NERI

NOVA SYSTEM

Timeless and familiar design, versatile and robust, low power consumption and reduced glare.

Nova system performs outstandingly against the most stringent standards in energy-efficient urban lighting.

Able to elegantly blend into its surrounding, the system three luminaire types, three configurations and six different optics give Nova the unique capacity to meet any installation requirements.

DECORATIVE
COMFORT
PERFORMANCE

NOVA SYSTEM

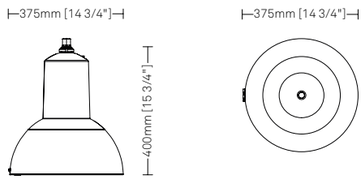
The system features three luminaire types with LED lights and different post heights, with either a linear or a swan neck bracket.

Materials
The posts are made of steel, with components made of cast iron, while the luminaires are made of die-cast aluminium.

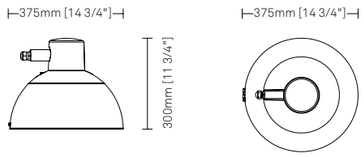
Finishes
The standard colour is the so-called Neri Grey that is obtained from a chromatic combination, which has been developed after a long aesthetic research. The posts are painted using a water-based and highly eco-friendly process.

Scale 1:20
Dimensions in mm/in

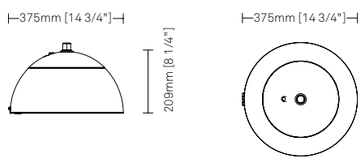
Nova – SNN03

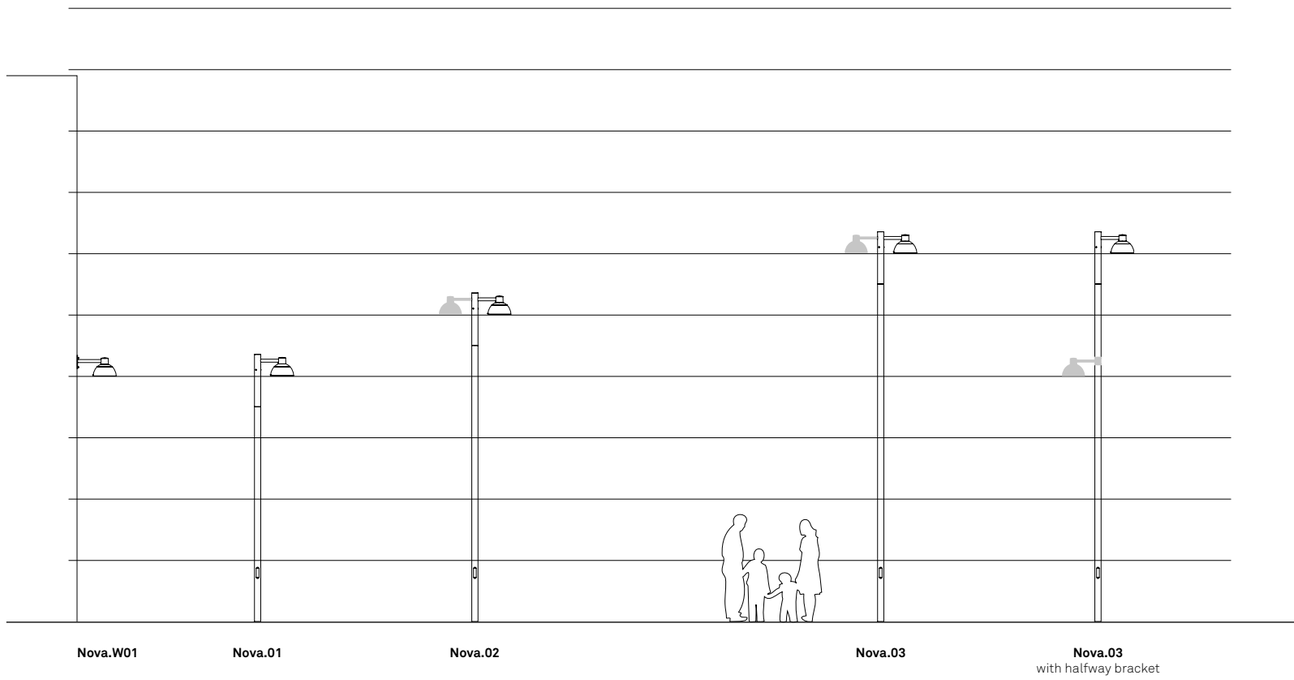


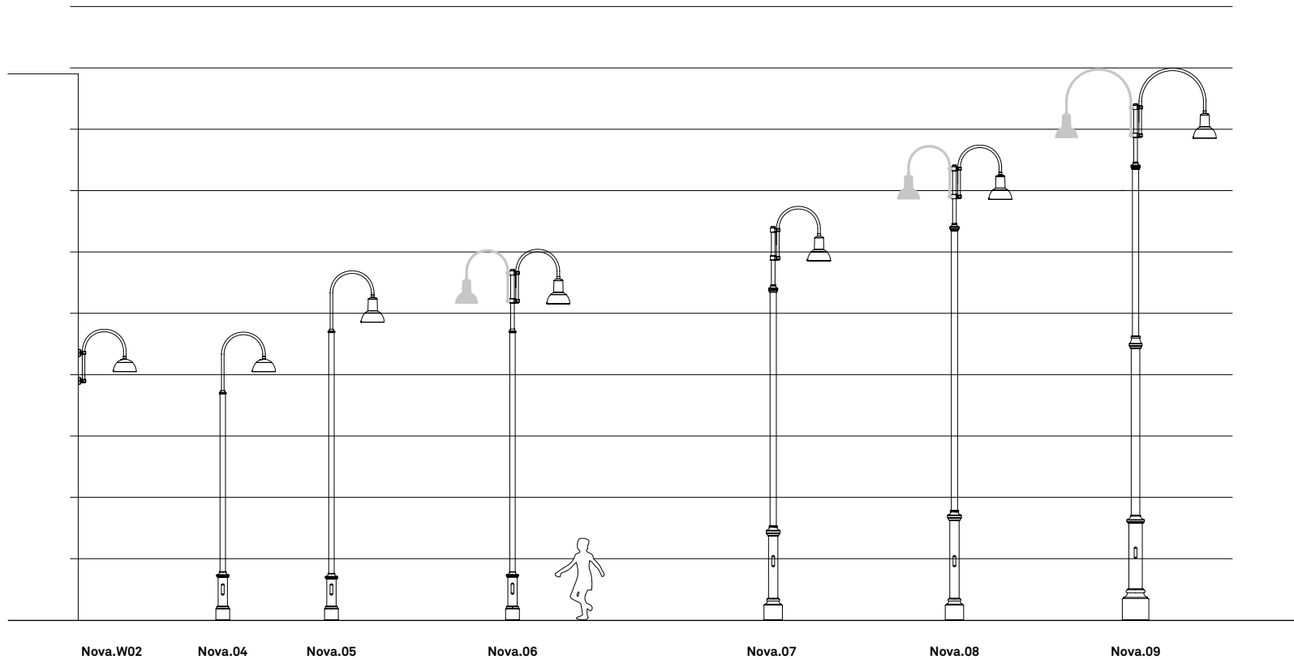
Nova M – MNN13



Nova S – SNN23







Versions
Suspended, catenary, side-entry

Applications
Roads, squares and parks, pedestrian and cycling paths, residential areas, retail, offices

