

Synopsis of Headlights for Dentistry and Surgery (Project 06-04) (8/06)



This synopsis provides information obtained from manufacturers on several headlights (headlamps) marketed to dentists and oral maxillofacial surgeons. The synopsis is divided into three tables: Light-emitting Diode (LED) headlights used for exams and general dentistry procedures non-LED headlights used for exams and general dentistry procedures and headlights used for surgery procedures. The headlights are listed alphabetically by company.

Headband mounted or loupe mounted light sources provide a line-of-sight light that reduces shadows to the operating field. This can help reduce eye strain and the need to reposition the overhead light. The combination of telescopic loupes and headlights has the potential to enhance the quality of dentistry and to improve the health-care provider's posture. The use of telescopic loupes in general dentistry and oral surgery has become more prevalent over the last 20 years. In a survey conducted by Dental Products Report almost eight in 10 general dentists owned loupes. The use of headlights to further enhance visualization has also gained in popularity. In a 2005 lighting and visualization survey, 16% of general dentists stated that they always used a headlight and 10% indicated they often used a headlight.¹

The Air Force Dental Evaluation and Consultation Service (DECS) previously posted a Synopsis of Dental Headlamps (Project 01-31). Information was provided on nine headlights. The headlights described included fiber-optic systems with halogen lamps (bulbs) and portable battery powered systems that used halogen lamps. One portable LED system was illustrated. Manufacturers have introduced new headlight systems with different types of light sources since that synopsis was posted. Light sources with halogen lamps have been the most common lamp used in low-to medium-priced headlight systems. Recently metal halide lamps have become available for use in headlight systems. These lamps are much more expensive than halogen lamps but last significantly longer.

Headlights with xenon lamps have been the gold standard for operating rooms and outpatient surgery clinics. These systems provide greater illumination and can be used with other fiber-optic surgical attachments; however, they are more expensive than other systems.

For some providers, portability of the headlight system is a high priority. Manufacturers have recently introduced a myriad of systems that use LEDs and rechargeable batteries to fill this demand. Red LEDs have been commercially available for over 40 years. With the introduction of blue LEDs it is now possible to produce a white light by combining the blue LED with LEDs having other wavelengths or by placing a phosphorus coating over the blue LED.² An LED has the potential to last the lifetime of the headlight system (no bulb replacement cost), but the rechargeable batteries are a recurring cost. LED headlight systems vary in illumination, recommended use (e.g., exams, general dentistry, surgery) and cost.

Headlights can be sold as complete systems or the light source and fiber-optic cable may be sold separately. A headband to attach the fiber-optic cable may also be a separate option. Most systems used for general dentistry have an option to attach directly to telescopic loupes, while most surgery systems use headbands exclusively. Systems sold for general dentistry may also have built-in filters to prevent the light from polymerizing light-activated materials.

Since the amount of illumination is an important property for most providers the lamp intensity has been provided in the synopsis; however, this is manufacturer supplied data and users should be aware that there are no current acceptable standards for measuring headlamp illumination. Manufacturers use different focal lengths (i.e., working distances) and different measuring units (e.g., lux, lumens, foot candles) for reporting illumination levels. This makes it difficult to compare products from different manufacturers.

When purchasing a headlight system, potential buyers should first decide the intended use for the headlight (e.g., surgery, general dentistry), then what features are most desired (e.g., portability, high illumination, filter) and how the light will be worn (e.g., headband, attached to loupes). Specific adapters are required for different types of loupes (i.e., flip-up, through-the-lens) and these adapters are not universal for all manufacturers' loupes. The need to purchase a mobile cart or mounting bracket should also be determined before ordering a headlight system.

When reviewing the tables, please remember that the information has been provided by the manufacturers, and not necessarily confirmed by DECS evaluation. The tables include headlights recently introduced by companies that market to dentists and oral surgeons and are not intended to include all systems available.

[Table of LED headlights for dentistry](#)

[Table of non-LED headlights for dentistry](#)

[Table of headlights for oral and maxillofacial surgery](#)

References:

1. Trends in Dentistry, Visualization Survey. Dental Products Report. February 2006.
2. Marktech Optoelectronics. The history of LED technology. Available at <http://www.marktechopto.com/Engineering-Services/Technical%20Articles/history-of-leds.cfm>. Accessed August 2006.

