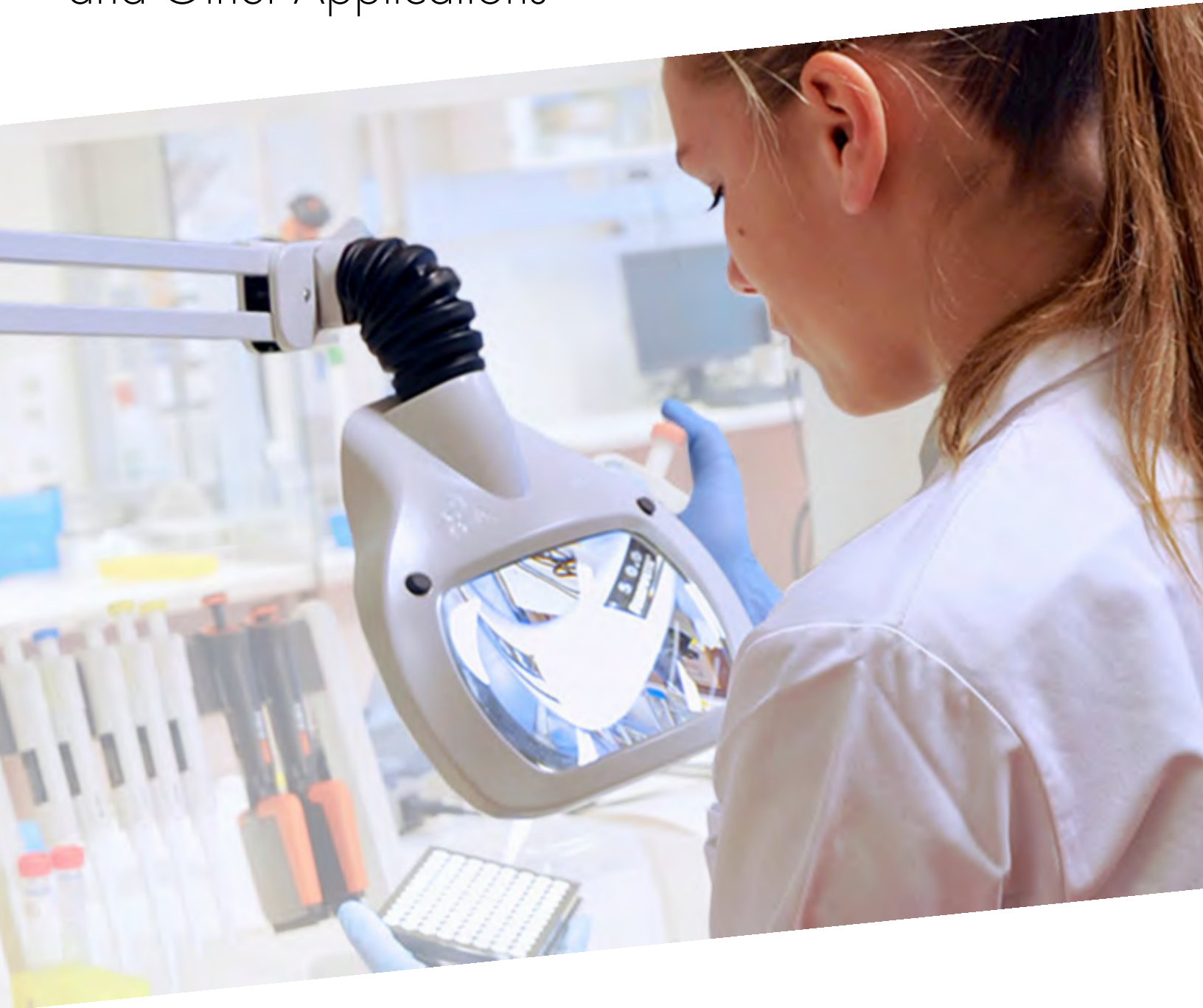




# Magnification and Lighting Solutions for Healthcare, Low Vision, Cosmetology, and Other Applications



# Magnification is essential to a large number of applications

Many industrial operations including assembly, inspection and rework, rely on the use of illuminated magnifiers for the proper viewing of a product's components. Low vision customers rely on quality illuminated magnifiers to provide users with accurate color rendering and magnification. Cosmetics and cosmetology applications depend on illuminated magnifiers to withstand the rigors of everyday use in health spas and beauty salons.

