310 lm	2390 lm	20 W
			04	3040 lm	3160 lm	3230 lm	3340 lm	28 W
			05	4140 lm	4310 lm	4410 lm	4580 lm	40 W
H 100 	 OD 68 x 1150		18304 03	2890 lm	3010 lm	3080 lm	3190 lm	25 W
			04	4060 lm	4210 lm	4300 lm	4460 lm	36 W
			05	5530 lm	5750 lm	5890 lm	6110 lm	52 W
H 100 	 OD 68 x 1430		18305 03	3620 lm	3760 lm	3850 lm	3990 lm	30 W
			04	5080 lm	5260 lm	5380 lm	5570 lm	44 W
			05	6910 lm	7190 lm	7360 lm	7640 lm	64 W



LED RAIL wall luminaire

- › direct or indirect / direct emission
- › made of sharp-edged extruded aluminium sheath
- › surface anodized aluminium
- › surface also available in powder-coated in accordance with RAL
- › cover available in acrylic opal or prismatic
- › prepared for mounting system M
- › LED COB-Array, L90/B10 – 50000 h

- › Small Flux LED-Type 03
- › Mid Flux LED-Type 04
- › High Flux LED-Type 05

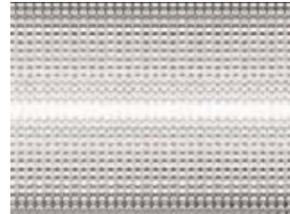
▶ Lumen values apply for opal covers. Prismatic cover on request.

	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
H 100 	84432	03	1200 lm	1250 lm	1280 lm	1330 lm	15 W
		04	1690 lm	1750 lm	1790 lm	1850 lm	20 W
		05	2300 lm	2390 lm	2440 lm	2540 lm	28 W
H 100 	84433	03	1800 lm	1870 lm	1920 lm	1990 lm	20 W
		04	2530 lm	2620 lm	2680 lm	2780 lm	28 W
		05	3450 lm	3590 lm	3670 lm	3810 lm	40 W
H 100 	84434	03	2410 lm	2500 lm	2560 lm	2660 lm	25 W
		04	3380 lm	3500 lm	3580 lm	3700 lm	36 W
		05	4600 lm	4780 lm	4890 lm	5080 lm	52 W
H 100 	84435	03	3010 lm	3130 lm	3200 lm	3320 lm	30 W
		04	4220 lm	4380 lm	4470 lm	4630 lm	44 W
		05	5750 lm	5980 lm	6120 lm	6350 lm	64 W
H 100 	84412	03	1800 lm	1870 lm	1920 lm	1990 lm	20 W
		04	2530 lm	2620 lm	2680 lm	2780 lm	28 W
		05	3450 lm	3590 lm	3670 lm	3810 lm	40 W
H 100 	84413	03	3010 lm	3130 lm	3200 lm	3320 lm	30 W
		04	4220 lm	4380 lm	4470 lm	4630 lm	44 W
		05	5750 lm	5980 lm	6120 lm	6350 lm	64 W
H 100 	84414	03	3610 lm	3750 lm	3840 lm	3990 lm	36 W
		04	5070 lm	5250 lm	5370 lm	5560 lm	52 W
		05	6900 lm	7180 lm	7340 lm	7620 lm	76 W
H 100 	84415	03	4820 lm	5000 lm	5130 lm	5320 lm	50 W
		04	6760 lm	7010 lm	7160 lm	7410 lm	72 W
		05	9200 lm	9570 lm	9790 lm	10170 lm	104 W

opal



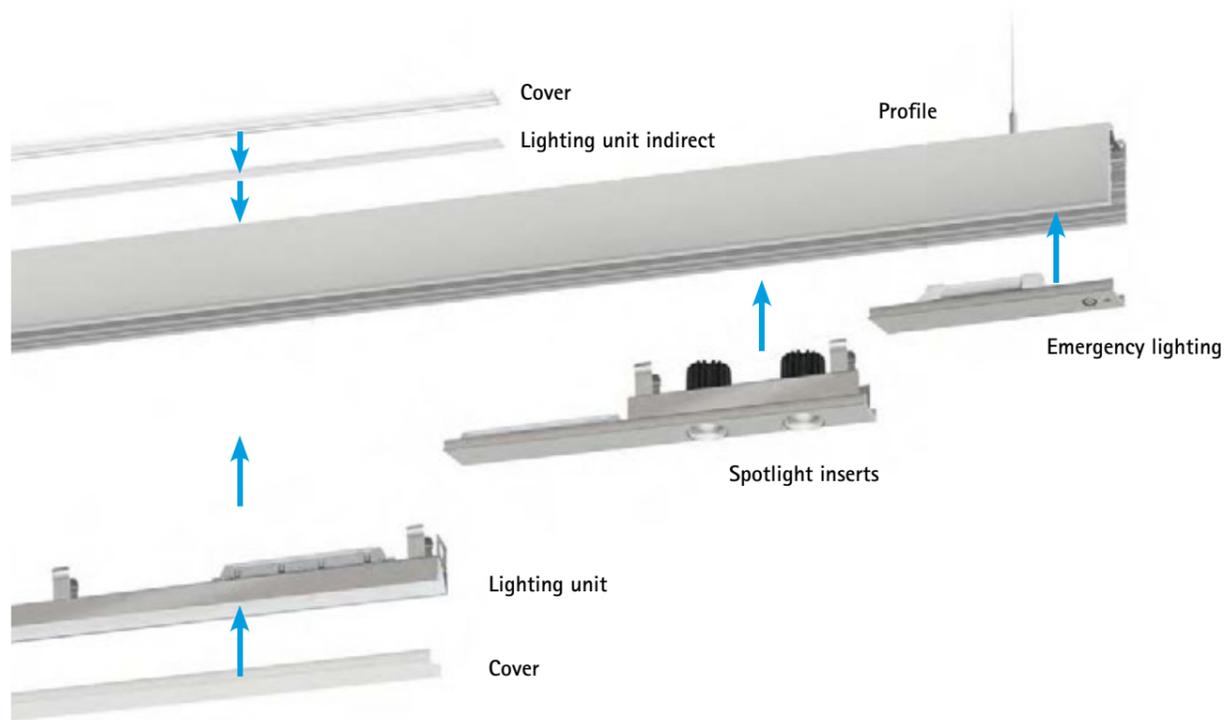
prismatic, clear



System luminaires

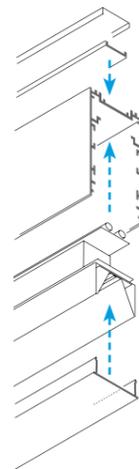
With LED RAIL system luminaires, system components are compiled according to project needs. This enables continuous light channel systems matched to the architecture. The modular selection of system components enables lighting solutions accor-

ding to the specific designs of the lighting designer. Detailed planning of the system can be directly and simply implemented. Functional additions can also be subsequently installed with ease.



An empty profile is suspended and can be retroactively configured with a wide variety of luminaire inserts. To achieve seamless, shadow-free illumination, light inserts are butted together. Light-distributing diffusers with opal, satin matt surfaces form the termination of the luminaire. Despite high transmission, the luminaire cover is uniformly illuminated without points or shadows. Luminaire covers are also available with a microprismatic surface. The mi-

croprisms achieve effective glare control. These covers are suitable for the standard-compliant illumination of DSE workstations. The light channels can also accommodate spotlights, blank elements and technical elements. The channels also have sufficient space for cable runs.



