

AMPERA



Designer : Thomas Coulbeaut



LED solution for an optimised return on investment

Designing the most efficient and cost-effective LED range was the driving force behind the development of the AMPERA.

The AMPERA sets a new benchmark in LED lighting with performing and flexible solutions that lead to the shortest payback time. With its long lifespan, limited maintenance requirements and state-of-the-art photometric engines, AMPERA enables you to maximise your return on investment.

AMPERA is the perfect solution for replacing luminaires fitted with mercury vapour, high-pressure sodium, metal halide and other HID lamps.



BRIDGES



CAR PARKS



LARGE AREAS



ROADS & MOTORWAYS



IP 66

IK 09



Concept

The AMPERA luminaire comes in two separate high-pressure die cast aluminium parts for an easy installation. Fixed on a pole with an universal mounting piece, the inclination angle - in the lower part - can be adjusted before installing the upper part which incorporates the gear and optical unit.

Both parts are connected by two tool free side latches. The electrical connection is automatically triggered on closing by a knife-type connector.

AMPERA is available with three different universal fixation parts adapted for post-top and side-entry mountings on various spigot diameters (Ø42- 48mm, Ø60mm and Ø76mm). The inclination angle can be adjusted on-site by 15° for both post-top and side-entry configurations.

AMPERA is FutureProof and complies with circular economy principles. Its internal components can be accessed and replaced on-site to take advantage of future technological developments.

AMPERA relies on advanced photometric engines to precisely meet the unique requirements of lighting projects and comply with local regulations. The LensoFlex® LED platform offers energy-efficient, high-end photometries while maximising savings and providing a quick return on investment.

In addition, AMPERA is a connected-ready lighting solution that can be delivered with a NEMA or a Zhaga socket to easily integrate connected lighting systems.



Mounting with two separated parts for easy installation.



Available with advanced photometric engines, AMPERA provides a highly performant solution for various lighting projects.

TYPES OF APPLICATION

- BRIDGES
- CAR PARKS
- LARGE AREAS
- ROADS & MOTORWAYS

KEY ADVANTAGES

- Cost-effective and efficient lighting solution for a fast return on investment
- Mounting with two separated parts for easy installation and set-up (inclination angle)
- FutureProof: easy replacement of photometric engine and power supply on-site
- Connected-ready for your future Smart city requirements
- LensoFlex®4 versatile solutions for high-end photometries maximising comfort and safety



On-site adjustable tilting angle for an optimised result.



Easy access to internal components (tool-free opening).



LensoFlex®4

LensoFlex®4 maximises the heritage of the LensoFlex® concept with a very compact yet powerful photometric engine based upon the addition principle of photometric distribution. The number of LEDs in combination with the driving current determines the intensity level of the light distribution. With optimised light distributions and very high efficiency, this fourth generation enables the products to be downsized to meet application requirements with an optimised solution in terms of investment.

LensoFlex®4 optics can feature backlight control to prevent intrusive lighting, or a glare limiter for high visual comfort.

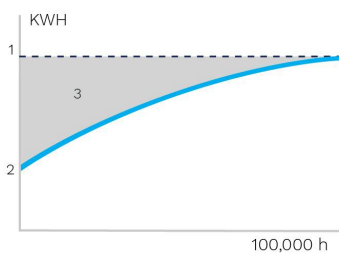




Constant Light Output (CLO)

This system compensates for the depreciation of luminous flux to avoid excess lighting at the beginning of the installation's service life. Luminous depreciation over time must be taken into account to ensure a predefined lighting level during the luminaire's useful life.

Without a CLO feature, this simply means increasing the initial power upon installation in order to make up for luminous depreciation. By precisely controlling the luminous flux, the energy needed to reach the required level can be maintained throughout the luminaire's life.



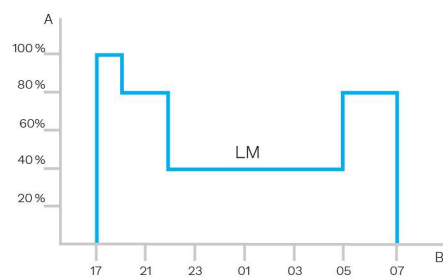
1. Standard lighting level | 2. LED lighting consumption with CLO | 3. Energy savings



Custom dimming profile

Intelligent luminaire drivers can be programmed with complex dimming profiles. Up to five combinations of time intervals and light levels are possible. This feature does not require any extra wiring.

The period between switching on and switching off is used to activate the preset dimming profile. The customised dimming system generates maximum energy savings while respecting the required lighting levels and uniformity throughout the night.

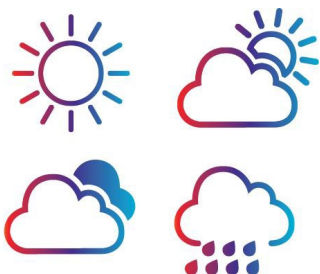


A. Dimming level | B. Time



Daylight sensor / photocell

Photocell or daylight sensors switch the luminaire on as soon as natural light falls to a certain level. It can be programmed to switch on during a storm, on a cloudy day (in critical areas) or only at nightfall so as to provide safety and comfort in public spaces.



PIR sensor: motion detection

In places with little nocturnal activity, lighting can be dimmed to a minimum most of the time. By using passive infrared (PIR) sensors, the level of light can be raised as soon as a pedestrian or a slow vehicle is detected in the area.

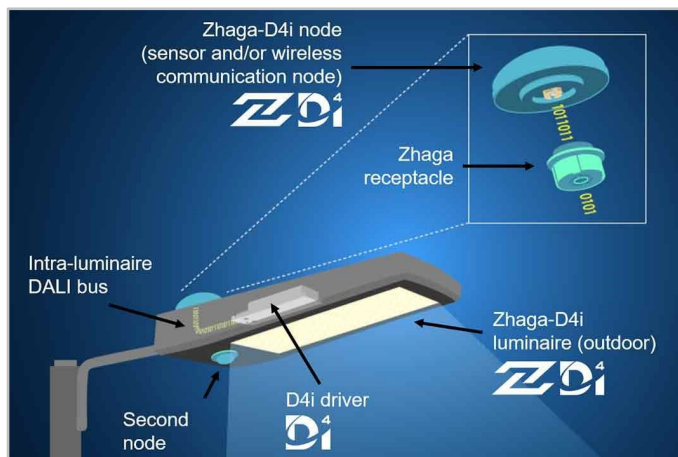
Each luminaire level can be configured individually with several parameters such as minimum and maximum light output, delay period and ON/OFF duration time. PIR sensors can be used in an autonomous or interoperable network.



