

# PRODUCT DATASHEET C16504\_STRADA-2X2-T2-M

# STRADA-2X2-T2-M

IESNA Type II (medium) beam with excellent backlight control, illuminance uniformity and cutoff

#### **SPECIFICATION:**

Dimensions Height Fastening ROHS compliant 50.0 x 50.0 mm 11.9 mm glue, pin, screw yes (i)



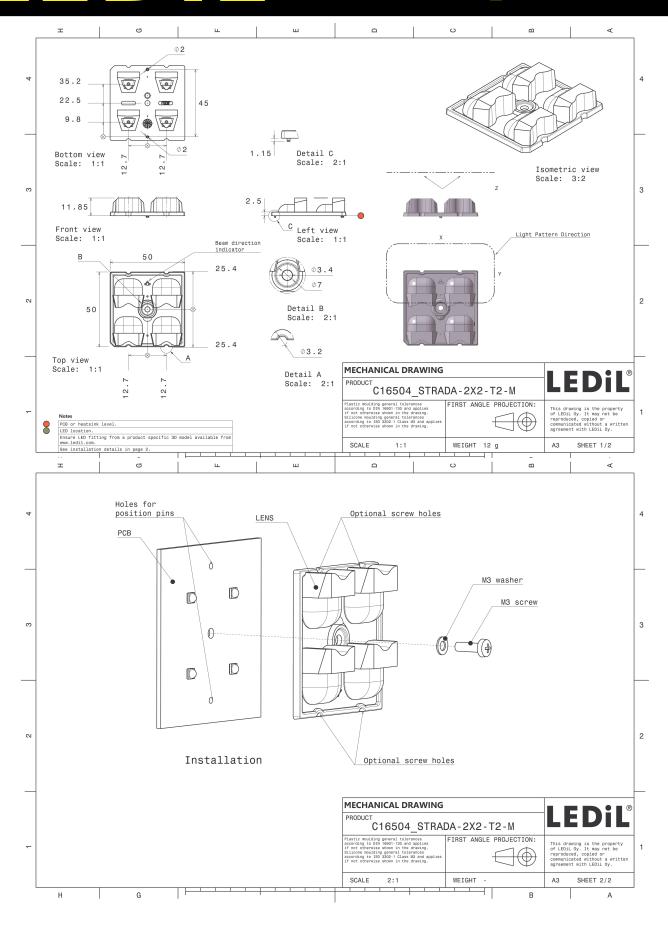
#### **MATERIALS:**

| Component       | Туре       | Material | Colour | Finish |
|-----------------|------------|----------|--------|--------|
| STRADA-2X2-T2-M | Multi-lens | PMMA     | clear  |        |

#### **ORDERING INFORMATION:**

| Component                      | Qty in box | MOQ | MPQ | Box weight (kg) |
|--------------------------------|------------|-----|-----|-----------------|
| C16504_STRADA-2X2-T2-M         | 800        | 160 | 160 | 10.2            |
| » Box size: 476 x 273 x 292 mm |            |     |     |                 |

# PRODUCT DATASHEET C16504\_STRADA-2X2-T2-M



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See also our general installation guide: www.ledil.com/installation\_guide