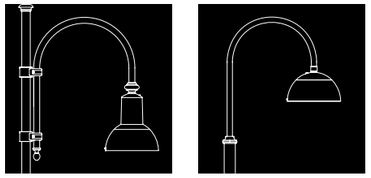
Performance
Latest generation LED technology combined with multilayer lenses, energy savings, heat dissipation

Maintenance
Ease of installation and parts replacement

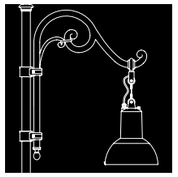
VERSIONS

Nova is designed to adapt to the different scenarios typical of cities and to guarantee consistency throughout thank to the different versions and related accessories available: suspended (with male G3/4 or with clevis), catenary, side-entry (column or wall).

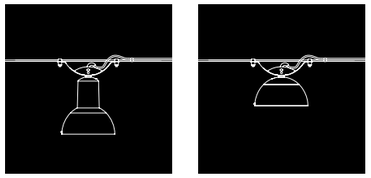
Suspended with male G3/4



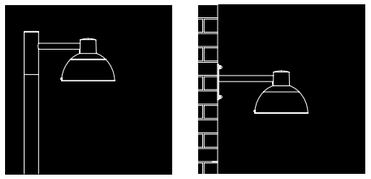
Suspended with clevis



Catenary



Side-entry column/wall



Side-entry

The size of the luminaire designed for the side-entry version allows installations at lower heights, making Nova versatile and ideal for both outdoor and indoor.

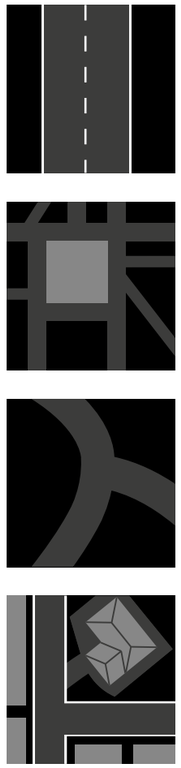
APPLICATIONS

Roads
High efficiency and reduced glare are guaranteed for the different road optics.

Squares and parks
Uniform light with high colour rendering makes public spaces pleasant and safe to enjoy.

Pedestrian and cycling paths
Light is concentrated on the path, so that disturbances and visual pollution of green areas are prevented. Effective illumination is guaranteed in harmony with the surroundings.