TABLE OF LED HEADLIGHTS FOR DENTISTRY*

| Product | TM L.E.D. Portalite  | TM Halo 5000 Headlight System  | StarLight LED Portable Light System  |
|---|--|---|--|
| Manufacturer | Designs for Vision Inc. 760 Koehler Ave Ronkonkoma, NY 11779 (800) 345-4009 (631) 585-3300 (631) 585-3404 FAX www.designsforvision.com | Enova Medical Technologies 1839 Buerkle Road St. Paul, MN 55110 (866) 773-0539 (651) 773-3181 (651) 773-3190 FAX www.enovamedical.com | General Scientific Corporation SurgiTel Systems 77 Enterprise Drive Ann Arbor, MI 48103 (800) 959-0153 (734) 996-9200 (734) 662-0520 FAX www.surgitel.com |
| Price (retail/govt) | \$995.00/\$896.50 (headlight system) \$1,020.00/\$918.00 (system with headband) | \$2,490.00/\$1,990.00 (headlight system) \$1,995.00/\$1,795.50 (headlight only) | \$1,195.00/\$956.00 |
| GSA Contract | No | No | No |
| Warranty | 2 years (battery) Lifetime (optics) | 1 year (headlight/battery charger) 90 days (batteries) | 2 years (system) 1 year (LED) |
| Item Number | Not Available | Not Available | 25120 |
| Lamp Intensity - color temperature | 31,204 Lux 6050 °K | 55,000 Lux/49,500 Lux 6100 °K | 23,672 Lux 5500 °K |
| Lamp/Cable Weight | 2.66 oz | 17 oz with 2 batteries 11 oz without batteries (headband included) | 1.2 oz |
| Intensity Control | Yes | 2 settings | Yes |
| Attach to Loupes | Yes | No | Yes |
| Attach to Headband | Yes | Yes | Yes |
| Type of Battery - voltage - weight - length of charge | Lithium-ion 7.2 V 3.3 oz 6-7 hours @ max. intensity | Lithium-ion 7.4 V 3.5 oz each 4 hours @ setting 1 5.5 hours @ setting 2 | Lithium-ion 6 V 6.4 oz 2-10 hours |
| Charger - recharge time | 110/220 VAC 2.5-3 hours | 110/220 VAC 3.5 hours | 110/220 VAC 2 hours |
| Additional Information | info@designsforvision.com | Headlight system includes headlight, 2 batteries, custom charger 2 and 4 battery packs sold separately halo@enovamedical.com | Headband \$195.00 Filter available to prevent curing of light sensitive materials info@surgitel.com |
| DECS Evaluation | Not Evaluated | Not Evaluated | Not Evaluated |

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|---|--|---|---|
| Product | Starbright LED Headlight/Starbright AA LED Headlight  | Zeon [®] LED Portable  | Perilux LED  |
| Manufacturer | High Q Dental 6302 E. Aster Drive Scottsdale, AZ 85254 (800) 775-3433 (480) 905-0664 (480) 905-0794 FAX www.highq dental.com | Kerr Corporation Orascoptic 3225 Deming Way Suite 190 Middleton, WI 53562 (888) 369-3698 (608) 831-2555 (608) 828-5265 FAX www.orascoptic.com | PeriOptix Inc. 277281 Las Ramblas Suite 200 Mission Viejo, CA 92691 (888) 360-0033 (969) 366-3333 (969) 366-0033 FAX www.perioptix.com |
| Price (retail/govt) | \$125.00 Starbright \$275.00 Starbright AA (call for govt price) | \$1,350.00/\$1,215.00 | \$695.00/\$645.00 |
| GSA Contract | No | Yes | No |
| Warranty | Limited lifetime warranty | 1 year | 1 year |
| Item Number | N/A | ZZ-PTLED | N/A |
| Lamp Intensity - color - temperature | 5,380 Lux 5500 °K | 23,000 Lux N/A | 23,000 Lux 6000 °K |
| Lamp/Cable Weight | 1 oz clip on 5 oz headband | 0.7 oz | 0.7 oz |
| Intensity Control | No | Yes | No |
| Attach to Loupes | Yes | Yes | Yes |
| Attach to Headband | Yes | Yes | Yes |
| Type of Battery - voltage - weight - length of charge | AAA or AA 4.5 V 2.0 oz 15-20 hours Starbright 35-40 hrs Starbright AA | Nickle Metal Hydride 4.8 V 12.4 oz 8 hours | Nickle Metal Hydride 3.6 V 10.0 oz 8 hours |
| Charger - recharge time | Not Available | 110/220 VAC 6 hours | 110/220 VAC 14 hours |
| Additional Information | Filter available to prevent curing of light sensitive materials hqm1@cox.net | Rigid headband \$160.00 Cloth headband \$100.00 | |
| DECS Evaluation | Not Evaluated | Not Evaluated | Rated Acceptable |

