

# Merilux

Lamps for surgery  
and examination



## Camera-/monitor system for operating rooms

The Merivaara Merilux Vision™ series is designed for use in multiple locations in modern health care, where transferring of video images is supporting the needs of the health care personnel.



### MERILUX VISION™ TRIO

Offering huge amount of possibilities in terms of different configurations that can be defined to meet the exact needs. Additional lamp head can be used to provide more light coverage for anaesthetical purposes.

Available lamp heads:

- X5
- X5 with camera
- X3
- X1



## Control box

Each camera unit has a separate control box for white balance, iris, focus and zoom. Separate model of control box enable installation into the table, wall or panel.



## Double yoke

Merilux X3 and X5 lamp heads can optionally be equipped with double yoke, which enables more freedom of movement for the lamp heads.

TECHNICAL SPECIFICATION FOR CAMERA SOLUTION	
Image sensor	1/4 Super HAD CCD
Effective pixels (PAL)	(PAL format) 444,000 pix
Lens	Lens 18x optical zoom f = 4.1mm (wide) to 73.8mm (tele) F1.4 to F3.0
Digital zoom	4 x
Electronic shutter	1/60 to 1/ 10 000 s (16 steps)
White balance	Auto, Manual
AE control	Auto, Manual
Video signal both Composite Video- and S-VHS	

## Monitor arm

Merivaara's own monitor arm design enables vast number of different positions for the 19" LCD monitor. Each arm is equipped with VESA 100 and VESA 75 fixing plate. Additional option enables users to utilise sterilisable handle to be used for moving of the monitor.



## MERILUX VISION™ DUO

Providing even light distribution into the operation area for most medical operations by illuminating the area of concern from 2 different sides if so required.

Available lamp heads:

- X5
- X5 with camera
- monitor arm
- X3
- X1

## Dimmer

Integrated electronic dimming unit enables precise control of illumination level with just a touch of a button.



# Merilux

The Merivaara Merilux lamp series is designed for use during examinations and operations in, for example, emergency rooms, hospital ICUs, outpatient surgery centres and recovery rooms. The wide range of lighting features and arm and installation options allow for the right lighting solutions for different facilities and needs.



**X5 CM\***  
Order no. 500551  
For minimum ceiling height of 2,500 mm  
Ceiling mounted

\*Choose ceiling tube from page 7



**X5 CM 2**  
Order no. 500552  
For ceiling height less than 2,500 mm  
Ceiling mounted



**X5 WM**  
Order no. 500561  
Wall mounted

For the deep and sharp lighting



# merilux X5

by Merivaara

## When light output counts

Thanks to a broad field of illumination provided by the five-bulb array, the X5 Operation Lamp can be used for both outpatient surgery and more demanding procedures.

- exceptional depth of illumination
- outstanding laminar flow characteristics
- infrared-filtered and steady illumination
- easy-to-clean surfaces
- simple and quick to aim and focus
- detachable and sterilizable handle



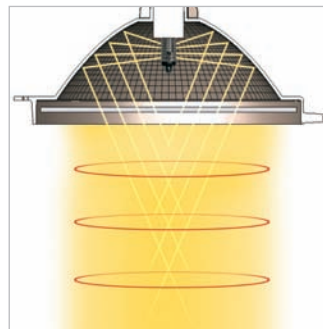
# merilux X3

by Merivaara

## One of the best depth of illumination on the market

Due to the outstanding depth of illumination on the X3 Operation Lamp, the lamp height does not need height adjustment during operations. The lamp is suitable for use in emergency rooms, delivery rooms and examination rooms.

- infra-red filtered illumination
- outstanding laminar flow characteristics
- easy-to-clean surfaces
- quick aiming and focusing
- detachable and sterilizable handle



**FACET reflector**  
Ensures shadowless and steady light output over the entire operating site.



**Laminar flow characteristics**  
Aerodynamic contouring allows fresh air to flow smoothly through and around the lamp.

**Depth of illumination**  
Its approximately one metre high light pole eliminates the need for lamp adjustment during operations.