The Zhaga consortium joined forces with the DiiA and produced a single Zhaga-D4i certification that combines the Zhaga Book 18 version 2 outdoor connectivity specifications with the DiiA's D4i specifications for intra-luminaire DALI.

2 sockets: top and bottom

The Zhaga socket is small and suited to applications where aesthetics is essential. The architecture of Zhaga-D4i also foresees the possibility of putting two sockets on one luminaire, allowing for instance, the combination of a detection sensor and a control node. This also has the added value of standardising certain detection sensor communications with the D4i protocol.



Standardisation for interoperable ecosystems



As a founding member of the Zhaga consortium, Schröder has participated in the creation of, and therefore supports, the Zhaga-D4i certification program and the initiative of this group to standardise an interoperable ecosystem. The D4i specifications take the best of the standard DALI2 protocol and adapt it to an intra-luminaire environment but it has certain limitations. Only luminaire mounted control devices can be combined with a Zhaga-D4i luminaire.

According to the specification, control devices are limited respectively to 2W and 1W average power consumption.

Certification program

The Zhaga-D4i certification covers all the critical features including mechanical fit, digital communication, data reporting and power requirements within a single luminaire, ensuring plug-and-play interoperability of luminaires (drivers) and peripherals such as connectivity nodes.

Cost-effective solution

A Zhaga-D4i certified luminaire includes drivers offering features that had previously been in the control node, like energy metering, which has in turn simplified the control device therefore reducing the price of the control system.

Schröder EXEDRA is the most advanced lighting management system on the market for controlling, monitoring and analysing streetlights in a user-friendly way.



Standardisation for interoperable ecosystems

Schröder plays a key role in driving standardisation with alliances and partners such as uCIFI, TALQ or Zhaga. Our joint commitment is to provide solutions designed for vertical and horizontal IoT integration. From the body (hardware) to the language (data model) and the intelligence (algorithms), the complete Schröder EXEDRA system relies on shared and open technologies. Schröder EXEDRA also relies on Microsoft™ Azure for cloud services, provided with the highest levels of trust, transparency, standards conformance and regulatory compliance.

Breaking the silos

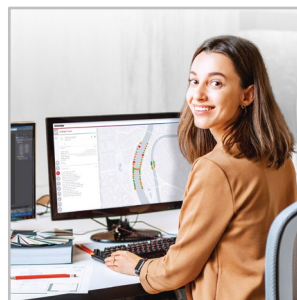
With EXEDRA, Schröder has taken a technology-agnostic approach: we rely on open standards and protocols to design an architecture able to interact seamlessly with third-party software and hardware solutions. Schröder EXEDRA is designed to unlock complete interoperability, as it offers the ability to:

- control devices (luminaires) from other brands
- manage controllers and to integrate sensors from other brands
- connect with third-party devices and platforms

A plug-and-play solution

As a gateway-less system using the cellular network, an intelligent automated commissioning process recognises, verifies and retrieves luminaire data into the user interface. The self-healing mesh between luminaire controllers enables real-time adaptive lighting to be configured directly via the user interface. OWLET IV luminaire controllers, optimised for Schröder EXEDRA, operate Schröder's luminaires and luminaires from third parties. They use both cellular and mesh radio networks, optimising geographical coverage and redundancy for continuous operation.

Tailored experience



Schröder EXEDRA includes all advanced features needed for smart device management, real-time and scheduled control, dynamic and automated lighting scenarios, maintenance and field operation planning, energy consumption management and third-party connected hardware integration. It is fully configurable and includes tools for user management and multi-tenant policy that enables contractors, utilities or big cities to segregate projects.

A powerful tool for efficiency, rationalisation and decision making

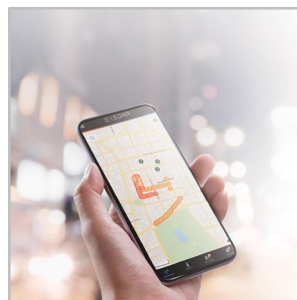
Data is gold. Schröder EXEDRA brings it with all the clarity managers need to drive decisions. The platform collects massive amounts of data from end devices and, aggregates, analyses and intuitively displays them to help end-users take the right actions.

Protected on every side



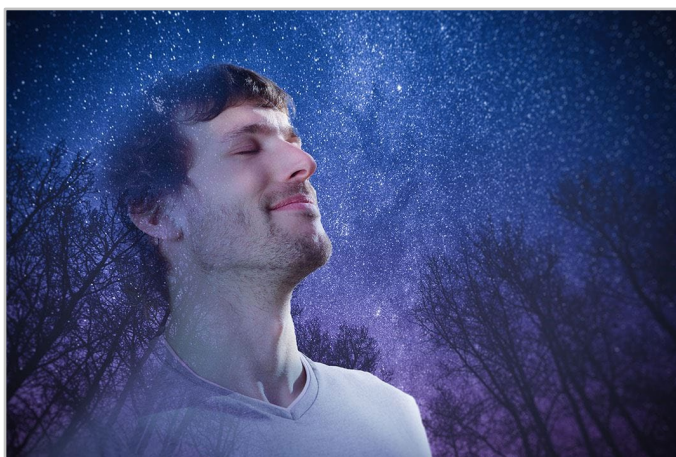
Schröder EXEDRA provides state-of-the-art data security with encryption, hashing, tokenisation, and key management practices that protect data across the whole system and its associated services. The whole platform is ISO 27001 certified. It demonstrates that Schröder EXEDRA meets the requirements for establishing, implementing, maintaining and continually improving security management.

Mobile App: any time, any place, connect to your street lighting

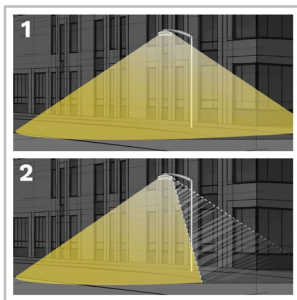


The Schröder EXEDRA mobile application offers the essential functionalities of the desktop platform, to accompany all types of operator on site in their daily effort to maximise the potential of connected lighting. It enables real-time control and settings, and contributes to effective maintenance.

With the PureNight concept, Schröder offers the ultimate solution for restoring the night sky without switching off cities, while maintaining safety and well-being for people and preserving wildlife. The PureNight concept guarantees that your Schröder lighting solution satisfies environmental laws and requirements. Well-designed LED lighting has the potential to improve the environment in all respects.