| Product | Portable LED Light System | Solid State Procedure Headlight |
|--|---|--|
| |  |  |
| Manufacturer | Sheervision Inc. 4030 Palos Verdes Drive N. Suite 104 Rolling Hills Estates, CA 90274 (877) 678-4274 (310) 265-8918 (310) 265-8919 FAX www.sheervision.com | Welch Allyn, Inc. 4341 State Street Road P.O. Box 220 Skaneateles Falls, NY 13153 (800) 685-3361 (315) 685-3361 (315) 685-4091 www.welchallyn.com |
| Price (retail/govt) | \$795.00/\$595.00 | \$707.25 (headlight with direct power cord) \$273.25 (battery pack/charger) (call for govt price) |
| GSA Contract | No | No |
| Warranty | 3 year limited warranty | 1 year |
| Item Number | SVLED | 49020 (headlight) 75260 (battery/charger) |
| Lamp Intensity | 25,824 Lux 8000 °K | 50 lumens 5500 °K |
| Lamp/Cable Weight | 1.475 oz | 6.0 oz |
| Intensity Control | Yes | No |
| Attach to Loupes | Yes | No |
| Attach to Headband | Yes | Yes |
| Type of battery -voltage -weight -length of charge | Nickle Metal Hydride 7.2 V 8.85 oz 6 hours | Nickle Cadmium 3.6 V 8.0 oz 1 hour |
| Charger - recharge time | 110/220 VAC 2.5 hours | 110/220 VAC 10-12 hours |
| Additional Information | Two battery packs supplied with light | Power cord included |
| DECS Evaluation | Not Evaluated | Not Evaluated |

TABLE OF NON-LED HEADLIGHTS FOR DENTISTRY*

| Product | MiniMax TM T3  | DayLite Metal Halide TM  | HLT200 Fiber Optic Light System  |
|---|--|--|---|
| Manufacturer | BFW TM , Inc. 2307 River Road Suite 103 Louisville, KY 40206 (800) 717-4673 (502) 899-1808 (502) 899-1937 FAX www.bfwinc.com | Designs for Vision Inc. 760 Koehler Ave Ronkonkoma, NY 11779 (800) 345-4009 (631) 585-3300 (631) 585-3404 FAX www.designsforvision.com | General Scientific Corporation SurgiTel [®] Systems 77 Enterprise Drive Ann Arbor, MI 48103 (800) 959-0153 (734) 996-9200 (734) 662-0520 FAX www.surgitel.com |
| Price (retail/govt) | \$1,300.00 (includes light source and headlight) \$755.00 (light source only) (call for govt price) | \$1,825.00/1,642.50 (includes light source, cable, and headband) | \$1,195.00/\$836.00 |
| GSA Contract | No | No | No |
| Warranty | 3 years 40 hours (lamp) | Lifetime (light source) 1000 hours (lamp) | 3 years (light source) 30 days (cable) |
| Item Number | MID 2050 | 4205-0001-0115 | 22959-2 |
| Lamp Type - rating - replacement cost - life expectancy | Halogen 200 Watt \$30.00 40 hours | Metal Halide 5 Watt \$425.00 1000 hours | Halogen 200 Watt \$30.00 50 hours |
| Light Intensity - color temperature | 37,660 Lux 4200 °K | 193,750 Lux 6000 °K | 32,280 Lux 3300 °K |
| Light Source - weight - size | 6.75 lbs 7.5" D x 5.5" W x 4.3" H | 5 lbs 9.0" D x 5.25" W x 6.25" H | 6 lbs 6.0" D x 6.0" W x 4.0" H |
| Lamp/Cable - weight - cable length | 10 oz (headband included) 7, 10 feet | 1.76 oz 6 feet | 0.42 oz 8, 10 feet |
| Intensity Control | Yes | Yes | Yes |
| Attach to Loupes | Yes | Yes | Yes |
| Attach to Headband | Yes | Yes | Yes |
| Filter | Yes | Yes | Yes |
| Additional Information | 3 port turret Mounting bracket available Mobile cart available | Mobile cart available Quadrilight 6000 [®] halogen system available info@designsforvision.com | Headband \$195.00 Mobile cart available HLT 150 (150 Watt light source) available info@surgitel.com |
| DECS Evaluation | Not Evaluated | Not Evaluated | Not Evaluated |