**X3 CM\***  
Order no. 500411  
For minimum ceiling height of 2,500 mm  
Ceiling mounted

**X3 CM 2**  
Order no. 500412  
For ceiling height less than 2,500 mm  
Ceiling mounted

**X3 WM**  
Order no. 500415  
Wall mounted

**X3 FM**  
Order no. 500425 or  
500426 with batteries

\*Choose ceiling tube from page 7



Merilux X1, X3 and X5 ceiling-mounted models can be combined to form "Duos" and also to "Trios". Further enhancing the range of lamp applications serve more completely the whole variety of requirements, especially in day surgery. It can also be used to provide more light coverage for anaesthetical requirements. Combining lamps ensures an evenly distributed light throughout the operating area.



## MERILUX TRIO

Offering huge amount of possibilities in terms of different configurations that can be defined to meet the exact needs. Additional lamp head can be used to provide more light coverage for anaesthetical purposes.

Available lamp heads:

- X5
- X3
- X1



## Ceiling tube selection

Select the right ceiling tube for a ceiling-mounted lamp.

Please note that higher ceilings require a reinforced ceiling tube. When recommended tube lengths from the table below are used, the lowest point of the ceiling tube (see the red arrow in the picture) will be at the height of: single lamps: 2120mm +/- 50mm, Duo 320° 2060mm +/- 50mm, Duo/Trio 360° 2120 +/- 50mm.

SINGLE LAMPS AND DUO 2 x 320°				
Ceiling height	Tube length, Ø 50 mm	Order No.	Reinforced tube length, Ø 100 mm + Ø 50 mm	Order No.
2000–2469 mm *	180 mm	485680		
2470–2569 mm	250 mm	485257		
2570–2669 mm	350 mm	485258		
2670–2769 mm	450 mm	485259		
2770–2869 mm	550 mm	485232		
2870–2969 mm	650 mm	485231		
2970–3069 mm	750 mm	485230		
3070–3169 mm	850 mm	485229		
3170–3269 mm	950 mm	485233		
3270–3369 mm	1050 mm	485252		
3370–3469 mm	1150 mm	485253	1000 + 180 mm	485274
3470–3569 mm	1250 mm	485254	1000 + 250 mm	485275
3570–3669 mm	1350 mm	485255	1000 + 350 mm	485276
3670–3769 mm	1450 mm	485256	1000 + 450 mm	485277
3770–3869 mm			1000 + 550 mm	485267
3870–3969 mm			1000 + 650 mm	485268
3970–4069 mm			1000 + 750 mm	485269
4070–4169 mm			1000 + 850 mm	485270
4170–4269 mm			1000 + 950 mm	485271

\* X1 only  
Additional option for high-ceilinged operating rooms (all CM or CM2 models), interface plate for false ceiling (length 800 mm), order no. 485732

DUO 360°	
Ceiling height	Tube length
2750 - 2849 mm	200 mm
2850 - 2949 mm	300 mm
2950 - 3049 mm	400 mm
3050 - 3149 mm	500 mm
3150 - 3249 mm	600 mm
3250 - 3349 mm	700 mm
3350 - 3449 mm	800 mm
3450 - 3549 mm	900 mm
3550 - 3649 mm	1000 mm

TRIO	
Ceiling height	Tube length
2850 - 2949 mm	200 mm
2950 - 3049 mm	300 mm
3050 - 3149 mm	400 mm
3150 - 3249 mm	500 mm
3250 - 3349 mm	600 mm
3350 - 3449 mm	700 mm
3450 - 3549 mm	800 mm
3550 - 3649 mm	900 mm
3650 - 3749 mm	1000 mm



### MERILUX DUO 360°

Providing even light distribution into the operation area for most medical operations by illuminating the area of concern from 2 different sides if so required.

Available lamp heads:

- X5
- X3
- X1



### MERILUX DUO 320°

More economical solution, when limited central axis rotation can be accepted. Ideal for many examination-, emergency-, and recovery rooms.

Available lamp heads:

- X5
- X3
- X1

# Merilux



The X1 Examination Lamp is ideal for use during examinations and small operations. The new design of the lamp makes it easier to clean. The X1 Examination Lamp with its sterilisable handle and articulated arm fills up ideally the high requirements of hygiene even in the tightest spaces like emergency rooms, examination rooms, recovery rooms and ICUs.