Direct the light only where it is wanted and needed



1. Without backlight
2. With backlight

Schröder is renowned for its expertise in photometry. Our optics direct light only where it is wanted and needed. However, light trespass behind the luminaire might be a key concern when it comes to protecting a sensitive wildlife habitat or avoiding intrusive lighting towards buildings. Our fully integrated backlight solutions easily address this potential risk.

Offer maximum visual comfort to people



Because of the lower installation height compared to road lighting, visual comfort is an essential aspect of urban lighting. Schröder designs lenses and accessories to minimise any type of glare (distracting, discomforting, disabling glare and blinding glare). Our design offices harness a range of possibilities to find the best solutions for each project and ensure that we provide a gentle light that delivers the best night-time experience.

Protect wildlife



If not well designed, artificial lighting can badly affect wildlife. Blue light and excessive intensity can have a damaging effect on all types of life. Blue light radiation has the ability to suppress the production of melatonin, the hormone that contributes to the regulation of the circadian rhythm. It can also alter the behavioural patterns of animals including bats and moths, as it can change their movements towards or away from light sources. Schröder favours warm white LEDs with minimal blue light, combined with advanced control systems including sensors. This enables permanent adaptation of the lighting to the real needs of the moment, minimising disturbance to the fauna and flora.

Choose a Dark Sky certified luminaire



The International Dark-Sky Association (IDA) is the recognised authority on light pollution. It provides leadership, tools and resources to industries and companies willing to reduce light pollution. The IDA's Fixture Seal of Approval programme certifies outdoor lighting fixtures as being Dark Sky Friendly. All products approved by this programme must comply with the following criteria:

- The light sources shall have a maximum correlated colour temperature of 3000K;
- Uplight allowance limited to 0.5% of total output, or 50 lumens, with no more than 10 lumens in the 90-100 degree UL zone;
- The luminaires must have a dimming capability to 10% of full rating;
- The luminaires must be equipped with a fixed mounting option;
- The luminaires must have Safety Certification by an independent laboratory.

This approved Schröder range of luminaires complies with these requirements.

GENERAL INFORMATION

| | |
|---|--|
| Recommended installation height | 10m to 12m 33' to 39' |
| FutureProof | Easy replacement of the photometric engine and electronic assembly on-site |
| Circle Light label | Score ≥90 - The product fully meets circular economy requirements |
| Driver included | Yes |
| CE mark | Yes |
| ENEC certified | Yes |
| ENEC+ certified | Yes |
| ROHS compliant | Yes |
| Dark Sky friendly lighting (IDA certification) | Yes |
| Zhaga-D4i certified | Yes |
| French law of December 27th 2018 - Compliant with application type(s) | a, b, c, d, e, f, g |
| BE 005 certified | Yes |
| Testing standard | LM 79-08 (all measurements in ISO17025 accredited laboratory) |

HOUSING AND FINISH

| | |
|------------------------|---|
| Housing | Aluminium |
| Optic | PMMA |
| Protector | Tempered glass |
| Housing finish | Polyester powder coating |
| Standard colour(s) | AKZO grey 900 sanded |
| Tightness level | IP 66 |
| Impact resistance | IK 09 |
| Vibration test | Compliant with modified IEC 68-2-6 (0.5G) |
| Access for maintenance | Tool-less access to gear compartment |

· Any other RAL or AKZO colour upon request

OPERATING CONDITIONS

| | |
|----------------------------------|--------------------------------------|
| Operating temperature range (Ta) | -40 °C to +55 °C / -40 ° F to 131 °F |
|----------------------------------|--------------------------------------|

· Depending on the luminaire configuration. For more details, please contact us.

ELECTRICAL INFORMATION

| | |
|-------------------------------------|--|
| Electrical class | Class I EU, Class II EU |
| Nominal voltage | 220-240V – 50-60Hz |
| Surge protection options (kV) | 10 |
| Electromagnetic compatibility (EMC) | EN 55015 / EN 61000-3-2 / EN 61000-3-3 / EN 61547 |
| Control protocol(s) | 1-10V, DALI |
| Control options | AmpDim, Bi-power, Custom dimming profile, Photocell, Remote management |
| Socket | Zhaga (optional) NEMA 7-pin (optional) |
| Associated control system(s) | Schröder EXEDRA |
| Sensor | PIR (optional) |

OPTICAL INFORMATION

| | |
|------------------------------|---|
| LED colour temperature | 2200K (Warm White WW 722) 2700K (Warm White WW 727) 3000K (Warm White WW 730) 3000K (Warm White WW 830) 4000K (Neutral White NW 740) 5700K (Cool White CW 757) |
| Colour rendering index (CRI) | >70 (Warm White WW 722) >70 (Warm White WW 727) >70 (Warm White WW 730) >80 (Warm White WW 830) >70 (Neutral White NW 740) >70 (Cool White CW 757) |
| ULOR | 0% |
| ULR | 0% |

· Meets IDA Dark Sky requirements when fitted with LEDs of 3000K or less.

· ULOR may be different according to the configuration. Please consult us.

· ULR may be different according to the configuration. Please consult us.

LIFETIME OF THE LEDS @ TQ 25°C

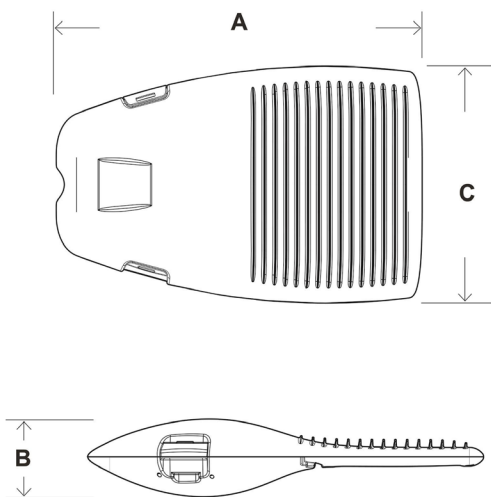
| | |
|--------------------|----------------|
| All configurations | 100,000h - L90 |
|--------------------|----------------|

· Lifetime may be different according to the size/configurations. Please consult us.

