



A cathedral of light: the new outdoor lighting of Milan Cathedral

Since EXPO 2015, the interior of Milan Cathedral radiates in new splendour thanks to efficient LED lighting tools from ERCO. But now the entire exterior lighting of the impressive marble building has also been upgraded to high-performance, durable ERCO LED projectors.

In recent decades, Milan's city centre has developed to become a symbolic location for international shopping. Luxury boutiques and shopping arcades are gathered around the cathedral, competing for the attention of passers-by with elaborate shop window design and lighting. Ambient light around the dome has therefore also increased. Following renovation of the interior lighting using ERCO LED projectors which lend the cathedral a majestic spatial effect and are simultaneously characterised by maximum energy efficiency, ERCO has now also supplied exterior lighting with a quality to match.

ed by the historical institution responsible for the management, protection and validation of the cathedral since 1387. "We undoubtedly improve the perception of the cathedral with the new lighting. The cathedral regains the didactic role it's played since its creation: as with every Gothic building, the cathedral was built to proclaim a message of salvation. The facade of the cathedral bears the teachings and dogmas of religion, from creation to the teaching of the saints as well as the entire history of Christianity. This more or less educational function is once again ensured by the increased number of projectors. Illuminance levels of between 70lx and 100lx enable the numerous details of the building to be more clearly defined. The 4000K light colour enhances perception of the Candoglia marble interspersed with various shades of pink-grey."

Project data

Client: Milan Cathedral institution
"Veneranda Fabbrica del
Duomo di Milano",
Milan / Italy

Lighting design: Ferrara Palladino Lightscape,
Pietro Palladino, Milan / Italy

Photography: Moritz Hillebrand,
Zurich / Switzerland

"Our aim was to give back to the cathedral its position as a focal point of the piazza."
Pietro Palladino, lighting designer

"The cathedral radiates a light that's symbolic of the whole city. It's not only the cathedral of Milan, but also an important landmark for the entire region," explained Pietro Palladino, lighting designer from Ferrara Palladino Lightscape. The Milan office was appoint-

LED projectors from ERCO in outdoor applications: monumental radiance without spill light
Projectors with particularly narrow and pre-

cise light distributions are required to effectively illuminate a building of this size in a densely built-up urban space, without having a negative impact on the immediate surroundings. "A good lighting concept doesn't need masses of light but rather precisely applied, high quality illumination," stated lighting designer Pietro Palladino. For the new exterior lighting of the cathedral the designer specified glare-free ERCO Lightscan and Gecko projectors, modified to the special requirements of the project. The "ERCO individual" version of Lightscan installed achieves this with high lumen packages, a higher protection class, special mounting brackets, the mounting positions and a housing colour precisely matched to the marble of the facade.

Pietro Palladino divided the new outdoor lighting into three different heights: below on the existing masts around the building and further up on the cornice of neighbouring buildings. On the cathedral itself, the most important statues were illuminated from bottom to top. A total of around 570 LED projectors were installed. "A large part of the lighting had to be solved by an asymmetrical luminaire arrangement," explained Palladino - one of just many challenges of his highly complex planning. "The mounting locations were predetermined by the obsolete lighting, and sometimes located in very high positions and therefore difficult to access; another factor was that the distances varied greatly. We had to deal with distances of up to 120 metres between the mounted luminaires and the illuminated surfaces on the facade." The lighting task was solved with projecting lighting technology based on ERCO Spherolit lens technology. In addition to high photometric precision, specially developed mounting brackets were needed for the luminaires on the cathedral. The luminaires were only permitted to be installed in the joints between the individual marble blocks but not in the marble itself. For glare-free accentuation of the Gothic verticals and pinnacles on the accessible roof, the lighting designer opted for an "ERCO individual" variant of the compact Gecko LED projector. These were also modified in terms of protection class, mounting brackets and the colour

of the housing to match the building's marble cladding. With their slightly conical shape and relatively compact, round housing, Gecko fits between the finely modelled tower spires, almost completely concealed from the eyes of visitors. To ensure safe, glare-free illumination of the paths and stairways on the roof terraces heavily frequented by visitors, Focalflood facade luminaires were installed a few centimetres above the ground on the inside of the cathedral walls.

Aesthetically and functionally pioneering - Milan Cathedral's new exterior lighting

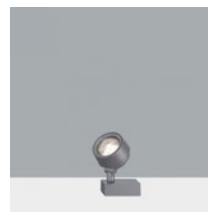
In addition to the possibility of individualising product ranges, it was the reliability and long lifespans of ERCO LED lighting tools that particularly won over the client, the "Veneranda Fabbrica del Duomo di Milano" cathedral workshop managed by Fedele Confalonieri. "Of the more than 800 luminaires installed inside the cathedral in 2015, until now not a single one had to be replaced," summed up lighting designer Pietro Palladino. Conversion to low-maintenance ERCO LED lighting tools thus saves operating overheads and also proves to be extremely energy-efficient: inside the cathedral the connected load was reduced from 70kW to 26.5kW after upgrading, although the number of luminaires was significantly increased compared to before. The connected load of the new outdoor lighting now consists of 35kW instead of the previous 58kW - meaning around 40% less. At the same time, the cathedral is illuminated with approximately 40% more light thanks to higher illuminance of around 90lx.

The effect is breathtaking when the cathedral's new exterior lighting is switched on punctually at dusk: completely bathed in neutral white light, the towering marble edifice seems to radiate from within. The new quality of light now gives the cathedral the dominance in the urban space that it deserves. Or, in the words of Mark Twain, who stood in front of the imposing cathedral in Milan in 1867: "What a wonder it is! So grand, so solemn, so vast! And yet so delicate, so airy, so graceful! A very world of solid weight, and yet it seems ...a delusion of frostwork that might vanish with a breath."

Luminaires used in the project



Focalflood



Gecko / ERCO individual



Lightscan / ERCO Individual

About ERCO

The ERCO Light Factory in the German town of Lüdenscheid is a leading international specialist in architectural lighting using LED technology. The family business, founded in 1934, now operates as a global player with independent sales organisations and partners in 55 countries worldwide. Since 2015 ERCO's portfolio has been 100% LED. With this in mind, ERCO in Lüdenscheid develops, designs and produces digital luminaires with focus on photometrics, electronics and design. Work-

ing closely with architects, lighting designers and engineers, ERCO develops lighting tools used primarily for applications in the following fields: Work, Shop, Culture, Community, Hospitality, Living, Public and Contemplation. ERCO understands digital light as the fourth dimension of architecture – providing highly precise and efficient lighting solutions to support creative designers in turning their visions into reality.

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