Luminaire profiles

- › profiles for suspension
- › direct or direct/indirect emission
- › made of sharp-edged extruded aluminium sheath
- › surface anodized aluminium
- › surface also available in powder-coated in accordance with RAL
- › supply dimensions freely specifiable to 6 m
- › millimetre-precise cuts

Opal cover

- › for the planar lighting of general areas
- › uniform, shadow-free illuminated surface
- › high transmission factor
- › diffuse light distribution

Prismatic cover

- › for standard-compliant illumination of DSE workstations
- › cover available in acrylic opal or prismatic
- › high brilliance with glare-free light
- › uniform appearance of light

Profiles	
	H = 100 B = 68
	H = 100 B = 68
Profiles	
Direct emission	
17600.xxx	Luminaire profile, empty in xxx cm
17601.000	Sawed cutting
Direct / indirect emission	
17690.xxx	Luminaire profile, empty in xxx cm
17601.000	Sawed cutting
Cover	
Acrylic Diffusor, opal	
17640.xxx	Cover in xxx cm
17600.000	Sawed cutting
Microprismatic, klar	
17660.xxx	Cover in xxx cm
17600.000	Sawed cutting
Microprismatic, opal	
17670.xxx	Cover in xxx cm
17600.000	Sawed cutting
Blank cover, aluminium	
17650.xxx	Cover in xxx cm
17600.000	Sawed cutting
Mikroprismatic, clear (für Uplight)	
17680.xxx	Cover in xxx cm
17600.000	Sawed cutting

LED Lighting units, direct emission



- › luminaire modules for installing in empty profiles
- › reflectors for homogeneous, shadow-free illumination
- › 281 mm module dimensions
- › modules available from 1-length to 6-length
- › control units optionally static or regulable

› LED COB-Array, L90/B10 – 50000 hrs

- › Small Flux LED-Type 03
- › Mid Flux LED-Type 04
- › High Flux LED-Type 05

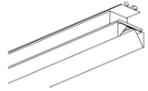
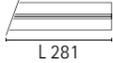
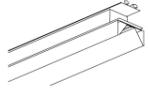
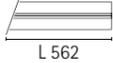
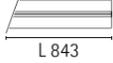
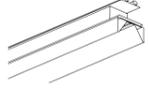
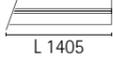
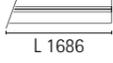
LED Lighting units, indirect emission

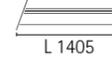
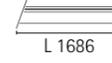


- › luminaire modules for installing in empty profiles
- › reflectors for homogeneous, shadow-free illumination
- › 281 mm module dimensions
- › modules available from 1-length to 6-length
- › control units optionally static or regulable

› LED COB-Array, L90/B10 – 50000 hrs

- › Small Flux LED-Type 03
- › Mid Flux LED-Type 04
- › High Flux LED-Type 05

	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
  L 281	17711	03	770 lm	800 lm	820 lm	850 lm	10 W
		04	1080 lm	1120 lm	1145 lm	1185 lm	12 W
		05	1470 lm	1530 lm	1565 lm	1625 lm	16 W
  L 562	17712	03	1540 lm	1600 lm	1640 lm	1700 lm	15 W
		04	2160 lm	2240 lm	2290 lm	2370 lm	20 W
		05	2940 lm	3060 lm	3130 lm	3250 lm	28 W
  L 843	17713	03	2310 lm	2400 lm	2460 lm	2550 lm	20 W
		04	3240 lm	3360 lm	3435 lm	3555 lm	28 W
		05	4410 lm	4590 lm	4695 lm	4875 lm	40 W
  L 1124	17714	03	3080 lm	3200 lm	3280 lm	3400 lm	25 W
		04	4320 lm	4480 lm	4580 lm	4740 lm	36 W
		05	5880 lm	6120 lm	6260 lm	6500 lm	52 W
  L 1405	17715	03	3850 lm	4000 lm	4100 lm	4250 lm	30 W
		04	5400 lm	5600 lm	5725 lm	5925 lm	44 W
		05	7350 lm	7650 lm	7825 lm	8125 lm	64 W
  L 1686	17716	03	4620 lm	4800 lm	4920 lm	5100 lm	36 W
		04	6480 lm	6720 lm	6870 lm	7110 lm	52 W
		05	8820 lm	9180 lm	9390 lm	9750 lm	76 W

	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
  L 281	17791	03	770 lm	800 lm	820 lm	850 lm	10 W
		04	1080 lm	1120 lm	1145 lm	1185 lm	12 W
		05	1470 lm	1530 lm	1565 lm	1625 lm	16 W
  L 562	17792	03	1540 lm	1600 lm	1640 lm	1700 lm	15 W
		04	2160 lm	2240 lm	2290 lm	2370 lm	20 W
		05	2940 lm	3060 lm	3130 lm	3250 lm	28 W
  L 843	17793	03	2310 lm	2400 lm	2460 lm	2550 lm	20 W
		04	3240 lm	3360 lm	3435 lm	3555 lm	28 W
		05	4410 lm	4590 lm	4695 lm	4875 lm	40 W
  L 1124	17794	03	3080 lm	3200 lm	3280 lm	3400 lm	25 W
		04	4320 lm	4480 lm	4580 lm	4740 lm	36 W
		05	5880 lm	6120 lm	6260 lm	6500 lm	52 W
  L 1405	17795	03	3850 lm	4000 lm	4100 lm	4250 lm	30 W
		04	5400 lm	5600 lm	5725 lm	5925 lm	44 W
		05	7350 lm	7650 lm	7825 lm	8125 lm	64 W
  L 1686	17796	03	4620 lm	4800 lm	4920 lm	5100 lm	36 W
		04	6480 lm	6720 lm	6870 lm	7110 lm	52 W
		05	8820 lm	9180 lm	9390 lm	9750 lm	76 W

Technical changes reserved and errors excepted!

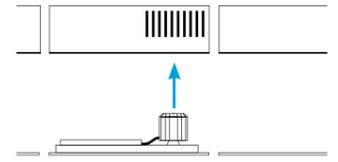


LED Spotlight units

- › partly made of sharp-edged extruded aluminium sheath
- › with integrated control gear
- › mounting preparation ex-works as system-integrated component
- › wired ready for connection with heat-resistant cable
- › different reflectors available

▶ Reflector order code:

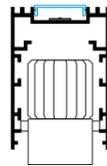
- S = Spot
- M = Medium
- F = Flood



Long ventilation element for LED RAIL spotlight inserts with integrated control gear.

Spotlight inserts

High vertical accenting is achieved by combining modules with fixed and adjustable spotlight units. Various spotlight inserts are available for supplementary lighting.



Adjustable spotlight inserts

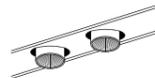
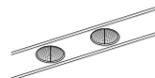
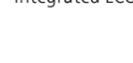
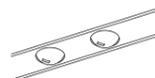
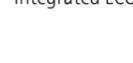


Fixed spotlight inserts



Spotlight with lens optic



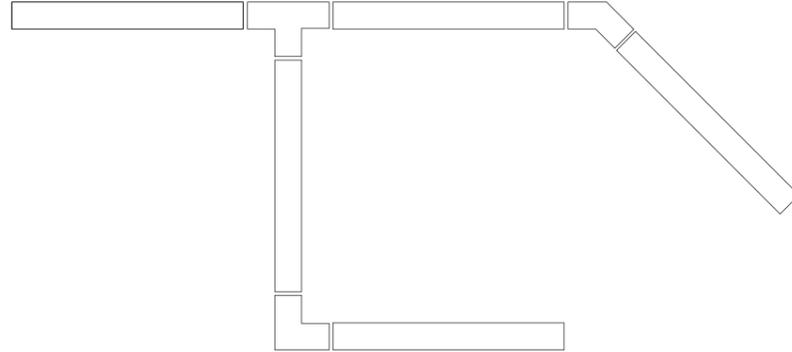
	Articel	Length	Lumen	Power
Adjustable spotlight inserts				
	17741	350 mm	940 lm	11 W
	17742	450 mm	2 x 940 lm	2 x 11 W
	17743	650 mm	3 x 940 lm	3 x 11 W
Fixed spotlight inserts				
	17761	350 mm	940 lm	11 W
	17762	450 mm	2 x 940 lm	2 x 11 W
	17763	650 mm	3 x 940 lm	3 x 11 W
Spotlight with lens optic				
	17781	350 mm	940 lm	11 W
	17782	450 mm	2 x 940 lm	2 x 11 W
	17783	650 mm	3 x 940 lm	3 x 11 W

Technical changes reserved and errors excepted!