## The history of Luxo illuminated magnifiers

Luxo's history of lighting for the individual began with the development of the L-1 task light in 1937. The freedom of movement and the ability to place light exactly where it was needed forever changed the way task lights are used.

L-1 was designed by Luxo's founder, the Norwegian industrialist Jac Jacobsen, and is still in production today. The lamp arm is balanced by springs that work on the action and reaction principle of human arm muscles.

Jac Jacobsen soon realized that his spring-balanced arm could carry a variety of different luminaires, including illuminated magnifiers, for numerous purposes.

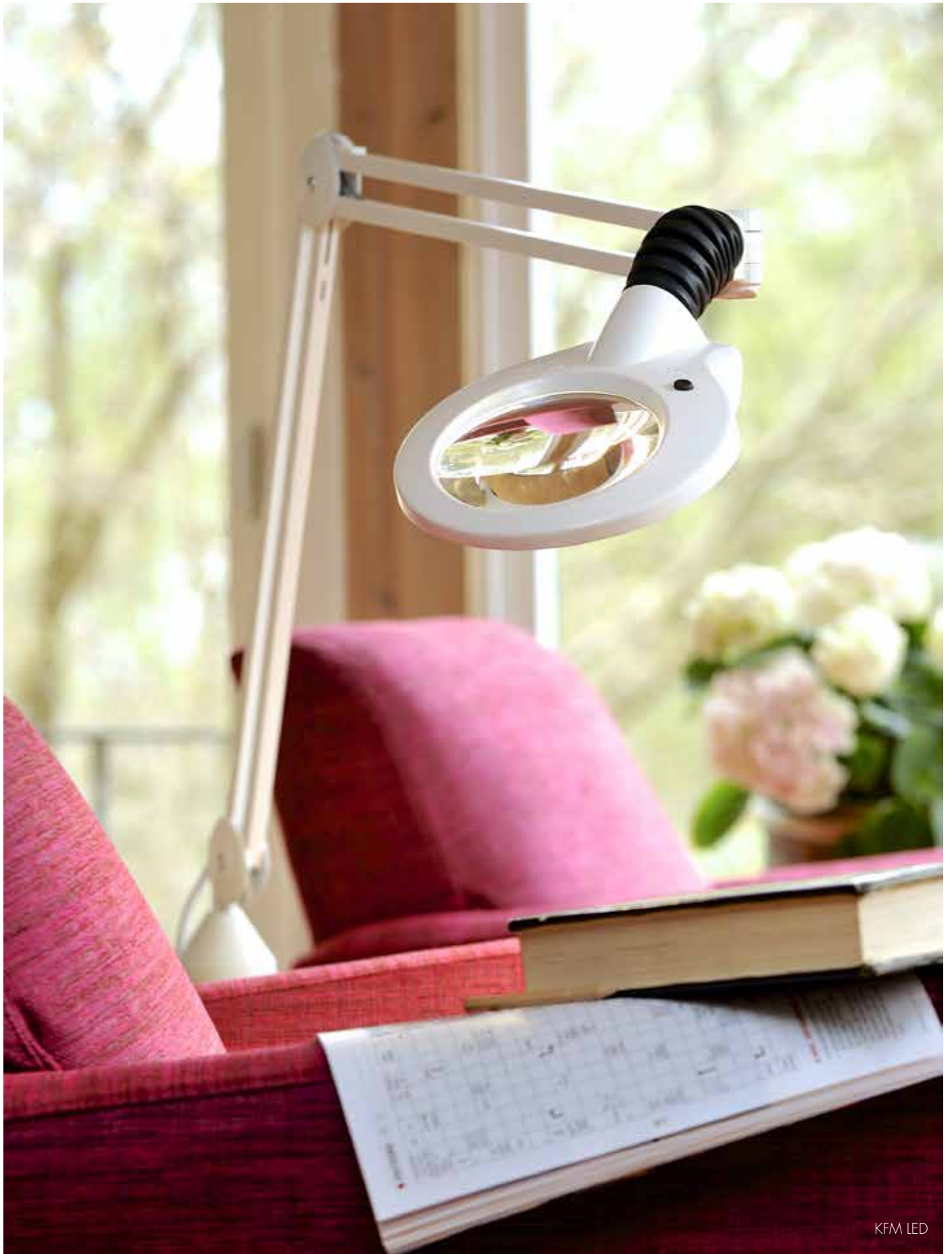
The decades following saw Luxo's development of a range of illuminated magnifiers for industrial applications, electronics, therapy and cosmetology, low vision and the healthcare sector.