Residential areas, retail, offices
The combination of functionality and aesthetics allows the product to integrate easily in architectural contexts, either outdoors or indoors.



MULTILAYER TECHNOLOGY

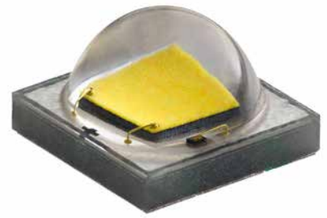
Reduced glare thanks to the wide emission surface. Latest generation LED Cree XP-G2 and PMMA multilayer lenses provide high and constant performance over time, even in case of failure of a single source.

The optical system is composed of overlapping PMMA lenses with high performance and constant light transmission.

Nova is equipped with highly efficient latest generation of LED Cree XP-G2 positioned on a ceramic base to provide high thermal conductivity and electrical insulation for a longer service life.

The wide emission surface and the perimeter reflector increase the emission efficiency maintaining reduced glare values.

Customised distributions of light can be obtained thanks to the flexibility in composing the lenses.



LED Cree XP-G2

PERFORMANCE: ENERGY SAVING

Proper management of electronic luminous flux means benefits in terms of energy saving and life cycle of the product.

Thanks to electronic ballasts equipped with intelligent systems the lighting management guarantees high energy savings. The driver chosen for Nova can be equipped with the features below:

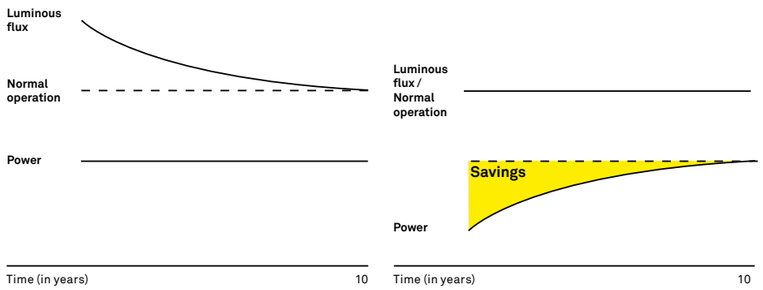
NCL (Neri Constant Lumen)
Keeping flows consistent
The driver allows the initial flow to be kept consistent throughout the product life cycle by calibrating the current supply of the LEDs and ensuring the same luminous flux over time.

NVL (Neri Variable Lighting)
Stand-alone setting
The driver is equipped with a stand-alone control that automatically adjusts the light flow during the operational period, which is automatically set according to the seasons. The standard control uses step dimming, and up to 5 dimming levels on request.

DALI, 1-10V
Remote lighting management system
With the two-way digital DALI protocol lighting levels can be adjusted, consumption and system diagnostics monitored. By the analog signal 1-10V, the illumination levels regulation is enabled. Inside the products on the cabling board, space has been made to accommodate an electronic unit for remote management functionalities.

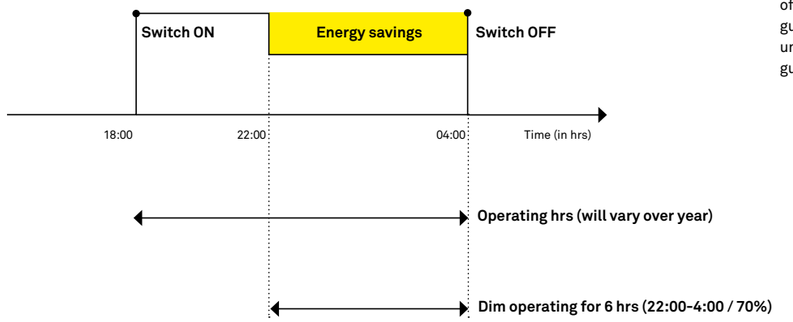
Driver Philips
Xitanium Constant
Current Xtreme

NCL - KEEPING FLOWS CONSISTENT



The light output of the system is kept consistent throughout the life of the product by acting on the current supplied and compensating for the decay of the source.

NVL - STAND-ALONE SETTING



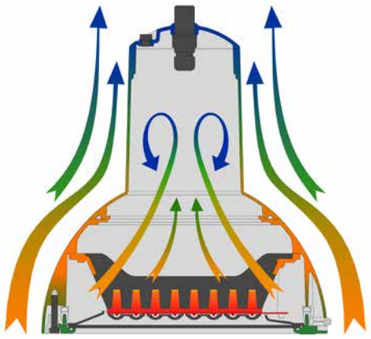
Dimming preset cycle: from the switching on to 22:00 the 100% of luminous flux is guaranteed; from 22:00 until shut-down the guaranteed flux is 70%.

PERFORMANCE:
HEAT DISSIPATION

Thermal management
is critical to the proper
functioning and long
life of LED sources.
Nova is equipped with
a heat dissipation system
able to maintain the
junction temperature low,
extending in this way
the life of the light source.