RAIL System connectors

- › numerous design possibilities
- › T-connector for expansion
- › corner connector for 90° angle
- › corner connector possible for modified angles
- › mounting systems for all ceiling systems

Example of use:

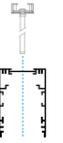


RAIL System connectors

- › numerous design possibilities
- › compensation cover for perfect fitting
- › various fixing and suspension possibilities



SYSTEM B
Wire rope suspension
with rapid connector
system



SYSTEM E
Pendant suspension
for concrete ceilings



LED RAIL



End cover
Art.-No.: 17620.99



T-Connector
Art.-No.: 17620.95



L-Connector angle 90°
Art.-No.: 17620.93



L-Connector special angle
Art.-No.: 17620.90

Mounting system:



SYSTEM B
Wire rope suspension with
rapid connector system



SYSTEM E
Pendant suspension for
concrete ceilings



Spacing cover
Art.-No.: 17620.98



Straight connector
Art.-No.: 17620.98



Wire-rope suspension, system B
17621.11 wire rope L = 1000 mm
17621.12 wire rope L = 2000 mm



Wire-rope suspension with canopy and cable
17621.21 wire rope L = 1000 mm
17621.22 wire rope L = 2000 mm



Through-wiring, 3-pole
17703.04 for LED RAIL 400 mm
17703.10 for LED RAIL 1000 mm
17703.20 for LED RAIL 2000 mm
17703.30 for LED RAIL 3000 mm



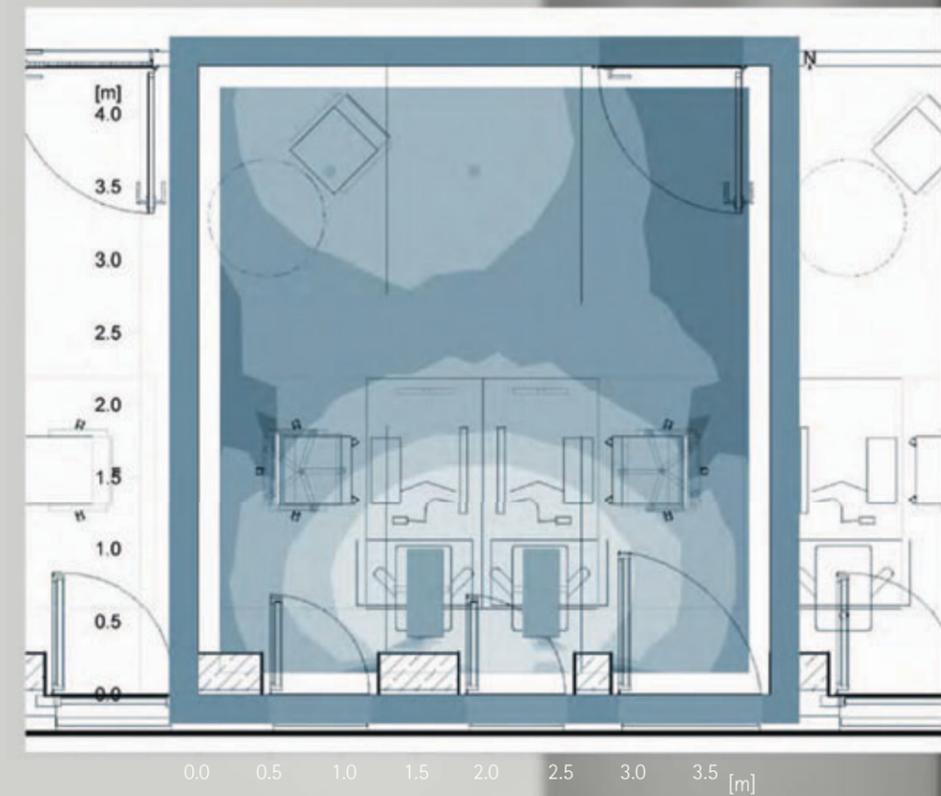
Through-wiring, 5-pole
17705.04 for LED RAIL 400 mm
17705.10 for LED RAIL 1000 mm
17705.20 for LED RAIL 2000 mm
17705.30 for LED RAIL 3000 mm

PROJECT

WE MAKE VISIONS VISIBLE

Office 01, Floor lamp

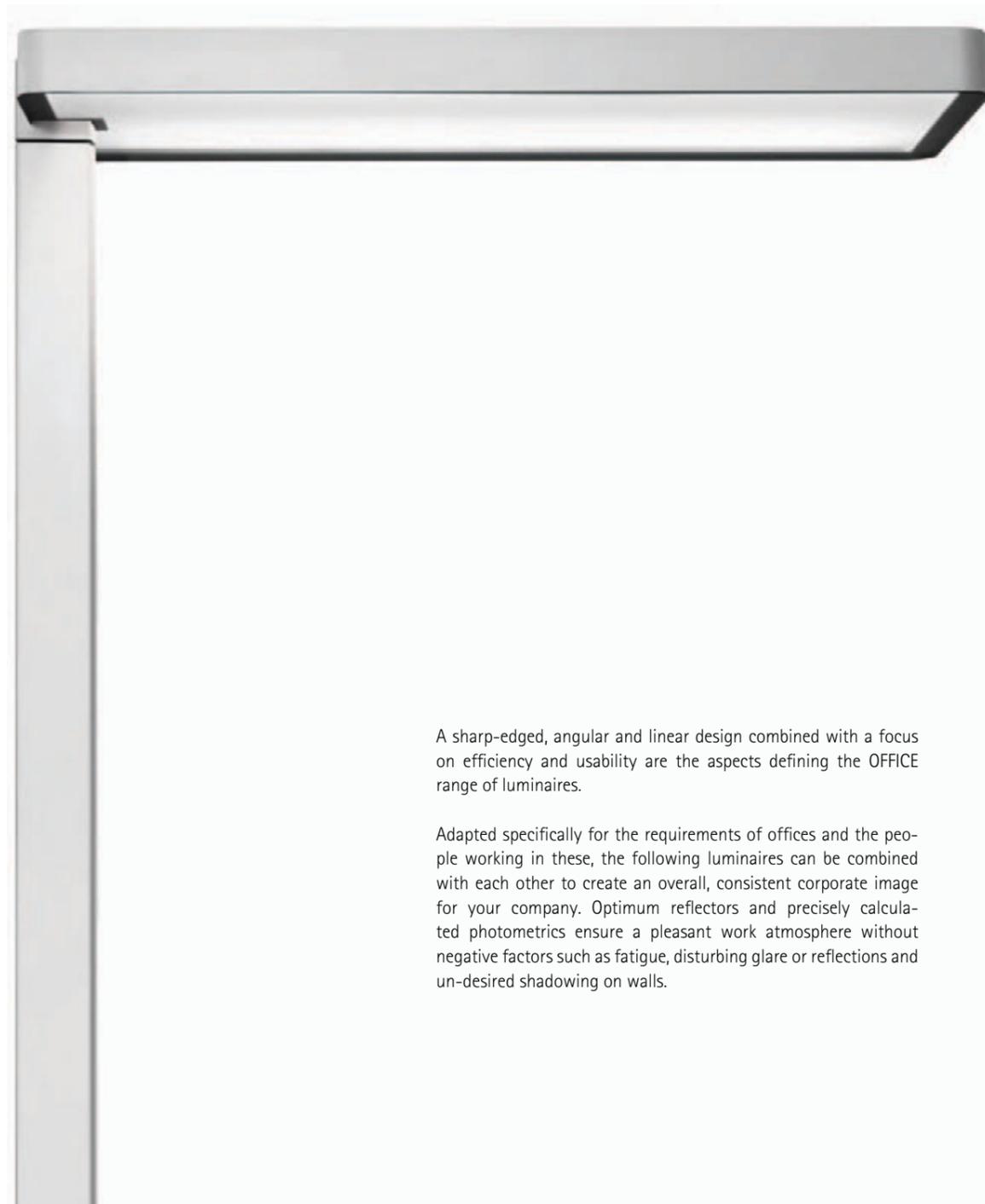
Highly efficient floor lamp with LED-technology. Absolutely glare-free, homogeneous and wide distribution of light.



