

CHALLENGE

HOW BEST TO EVALUATE VETERINARY LIGHTING

Clinical lighting is an invaluable instrument for veterinary professionals as it assists in precise examinations and improved care of animals. Quality lighting also plays an important role in eliminating eye strain, fatigue, and discomfort, affecting productivity and general well-being. To assist you in selecting the best exam and surgery light for your veterinary hospital or clinic, we have identified and prioritized the factors that are essential when choosing a veterinary light fixture.

Factors to Consider When Selecting Clinical Lighting

1. Illuminance

2. Color Temperature

3. Color Rendering

4. Light Source

Illuminance

Illuminance, or the luminous flux on a surface area with the unit 'lux' – is probably the most significant measurement in lighting technology, identifying the intensity of light at a specific distance. According to the International Electrotechnical Commission (IEC), luminaires for use in an examination setting should have a minimum 1,000 lux. For reference, the illuminance of daylight during a clear, sunny day is 100,000 lux. Typically, veterinary examination lights offer 30,000 - 50,000 lux at 0.5 meter and veterinary surgery lights attain 60,000 -100,000 lux at 1 meter. As brightness is a central consideration when selecting an exam or surgery light, dimming, LED quality and other features should also be considered when choosing a light for veterinary examinations or procedures.

Color Temperature

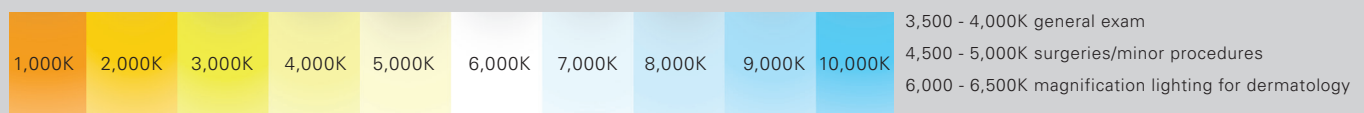
Color temperature is the measurement of color relative to that of full sunlight (5,800K). Maintaining optimal color temperature is critically important in the medical field, as it displays the color and rendition of body tissue and fluids. Color temperature is measured in Kelvin units and reflects the "warmth" or "coolness" of a light source.

When choosing an examination fixture, the optimal color temperature depends on the application. Any color temperature less than 5,800K will have an orange/yellow (warm) cast, while a higher color temperature will have a blue (cool) cast. The option to adjust color temperature for specific application is ideal. For instance, cool tones will emphasize veins and will be used for surgeries, while warmer tones make dental gums and lesions more visible.

Color Rendering Index

The Color Rendering Index (CRI) measures light's ability to present color "naturally," including all frequencies of the color spectrum. The higher the CRI, the more accurately the "true color" is represented. A low CRI will indicate that the color is being distorted, lacking a full display of the color spectrum. A high CRI of at least 85 is recommended for examinations.

Color Temperature Scale



Light Source

In considering an examination light, traditionally, halogen lighting solutions have been used in veterinary hospital and clinical settings. They are increasingly being replaced by LED solutions due to several benefits: LED offers bright, uniform illumination while consuming less power, and also allows for special optics that can be incorporated to attain more light and minimize glare. Also, the long maintenance-free LED service life (up to 50,000 or more hours) saves on cost, time and convenience, compared to halogen bulb life (2,000 hours). Finally, due to new LED technology, lux levels are able to reach very high numbers (more brightness) without emitting any additional heat, ensuring comfort for animals and practitioner.

SOLUTION

As veterinary professionals evaluate clinical lighting, careful consideration of illuminance, color temperature, CRI and light source are essential. When these lights are able to satisfy criteria for a wide variety of tasks, for instance with color temperature and dimming options, the practitioner has much more flexibility, allowing a particular fixture to meet several lighting needs.

WALDMANN CLINICAL LIGHTING PRODUCT SOLUTIONS



WALDMANN TRIANGO 100 Surgery Light

Illuminance: 100,000 lux at 1 m /
Special light head and optic designs
reduce shadows / Four dimming
levels modify light intensity

Color Temperature: Available in
4,300K or with adjustable color
temperatures: 3,700K/ 4,300K/
4,700K for flexibility in applications.

Color Rendering: High CRI Ra>95

Light Source: LED - no heat emitted
from the light source



WALDMANN VISIANO 20-2 Examination Light

Illuminance: 60,000 lux at 0.5 m /
Special light head and optic designs
reduce shadows / Four dimming levels
modify light intensity

Color Temperature: Color changing
3,500 to 4,500K for flexibility in
applications.

Color Rendering: High CRI Ra>95

Light Source: LED - no heat emitted
from the light source



WALDMANN VISIANO 10-1 Examination Light

Illuminance: 50,000 lux at 0.5 m /
Special optic design reduces
shadows / Compact size for easy
storage and convenience

Color Temperature: 4,400K

Color Rendering: High CRI Ra>93

Light Source: LED - no heat emitted
from the light source

WALDMANN OPTICLUX Magnifier Light & Wood Light

Illuminance: 6,000 lux at 0.15 m / Continuously dimmable
100% to 10% / Special model for dermatology, veterinary and
forensic medicine combines two lighting modes: daylight white
and Wood light versions / Premium LEDs ensure less shadow
formation

Color Temperature: 6,500K

Color Rendering: High CRI Ra>95

Light Source: LED - no heat emitted
from the light source

Magnification: 1.9X (3.5 diopters)



WALDMANN HALUX N50 Examination Light

Illuminance: 50,000 lux at 0.5 m / Five dimming levels
for all types of examinations / Shadow reducing due to
special optic design

Color Temperature: Available in 4,400K or with
adjustable color temperatures: 3,300 / 3,800 / 4,400K
for flexibility in applications

Color Rendering: High
CRI Ra>93

Light Source: LED - no heat
emitted from the light source



Waldmann Lighting Company

9 Century Drive
Wheeling, Illinois 60090
www.waldmannlighting.com

Telephone (847) 520 1060
Fax (847) 520 1730
waldmann@waldmannlighting.com

Waldmann **W**

ENGINEERS OF LIGHT