USAF Dental Evaluation & Consultation Service

| Product | Nova Plus 200 Watt Illuminator/ALTAIR Cable  | Zeon Illuminator  | Zeon LumenArcTM  |
|---|--|---|--|
| Manufacturer | High Q Dental 6302 E. Aster Drive Scottsdale, AZ 85254 (800) 775-3433 (480) 905-0664 (480) 905-0794 FAX www.highqdental.com | Kerr Corporation Orascoptic 3225 Deming Way Suite 190 Middleton, WI 53562 (888) 369-3698 (608) 831-2555 (608) 828-5265 FAX www.orascoptic.com | Kerr Corporation Orascoptic 3225 Deming Way Suite 190 Middleton, WI 53562 (888) 369-3698 (608) 831-2555 (608) .828-5265 FAX www.orascoptic.com |
| Price (retail/govt) | \$525.00 (light source) \$500.00 (ALTAIR 7" cable) \$575.00 (ALTAIR 10" cable) (call for govt price) | \$950.00/\$450.00 (light source) \$500.00/\$445.00 (cable) | \$950.00/\$695.00 (light source) \$500.00/\$445.00 (cable) \$650.00/\$600.00 (micro cable) |
| GSA Contract | No | Yes | Yes |
| Warranty | 3 years (excluding lamp) | Light source - 2 years Cable - 1 year | Light source - 1 year Cable - 1 year |
| Item Number | HIQ-2021D/HIQ-1018 | ZS-1L110-05N (source) ZC-SM110 (light cable) | ZS-La24W-01N (source) ZC-MICRO (cable) |
| Lamp Type - rating - replacement cost - life expectancy | Halogen 200 Watt \$28.00 50-100 hours | Halogen 150 Watt \$26.00 40 hours | Metal halide 24 Watt \$159.00 500 hours |
| Light Intensity - color temperature | 48,420 Lux 3600 °K/4000 °K | 47,359 Lux 3280 °K | 59,201 Lux 5460 °K |
| Light Source - weight - size | 6.75 lbs 7.5" D x 5.5" W x 4.25" H | 7 lbs 6.5" D x 7.75" W | 1.2 lbs 3.5" D x 5.5" W |
| Lamp/Cable - weight - cable length | 8.3 oz (headband included) 7 or 10 feet | 0.7 oz 7 feet | 0.3 oz 7 feet |
| Intensity Control | Yes | Yes | Yes |
| Attach to Loupes | Yes | Yes | Yes |
| Attach to Headband | Yes | Yes | Yes |
| Filter | Yes | Yes | Yes |
| Additional Information | Wall bracket available Mobile cart available Nova 3 Multi-port Illuminator light source available | Mounting brackets available Rigid headband \$160.00 Cloth headband \$100.00 | Mounting brackets recommended Rigid headband \$160.00 Cloth headband \$100.00 |
| DECS Evaluation | Not Evaluated | Not Evaluated | Rated Excellent |