Illumination [lx]

Height of reference level
Average illuminance
Minimum illuminance
Maximum illuminance
Constancy U_0
Unevenness U_d

: 0.80 m
: 656 lx
: 151 lx
: 2130 lx
: 1 : 4.34 (0.23)
: 1 : 14.12 (0.07)



A sharp-edged, angular and linear design combined with a focus on efficiency and usability are the aspects defining the OFFICE range of luminaires.

Adapted specifically for the requirements of offices and the people working in these, the following luminaires can be combined with each other to create an overall, consistent corporate image for your company. Optimum reflectors and precisely calculated photometrics ensure a pleasant work atmosphere without negative factors such as fatigue, disturbing glare or reflections and un-desired shadowing on walls.





LED OFFICE 01, Floor lamp

Angular linearity typifies the design of the OFFICE 01 floor lamp. The luminaire has particularly high performance thanks to state-of-the-art optics and configuration with maximum quality LED arrays. The direct/indirect distribution uplight is ideal for office applications, both for general and workstation lighting. Completely glare-free uniform wide light distribution due to the microprismatic cover for the direct component, with a high quality light emission surface appearance thanks to a covering of optical real glass..

Indirect light emission surface with LED arrays with ceramic technology, covered with safety glass.





LED OFFICE 01, Pendant luminaire

The pendant luminaire of the OFFICE series is a high-output and extremely efficient lighting tool, ideal for the special requirements of office environments. The design and functionality of the OFFICE 01 upright were referenced and modified for DSE workstations. The dimming function enables light to be adapted to daylight levels, thus ensuring a uniform quality of light on the desk surface and in the work surroundings.

This increases the performance capacity of employees and also prevents fatigue. The direct and indirect light emission combined with a microprismatic cover generates shadowless and glare-free lighting that is therefore also suitable for general office lighting.



Luminaire with direct/indirect emission, equipped with LED-Arrays in COB (Chip-on-board) technology. Above 100 lm/W and outstanding long durability. L90/B10 - 50000 hrs, 3 Step MacAdam, CRI > 84.



Direct light emission



Indirect light emission

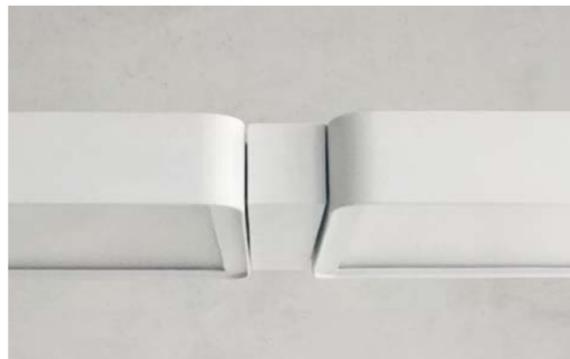
**LED OFFICE 02**

This model is an uplight with indirect light distribution only. The walls and ceilings of the room serve as reflection surfaces. The high luminaire luminous flux levels generate standard-compliant illuminance for the workstation lighting. The OFFICE 02 is especially suitable as general or supplementary lighting thanks to complete lack of glare and planar lighting.

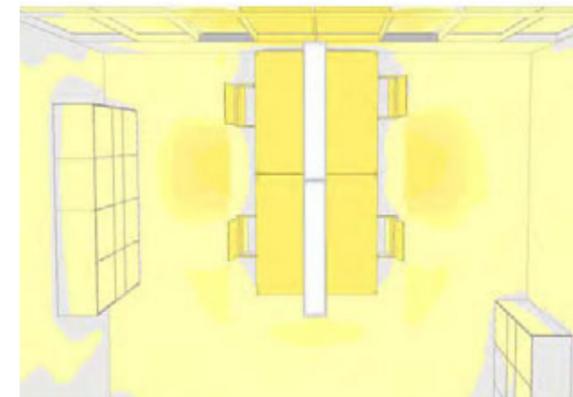
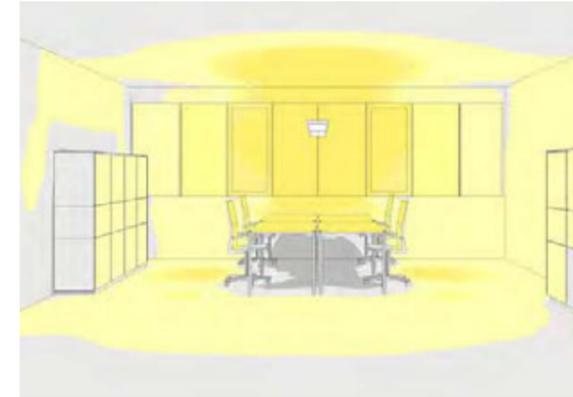
The more angular design of this uplight compared to the OFFICE 01 range has a calm appearance and blends discreetly into the background without disturbing the room ambience. This means that more complex luminaire elements such as pendant or recessed luminaires can be done without – a logical and attractive solution without compromise, especially for small office spaces.



Direct dimming by pressing a button on the luminaire head. The luminous intensity is reliably set in this way to adapt the luminaire to the time of day and specific requirement. Indirect lighting technology with Chip On Board LED arrays with ceramic technology. The luminaires are 1-piece and wired ready for connection. The electronic components are integrated.



The suspended luminaire in the OFFICE range creates pleasant general lighting in offices. Equipped with a prismatic cover for direct light distribution and an opal cover for the indirect component, this luminaire emits its light uniformly across a wide area. Direct glare is prevented, an ideal prerequisite for DSE workstations. Shadowing and blurred arcs of light on illuminated walls are avoided. Dimmability allows the light appearance to be steplessly adapted, enabling fatigue-free work throughout the day.



Design example:

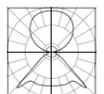
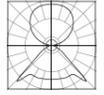
The specification was to illuminate the office area and the four opposite workstations as efficiently as possible. We meet this requirement with just two suspended luminaires forming a fixed unit via a connector. The light is transmitted smoothly to walls, cupboards and work planes without causing glare for users and without creating shadows.