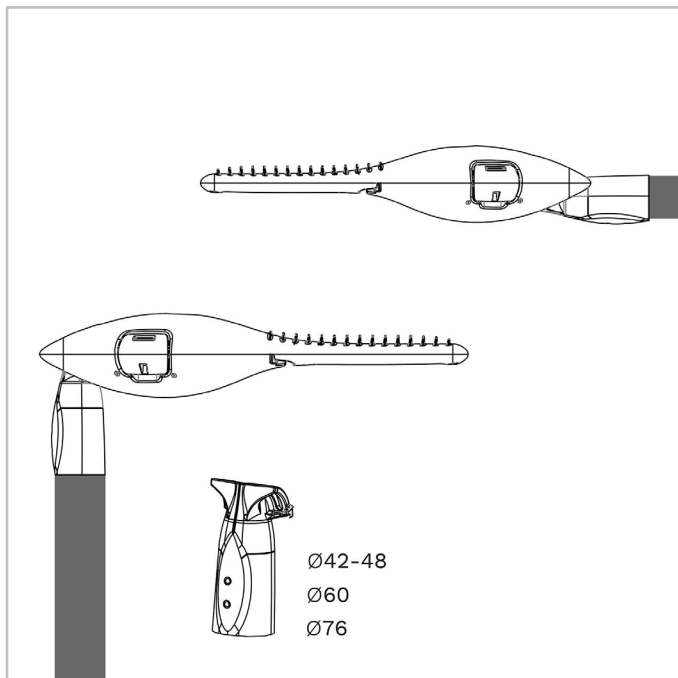
DIMENSIONS AND MOUNTING

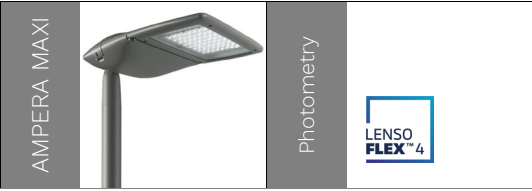
| | |
|------------------------------|--|
| AxBxC (mm inch) | AMPERA MAXI : 900x135x438 35.4x5.3x17.2 |
| Weight (kg lbs) | AMPERA MAXI : 18.2 40.0 |
| Aerodynamic resistance (CxS) | AMPERA MAXI : 0.18 |
| Mounting possibilities | Side-entry slip-over – Ø42mm Side-entry slip-over – Ø48mm Side-entry slip-over – Ø60mm Side-entry slip-over – Ø76mm Post-top slip-over – Ø42mm Post-top slip-over – Ø48mm Post-top slip-over – Ø60mm Post-top slip-over – Ø76mm |

· For more information about mounting possibilities, please consult the installation sheet.



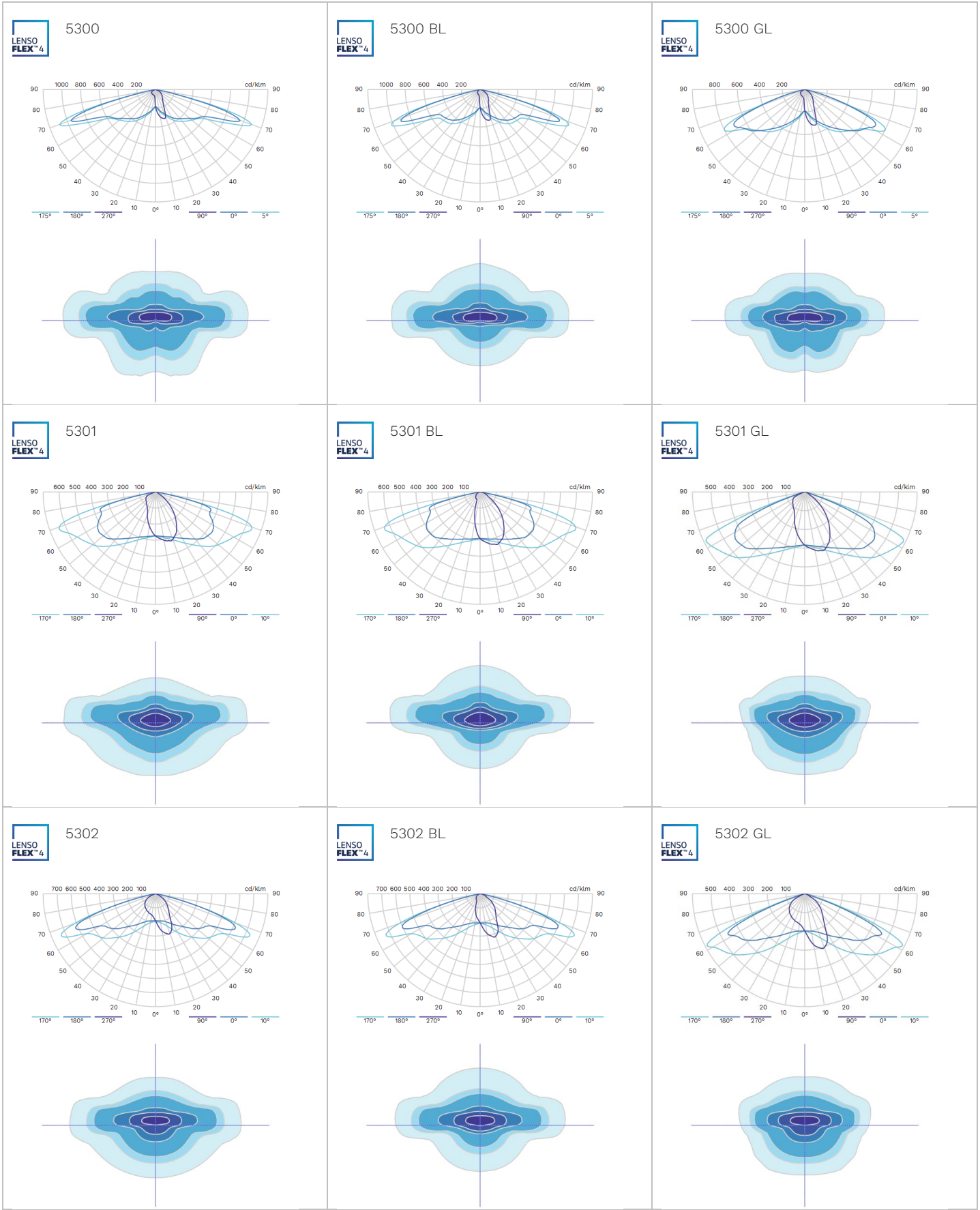
AMPERA | Slip-over mountings for Ø42-48,
Ø60 or Ø76mm spigots - 2xM10 screws