The heat dissipation works by conduction:
the aluminum body of the heat sink allowing
the exchange of heat with the outside,
while the shape of the internal structure
allowing natural air circulation and
minimising accumulation of localised heat.

Because of such a heat dissipation
system is able to keep the LED junction
temperature below the limits that
guarantee the expected useful life,
the luminaire can be used at temperatures
up to 50°C.



MAINTENANCE

Luminaire opening

During the maintenance operations no screw or component separates from the luminaire structure. A routine maintenance, other than cleaning the outside of the structure and the screen from dust and smog, is not required.

To access the optic simply unscrew and rotate the frame.

Automatic disconnector takes off electricity at electrical component.

Removing gear tray

The gear tray is fully replaceable by simply disconnecting the two connectors and loosening the screws holding it.

The luminaire can also be refitted via a simple replacement of the wiring and/or the LED module.

TECHNICAL FEATURES

Fixing
- Suspended (with male G3/4 or with clevis)
- Catenary
- Side-entry (column or wall)

Materials
- Die-cast aluminum
- Extra-clear transparent flat glass
- Fixing elements in stainless steel
- Internal reflector in PC

Finishes
- Top in Neri Grey, bottom in white RAL 9010

Main components
- Aluminum frame with fixing and heat dissipation function
- Opening aluminium lower ring with screen to access wiring and optical compartment
- Silicone gasket between top and bottom parts
- Screen is flat glass with impact resistance IK08
- Plastic reflector to recover flux and reduce glare
- 2x2 refractive modular lenses in PMMA
- Osmotic valve to balance internal/ external pressure
- Appropriate space for any auxiliary for remote control devices (Smart City Ready) and additional surge protection devices

Electrical auxiliaries
- Programmable electronic power supply with auto diagnostic function
- Automatic disconnector when opening
- Terminals wires max. section of 2.5mm^2
- PG16 cable gland
- Surge protection for differential/ common mode up to 10kV/10kV

Power supply
- Estimated life (EN 62722-2-1, LM80 data): 100.000h L85B50 (Tq = 25°C)

TECHNICAL FEATURES: LED MODULE

Performance

MAIN TECHNICAL DATA

IP66

SUPPLY VOLTAGE
230V, 50/60Hz frequency
SURGE PROTECTION
6kV L-N / 10kV L/N-frame
POWER SUPPLY
Programmable electronic
POWER FACTOR CORRECTION
PFC > Cos φ 0.9
ELECTRICAL INSULATION
Class II
ENCLOUSURE PROTECTION
Water and dust IP66
Mechanical impacts IK08
PLANNING INFORMATIONS
For information related to the combinations between flux size options, power and colour temperature see the web site
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Neri SpA reserves the right to modify its products and documentation without obligation to give prior warning

SCREEN SHAPE

EXTRA-CLEAR TRANSPARENT FLAT GLASS – Full Cutoff

OPTIC SYSTEM

TYPE I – SYMMETRIC ROAD (NLG 19)
TYPE II – ASYMMETRIC ROAD OR CYCLE PATH (NLG 20)
TYPE III – ASYMMETRIC ROAD (NLG 21)
TYPE III – ASYMM. ROAD WITH SIDEWALK AND CYCLE PATH (NLG 22)
TYPE IV – STRONG ASYMMETRIC (NLG 17)
TYPE V – ROTOSYMMETRICAL (NLG 18)

COLOUR TEMPERATURE

3,000K
4,000K

FLUX SIZES

3,000K	2,500lm	21W	119lm/W
3,000K	3,500lm	31W	111lm/W
3,000K	4,500lm	38W	118lm/W
3,000K	6,000lm	53W	114lm/W
3,000K	7,500lm	69W	108lm/W
4,000K	2,500lm	19W	134lm/W
4,000K	3,500lm	27W	130lm/W
4,000K	4,500lm	35W	129lm/W
4,000K	6,000lm	48W	124lm/W
4,000K	7,500lm	61W	124lm/W
4,000K	9,000lm	77W	117lm/W

DRIVER FUNCTIONS

1 - 10V + NCL
DALI + NCL
NVL + NCL

ELECTRICAL DEVICES

AUTOMATIC DISCONNECTOR

Planning

TYPE I – SYMMETRIC ROAD (NLG 19)

CLASS	H 6.5m, W 6m		H 9m, W 7m	
	Spacing	Flux	Spacing	Flux
CE2 (20 lux)	32m	9,000lm	-	-
CE3 (15lux)	-	-	31m	9,000lm
ME3b	21m	6,000lm	27m	6,000lm

TYPE II – ASYMMETRIC ROAD OR CYCLE PATH (NLG 20)

CLASS	H 7m, W 6m		H 7m, W 7m	
	Spacing	Flux	Spacing	Flux
CE2 (20 lux)	32m	9,000lm	30m	9,000lm
ME3b	30m	9,000lm	26m	6,000lm
ME4a	30m	6,000lm	-	-
S1	36m	7,500lm	36m	7,500lm
S2	41m	7,500lm	41m	7,500lm