| CREE - AGE  |   | q0° q0°   |
|---|---|---|
| LED   | -<br>XM-L3  |   |
| FWHM / FWTM   | Asymmetric  |   |
| Efficiency  | 95 %  |   |
| Peak intensity  | 1.3 cd/lm   | 604 604   |
| LEDs/each optic   | 1   |   |
| Light colour  | White   | X   |
| Required compone  |   | 45.   |
|   |   | 00  |
|   |   | $\times$  |
|   |   | 1000  |
|   |   | 30° 15° 30°   |
|   | 2   | 50° 30°   |
| LED   | XP-G2   |   |
| FWHM / FWTM   | Asymmetric  | 20 20 20 80   |
| Efficiency  | 94 %  |   |
| Peak intensity  | 1.9 cd/lm   | 50° 400 50°.  |
| LEDs/each optic   | 1   |   |
| Light colour  | White   | 45* 000 45*   |
| Required compone  |   | $\times$ / $\times$   |
|   |   | 800   |
|   |   | $\times$  |
|   |   | 1000  |
|   |   | 30° 15° 30°   |
|   |   | X Y Y Y   |
|   |   | 90° 90°   |
|   |   | 50° 50°   |
|   | XP-G3   | 91 <sup>4</sup> 91 <sup>4</sup>   |
| LED   |   | 50° 50°   |
| LED<br>FWHM / FWTM  | XP-G3<br>Asymmetric   | 99° 90°<br>200 90°<br>60°   |
| LED<br>FWHM / FWTM<br>Efficiency  | XP-G3<br>Asymmetric<br>94 %   | 99° 99°<br>75° 90°<br>60° 60°   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity  | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm  | 99° 90°   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic                                     | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White  | 5° 50 6°  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour                     | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White  | 9° - 9° - 9° - 9° - 9° - 9° - 9° - 9° -   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour                     | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White  | 97 97<br>73 97<br>10 <sup>4</sup> 100<br>10 <sup>4</sup> 00<br>10 <sup>4</sup> 07<br>10 <sup>4</sup> 07<br>10 <sup>4</sup> 07 |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour                     | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White<br>nts:  | 200<br>200<br>200<br>200<br>200<br>200<br>200<br>200  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour                     | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White<br>nts:  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White<br>nts:  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White<br>nts:  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White<br>nts:  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White<br>nts:<br>EDS<br>LUXEON TX                                  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White<br>nts:<br>EDS<br>LUXEON TX<br>Asymmetric                    | 200<br>200<br>200   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White<br>nts:<br>EDS<br>LUXEON TX<br>Asymmetric<br>%               |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White<br>nts:<br>EDS<br>LUXEON TX<br>Asymmetric<br>%<br>1<br>White | 50<br>50<br>50<br>50  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White<br>nts:<br>EDS<br>LUXEON TX<br>Asymmetric<br>%<br>1<br>White | 50<br>50<br>50<br>50  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White<br>nts:<br>EDS<br>LUXEON TX<br>Asymmetric<br>%<br>1<br>White |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | XP-G3<br>Asymmetric<br>94 %<br>1.5 cd/lm<br>1<br>White<br>nts:<br>EDS<br>LUXEON TX<br>Asymmetric<br>%<br>1<br>White | 50<br>50<br>50<br>50  |



| UMIL             | EDS                                   | 904 / / / / / / / / / / / / / / / / / / /      |
|------------------|---------------------------------------|--|
| LED              | LUXEON V2                             | A A A A A A A A A A A A A A A A A A A          |
| FWHM / FWTM      | Asymmetric                            | 750 200 750                                    |
| Efficiency       | 94 %                                  |  |
| Peak intensity   | 1.7 cd/lm                             | 50° 400 50*                                    |
| LEDs/each optic  | 1                                     |  |
| Light colour     | White                                 | 55° 500  |
| Required compone |                                       |  |
|                  |                                       |  |
|                  |                                       | 1000   |
|                  |                                       | X / T / X                                      |
|                  |                                       | 30* <u>15</u> * 30*                            |
| MST Your solut   | ons                                   | 90* 90*  |
| LED              | RecLED 122x50mm 1900lm 730 2x4 Opt G1 | 30-  |
| FWHM / FWTM      | Asymmetric                            | 75*  |
| Efficiency       | 97 %                                  |  |
| Peak intensity   | 1.7 cd/lm                             | \$0°   |
| LEDs/each optic  | 1                                     | 400  |
| Light colour     | White                                 | 5° 0°  |
| Required compone |                                       | 000  |
|                  |                                       | $\times$ / $\times$                            |
|                  |                                       | 200  |
|                  |                                       | $\times$ / $\setminus$ $\lambda$               |
|                  |                                       | 30° 135° 30°                                   |
|                  |                                       | 50*  |
| LED              | NVSW219F                              |  |
| FWHM / FWTM      | Asymmetric                            | 75. 20 75.                                     |
| Efficiency       | 94 %                                  |  |
| Peak intensity   | 1.5 cd/lm                             | 60* 60*  |
| LEDs/each optic  | 1                                     |  |
| Light colour     | White                                 | 65* 640 65*                                    |
| Required compone | nts:                                  |  |
|                  |                                       | 500  |
|                  |                                       | $\times$                                       |
|                  |                                       | 30° 30°  |
|                  |                                       | 13 <sup>5</sup> 0 <sup>8</sup> 15 <sup>5</sup> |
| <b>ØNICHI</b>    |                                       | 90°  |
| LED              | NVSW319B                              |  |
| FWHM / FWTM      | Asymmetric                            |  |
| Efficiency       | 94 %                                  | 80%  |
| Peak intensity   | 1.5 cd/lm                             | $\times$ / $+$                                 |
| LEDs/each optic  | 1                                     | $\vee$ $\times$ $\mid$ $\vee$ $\vee$           |
| Light colour     | White                                 | 65° 640 63°                                    |
| Required compone | nts:                                  |  |
|                  |                                       |  |
|                  |                                       | 1000   |
|                  |                                       | 10°-   |
|                  |                                       |  |