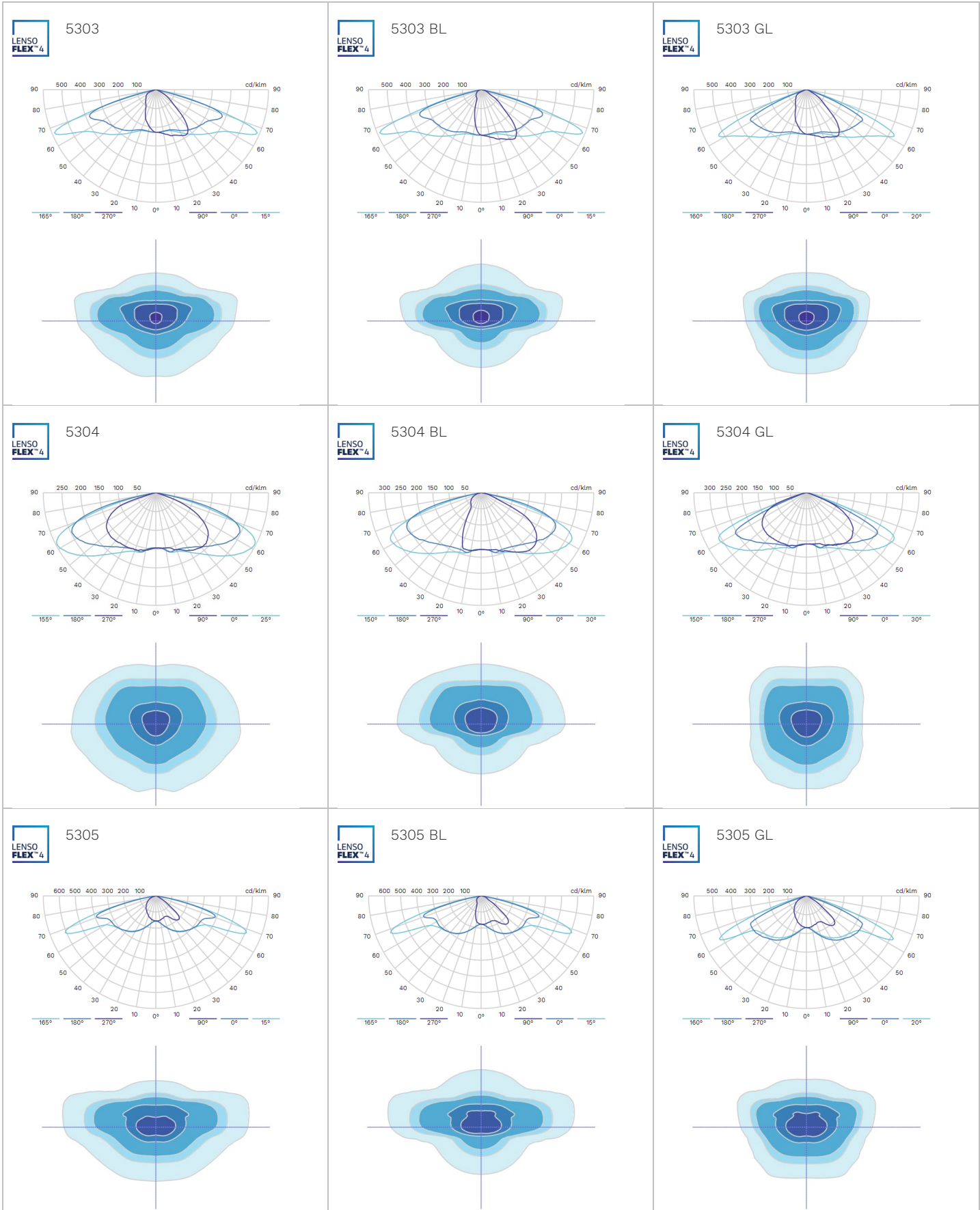


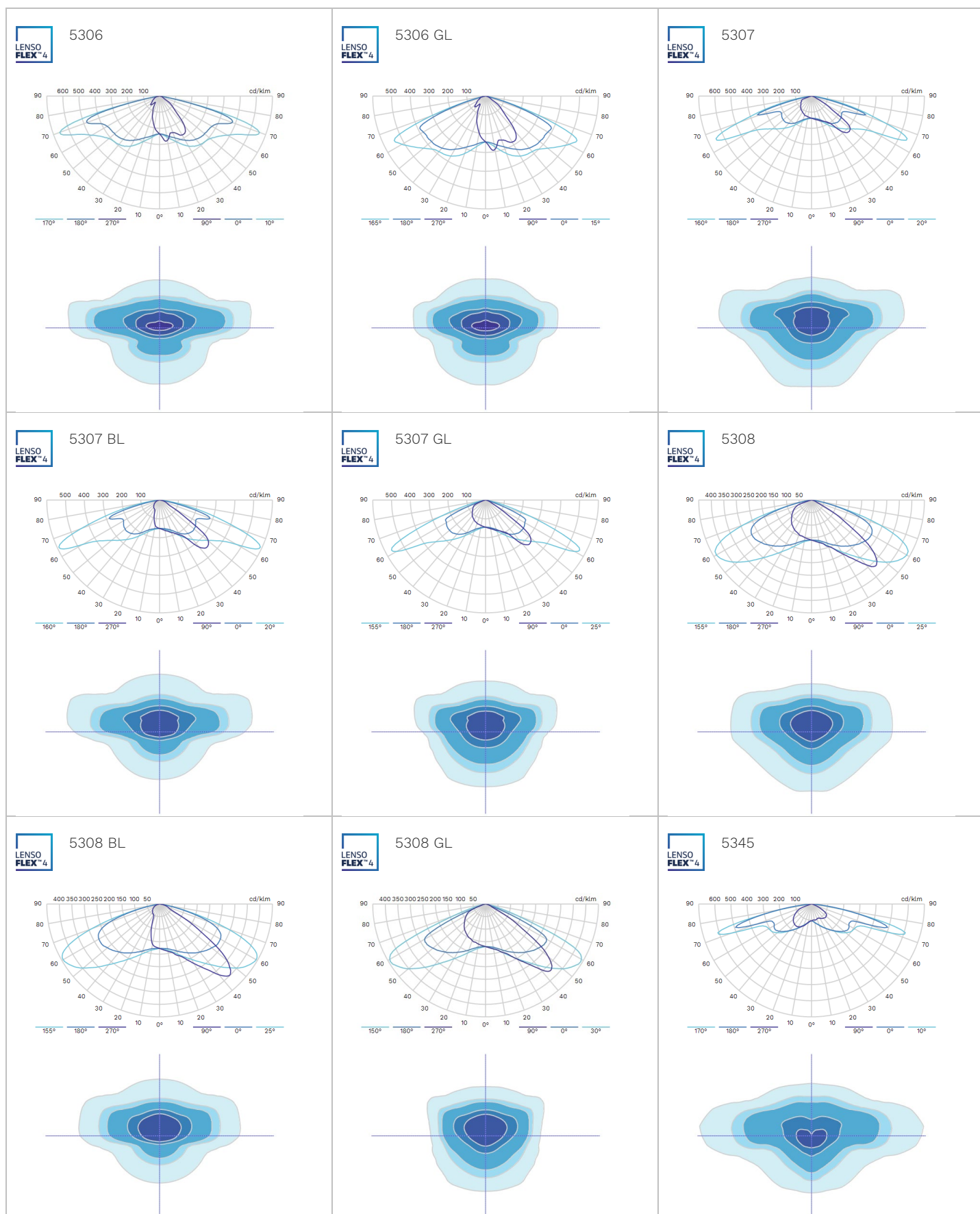


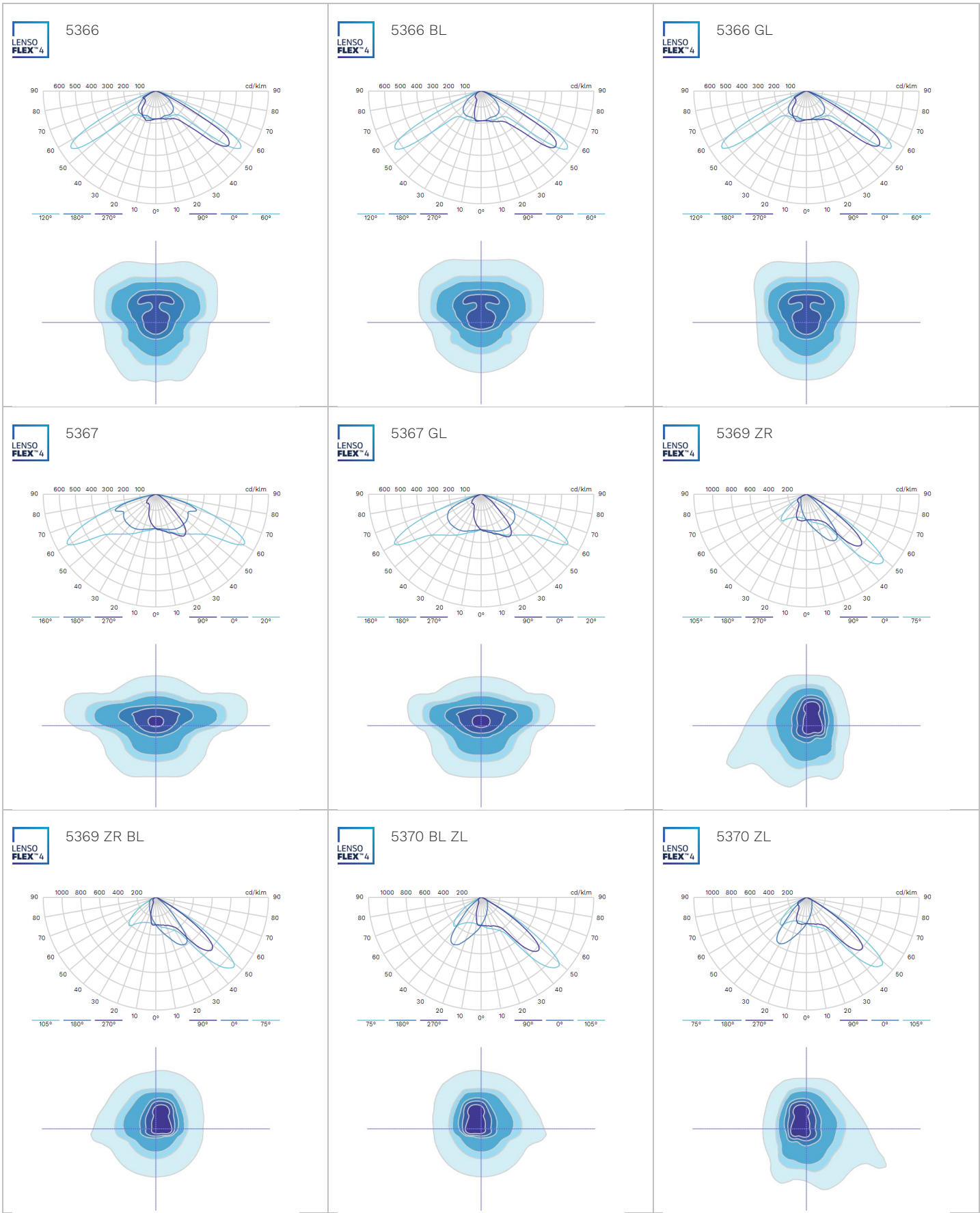
| Luminaire output flux (lm) | | | | | | | | | | | | | Power consumption (W) | | Luminaire efficacy (lm/W) |
|----------------------------|-------|-------------------|-------|-------------------|-------|-------------------|-------|----------------------|-------|-------------------|-------|-------|-----------------------|-----|---------------------------|
| Warm White WW 722 | | Warm White WW 727 | | Warm White WW 730 | | Warm White WW 830 | | Neutral White NW 740 | | Cool White CW 757 | | | | | |
| Number of LEDs | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Up to |
| 80 | 15600 | 21300 | 17900 | 24500 | 19600 | 26800 | 18400 | 25200 | 20800 | 28400 | 20200 | 27700 | 174 | 216 | 142 |
| 100 | 6600 | 26700 | 7600 | 30700 | 8300 | 33600 | 7800 | 31600 | 8800 | 35600 | 8600 | 34700 | 57 | 268 | 183 |
| 120 | 7900 | 32000 | 9100 | 36800 | 10000 | 40300 | 9400 | 37900 | 10500 | 42700 | 10300 | 41600 | 68 | 320 | 183 |
| 150 | 16200 | 35200 | 18700 | 40400 | 20500 | 44300 | 19200 | 41600 | 21700 | 46900 | - | - | 136 | 346 | 160 |