## Modern range of arm-based magnifiers

Naturally, Luxo's range of products has been vastly expanded since those early days. However, the philosophy and knowledge from the development of the L-1 is still maintained in all of Luxo's modern products. Today, Luxo's range of illuminated magnifiers and industrial task lights comprises a wide variety of arm technologies, with internal or external springs. They all have perfect balance and careful ergonomics built into them.

Luxo pioneered the development of illuminated magnifiers for industrial use. This L-1 L magnifier was manufactured in 1955 and is still in use today.





KFM LED

# Perfect balance, maximum flexibility

Luxo's magnifiers are specially designed to maximize horizontal and vertical movement. They provide significant horizontal reach, and will always stay in the right position without drifting. The arms are balanced by spring systems which ensure smooth and easy positioning – no knobs to tighten, nothing to adjust.

The ability to position the lens and direct the light exactly where it is needed is the hallmark of Luxo's illuminated magnifiers. The flexibility of the lamp head means that it is easy to adjust the magnifier for your personal needs.

## Friction-free lamp head movements

It is the combination of arm and head movements that determines the degree of flexibility in a magnifier. Luxo's magnifiers are highly flexible, offering a combination of the three all-important head movements:

- Horizontal side-to-side movement (yaw)
- Up and down movement (tilt)
- Rotation around a horizontal axis (roll)

The flexibility of the self-balancing arm and friction-free joint between the lamp head and arm makes exact positioning easy.



Self-balancing, friction-free arm.



Friction-free joint between the lamp head and arm.





## The importance of light quality

At Luxo we know how important light is for the working environment and for the health and well-being of an individual in a workplace. Good lighting reduces the risk of health problems, increases safety, and enhances productivity.

For this reason, Luxo places great importance on the light quality of our illuminated magnifiers. They are not just magnifiers with light, but powerful luminaires with excellent light output. The quality and exact positioning of the light sources in relation to the lens allows for virtually shadow-free magnification and excellent color rendering capabilities

### **LED: Lightsource of the future**

Over the past few years, Luxo has designed and manufactured a new generation of luminaires, all featuring LED instead of traditional light sources. Light Emitting Diodes (LEDs) are semiconductors that emit light when an electric current passes through them. LEDs can be used on their own, or assembled into modules for added power.

### **Ergonomic. Energy-efficient. Economic.**

Luxo's modern LED magnifiers are designed to provide the best possible ergonomics, while saving energy. They use only a fraction of the energy required by luminaires with traditional light sources.

LEDs have an incredibly long life span. The diodes in Luxo LED magnifiers have a life expectancy of more than 50,000 hours. That equates to 25 years or more with normal use.