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|---|---|--|
| Product | Sheerbrite Fiber Optic Light System (photo unavailable) | Solar Star 75 Light Source  |
| Manufacturer | Sheervision Inc. 4030 Palos Verdes Drive N. Suite 104 Rolling Hills Estates, CA 90274 (877) 678-4274 (310) 265-8918 (310) 265-8919 FAX www.sheervision.com | SunOptic Surgical Distributor Nascorp-Telmah Inc. 2609 LaCharles NE Albuquerque, NM 87112 (505) 292-3648 (505) 323-6050 FAX http://nascorp.fedvendor.com |
| Price (retail/govt) | \$1,495.00/\$1,295.00 (includes light source, cable, headband) | \$4,224.00 (call for govt pricing) |
| GSA Contract | No | No |
| Warranty | 3 years | 3 years |
| Item Number | SU 35 WT | SSM-075ST |
| Lamp Type - rating - replacement cost - life expectancy | Metal halide 35 Watt \$100.00 3000 hours | Metal halide 75 Watt \$455.00 650 hours |
| Light Intensity - color temperature | 37,660 Lux 6000 °K | 80,000 Lux 5800 °K |
| Light Source - weight - size | 3 lbs 6.5" D x 5.0" W x 5.0" H | 5.3 lbs 9.0" D x 8.9" W x 3.8" H |
| Lamp/Cable - weight - cable length | 0.5 oz 6 feet | 14 oz (headband included) 9 feet |
| Intensity Control | Yes | Yes |
| Attach to Loupes | Yes | No |
| Attach to Headband | Yes | Yes |
| Filter | Yes | Not Available |
| Additional Information | | Hard and soft headbands \$145.00 Mobile stand available nascorp-telmah@comcast.net |
| DECS Evaluation | Not Evaluated | Not Evaluated |

TABLE OF HEADLIGHTS FOR ORAL AND MAXILLOFACIAL SURGERY*

| Product | Maxenon TM Xi 300 watt Xenon  | Halo TM 6000 Headlight System  | XLS300 Xenon Light System  |
|---|--|---|--|
| Manufacturer | BFW TM , Inc. 2307 River Road Suite 103 Louisville, KY 40206 (800) 717-4673 (502) 899-1808 (502) 899-1937 FAX www.bfwinc.com | Enova Medical Technologies 1839 Buerkle Road St. Paul, MN 55110 (866) 773-0539 (651) 773-3181 (651) 773-3190 FAX www.enovamedical.com | General Scientific Corporation SurgiTel Systems 77 Enterprise Drive Ann Arbor, MI 48103 (800) 959-0153 (734) 996-9200 (734) 662-0520 FAX www.surgitel.com |
| Price (retail/govt) | \$5,500.00 (light source only) \$5,900.00 (system: light source, headlight, mobile stand) (call for govt pricing) | \$3,490.00/\$2,995.00 (headlight system) \$2,990.00/\$2,695.50 (headlight only) | \$5,495.00/\$4,396.00 \$195.00 (headband) |
| GSA Contract | No | No | No |
| Warranty | 3 years 650 hours (lamp) | 1 year 90 days (batteries) | 3 years 30 days (cable) |
| Item Number | MID 3010 | HSLS 6000 | 23856/22271 |
| Lamp Type - rating - replacement cost - life expectancy | Xenon 300 Watt \$1,145.00 650 hours | LED 3 Watt Not Available 10,000 hours | Xenon 300 Watt \$820.00 650 hours |
| Light Intensity - color temperature | 215,200 Lux 6000 °K | 65,000 Lux/58,500 Lux 6100 °K | 215,200 Lux 6000 °K |
| Light Source - weight - size | 6.75 lbs 12.6" D x 11.5" W x 5.25" H | No light source Cordless system Lithium-ion batteries | 13 lbs 14.0" D x 5.0" W x 10.0" H |
| Lamp/Cable - weight - cable length | 10 oz (headband included) 7 or 10 feet | 17 oz (headband/2 batteries) 11 oz (w/o batteries) | 0.42 oz (cable) 8 or 10 feet |
| Intensity Control | Yes | 2 settings | Yes |
| Attach to Loupes | Some loupes | No | Yes |
| Attach to Headband | Yes | Yes | Yes |
| Additional Information | 5 port turret Multiple headbands available Mobile stand available | 2 and 4 battery accessory packs available Batteries (300 charges) | Mobile stand available info@surgitel.com |
| Other Surgical Light Source Information | Maxenon TM PowerPlus 180 watt Xenon (MID 1810) \$3,640.00 (light source) \$4,700.00 (system) \$1,095.00 (lamp-500 hours) 161,400 Lux | | XLS180 Xenon Light System (23851) \$4,495.00/\$3,596.00 \$975.00 (lamp-500 hours) 172,160 Lux |
| DECS Evaluation | Not Evaluated | Rated Excellent | Not Evaluated |

*Manufacturers provided the data for these tables. The listing or omission of a product in this table does not imply endorsement, approval, or disapproval by DECS.