TYPE III – ASYMMETRIC ROAD (NLG 21)

CLASS	H 7m, W 8m		H 7m, W 9m	
	Spacing	Flux	Spacing	Flux
CE2 (20 lux)	28m	9,000lm	29m	9,000lm
CE4 (10lux)	28m	4,500lm	29m	4,500lm
ME3b	24m	6,000lm	24m	9,000lm

TYPE III – ASYMM. ROAD WITH SIDEWALK (a) AND CYCLE PATH (b) (NLG 22)

CLASS	H 7m, W 7m		W 2m	W 2m	H 8m, W 7m		W 2m	W 2m
	Spacing	Flux	(a)	(b)	Spacing	Flux	(a)	(b)
CE1 (30 lux)	21m	9,000lm	S1	S2	23m	9,000lm	S2	S4
CE2 (20lux)	27m	9,000lm	S2	S2	24m	7,500lm	S2	S4
ME3b	26m	7,500lm	S2	S3	22m	7,500lm	S2	S4

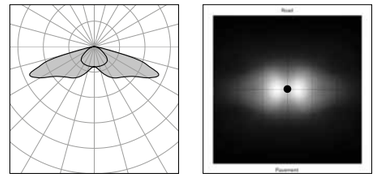
TYPE IV – STRONG ASYMMETRIC (NLG 17)

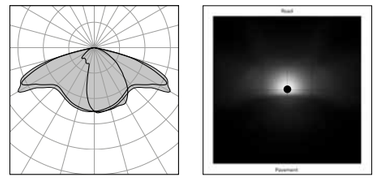
CLAS	H 7m, W 15m		H 8m, W 15m	
	Spacing	Flux	Spacing	Flux
S1	21m	9,000lm	24m	9,000lm
S2	18m	7,500lm	23m	6,000lm

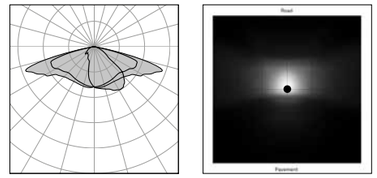
TYPE V – ROTOSYMMETRICAL (NLG 18)

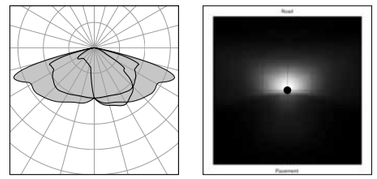
CLASS	H 7m		H 8m		H 4m	
	Spacing	Flux	Spacing	Spacing	Spacing	Flux
S1	-	-	24x24	9,000lm	-	-
S2	22x22	9,000lm	24x24	7,500lm	14x14	3,500lm
S4	-	-	-	-	16x16	3,500lm