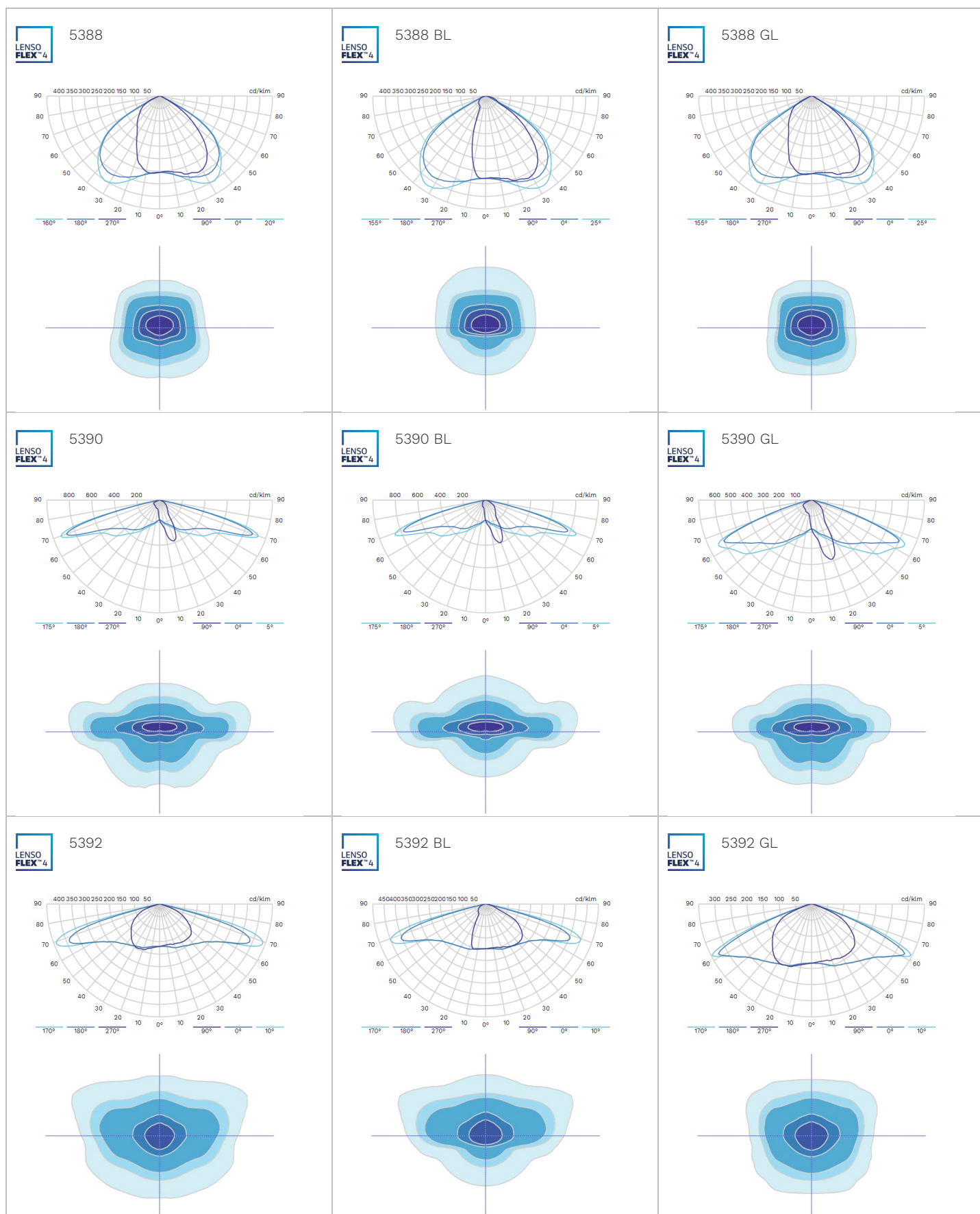
Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %

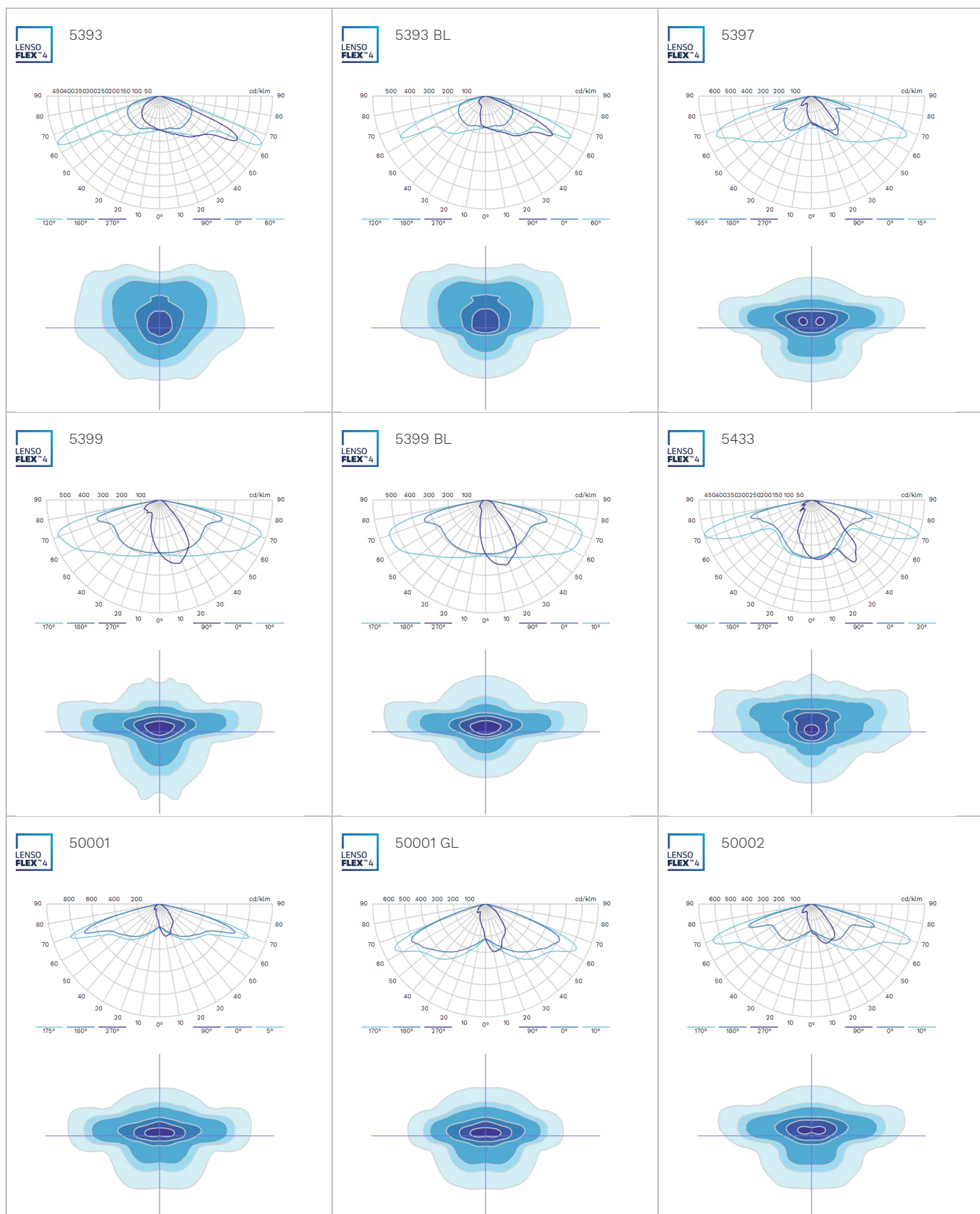


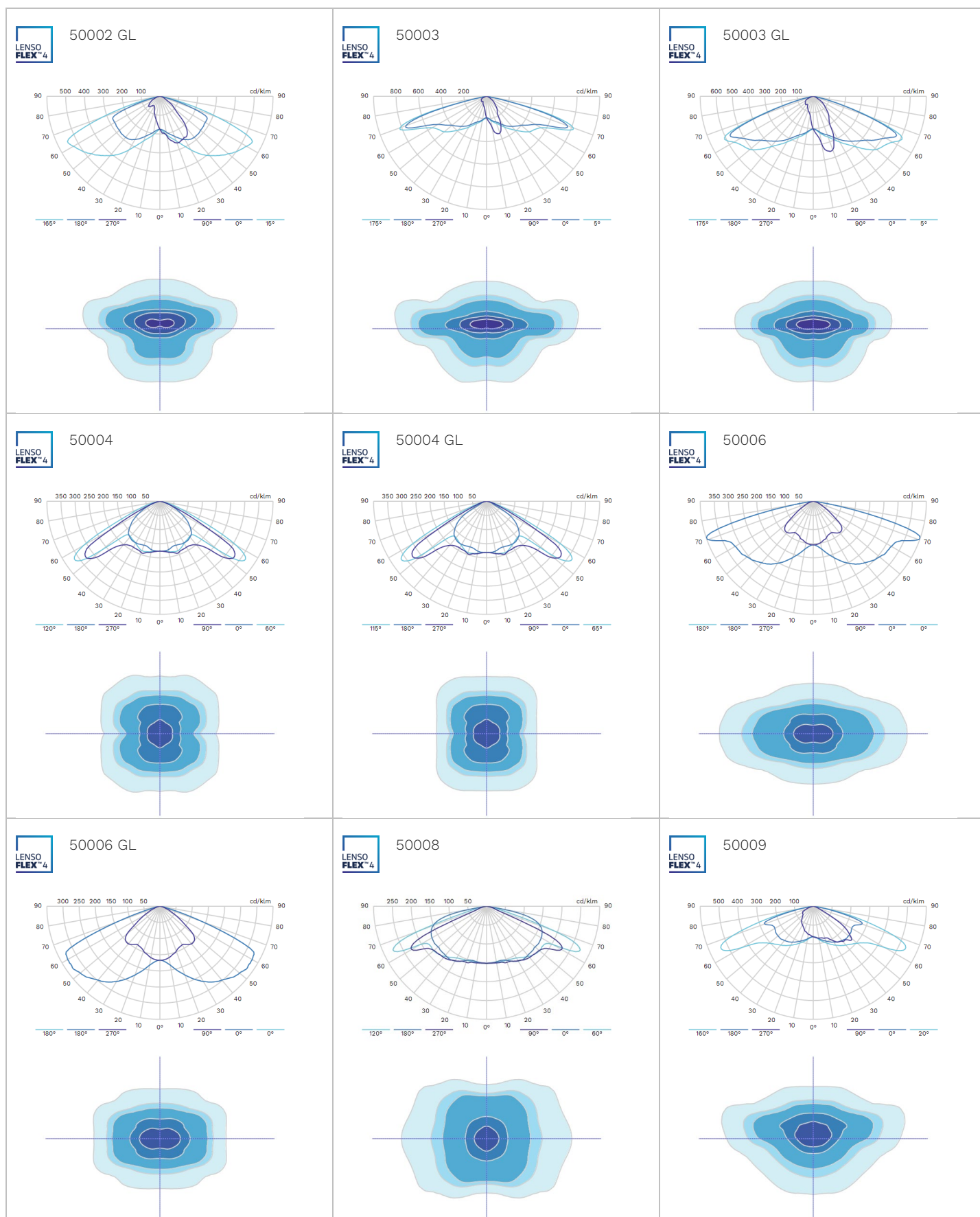






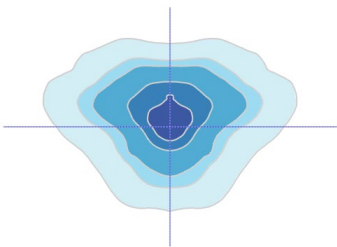
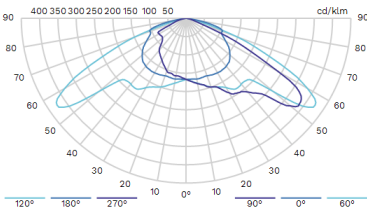




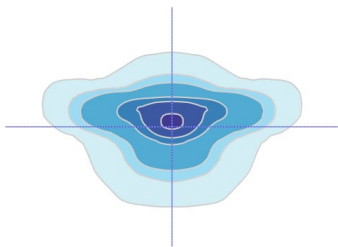
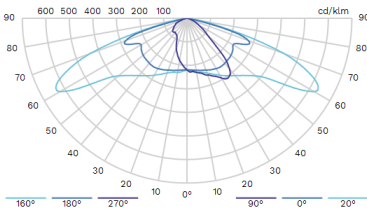




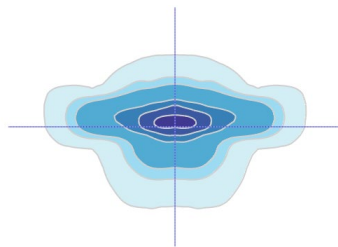
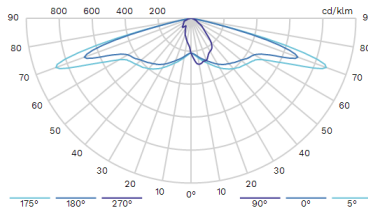
50010



50011



50012



50013