## LED magnifiers

### WAVE<sup>®</sup> LED

#### Rectangular lens LED magnifier

No knobs to tighten, nothing to adjust. The WAVE LED has a flexible, self-balancing shade and hands-free neck assembly which allow the lamp head to be secured in any position. The fully-enclosed neck design is ideal for cosmetics, cosmetology and other environments where foreign object debris (FOD) is a concern. An automatic shut-off feature further ensures energy savings. WAVE LED offers shadow-free magnification with light coming from both sides, as well as three-dimensional magnification lighting from the left or right. The 3D-feature is especially welcome when working with circuit boards and similar delicate objects in inspection and rework applications.

#### Technical details

**Lightsources:** Two 6W dimmable LED modules. 13W total energy consumed. 4600 lux at 11" focal length. CCT: 4000K. CRI: 80.

**Body material and color:** Steel arm and die-cast aluminum shade. Fully-enclosed neck design. Colors: light gray and white.

**Optics:** 3.5- (1.88X) or 5-diopter (2.25X), 6.75" x 4.5" rectangular white crown optical-quality glass lens.

**Secondary lenses:** For additional magnification a secondary 4-, 6- or 10-diopter STAYS lens can be attached to the primary lens.

**Arm technology and movement:** Heavy-duty internal-spring 45" or 30" parallel, three-pivot K-arm.

**Timer and dimming:** Step dimming 0-50-100%. 9/4 hour auto shut-off.

**Mounting:** Edge clamp or weighted base.  
**UL/cUL listed**



Part numbers	
WAL025968	WAVE LED, 3.5-diopter, 45", edge clamp, light gray
WAL025970	WAVE LED, 3.5-diopter, 30", edge clamp, light gray
WAL026133	WAVE LED, 3.5-diopter, 30", weighted base, light gray
WAL025969	WAVE LED, 5-diopter, 45", edge clamp, light gray
WAL026445	WAVE LED, 5-diopter, 45", edge clamp, white
WAL025971	WAVE LED, 5-diopter, 30", edge clamp, light gray
WAL026135	WAVE LED, 5-diopter, 30", weighted base, light gray

# KFM™ LED

## Heavy-duty round lens LED magnifier

KFM LED produces double the light output of traditional KFM models. A heavy-duty, all-metal construction with sleek design, adjustable arm and excellent light output make the KFM suitable for a variety of applications. No knobs to tighten, nothing to adjust. A flexible, self-balancing shade and fully-enclosed, hands-free neck design is ideal for environments where foreign object debris (FOD) is a concern. The quality and positioning of the LEDs across two semi-circular modules allow for virtually shadow-free illumination and excellent color rendering.

### Technical details

**Lightsources:** 9W dimmable LED modules. 11W total energy consumed. 3000 lux at 13" focal length. CCT: 4000K. CRI: 80.

**Body material and color:** Steel arm and die-cast aluminum shade. Fully-enclosed neck design. Colors: black, light gray and white.

**Optics:** 3- (1.75X) or 5-diopter (2.25X), 5" diameter white crown optical-quality glass lens.

**Secondary lenses:** For additional magnification a secondary 4-, 6- or 10-diopter STAYS lens can be attached to the primary lens.

**Arm technology and movement:** Heavy-duty internal-spring 45" or 30" parallel, three-pivot K-arm.

**Timer and dimming:** Infinite dimming 1–100%. 9/4 hour auto shut-off.

**Mounting:** Edge clamp or weighted base. UL/cUL listed



Part numbers	
KFLO26023	KFM LED, 3-diopter, 45", edge clamp, black
KFLO26022	KFM LED, 3-diopter, 45", edge clamp, light gray
KFLO26274	KFM LED, 3-diopter, 45", edge clamp, white
KFLO26025	KFM LED, 5-diopter, 45", edge clamp, black
KFLO26024	KFM LED, 5-diopter, 45", edge clamp, light gray
KFLO26026	KFM LED, 5-diopter, 45", edge clamp, white
KFLO26028	KFM LED, 3-diopter, 30", edge clamp, light gray
KFLO26030	KFM LED, 5-diopter, 30", edge clamp, black
KFLO26029	KFM LED, 5-diopter, 30", edge clamp, light gray
KFLO26127	KFM LED, 3-diopter, 30", weighted base, light gray
KFLO26152	KFM LED, 5-diopter, 30", weighted base, black
KFLO26128	KFM LED, 5-diopter, 30", weighted base, light gray