| Heinemann<br>ED Duris S8<br>WMM KPYTM<br>Asymmetric<br>fifteinery 0.8 cufm<br>Explured components:   |       |                  |                                 |
|--|-------|------------------|---------------------------------|
| ED Dris SA<br>WHM / FVTM Asymmetric<br>filterancy 0.5 v<br>text intenty 0.6 colm<br>EDBreach optic<br>up to colour White<br>Required components:<br>ED OSLON Square PC<br>WHM / FVTM Asymmetric<br>filterency 4%<br>Yeak intenty 1.0 colm<br>EDBreach optic<br>EDBreach optic<br>EDBreac   | OSRAM |                  | 014 A                           |
| WHM / FWTM A symmetric<br>Sflidering 95 %<br>Sflidering 95 %<br>Sflidering 95 %<br>Sflidering 95 %<br>Sflidering 95 %<br>Sflidering 95 %<br>Statistical and the statistical and the  | LED   | Duris S8         | ~ ~                             |
| filidency 55%<br>yeak intensity 0.0 dotim<br>Eberheach optic<br>ight colour White<br>EDE<br>EDMANN provide<br>EDMANN provide<br>EDMANNN provide<br>EDMANN provide<br>EDMANNN provide<br>EDMANNN p  |       |                  | 751 752                         |
| Park Intensity 0.8 cdfm<br>EDS/skach optie 1<br>EDS/skach optie 1<br>PORTATION White<br>Required components:<br>PORTATION Square PC<br>WHM /FWTM Asymmetric<br>EDG 05LON Square PC<br>PHILIPS<br>ED Fortimo FastFiex LED 2x8 DA G4+<br>WHM /FWTM Start<br>EDG 10 05<br>STATURE UNC<br>ED HILOM ROIZ Z (LH181B)<br>WHM /FWTM Asymmetric<br>EDG HILOM ROIZ Z (LH181B)<br>WHM /FWTM Asymmetric<br>EDG HILOM ROIZ Z (LH181B)<br>WHM /FWTM Asymmetric<br>EDG HILOM ROIZ Z (LH181B)<br>WHM /FWTM Asymmetric<br>Hitciency 06%<br>Yeak Intensity 2.1 cdfm<br>EDS/stach optie 1<br>   |       |                  |                                 |
| EDefaced points 1<br>ight colour White<br>Required components:<br>ED OSLON Square PC<br>WHM / FWTM Asymmetric<br>filterery 94%<br>Pask Intensity 1.9 cdfm<br>LES/seach optic 1<br>ight colour White<br>Required components:<br>ED Fortimo FastFlax LED 2x8 DA C4+<br>WHM / FWTM Asymmetric<br>fiftierery 94%<br>PAsk Intensity 1.4 cdfm<br>LES/seach optic 1<br>ight colour White<br>Required components:<br>ED Fortimo FastFlax LED 2x8 DA C4+<br>WHM / FWTM Asymmetric<br>fiftierery 94%<br>PASK Intensity 1.4 cdfm<br>LES/seach optic 1<br>ight colour White<br>Required components:<br>ED HLCDM RC12 (LH181B)<br>WHM / FWTM Asymmetric<br>fiftierery 95%<br>Required components:<br>ED HLCDM RC12 (LH181B)<br>WHM / FWTM Asymmetric<br>fiftierery 95%<br>Teak Intensity 2.1 cdfm<br>LES/seach optic 1<br>ight colour White<br>Required components:   |       |                  | .60° 60°.                       |