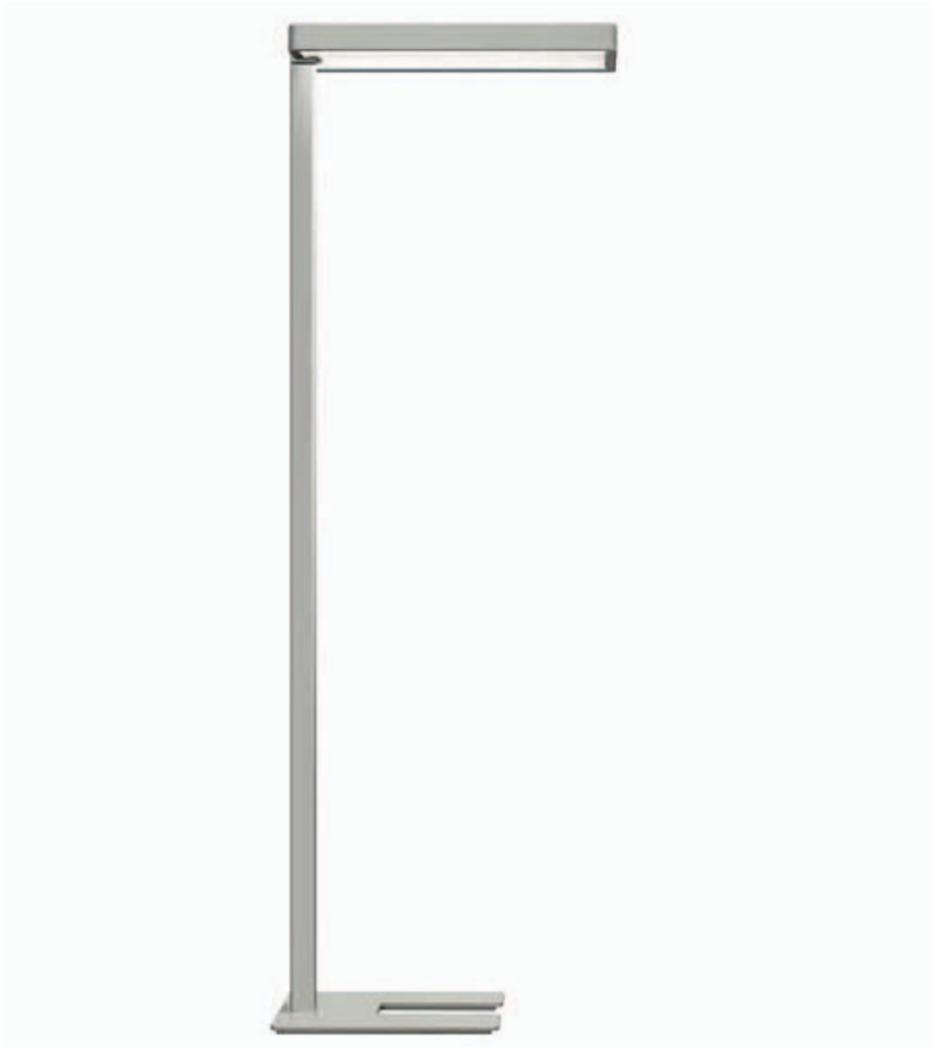
OFFICE 01, pendant luminaire

- › direct/indirect light emission
- › made of sharp-edged extruded aluminium sheath
- › surface powder-coated
- › cover available in acrylic opal or prismatic
- › suspension system B or E
- › LED COB-Array, L90/B10 – 50000 h

- › Small Flux LED-Type 03
- › Mid Flux LED-Type 04
- › High Flux LED-Type 05

			Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power	
H 45	I ↻ ↻	 OD 250x900		70103	03	4340 lm	4510 lm	4620 lm	4790 lm	36 W
					04	6090 lm	6320 lm	6460 lm	6690 lm	52 W
					05	8290 lm	8630 lm	8830 lm	9170 lm	76 W
H 45	I ↻ ↻	 OD 250x1200		70104	03	5790 lm	6020 lm	6170 lm	6390 lm	50 W
					04	8130 lm	8430 lm	8610 lm	8920 lm	72 W
					05	11060 lm	11510 lm	11780 lm	12230 lm	104 W
H 45	I ↻ ↻	 OD 250x1500		70105	03	7240 lm	7520 lm	7710 lm	7990 lm	60 W
					04	10160 lm	10530 lm	10770 lm	11150 lm	87 W
					05	13830 lm	14390 lm	14720 lm	15290 lm	125 W
H 45	I ↻ ↻	 OD 250x1800		70106	03	8690 lm	9030 lm	9250 lm	9590 lm	71 W
					04	12190 lm	12640 lm	12920 lm	13380 lm	103 W
					05	16590 lm	17270 lm	17670 lm	18340 lm	149 W

Technical changes reserved and errors excepted!

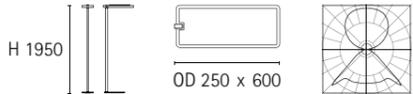


OFFICE 01, floor lamp

- › direct/indirect light emission
- › luminaire housing made of aluminium and steel
- › surface powder-coated
- › direct prismatic cover
- › indirect clear genuine glass cover
- › completely closed luminaire
- › ready-to-connect wiring
- › LED COB-Array, L90/B10 – 50000 h

- › Small Flux LED-Type 03
- › Mid Flux LED-Type 04
- › High Flux LED-Type 05

Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
71100	03	5790 lm	6020 lm	6170 lm	6390 lm	49 W
	04	8130 lm	8430 lm	8610 lm	8920 lm	73 W
	05	11060 lm	11510 lm	11780 lm	12230 lm	92 W



Technical changes reserved and errors excepted!



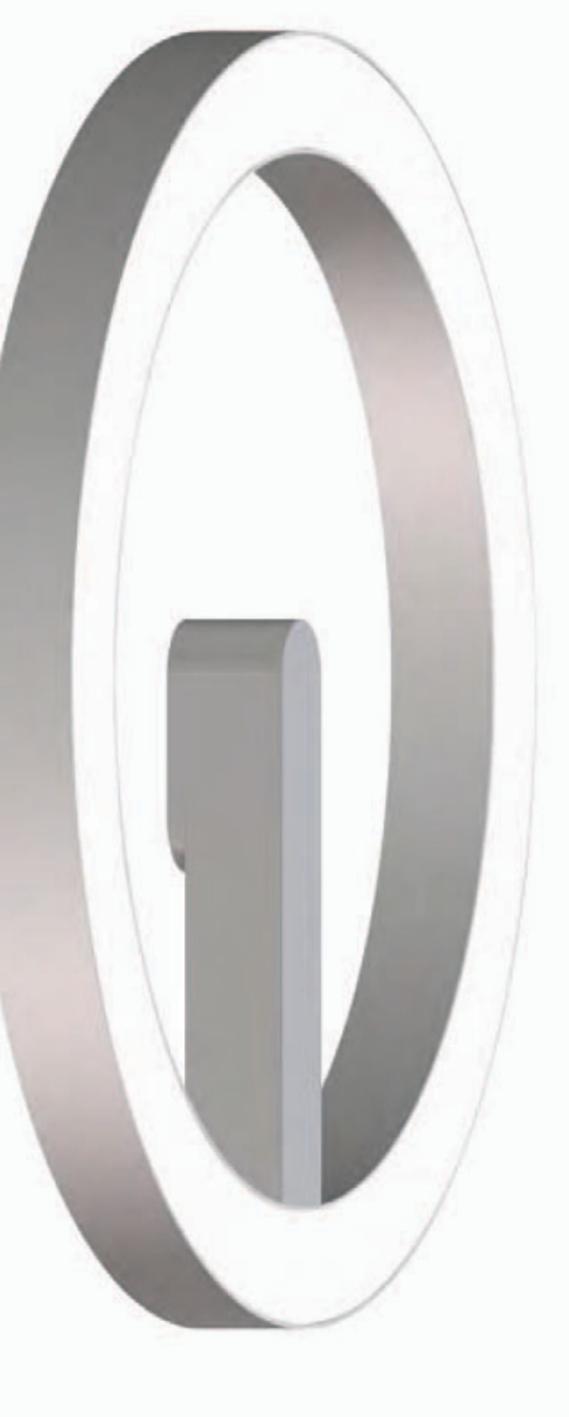
OFFICE 02, uplight

- › indirect light emission
- › luminaire housing made of aluminium and steel
- › surface powder-coated
- › glare-free and flat lighting
- › ceiling and wall used as reflection surface
- › ready-to-connect wiring
- › LED COB-Array, L90/B10 – 50000 h