- sterilisable handle, exchangeable with X3- and X5-lamps
- fixed focus (500 – 1500 mm)
- reduced glare
- easy and quick lamp change



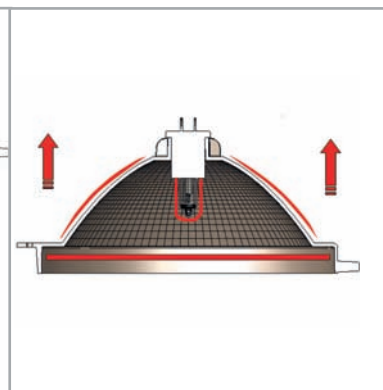
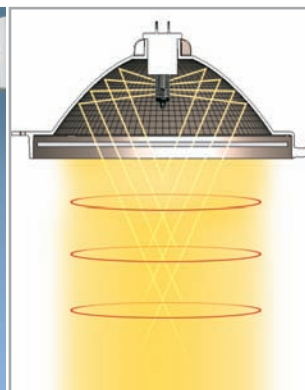
**X1 FM swing**  
with 2 antistatic  
castors  
order no. 485552

**X1 CM\***  
Minimum ceiling height  
2,000 mm  
Order no. 500001  
Ceiling mounted

**X1 WM**  
Order no. 500101  
Wall mounted

**Facet-type reflector**  
Ensures shadowless and  
steady light output over the  
entire operating site.

**Infrared-filtered light**  
Filters out over 98% of the  
infrared radiation generated  
by the lamp.



\*Choose ceiling tube from page 7



The battery back-up system ensures trouble-free medical operations, without having to worry about disturbances caused by power outages. In the case of a power outage, the Merilux battery back-up system will be automatically switched on in less than 0.5 seconds. For patient safety, the batteries used in the Merilux battery back-up system are designed for installation outside the operating room.

When selecting your back-up system, first specify the maximum operational time under emergency conditions. Then select the batteries that best meet your needs using the table below.

### The battery back-up system consists of 4 separate components:

#### 1 Transformer with 2 options

(Standard on all lamps)

- Transformer 230 VAC/50 Hz
- Transformer 120 VAC/60 Hz



#### OPTIONS

#### 2 Control box with 2 options

- For one lamp (for one charger)
- For two lamps (for two chargers)

#### 3 Charger inside control box with 3 options

- 2A for 27 Ah batteries
- 5A for 42 Ah batteries
- 20A for 45 Ah batteries

#### 4 Batteries with 4 options

- 27 Ah Sealed lead batteries, incl. casing
- 42 Ah Sealed lead batteries, incl. casing
- 84 Ah Sealed lead batteries, incl. 2 × 42 Ah-casing
- 45 Ah NiCd-batteries, excl. casing

System order no.	For use with	Battery type
419015	Merilux CM Duo X5 / X3, X5 / X5 or Trio	With sealed lead batteries 42 Ah / 5 A
419025	MERILUX CM/WM X5, X3, X1 or X3/X1 Duo	With sealed lead batteries 27 Ah / 2 A
419035		Without batteries

Battery code	Merilux type Lead batteries	Battery	Back-up time	Optional Battery	Back-up time
419070	X1 CM/WM, 40 W	27 Ah	10 h		
419070	X1/X1 CM Duo, 80 W	27 Ah	5 h		
419070/419075	X3 CM/WM, 120 W	27 Ah	3½ h	42 h	5½ h
419070/419075	X3/X1 CM Duo, 160 W	27 Ah	2½ h	42 h	3½ h
419075 / 419080	X3/X3 CM Duo, 240 W	42 Ah	2½ h	84 h	5 h
419075 / 419080	X5 CM, 200 W	42 Ah	3 h	84 h	6½ h
419075 / 419080	X5/X3 CM Duo, 240 W	42 Ah	2½ h	84 h	5 h
419075 / 419080	X5/X3 CM Duo, 320 W	42 Ah	1½ h	84 h	3½ h
419075 / 419080	X5/X5 CM Duo, 400 W	42 Ah	1 h	84 Ah	2½ h
419080	X3/X3/X3 CM TRIO, 360W	84 Ah	3 h		
419080	X3/X3/X5 CM TRIO, 440W	84 Ah	2½ h		
419080	X3/X5/X5 CM TRIO, 520W	84 Ah	2 h		
419080	X5/X5/X5 CM TRIO, 600W	84 Ah	1½ h		

## Two Optical Solutions

Merivaara offers two types of optical solutions, both using the IRC Ceramic base halogen bulb. IRC means Infra Red Coating - to minimize the outgoing heat generated in the bulb there is extra laminated infra red coating. Undisputed benefits of this bulb design are 20% less heat generated, trouble free switching of the bulb without any tools and significant glare reduction due to the painted top of the bulb.