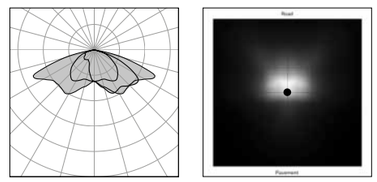
Photometric light distribution

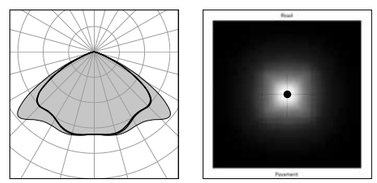


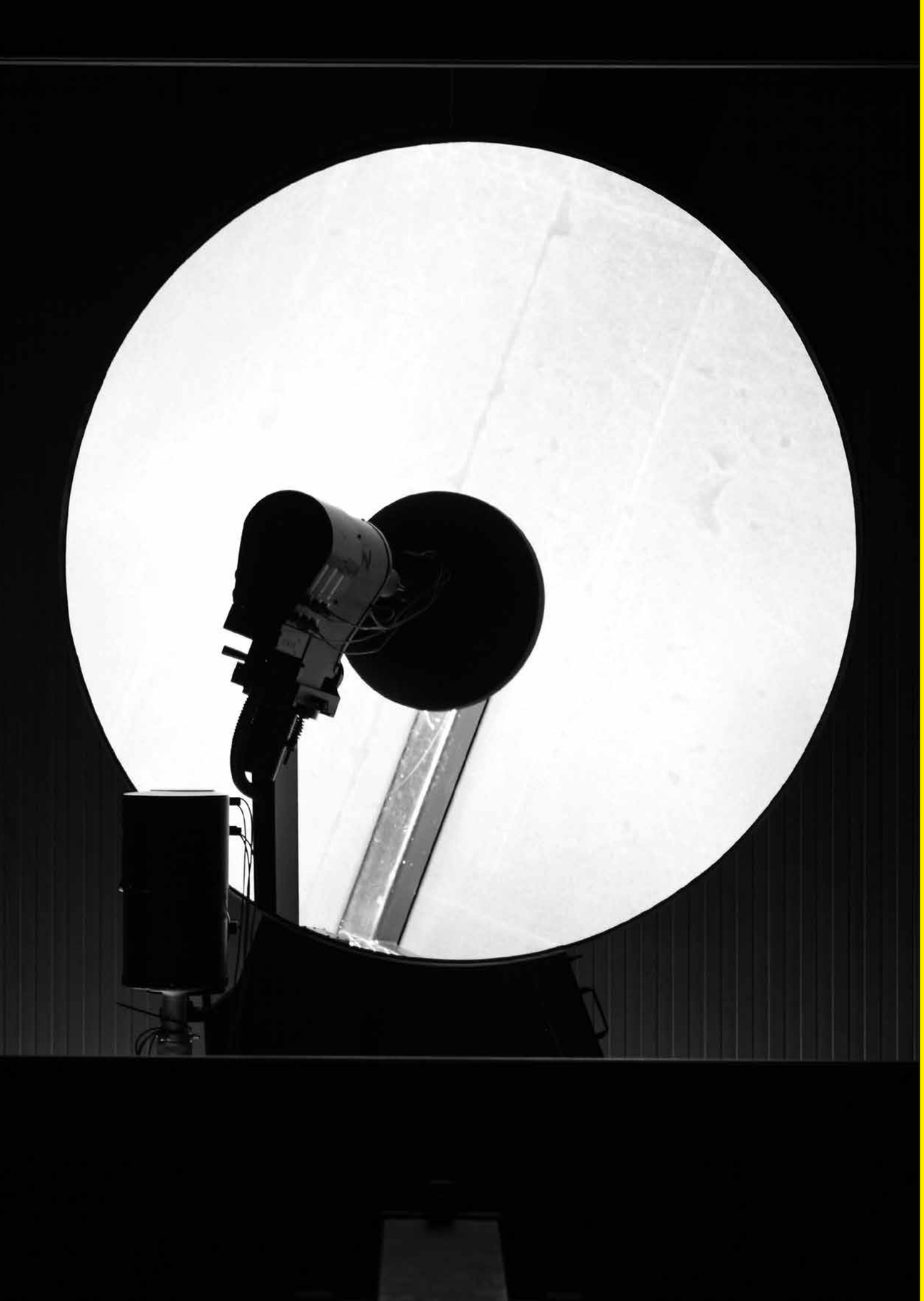












More than two hundred patents and over 25% of our staff in the Research and Development department are the demonstration of the value we place on innovation.

OUR LABORATORIES

- Lighting projects testing
- Visual comfort
- Light quality
- Salt spray
- IP
- IK
- Duration
- Heating
- Goniophotometer
- Integrating sphere

The Neri laboratories, a distinctive asset of the company where a passionate team of technicians and engineers work together intensely, simulate and exacerbate the environments in which the products will be placed, measuring their behaviour and effects.

Each component is subjected to several tests that reproduce the effects of dozens of years of operation of the structures and the devices in the space of just a few hours. The design stage of new products also takes place in these facilities within the company in a highly rigorous and scientific environment. The tests concern the lighting devices, the light sources and the surface coverings.

LIGHT ROOM – LIGHTING PROJECTS TESTING
The environment similar to a street allows a real installation to be simulated with characteristics of spacing between the lamp posts and street geometry proportions. These are characteristics that permit the assessment of the lighting's effect on the ground, thanks in part to a porous surface like that of asphalt. During the simulations, you can walk through the lighting project and see the result with your own eyes. From this layout, you can appreciate the coincidence between the calculation made (spot and isolux) and the actual situation.

VISUAL COMFORT
The installation of luminaires on posts, with determined spacing between them, permits assessment of the visual comfort provided by Neri optical systems. This data is just barely deducible through the usual lighting simulations or calculations, but it is never fully perceived except through a real experience. In fact, the eye is the only instrument available to assess the actual comfort of a lighting source.

LIGHT QUALITY
The quality of the light can be measured in the laboratory, the actual perception of the light colour is definitely the most accurate. LED lights in particular are sources that have a significant light colour difference upon variation of the angle of emission. Surprises could therefore be encountered in terms of how the LED light sources appear on ground areas with different colour shades: some areas more blue and others more green. This visual test permits the assessment and selection of the ideal light sources and optical system that correspond to a high level of lighting quality.

SALT SPRAY
Resistance to corrosion in neutral salt spray is a performance test related to surface treatments. Paints and other types of protective surface treatments are subjected to tests to determine resistance to corrosion through ageing in neutral salt spray in accordance with standard ISO 9227.

IP
This is a safety and performance test related to the luminaire housings. The purpose is to determine the grade of resistance to water infiltration. The reference standards are EN60598-2-3 and EN60598-1.

IK
This is a performance test related to the luminaire housings. The purpose is to determine the grade of resistance to external mechanical impact. The reference standard is EN62262.

DURATION
This is a safety test on the luminaires to determine resistance to cyclic heating and cooling in operating conditions. The test takes place in an environment that is constantly climate controlled at 35°C. The purpose is to ensure that the characteristics of the luminaire do not change over time. The reference standards are EN60598-2-3 and EN60598-1.