## LED magnifiers

### Circus LED

Powerful LED magnifier with large glass lens

Circus LED is designed to withstand the rigors of everyday use in cosmetology, industrial, manufacturing and cleanroom applications. Circus LED also has a large lens which permits comfortable viewing for individuals with impaired vision. No knobs to tighten, nothing to adjust. Circus LED has a highly flexible, self-balancing lamp head allowing it to be positioned vertically, horizontally and laterally. The fully enclosed neck and internal spring-balanced arm make the Circus LED ideal for environments where cleanliness and sanitation are sought.

#### Technical details:

**Lightsources:** 10W total energy consumed. 1360 lux at 8" focal length. 3830 lux at 11" focal length. CCT: 4000K. CRI: 90.

**Body material and color:** Steel arm with aluminum head. Fully-enclosed neck design. Color: white with black accents.

**Optics:** 3.5- (1.88X) or 5-diopter (2.25X), 6.5" diameter white crown optical-quality glass lens.

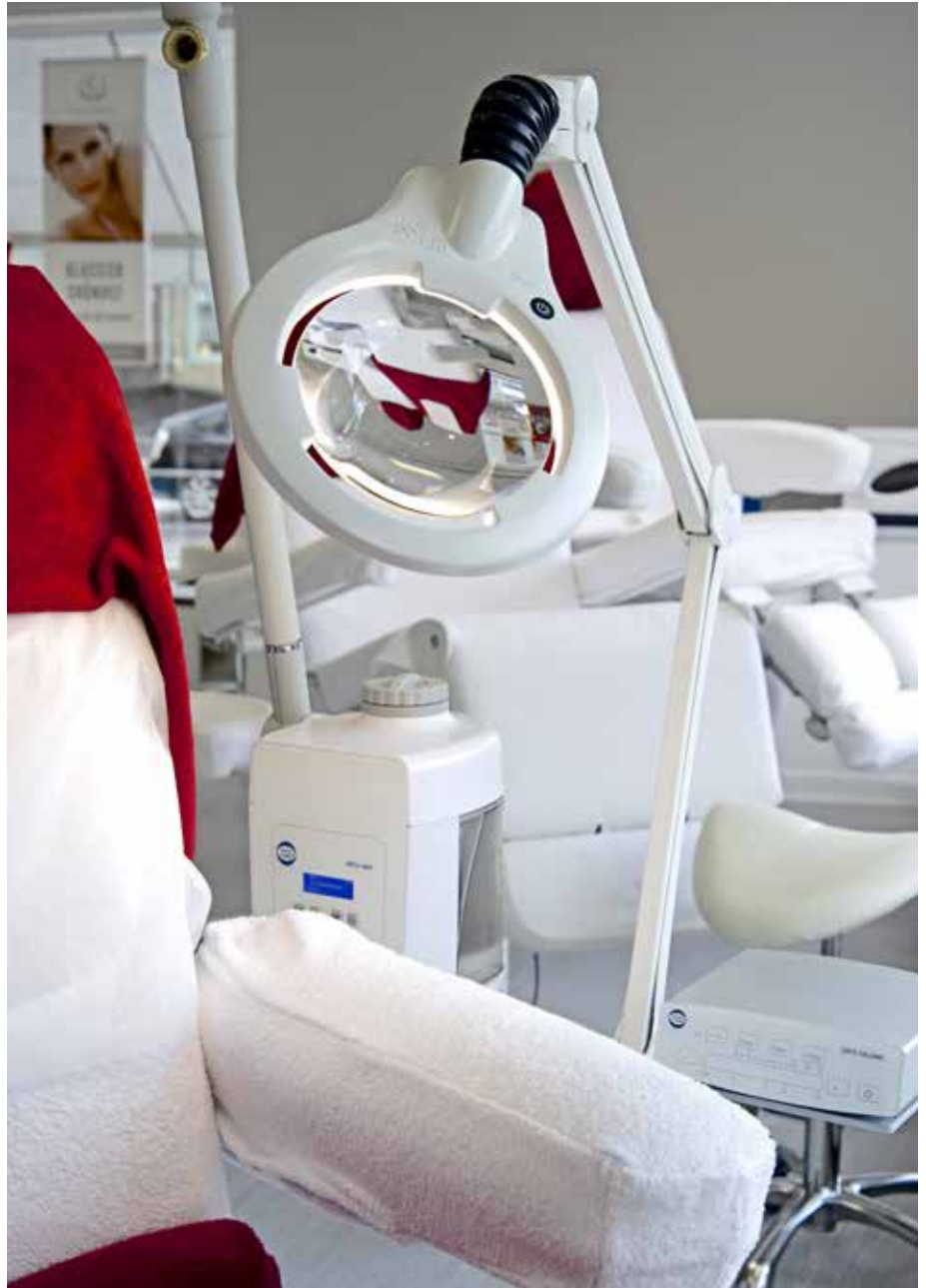
**Secondary lenses:** For additional magnification a secondary 4-, 6- or 10-diopter STAYS lens can be attached to the primary lens.