**Easy and quick lamp change**  
Changing bulbs is quick and requires no tools.

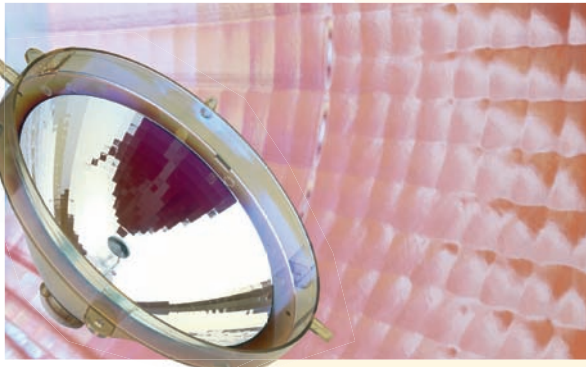


Halogen bulb 22.8V/40W IRC Ceramic base.

## The Color Rendering Index (RA)

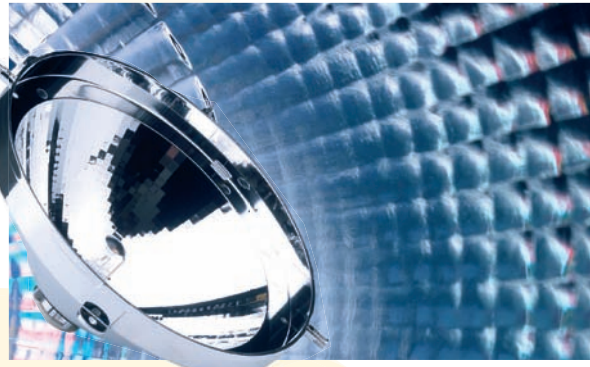
The Color Rendering Index is a measure of the ability of a light source to reproduce the colors. In general, the higher the CRI the more natural the appearance of the source and the richer colors appear.