HEATING
This is a safety test on the luminaires. It carries out a check on the reaching of critical temperatures for safety during normal and abnormal operation. The lighting devices are subjected to a test to check thermal, mechanical and electrical safety in accordance with the specifications set forth in the harmonised product standards with respect to LVD directive, EN 60598-2-3 and EN 60598-1. Safety tests are also conducted here on the LED modules in accordance with the product standard EN 62031. The LED modules are generally tested as integrated components in the lighting device. These types of tests take place in constant temperature controlled areas.

GONIOPHOTOMETER
This consists in a performance test on luminaires and light sources. The performance, optical rendering (LOR [%]), effectiveness (μ [lm/W]) and distribution of luminous intensity, is determined by means of a mirror goniophotometer in conformity to standards EN 13032-1 and EN 13032-4. The room where the test equipment resides is climate controlled in terms of constant temperature, humidity and air speed.

INTEGRATING SPHERE
This is a performance test on luminaires and light sources. The performance tests on the bulbs and LED modules (deterioration of the luminous flow, effectiveness and chromatic characteristics) are carried out here. The room that contains the spectrum radiometer, capable of detecting the colorimetric characteristics of the light sources, is climate controlled, but without the temperature control.

SURGE PROTECTION

In the street lighting area, because of their exposed position, the devices are subject to voltage surges and external disturbances (discontinuous insertion of loads on the line, faults on the lines up or downstream, direct or nearby lightning) that may cause damage or malfunctions. Furthermore, in the LED lighting devices, where electronic components are predominant, resistance to voltage surges becomes even more necessary.

Given a class I or class II system, the installed device must correspondingly be a class I or class II device (recommended from a product protection point of view).

Protection of Neri products
CL II 6kV/10kV (standard protection)
- Equipotential connection useful for protecting drivers and LED modules
- Use of components approved by safety standards
- Additional differential protection can inserted up to 10kV/10kV

CL I 6kV/10kV (standard protection)
- Protective earth connection
- Presence of SPD to guarantee 10kV/10kV (on request)

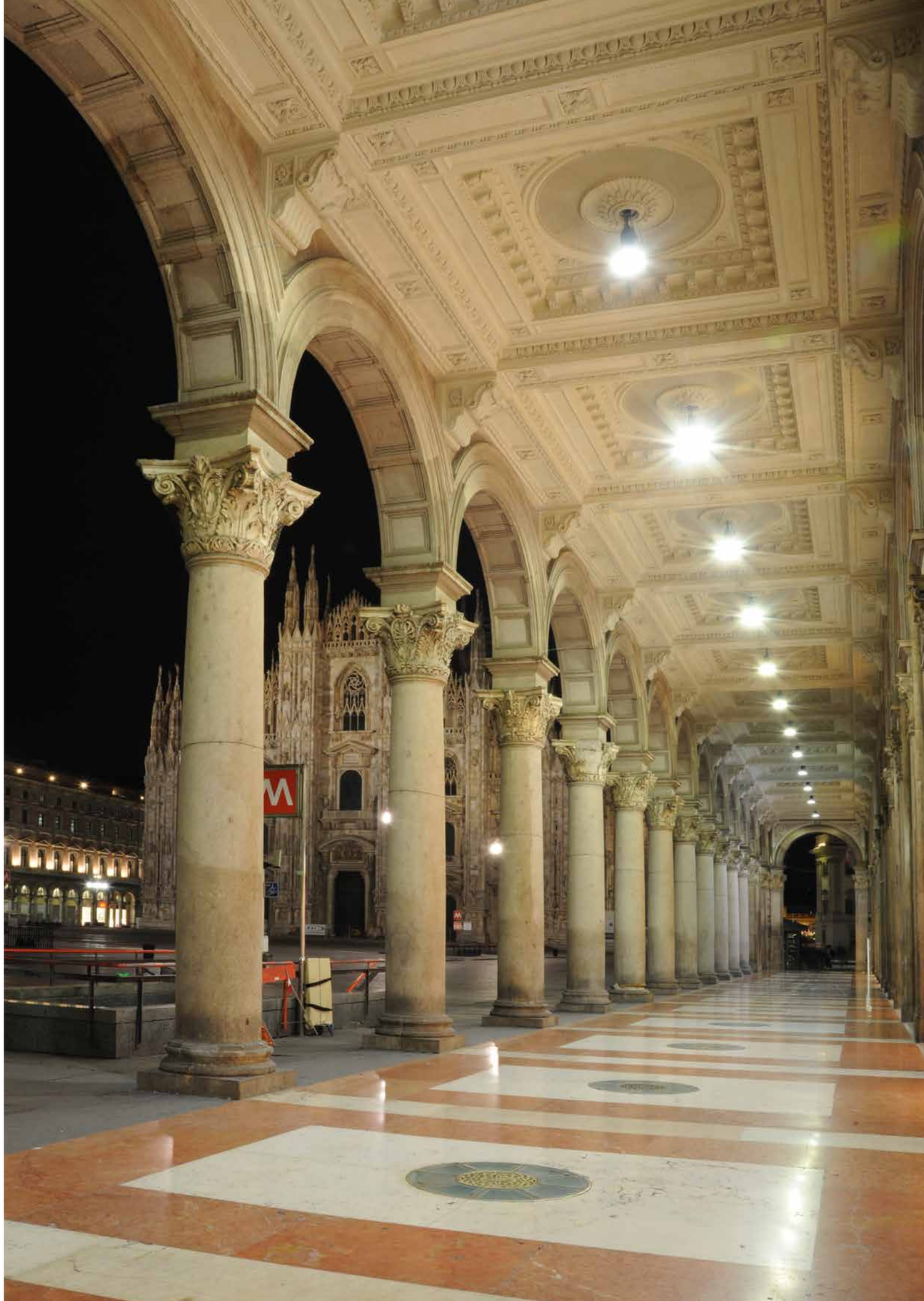
The supplementary power dischargers (SPD) can be present only on class I devices and systems, since they have the function of discharging the overvoltage energy to ground. Ground tests must therefore be conducted on every product.