**Arm technology and movement:** Heavy-duty internal-spring 45" parallel, three-pivot arm with .75" steel tubing.

**Timer and dimming:** 10-100% dimming. 9/4 hour auto shut-off.

**Mounting:** Edge clamp.

UL/cUL listed



Part numbers	
CIL026698	Circus LED, 3.5-diopter, edge clamp, white
CIL026699	Circus LED, 5-diopter, edge clamp, white



## LFM LED G2

### Lighter-duty round lens LED magnifier

LFM LED G2 is Luxo's most cost effective magnifier with an all-metal construction, LED light sources, and a flexible spring-balanced arm in the Luxo tradition. The arm provides long reach and maximum vertical and horizontal movement, and will always stay in the right position without drifting. Along with its light weight, the flexibility of the joint between lamp head and arm, make exact positioning almost effortless.

#### Shadow-free Magnification

The 5" diameter glass lens is positioned in the middle of a circle of LED light sources. This is the ideal way of illuminating an object, virtually eliminating shadows. Choose from a 3-diopter lens (LFG028210) or a 5-diopter lens (LFG028211), both with edge clamp. For additional magnification, a secondary STAYS lens of 4-, 6-, or 10-diopters can be attached to the glass lens.

### Technical details

**Lightsources:** 9.W total energy consumed. 1750 lux at 13" focal length. CCT: 4000K. CRI: 80.

**Body material and color:** Steel arm with aluminum head. Shade neck cover in rubber. Colors: light gray and white.

**Optics:** 3- (1.75X) or 5-diopter (2.25X), 5" diameter lens.

**Secondary lenses:** For additional magnification a secondary 4-, 6- or 10-diopter STAYS lens can be attached to the primary lens.

**Arm technology and movement:** Heavy-duty internal-spring 45" parallel, three-pivot K-arm with .5" steel tubing.

**Timer and dimming:** 9/4 shut off. Step dimming 0-50-100%.

**Mounting:** Edge clamp.

UL/cUL listed



#### Part numbers

LFG028206	LFM LED G2, 3-diopter, 45", edge clamp, light gray
LFG028207	LFM LED G2, 5-diopter, 45", edge clamp, light gray
LFG028210	LFM LED G2, 3-diopter, 45", edge clamp, white
LFG028211	LFM LED G2, 5-diopter, 45", edge clamp, white

# Industrial task lighting

## L-1 LED

### Energy Efficient LED task light

Designed in 1937 by Luxo's founder, Jac Jacobsen, more than 25 million have been sold worldwide. With its timeless design and automatic shut-off features, L-1 LED is fully adaptable wherever energy-efficiency, versatility and quality are sought.