- › Small Flux LED-Type 03
- › Mid Flux LED-Type 04
- › High Flux LED-Type 05

	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
	97200	03	2890 lm	3010 lm	3080 lm	3190 lm	25 W
		04	4060 lm	4210 lm	4300 lm	4460 lm	36 W
		05	5530 lm	5750 lm	5890 lm	6110 lm	52 W

Technical changes reserved and errors excepted!

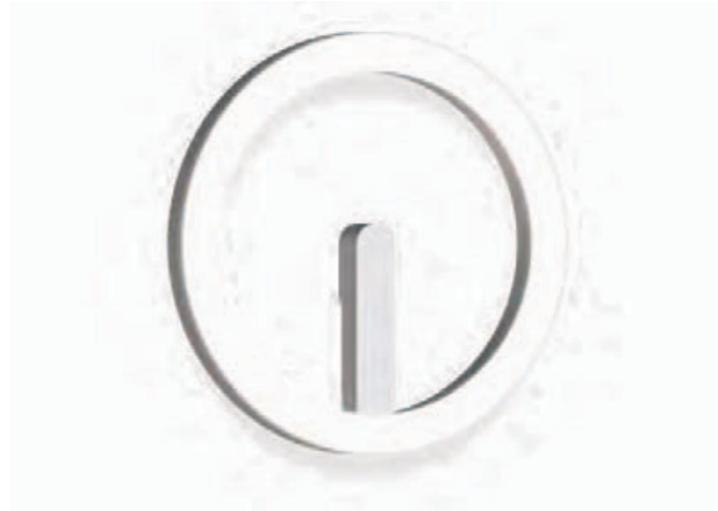


Seeger proves its feeling for design with this luminaire range.

The light unit in the form of a ring achieves a high recognition factor with the wall, suspended and floorlamp versions. Thanks to its timeless, functional design the light ring can also be integrated into a wide variety of interiors.







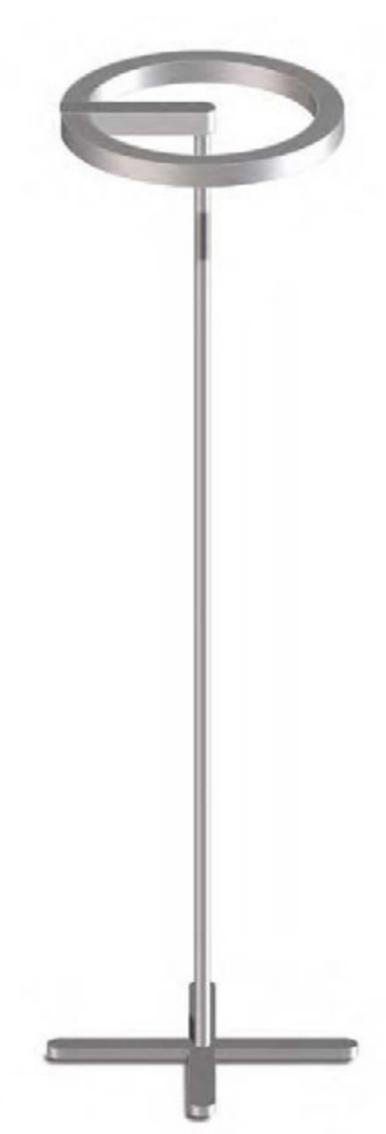
LED lightring, wall luminaire

- › luminaire housing made of aluminium and steel
- › surface powder-coated
- › cover available in acrylic opal or prismatic
- › completely closed luminaire
- › ready-to-connect wiring
- › LED COB-Array, L90/B10 – 50000 hrs

- › Small Flux LED-Type 91
- › Mid Flux LED-Type 92
- › High Flux LED-Type 93
- › Ultra Flux LED-Type 94

		Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
H 51		41400	02	1400 lm	1415 lm	1520 lm	19 W	
			03	1950 lm	1975 lm	2105 lm	26 W	
			04	2730 lm	2780 lm	2990 lm	38 W	

Technical changes reserved and errors excepted!



LED lightring, floor lamp

- › direct or direct/indirect light emission
- › luminaire housing made of aluminium and steel
- › surface powder-coated
- › opal acrylic cover
- › completely closed luminaire
- › ready-to-connect wiring
- › LED COB-Array, L90/B10 – 50000 hrs

- › Small Flux LED-Type 91
- › Mid Flux LED-Type 92
- › High Flux LED-Type 93
- › Ultra Flux LED-Type 94

	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power
	41410	02	1400 lm	1415 lm	1520 lm	19 W	
		03	1950 lm	1975 lm	2105 lm	26 W	
		04	2730 lm	2780 lm	2990 lm	38 W	

Technical changes reserved and errors excepted!



LED lighting, pendant luminaire

- › direct or direct/indirect light emission
- › luminaire housing made of aluminium and steel
- › surface powder-coated
- › opal acrylic cover
- › completely closed luminaire
- › ready-to-connect wiring
- › LED COB-Array, L90/B10 – 50000 hrs

- › Small Flux LED-Type 91
- › Mid Flux LED-Type 92
- › High Flux LED-Type 93
- › Ultra Flux LED-Type 94

	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power	
H 60	  OD Ø 530		41420	02	1400 lm	1415 lm	1520 lm	19 W
				03	1950 lm	1975 lm	2105 lm	26 W
				04	2730 lm	2780 lm	2990 lm	38 W
H 60	  OD Ø 530		41421	05	-	2200 lm	2200 lm	34 W

► Higher luminous flux available on request!



LED lightring, pendant luminaire

- › direct or direct/indirect light emission
- › made of sharp-edged extruded aluminium sheath
- › surface powder-coated
- › opal acrylic cover
- › completely closed luminaire
- › ready-to-connect wiring
- › LED COB-Array, L90/B10 – 50000 hrs

	Article	LED-Type	2700 K	3000 K	3500 K	4000 K	Power	
H 45	41450	11		820 lm	820 lm		16 W	
			12	1630 lm	1630 lm		28 W	
				13	2450 lm	2450 lm		42 W
					14	4900 lm	4900 lm	
H 45	41460	11		1150 lm	1150 lm		23 W	
			12	2300 lm	2300 lm		39 W	
				13	3460 lm	3460 lm		58 W
					14	6900 lm	6900 lm	
H 45	41470	11		1500 lm	1500 lm		25 W	
			12	2980 lm	2980 lm		48 W	
				13	4470 lm	4470 lm		72 W
					14	8900 lm	8900 lm	
H 45	41480	11		1830 lm	1830 lm		30 W	
			12	3640 lm	3640 lm		56 W	
				13	5480 lm	5480 lm		86 W
					14	10900 lm	10900 lm	
H 45	41451	11		900 lm	900 lm		32 W	
			12	1790 lm	1790 lm		56 W	
				13	2700 lm	2700 lm		82 W
					14	5390 lm	5390 lm	
H 45	41461	11		1260 lm	1260 lm		46 W	
			12	2530 lm	2530 lm		78 W	
				13	3800 lm	3800 lm		116 W
					14	7600 lm	7600 lm	
H 45	41471	11		1650 lm	1650 lm		50 W	
			12	3280 lm	3280 lm		96 W	
				13	4900 lm	4900 lm		144 W
					14	9800 lm	9800 lm	
H 45	41481	11		2000 lm	2000 lm		60 W	
			12	4000 lm	4000 lm		112 W	
				13	6000 lm	6000 lm		172 W
					14	12000 lm	12000 lm	

Technical changes reserved and errors excepted!