| ight colour While<br>tequiled components:<br>ED OSLON Square PC<br>WHM / FVTM Asymmetric<br>filtidency 94 %<br>%eak intensity 1.9 cd/m<br>ED/sidench optic 1<br>ight colour While<br>tequiled components:<br>ED Fortimo FatFlicx LED 2x8 DA G4+<br>WHM / FVTM Asymmetric<br>filtidency 94 %<br>%ak intensity 1.4 cd/m<br>ED/sidench optic 1<br>ight colour While<br>Etage intensity 1.4 cd/m<br>ED/sidench optic 1<br>ight colour While<br>tequiled components:<br>ED HLCM RC12 2 (LH181B)<br>WHM / FVTM Asymmetric<br>filtering 2.1 cd/m<br>Eta/sidench optic 1<br>ight colour While<br>tequiled components:<br>Eta/sidench optic 1<br>ight colour While<br>tequiled components:  |       |                  | $\times$                        |
| tequired components:   |       |                  |                                 |
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| Reference of the set o   |       |                  |                                 |
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| Reference of the set o   |       |                  |                                 |
| Meterisantitation<br>LED OSLON Square PC<br>WHM / FWTM Asymmetric<br>fifteiency 94%<br>Vesk intensity 1.9 edfm<br>LEDvicach optic 1<br>ight colour White<br>Required components:<br>PHILLIPS<br>LED Fortimo FastFlex LED 2x8 DA G4+<br>WHM / FWTM Asymmetric<br>fifteiency 94%<br>Vesk intensity 1.4 edfm<br>LEDvicach optic 1<br>ight colour White<br>Required components:<br>SAMSUNG<br>LED HLLOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>fifteiency 96%<br>Vesk intensity 2.1 edfm<br>LEDvicach optic 1<br>ight colour White<br>Required components:  |       |                  | 30° 15° 30°                     |
| ED OSLON Square PC<br>WM / FVTM Asymmetric<br>filiciency 94 %<br>Pask intensity 1.9 cd/m<br>EDs/aed optic 1<br>ight colour White<br>Required components:<br>ED Fortimo FastFlex LED 2x8 DA G4+<br>WM / FVTM Asymmetric<br>filiciency 94 %<br>Required components:<br>ED Fortimo FastFlex LED 2x8 DA G4+<br>WM / FVTM Asymmetric<br>filiciency 94 %<br>Required components:<br>ED Fortimo FastFlex LED 2x8 DA G4+<br>WM / FVTM Asymmetric<br>filiciency 94 %<br>Required components:<br>ED HLOM RC12 Z (LH181B)<br>WM / FVTM Asymmetric<br>fifteency 96 %<br>Pask Intensity 2.1 cd/m<br>LEDs/each optic 1<br>ight colour White<br>Required components:<br>ED HLOM RC12 Z (LH181B)<br>WM / FVTM Asymmetric<br>fifteency 96 %<br>Pask Intensity 2.1 cd/m<br>LEDs/each optic 1<br>ight colour White<br>Required components:<br>ED HLOM RC12 Z (LH181B)<br>WH / FVTM Asymmetric<br>fifteency 96 %<br>Pask Intensity 2.1 cd/m<br>LEDs/each optic 1<br>ight colour White<br>Required components:  | OSRAM |                  |                                 |