**Lightsource:** 8W LED (8.4W total energy consumed), 350 lumens, Color Rendering Index (CRI): 90, Color temperature: 3000K, Dimmable / 9/4 auto shut-off, 120v plug in power supply

**Body Material:** Steel arm and aluminum shade

**Colors:** Black, silver grey, or white

**Mounting:** Edge clamp; optional table/desk base

**Optics:** Symmetrical light distribution, inner shade painted white for maximum efficiency, opalic diffuser for a softer light and to avoid glare

**Arm:** 39.4" parallel, spring-balanced, three-pivot arm, up-and-down and rotational head movement

Part numbers	
L-1029789	L-1 LED, 39.4", edge clamp, black, L-1025906
L-1029790	L-1 LED, 39.4", edge clamp, silver grey, L-1025907
L-1029788	L-1 LED, 39.4", edge clamp, white, L-1025905
BRK029780	L-1 LED, 39.4", weighted base, black, BRK024995
BRK029781	L-1 LED, 39.4", weighted base, silver grey, BRK024996
BRK029779	L-1 LED, 39.4", weighted base, white, BRK024994

## LS

### Compact fluorescent industrial task light

LS is Luxo's most versatile and best-selling Industrial task light which couples classic styling with superior arm technology. LS is mounted on a spring-balanced arm which provides complete flexibility over the workspace.



**Lightsource:** 23W compact fluorescent

**Reflector and louver:** Inner insulating reflector and venting louvers prevent the shade from becoming too warm

**Shade:** 6.75" diameter, heavy-duty spun aluminum shade

**Arm:** 45" powder-coated external spring-balanced arm

**Colors:** Black, chrome and white

**Mounting:** Edge clamp or weighted base

**Cord:** 6', 3-conductor cord

**Ballast:** Electronic ballast

**UL/cUL listed**

Part numbers	
K110660001	LS, 45", edge clamp, black
K110660002	LS, 45", edge clamp, white
K110670001	LS, 45", weighted base, black
K110670002	LS, 45", weighted base, white

## Accessories

Luxo illuminated magnifiers are suitable for use in a multitude of applications. Luxo offers a choice of accessories including mounting options and secondary lenses for increased levels of magnification.

	<b>STAYS Lenses</b> SelfTraction Accessory Yield System for use with KFM™ LED, KFM, WAVE® LED, LFM LED, IFM, Circus and Circus LED Magnifiers. 2" lens diameter (2.5" diameter including the silicon gasket frame).	
	SPD025980	4-diopter STAYS Lens
	SPD025979	6-diopter STAYS Lens
	SPD026119	10-diopter STAYS Lens
	<b>KFM LED Handles</b> For use with KFM LED magnifiers.	
	SPD026587	KFM LED Handle, light gray
	SPD026586	KFM LED Handle, white
	<b>34" Rolling Floor Stand</b> Painted steel pole and cast iron base includes both casters and glides.	
	50036BK	Rolling Floor Stand, black
	50036LG	Rolling Floor Stand, light gray
	50036WT	Rolling Floor Stand, white
	SPA025674	Extra weight for Rolling Floor Stand, white (required for Circus magnifiers)
	<b>A-Edge Mount Bracket</b> For mounting products to horizontal surfaces. Maximum 2.25" opening.	
	60001BK	A Edge Mount Bracket, black
	60001LG	A Edge Mount Bracket, light gray
	<b>C-Surface Mount Bracket</b> For permanent mounting to walls or other vertical surfaces.	
	BRK025141	C Surface Mount Bracket, black
	BRK025142	C Surface Mount Bracket, light gray
	<b>B-Wall Mount</b> For permanent mounting to walls or other vertical surfaces.	
	50003LG	B Wall Mount, light gray
	50003WT	B Wall Mount, white
	<b>Flush/Surface Mount Bushing</b> For flush mount surface installation. 19.3mm outer diameter. Available in chrome.	
	31639	Flush/surface mount bushing, aluminum
	<b>FE Base</b> For use with 30" arm magnifiers and industrial task lights.	
	50010BK	FE Base, black
	50010LG	FE Base, light gray
	50010WT	FE Base, white

