



# TWIN-C REPORT

INDUSTRY | THEBEN AG HAIGERLOCH



CURRENT INFORMATION  
ON INTELLIGENT LIGHTING CONCEPTS  
MADE BY WALDMANN

# HIGH TECH MADE IN GERMANY

With subsidiaries in Germany, Great Britain, France, Italy, Switzerland and more than 50 branches around the world, Theben AG is one of the leading global providers of time switches, light controls, climate controls and KNX system components. The corporate group's revenue amounted to over € 93 million in 2010. The Theben Group employs approx. 700 workers worldwide, 550 of them in the Swabian town of Haigerloch.

Even if they often operate in the background, Theben products are part of everyday life at home and in the workplace. The company offers countless intelligent solutions which all contribute to energy-efficient building control. In addition to time control, some examples of these solutions are: presence and motion detectors or clock thermostats to regulate room temperature as well as KNX components – from light and climate controls to fully automatic sun protection with KNX weather stations. OEM solutions complete the product portfolio.

## Ergonomic Working Environment Design

A continual improvement process was introduced at Theben in February 2011. In addition to the optimization of processes and products, the focus is also on improving the work environment. The goal is not only to increase productivity, but also to promote employee health.

The new TEVISIO LED magnifier luminaire contributes to this with its ergonomic design. Thanks to optimum light quality, a glass magnifier with a Ø 153 mm field of vision and 3.5 dpt, eye strain is considerably relieved. Furthermore, the clever design is well-fitted to the work processes. For example, the grips are ergonomically shaped. The luminaire can also be set in almost any position using six swivel joints. These can be fixed as needed. Even the 3D head joint can be rotated by 180 degrees in every direction. The magnifier luminaire's total radius of action is particularly large. The possibility of continuous dimming down to 10 percent of maximum luminous power is ideal for adjustment to the individual lighting needs of each employee and the particular visual task.





4

### **TWIN-C Solution**

Lighting at the work station is good when it is precisely customized for the field of application in which it is used. This is important because light is a key factor that influences the productivity of employees. An intelligent lighting concept is necessary – one which recognizes employee needs and ideally taps the potential of their work stations: Waldmann's TWIN-C.

TWIN-C represents the combination of intelligent lighting concepts with the appropriate components. At the Theben AG quality control work stations, the TWIN-C solution consists of the existing system luminaires and the new LED TEVISIO magnifier luminaires, providing ideal lighting.

Many arguments speak in favor of the new LED luminaires because they can be ideally integrated into the values and goals at Theben.

### **Ensure Quality Standards**

The entire company places great value on quality. That's why they even have an internal, VDE-authorized testing lab. This is where Theben products are put to the test at every stage from development to series production readiness.

A 100% final control during production eliminates unpleasant surprises after delivery. The TEVISIO magnifier luminaire now supports demanding visual tasks at the quality control work stations for the highly sensitive circuit boards because preliminary mechanical monitoring at these work stations was specified by the employees. Excellent sight is a necessity in order to recognize and evaluate defects based on the most minute differences. Soldering, if needed, also requires the highest degree of precision and essential conditions, such as optimum vision, to do it.

That's exactly what TEVISIO provides with its level 1A color reproduction or the so-called visualizer function, which emphasizes certain structures by using a separate switch for four light segments in three scenarios. The slightest errors on the delicate circuit boards can be recognized even better.

Waldmann, just like Theben, places its emphasis on consistently high quality products and workmanship. TEVISIO demonstrates this with its completely closed arms and joints that were designed for friction-free operation to last at least 20,000 movement cycles.

The GRIVORY® GVX high-performance plastic used is fiberglass-reinforced and extremely resistant – it's considered a substitute for metal. This enables a long product life without significant signs of wear.

- 1 Theben AG in Haigerloch
- 2 Project discussion in Development
- 3 Digital time switch
- 4 Using the LED magnifier luminaire to ensure quality
- 5 The wide glass magnifier enables distortion-free vision while soldering
- 6 Preparing electronic components

Image concept/Image source: Waldmann, Theben AG, Bernd Schuller



5



6

## TEVISIO LED MAGNIFIER LUMINAIRE

- Luminaire**
  - o 48 x Premium SMD-LEDs
  - o 40 percent energy savings in comparison to conventional magnifier luminaires
  - o 6,000 lx at just 14 W
  - o maintenance-free LED life of up to over 50,000 hours
  - o color reproduction level 1A
- Visualizer Function**
  - o separately switchable light scenarios emphasizes certain structures
- Dimming**
  - o continuous down to 10%
- Glass Magnifier**
  - o Ø 160 mm/3.5 dpt
  - o wide field of vision for distortion-free vision
  - o practically double magnification, scratch-proof
- Add-On Magnifier**
  - o Ø 31;5 mm/8 dpt
  - o practically quadruple magnification
- Arms**
  - o robust aluminum and high-performance plastic
  - o enormous operating radius
  - o balanced technology for easy adjustability, if required, precise setting possible via six swivel joints
- 3D Head Joint**
  - o maximum flexibility, 180 degrees in every direction

## For the Sake of the Environment

Since the company's founding, Theben's products have been designed to reduce energy consumption. In 1921, the company's founder, Paul Schwenk, had already developed the so-called Schwenk time switch to stop lights in staircases being on all the time.

Today, the steadily-growing product portfolio under the slogan "Energy Saving Ideas" saves energy costs in many areas and protects the environment by reducing CO<sub>2</sub> emissions.

The company not only has climate protection in mind for solutions for its customers, but also for itself. Along these lines, it has taken comprehensive measures such as installing an environmentally-friendly heating pump system for air conditioning in the production building or also switching to efficient lighting solutions. This is why the quality control work stations were equipped with Waldmann TEVISIO LED magnifier luminaires.

7 Excellent vision during quality control thanks to level 1A color reproduction, shiftable structure-emphasizing effects and continuous dimming functionality.

8 Climatic chamber in the laboratory

9 Processing of banded electronic components with axial leads

Image concept/Image source: Waldmann, Theben AG, Bernd Schuller





Image concept/Image source: Waldmann, Theben AG, Bernd Schuller

**Saving Energy**

Using Theben products enables energy to be supplied in a targeted manner and with savings: Where it is needed – and only when it is needed. TEVISIO also helps save energy and costs in the long term. With 48 multichip LEDs, TEVISIO saves 40 percent energy when compared to conventional magnifier luminaires with the same luminous power. The long LED life of up to 50,000 hours and more reduces maintenance and associated downtimes.



Theben products and systems are part of our everyday lives at home, in the workplace or on the road. Because time, light and climate control are needed everywhere if CO<sub>2</sub> emissions are to be reduced, the climate protected, and energy costs saved.

efficient *light*

As an Engineer of Light, Waldmann uses continuously enhanced lighting concepts to make a responsible contribution to the treatment of resources. Sustainable luminaires are energy efficient, environmentally friendly and resource-friendly.