

# THORN

LIGHTING PEOPLE

## Case Study

CR Mechanical Factory, Italy



# CR machine workshop in Vicenza required a lighting refurbishment to reduce energy consumption and improve the quality of light



## Background and objectives

Founded in 1972, CR is a machine workshop in Vicenza which required a lighting refurbishment to reduce energy consumption and improve the quality of light in accordance with the UNI 12464-1 standard for indoor workplace lighting.

The existing lighting installation comprised 50 traditional industrial suspended luminaires with 400W metal halide lamps. Lighting levels were on average between 150 and 250 lux.

Working with CR the lighting designer Ind. Giorgio Reffo initially evaluated the benefits of an installation comprising of either a new metal halide or fluorescent solution. The results however fell short of objectives.

## Lighting solution

Marco Bacco, Thorn Energy Partner, therefore proposed HiPak Pro LED (150W, 14 000lm). HiPak Pro LED is a robust, low maintenance and energy saving LED high bay luminaire. It features dedicated individual LED optics for precise light control and an integrated PIR sensor, as well as being DALI dimmable for maximum energy savings.

Marco explains: "The UNI 12464-1 standard is very complex and demanding. The values for illuminance, UGR, Uo and Ra have different value combinations in relation to each visual task that is performed in a workshop. To provide the right lighting solution it is therefore necessary to know the tasks performed in each area in question and analyse the features of the products that is intended to be used."

"The CR machine workshop completes a diverse range of projects for approximately 20 sectors, ranging from agriculture to woodworking. It has a total of 138 different visual tasks and 39 different classifications of lighting performance (from 20 to 2000 lux) to take into consideration."

## Results and benefits

HiPak Pro LED effortlessly covered all of the workshop's functions. In the corridors for example, the light output has been set to 200 lux while in critical workspaces it increases to 400 lux. The new lighting is fully compliant with UNI 12464-1 and creates a good working environment for staff to work efficiently and productively.

As well as increasing light output, HiPak Pro LED has reduced energy consumption by 62,5%, from 80 kWh to 30 kWh. This will deliver a return on investment in 3.3 years. Further savings will also be achieved as a result of the reduced maintenance requirements associated with LED lighting.

**eControl** From Thorn's 15 ways to save energy, the following are key to minimising Troja Bridge's energy consumption:



### Lamp efficacy

High efficacy LED light sources convert energy more efficiently into light, reducing energy consumption.



### Task Lighting

Careful design of the lighting installation concentrates light onto the task area. This ensures a well-lit environment and highly efficient use of light.



### Zoning of lighting

In combination with switching arrangements, the lighting can be zoned according to use to minimise energy consumption in areas where it is not needed.

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