Art.-No.	Page	Art.-No.	Page	Art.-No.	Page	Art.-No.	Page
01000.	28	17514.	57	17743.	63	41451.	139
01100.	28	17515.	57	17751.	63	41460.	139
01120.	28	17522.	57	17752.	63	41461.	139
01160.	28	17523.	57	17753.	63	41470.	139
01180.	28	17524.	57	17761.	63	41471.	139
01210.	28	17525.	57	17762.	63	41480.	139
01270.	28	17552.	59	17763.	63	41481.	139
01500.	30	17553.	59	17771.	63	46000.	28
01600.	30	17554.	59	17772.	63	46100.	28
01620.	30	17555.	59	17773.	63	70103.	121
01660.	30	17562.	59	17781.	63	70104.	121
01720.	30	17563.	59	17782.	63	70105.	121
01790.	30	17564.	59	17783.	63	70106.	121
01800.	30	17565.	59	17791.	103	71100.	123
01890.	30	17600.	61	17792.	103	84432.	99
01900.	30	17601.	61	17793.	103	84433.	99
08000.	29	17610.	61	17794.	103	84434.	99
08010.	29	17620.	64	17795.	103	84435.	99
08050.	29	17621.	65	17796.	103	84412.	99
08950.	29	17630.	64	18302.	97	84413.	99
09000.	31	17640.	61	18303.	97	84414.	99
09010.	31	17650.	61	18304.	97	84415.	99
09050.	31	17660.	61	18305.	97	95612.	95
09950.	31	17670.	61	18312.	97	95613.	95
10130.	27	17680.	101	18313.	97	95614.	95
10140.	27	17690.	101	18314.	97	95615.	95
10150.	27	17703.	65	18315.	97	95622.	95
10160.	27	17705.	65	28060.	41	95623.	95
10170.	27	17711.	62	28070.	39	95624.	95
10180.	27	17712.	62	28080.	37	95625.	95
12100.	25	17713.	62	28090.	37	95632.	93
12130.	25	17714.	62	28160.	39	95633.	93
12140.	25	17715.	62	28170.	41	95634.	93
12150.	25	17716.	62	41400.	133	95635.	93
12830.	25	17731.	63	41410.	135	95642.	93
12840.	25	17732.	63	41411.	135	95643.	93
17500.	65	17733.	63	41420.	137	95644.	93
17512.	57	17741.	63	41421.	137	95645.	93
17513.	57	17742.	63	41450.	139	97200.	125

I.) General terms and conditions

1. All of our existing and future shipments and services, including secondary services such as consultancy and planning services prior to and after delivery, are based exclusively on these Terms and Conditions. The same shall apply to any adjustment services. These Terms and Conditions shall also apply to future business dealings irrespective of whether they are expressly mentioned or not.

2. The buyer's terms and conditions (also known as conditions for purchasing) are herewith expressly excluded. They are equally not binding even where we do not exclude them at the time of entering into a contract.

3. The conclusion of a purchase contract and the dimensions of the delivery obligations arising out of such a contract are governed by a corresponding declaration of intent by both contracting parties. Where such a declaration of intent is not available, a written order confirmation from the supplier shall be exclusively binding whereby the following terms and conditions shall be deemed agreed.

II.) Contractual Agreement

1. Written and oral offers and offers made by telephone are unbinding and subject to confirmation. Offers made do not oblige the supplier to accept an order.

2. Statements made by the supplier with regard to measurement and weight, as well as graphic representations, drawing and details of dimension and weight or similar provided by the supplier in documentation or descriptions are only approximate values and are therefore not binding. The documentation comprising the offer does not represent a guarantee of the product's properties but serves purely as orientation for the buyer.

3. A guarantee with regard to specific properties and/or the suitability of a product for a particular use shall only be binding where this is expressly stated as such in writing

III.) Price

1. The stated prices are ex works, including standard packaging. Changes with regard to despatch and packaging of goods require a separate agreement.

2. All prices include VAT at the rate applicable at the time of delivery. VAT will be added on to invoices at the applicable rate and will be shown separately. All other taxes, customs duty, charges or similar shall be borne by the buyer.

3. Until an order is confirmed by the supplier, prices quoted for special lamps or special constructions shall be regarded as approximate prices. A „special lamp“ shall be defined as the constructional modification of an existing lamp type and the making of same according to in-house drawings or those of the buyer. Spare parts and spare colours for special lamps must be ordered separately by the buyer and will be invoiced by the supplier.

4. Unless otherwise agreed samples will only be delivered on the basis of an invoice with the value calculated in line with the price list. Samples may not be exchanged or returned. The cost of sample special lamps shall be calculated on the basis of time and effort expended and invoiced accordingly.

IV.) Retention of Title

1. Until payment has been received in full, the supplied goods shall, even after sale, remain the property of the supplier. The supplier's right to

retention of title extends to products which have already been installed or have been sold on.

2. Any right to payment arising out of the resale of the goods by the buyer shall be ceded to the supplier who expressly accepts this assignment.

3. Where goods of the supplier have already been installed, the value of the supplier's goods resulting from the sale of the product/project by the buyer shall be ceded by the buyer to the supplier at the moment such sale takes place. Proportional title to the proceeds of the re-sold goods shall be transferred to the supplier when the buyer receives payment. Unpaid goods from the supplier may be neither pledged nor assigned by way of collateral. All demands arising out of the commercial relationship shall be immediately due and payable at the moment payment ceases and/or if the buyer should seek for settlement in bankruptcy or a moratorium.

V.) Payment

1. The supplier's invoices are to be paid in full 14 days after the date shown on the invoice at latest. Part deliveries shall be invoiced separately. Where payment is received within 8 days from the date shown on the invoice, the supplier shall grant a cash discount of 2%. The date of payment shall be the date on which the money is available to the supplier. Where outstanding payments are owed from previous invoices, cash discounts shall not be given.

2. The buyer shall be deemed in each and every case, and without any reminder being necessary, to be in arrears when 14 days have elapsed from the date of the invoice. In the event of arrears, interest at the usual bank rates for overdrafts shall be charged. In the event of the buyer being in arrears, the supplier may immediately demand settlement, including settlement of all invoices which would normally be due and payable at a later date, any other agreements notwithstanding.

3. Payment may not be withheld or offset by the buyer against any counter claims he may make which have not been acknowledged by the supplier.