| | | | |
|---|--|--|---|
| Product | 180 Watt Xenon Light Source  The Nova 3 | CLX Xenon Light Source  | XenaLight Single-Port/XenaLight XLT  |
| Manufacturer | High Q Dental 6302 E. Aster Drive Scottsdale, AZ 85254 (800) 775-3433 (480) 905-0664 (480) 905-0794 FAX www.highqdental.com | Luxtec Corporation 99 Hartwell St. West Boylston, MA 01583 (888) 265-9533 (508) 835-9700 (508) 835-9717 FAX www.luxtec.com | Teleflex Medical 2917 Weck Drive PO Box 12600 Research Triangle Park, NC 27709 (800) 523-6507 (919) 544-8000 (877) 354-8088 FAX www.teleflexmedical.com |
| Price (retail/govt) | \$3600.00 (system) \$125.00 (headband) (call for govt pricing) | \$2,995.00 (1375 model) \$2,495.00 (1470 model) \$1,385.00-\$1,245.00 (headband/cable) (call for govt pricing) | \$3,650.00/\$3,468.00 (Single-Port) \$4,800.00/\$4,600.00 (XLT) \$790.00-\$1,010.00 (headband-3 available) |
| GSA Contract | No | No | No |
| Warranty | 3 year (excludes lamp) 1 year (cable) | 3 years (light source) 18 months (cable) | 3 years |
| Item Number | HIQ-1800 | 00-CLX-545-1375/1385 00-CLX-545-1470.1480 | 528305 (Single Port) 528305XLT (5 port XLT) |
| Lamp Type - rating - replacement cost - life expectancy | Xenon 180 Watt \$975.00 500 hours | Xenon 150 Watt \$395.00 500 hours | Xenon 120 Watt \$560.00 1,250 hours |
| Light Intensity - color temperature | 172,160 Lux 6000 °K | Not Available 5400 - 6000 °K | 5,000 lumens 6000 °K |
| Light Source - weight - size | 7.75 lbs 12.0" D x 6.5" W x 6.0" H | 9.25 lbs 12.6" D x 6.2" W x 5.9" H | 7.0 lbs 11.0" D x 10.5" W x 14.5" H |
| Lamp/Cable - weight - cable length | 8.3 oz (cable only)) 14.1 oz (headband included) 2 or 3 meters | 10.5 (headband included) 7.5, 9, or 11 feet | < 1 lb (headband included) 8 or 10 feet/custom |
| Intensity Control | Yes | Yes | Yes |
| Attach to Loupes | No | No | Yes |
| Attach to Headband | Yes | Yes | Yes |
| Additional Information | Mobile stand available hqm1@cox.net | Mobile stand available | Mobile stand available Filter available |
| Other Surgical Light Source Information | | 300 Watt and 100 Watt Xenon light sources available | 300 Watt Xenon (528300), 5,000 lumens \$5,400.00/\$5,130.00 |
| DECS Evaluation | Not Evaluated | Not Evaluated | Not Evaluated |

*Manufacturers provided the data for these tables. The listing or omission of a product in this table does not imply endorsement, approval, or disapproval by DECS.

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|---|---|
| Product | Solar Maxx 300 Xenon Light Source  |
| Manufacturer | SunOptic Surgical Distributor Nascorp-Telmah Inc. 2609 LaCharles NE Albuquerque, NM 87112 (505) 292-3648 (505) 323-6050 FAX http://nascorp.fedvendor.com |
| Price (retail/govt) | \$6,394.00 (light source only) (call for govt pricing) |
| GSA Contract | No |
| Warranty | 3 years |
| Item Number | SSX-300STTS |
| Lamp Type - rating - replacement cost - life expectancy | Xenon 300 Watt \$885.00 650 hours |
| Light Intensity - color temperature | 220,000 Lux 6000 °K |
| Light Source - weight - size | 13.2 lbs 10.0" D x 14.0" W x 5.0" H |
| Lamp/Cable - weight - cable length | 14 oz (headband included) 9 feet |
| Intensity Control | Yes |
| Attach to Loupes | No |
| Attach to Headband | Yes |
| Additional Information | 2 headbands available Mobile stand available Dual Port available Camera and digital media system available nascorp-telmah@comcast.net |
| Other Surgical Light Source Information | Solar Maxx 180 Xenon (SSX-180STTS) \$5,014.00 \$885.00 (Lamp-500 hours) 120,000 Lux |
| DECS Evaluation | Not Evaluated |

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