### Surgery



- 255 lm/W
- triple IR-filtering
- Ra 94

### Examination



- 189 lm/W
- double IR-filtering
- Ra 85



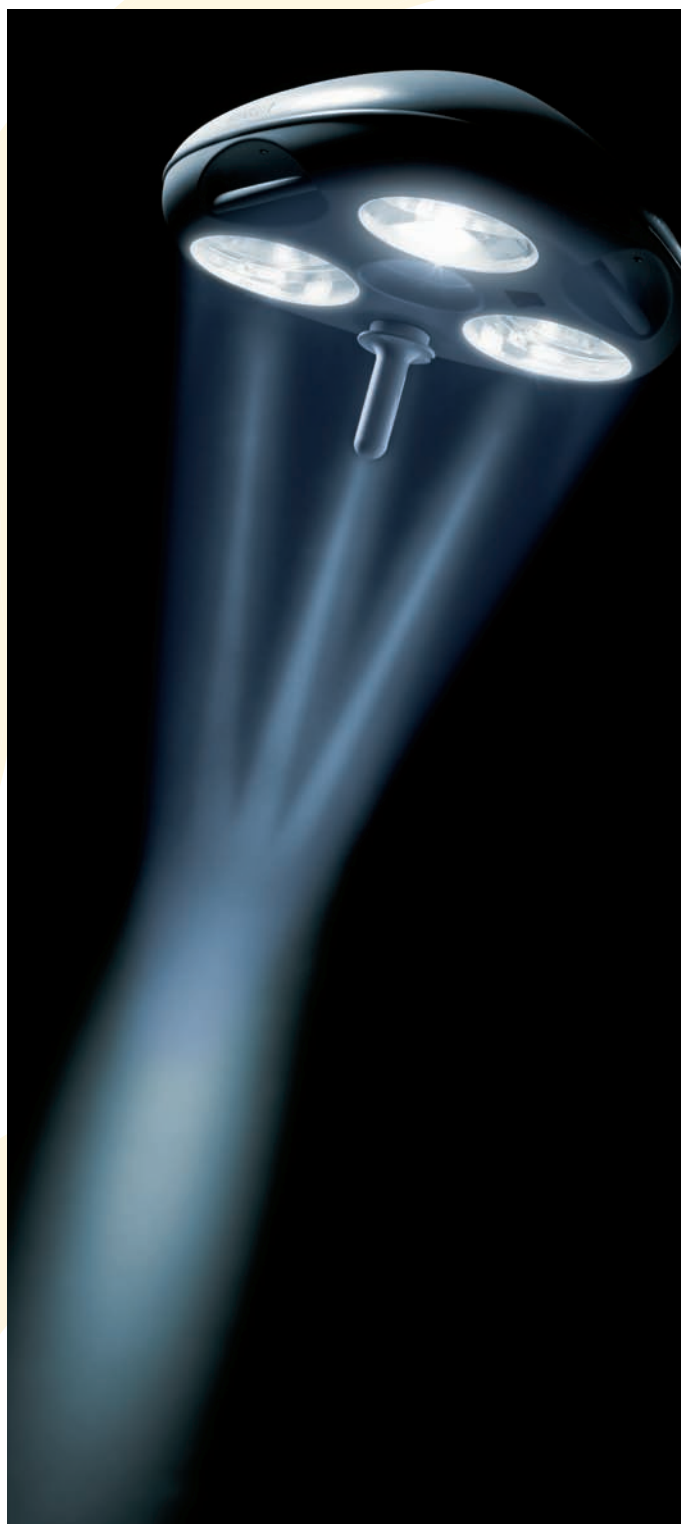
**Ra 94**

- more natural appearance of the object and richer colours
- specially for demanding procedures helping surgical staff in their meticulous work



**Ra 85**

- reproduce naturally the colours of various objects
- Excellent combination of shadowless & uniform illumination for less demanding procedures



	Merilux X5		Merilux X3		Merilux X1	
	RA94	RA85	RA94	RA85	RA94	RA85
Max. illumination intensity at 1.0m E <sub>v</sub> (lux)	160,000		100,000		35,000	
Colour temperature (°K)	4300		4300		4300	
Light source	IRC Halogen		IRC Halogen		IRC Halogen	
Power (W)	200		120		40	
Lamp voltage (V)	22.8		22.8		22.8	
Lamp base	Ceramic		Ceramic		Ceramic	
Estimated lifetime (h)	1000		1000		1000	
Change of lamp	Quick without tools		Quick without tools		Quick without tools	
Working distance (mm)	700–1500		700–1500		500–1500	
Light field Ø (mm)	185–280		175–240		170	
Light field d50 (mm)	150		100		90	
Light field d10 (mm)	240		200		180	
Power switch at light head	Yes		Yes		Yes	
Total irradiance E <sub>e</sub> (W/m <sup>2</sup> )	RA94 475	RA85 410	RA94 350	RA85 240	140	
Ratio of irradiance E <sub>e</sub> and illuminance E <sub>v</sub> (mW/m <sup>2</sup> lx)	RA94 3.0	RA85 2.6	RA94 3.5	RA85 2.4	4.0	
Depth of illumination (mm)	980		1030		N/A	
Heat increase on operation area at 1,0 m	10°		7°		3°	
Heat increase on head	2°		2°		2°	
Laminar flow index (Leememan)	9.9		12.2		N/A	
Sterilizable handle	Yes		Yes		Yes	
Dimming	Wall mounted/ Integrated dimmer optional		Wall mounted/ Integrated dimmer optional		Wall mounted dimmer	
Standard transformer (120 VAC/60 Hz transformers optional)	230 VAC/50 Hz, 24 V/350 VA		230 VAC/50 Hz, 24 V/350 VA		230 VAC/50 Hz, 24 V/75 VA	
Back-up battery	Optional		Optional		Optional	
Size of light head (mm)	Ø 590 × 140		Ø 530 × 140		Ø 290 × 110	
Weight of light head (kg)	10.5		8		1.5	

- Classified according to European Council Directive 93/42/EEC Class I (Annex IX).
- Production is monitored in accordance with the ISO 9001 and ISO 13485 Quality Management Systems and the ISO 14001 Environmental Management System.
- X1, X3 and X5:
  - EN 60601-1. Medical electrical equipment. Part 1: General requirements for safety
  - EN 60601-1-2. Collateral Standard: Electromagnetic compatibility Requirements and test
  - SFS 6000-7-710 standard for electrical installations for medical purposes.
- X3 and X5: EN 60601-2-41. Medical electrical equipment. Part 2-41: Particular requirements for the safety of surgical luminaries and luminaires for diagnosis.



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