4. Irrespective of any individually agreed conditions of payment, the supplier shall be entitled to demand immediate settlement should the buyer find himself in circumstances which make it unlikely that he will meet the agreed conditions of payment. This shall apply where there are well-founded indications of a significant worsening of the buyer's financial position, in particular in the event of suspended payments, cheque or draft refusals or arrears, where it is clear from these that the supplier's claim to payment is endangered by the buyer's insufficient ability to pay. In these instances the supplier is further entitled to demand payment in instalments or to demand further security.

VI.) Delivery

1. The observance of delivery deadlines presupposes the punctual receipt of all specifications, documentation, licences and releases, in particular of plans and drawings, from the buyer as well as the buyer's observance of agreed conditions of payment and any other obligations. Where these obligations are not met punctually, any delivery deadlines shall be extended accordingly, unless the supplier cannot answer for any delay. Transactions with fixed delivery dates require express written confirmation from an authorised person.

2. The delivery dates stated by the supplier are approximate and depend on the receipt of punctual and orderly delivery by his own suppliers. The supplier shall be liable for the observance of a delivery deadline

only where he has expressly given such an undertaking. Where these obligations are not punctually met, the delivery deadline shall be extended accordingly without making the supplier liable to pay compensation.

3. The transport risk shall be borne by the buyer, even where carriage free delivery has been agreed, once the goods have left the supplier's place of production. At the request of the buyer and at his expense, the goods may be insured by the supplier against loss caused by despatch, breakage, transport or fire.

VII.) Receipt and fulfilment

1. Delivered goods must be accepted by the buyer even where they show minor defects such as do not interfere with the functioning of the product.

2. Part deliveries may be made.

3. The supplier's stated willingness to deliver the goods shall suffice as fulfilment of the delivery conditions.

VIII.) Guarantee and liability

1. Immediately on receipt of any delivery, the buyer shall inspect the shipment thoroughly and fully. Defects or malfunctions noted on inspection must be reported in writing within 8 days. Where a defect which was not visible immediately becomes apparent later, the buyer must notify the supplier of this without delay in writing.

2. The guarantee is for 12 months from the transfer of risk and applies to guaranteed properties and the flawlessness of the goods with regard to material and processing, in accordance with the latest state of technology. The only guarantee for any illuminants delivered shall be the guarantee of the respective illuminant manufacturer. Illuminants may not be exchanged or replaced.

3. The guarantee only applies if a defect appears despite proper and correct installation, operation, care, maintenance and normal use in keeping with any existing operation instructions and where the defect is not due to natural wear and tear, the corrosion of individual parts, improper repairs or alterations. The guarantee shall not apply in the event of minor discrepancies with regard to colour, dimensions and/or other external properties.

4. Where justified and properly reported complaints have been made, the supplier undertakes to either remove the defect or to exchange the faulty part within a suitable period of time, whichever he deems fit. The supplier shall not bear the cost of installation.

5. The buyer does not have the right to cancel the contract or to reduce the agreed price unless the supplier refuses to remove the defect or replace the goods or has not responded to a justified complaint within a suitable period of at least 4 weeks. The contract may only be cancelled if the buyer cannot be expected to accept the goods at a reduced price.

6. Claims, irrespective of their legal basis, will be entertained only in the case of § 11, No. 7 AGBG (gross negligence), § 11, No. 8(b) AGBG (default and impracticality, caused by our gross negligence), §11, No. 9 AGBG (buyer's loss of interest in the event of partial default and partial impracticality, but only where these are caused by the gross negligence of the supplier) and for grossly negligent claims with regard to the properties of the products. Moreover claims will be entertained which relate to so-called direct and/or consequential loss, where this was foreseeable by the supplier at the time the contract was concluded

and he was aware of such at the time of giving any undertakings.

IX.) Place of delivery and jurisdiction

1. The place of delivery for all deliveries and payments including return deliveries shall be Dortmund.

2. The sole jurisdiction for all disputes arising directly or indirectly out of the contract shall be the place in which the supplier has his head office.

3. German law shall apply in relation to this contract, to the exclusion of the UN Convention on Contracts for the International Sale of Goods.

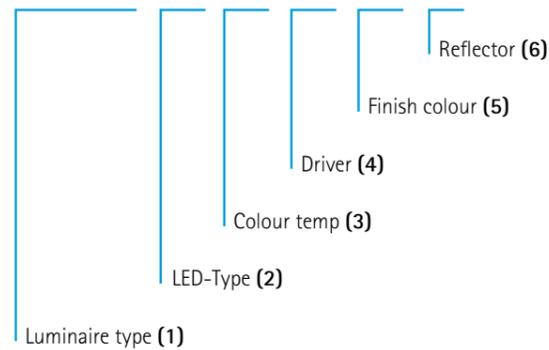
X.) Miscellaneous

1. The supplier reserves his right to use quotations, drawings and other documentation (hereinafter referred to as „documentation“) as the owner and originator thereof. This documentation may only be transmitted to third parties with the prior approval of the supplier and, if no order is placed with the supplier, must be returned on demand without delay. Sentences 1 and 2 apply equally to the buyer's documentation: this may however be made available to third parties whom the supplier has rightfully commissioned to carry out deliveries.

2. Where one of the provisions of these terms and conditions or a provision in some other agreement is or shall become invalid, this does not affect the validity of the remaining provisions or agreements.

The article number fundamentally has six parts. The number starts with the desired luminaire type (1) and continues with the LED-Type (2), colour temp (3), driver (4), surface colour (5) and reflector (6).

12280-16-30-02-32-M



(2) LED-Type order code

0x	Linear
1x	High Efficiency (CRI > 82)
2x	High Performance (CRI > 90)
3x	Gallery (CRI > 97)
4x	Retail (CRI > 85)
5x	Retail (CRI > 95)
6x	Below Black Body (CRI > 90 BBL)

(3) Colour temp order code

27	2700 K
30	3000 K
31	3100 K
35	3500 K
40	4000 K
56	5600 K

(4) Driver order code

00	Without driver
01	Low-loss driver
02	Electronic driver
03	Dimmable ECG, 1-10 volt
04	dual switch
05	dual dimm
06	Emergency light, E14
07	Single battery, 1 hour
08	Single battery, 3 hour
09	Mains/battery switch
10	Dimmable ECG, DALI
11	Dual Dimm DALI
14	dimnable ECG phase
15	DMX
16	direct dimm

(5) Finish colour order code

10	Brass
11	Chrome
12	Matt chrome
13	Aluminium scotched Et varnished
14	Anodized aluminium
18	Stainless steel, brushed
20	Made to RAL
23	Luna-silver
25	Titanium silver
26	To RAL 9006
27	To RAL 9007
30	Matt black
31	White
32	Matt white
66	Ceiling frame black + housing/light trap black
67	Ceiling frame titanium + housing/light trap black

(6) Reflector order code

XS	Super-Spot
S	Spot
M	Medium
XM	Medium wide
F	Flood
XF	Super-Flood

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GENERAL INFORMATION

All previous catalogues and the details given in them are rendered invalid by the appearance of this edition. For the duration of the validity of this catalogue, we expressly reserve the right to make technical and design changes to the products listed, and expressly indicate that errors are excepted. The illustrations and drawings shown in this catalogue are non-binding. Unless otherwise stated, all dimensions given are approximate dimensions in millimetres. Lamps are included in the scope of supply. All brand names are the property of their legal owners and are given for descriptive purposes only. The catalogue contains images taken with the approval of specific customers in existing projects as well as luminaire visualisations with pre-series status at the time of printing. Images from shutterstock.com and fotolia.com formed the basis for these simulations.

The high rate of innovation and rapid technological advancement in LED research means that we can only specify lumen values – if not separately noted – for the specifically used LEDs (at operating temperature). Informations in this catalog are current as of publication date.