SYSTEM SAFETY

PRODUCT SAFETY

* If the system is a CL I system and you want to install a CL II product, the product input cables must be double or reinforced insulation in order to guarantee the safety of the product itself.

NERI LUMINAIRE	DM/CM STANDARD PROTECTION	DM/CM CUSTOM PROTECTION
CLASS II	6kV/10kV	10kV/10kV
CLASS I	6kV/10kV	10kV/10kV



HIGHLIGHTS

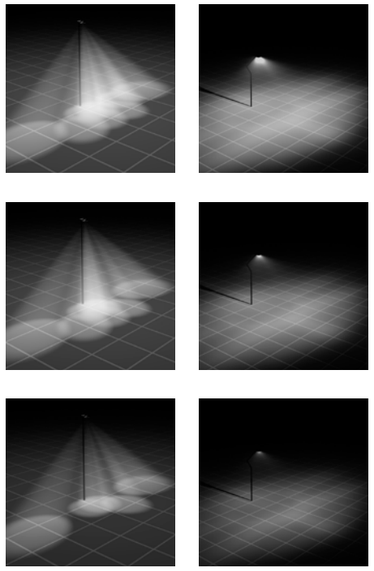
Main features
- Nova is a ‘Performance’ category device
- Particularly suited for roads and lanes with mixed traffic, and for different urban contexts, from the city centre to residential areas
- Designed in full compliance with the lighting standards, with minimal energy consumption, using LEDs and high performance optical solutions
- Designed to reduce glare, without compromising the lighting effectiveness

Flux sizes
- The main factor in lighting design is system flux and photometry
- Neri presents products with their flux sizes, to ensure these values remain constant over time

The flux sizes approach permits:
- Same light independently by the number of LEDs
- Using the best technology on the market (easy upgrade)

Multilayer
Nova adopts a technology with multilayer lenses:
- Each LED is associated to a lens
- All lenses are equal and cover the entire area to be illuminated; in case of failure of a single source, there is no loss in the uniformity of illumination on the ground

Light emitting area
The glaring effect, typical of the individual point sources, is drastically reduced due to some technical devices:
- White color PCB
- Perimeter reflector
- Large light emitting area



On the left, from top to bottom, diagrammatic views of LEDs without multilayer lenses.
On the right, from top to bottom, LEDs with multilayer lenses.

VERSIONS AND CODES

In order to configure the Nova luminaire, type of mounting, optic, luminous flux related to colour temperature and driver functions need to be chosen. Their related codes have then to be added in sequence one to the other, following the order of the tables below, starting from type of mounting (eg: **SNN03L**), optic (eg: **17**), luminous flux (eg: **1N1**) and driver (eg: **02**). The code of the chosen configuration will be: **SNN03L 17 02 1N1**.

Nova – Performance

CODE	Mounting
SNN03L	G3/4
SNN23L	G3/4
MNN13L	Side-entry
HNN03L	With clevis

CODE	Optic
17	Type IV
18	Type V
19	Type I
20	Type II
21	Type III

CODE	CCT	Flux
1N0	3,000K	2,500lm
1N1	3,000K	3,500lm
1N2	3,000K	4,500lm
1N3	3,000K	6,000lm
1N4	3,000K	7,500lm
3N0	4,000K	2,500lm
3N1	4,000K	3,500lm
3N2	4,000K	4,500lm
3N3	4,000K	6,000lm
3N4	4,000K	7,500lm
3N5	4,000K	9,000lm

CODE	Driver functions
02	1-10V + NCL
06	DALI + NCL
14	NVL + NCL

The product with male G3/4 can be mounted directly on different Neri systems. To fix the product with clevis, various accessories are available; they can also be customised. The side-entry product can be mounted on different Neri systems using specific brackets.



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