# About magnification

Luxo offers a range of illuminated magnifiers for different applications. Luxo's line of magnifiers includes a selection of lenses (shape and size), materials and glass. Please refer to the product guide to determine which model is best suited for your needs.

## Using a Luxo magnifier

Luxo's illuminated magnifiers are working tools. They are designed for precision and comfort. We recommend using both eyes to view an object whenever possible.

In order to achieve maximum magnification without distortion, the user should position the lens a proper distance from the object, and fairly close to the eyes. Do not lean back and away from the lens in order to increase magnification.

Seating and worksurface height should be adjusted for good posture.

## Definitions

### Diopter

Diopter is an optical term referring to the refractive (light bending) capacity of a lens. Each diopter increases magnification by 25%.

### Magnification

The degree to which a viewed object is enlarged. Expressed in percentage or by the symbol X. 100% magnification = 1X magnification. To determine the level of magnification based on diopters used, divide the total diopters by 4 and add 1. eg.  $5D/4+1 = 2.25X$ .

### Field-of-view

Field-of-view is the area which is visible as seen through a lens.

### Focal length

Focal length is the distance from the center of the lens to the viewed object when in focus. As magnification increases, the focal length decreases.

### Working distance

Working distance is the area between the underside of the magnifier and the top of the object being viewed when the object appears in focus.



### Choice of magnification

The degree of magnification needed varies with the task at hand. With low level magnification an object can be studied while the edge of the object remains in focus. With increased magnification, small details are clearly visible but the blurring at the edge of the object increases.

# Magnification table

This table provides a complete overview of the total magnification options available by adding secondary lenses to Luxo's illuminated magnifiers.

Primary lens diopter	Secondary lens diopter	Total magnification	Total diopter	Magnification %	Focal length (in.)
<b>Wave® LED, Circus LED</b>					
3.5		1.88X	3.5	188%	11
3.5	4.0	2.88X	7.5	288%	5
3.5	6.0	3.38X	9.5	338%	4
3.5	10.0	4.38X	13.5	438%	3
5.0		2.25X	5	225%	8
5.0	4.0	3.25X	9	325%	4.3
5.0	6.0	3.75X	11	375%	3.5
5.0	10.0	4.75X	15	475%	2
<b>KFM™ LED, KFM</b>					
3.0		1.75X	3	175%	13
3.0	4.0	2.75X	7	275%	5.5
3.0	6.0	3.25X	9	325%	4.3
3.0	10.0	4.25X	13	425%	2.8
5.0		2.25X	5	225%	8
5.0	4.0	3.25X	9	325%	4.2
5.0	6.0	3.75X	11	375%	3.5
5.0	10.0	4.75X	15	475%	2



## Added magnification with a secondary lens

For additional magnification, a secondary STAYS Lens can be attached to the primary lens. To apply the STAYS Lens, simply moisten the silicon ring around the lens and stick it onto the primary lens. STAYS Lenses are available in 4-, 6- and 10-diopter strengths, increasing magnification by 100%, 150% and 250% respectively.



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## LUXO

For more than 80 years Luxo has designed arm-based innovative, ergonomic lighting and magnification products. Luxo products improve work efficiency, taking particular care of individual needs.

Luxo products and solutions are developed and tested by our engineers at our own research and testing facilities, and manufactured and certified in accordance with all relevant quality and environmental standards. They are based on the latest technology and expertise – and generations of experience.

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Please refer to our website for information about our 5-year warranty.