| WHM / FWTM Asymmetric<br>ifficiency 94 %<br>EdS/each optic 1<br>ight colour White<br>Required components:<br>PHILIPS<br>ED Fortime FastFlex LED 2x8 DA G4+<br>WMM / FWTM Asymmetric<br>ifficiency 94 %<br>Peak intensity 1.4 cd/m<br>EdS/each optic 1<br>ight colour White<br>Required components:<br>SAMS UNG<br>ED HLOM RC12 Z (LH181B)<br>WMM / FWTM Asymmetric<br>ifficiency 96 %<br>Peak intensity 2.1 cd/m<br>EdS/each optic 1<br>ight colour White<br>Required components:<br>WMM / FWTM Asymmetric<br>ifficiency 96 %<br>Peak intensity 2.1 cd/m<br>EdS/each optic 1<br>ight colour White<br>Required components:<br>WMM / FWTM Asymmetric<br>ifficiency 96 %<br>Peak intensity 2.1 cd/m<br>EdS/each optic 1<br>ight colour White<br>Required components:<br>WMM / FWTM Asymmetric<br>ifficiency 96 %  |       | OSI ON Source PC | 90°                             |
| ifficiency 94%<br>Peak Intensity 1.9 col/m<br>LED // Components:<br>PHILIPS<br>LED Fortimo FastFlex LED 2x8 DA G4+<br>WMM // FVTM Asymmetric<br>fificiency 94%<br>Peak Intensity 1.4 col/m<br>LED/each optic 1<br>LED/each optic 1   |       |                  | 750 730                         |
| reak intensity 1.9 cd/m<br>EDS/each optic 1<br>ajpt colour White<br>Required components:<br>PHILIPS<br>ED Fortimo FastFlex LED 2x8 DA G4+<br>WHM / FVTM Asymmetric<br>fficiency 94%<br>Peak intensity 1.4 cd/m<br>EDS/each optic 1<br>ajpt colour White<br>Required components:<br>SAMS UNCS<br>ED HILOM RC12.2 (LH181B)<br>WHM / FVTM Asymmetric<br>fficiency 21.1 cd/m<br>EDS/each optic 1<br>ajpt colour White<br>Required components:  |       |                  |                                 |
| EDs/each optic 1<br>ight colour White<br>Required components:<br>PHILIPS<br>.ED Fortimo FastFlex LED 2x8 DA G4+<br>WMM /FVTTM Asymmetric<br>Efficiency 94%<br>Preak Intensity 1.4 cd/m<br>.EDs/each optic 1<br>.ight colour White<br>Required components:<br>SAMS UNG<br>.ED HLLON RC12 Z (LH181B)<br>WMM /FVTTM Asymmetric<br>Efficiency 95%<br>Pack Intensity 2.1 cd/m<br>.EDS/each optic 1<br>.ght colour White<br>Required components:   |       |                  | .60* 60*.                       |
| ight colour White<br>tequired components:<br>ED Fortimo FastFlex LED 2x8 DA G4+<br>WHM /FVTTM Asymmetric<br>Efficiency 94 %<br>Peak intensity 1.4 colfm<br>EDS/each optic 1<br>ight colour White<br>tequired components:<br>ED HILOM RC12 Z (LH181B)<br>WHM /FVTTM Asymmetric<br>Efficiency 96 %<br>Peak intensity 2.1 colfm<br>EDS/each optic 1<br>ight colour White<br>Required components:<br>ED HILOM RC12 Z (LH181B)<br>WHM /FVTTM Asymmetric<br>Efficiency 96 %<br>Peak intensity 2.1 colfm<br>EDS/each optic 1<br>ight colour White<br>Required components:<br>ED HILOM RC12 Z (LH181B)<br>WHM /FVTTM Asymmetric<br>Efficiency 96 %<br>Peak intensity 2.1 colfm<br>EDS/each optic 1<br>ight colour White<br>Required components:<br>ED HILOM RC12 Z (LH181B)<br>Efficiency 96 %<br>Peak intensity 2.1 colfm<br>EDS/each optic 1<br>ight colour White<br>Required components:<br>ED HILOM RC12 Z (LH181B)<br>Efficiency 96 %<br>Peak intensity 2.1 colfm<br>EDS/each optic 1<br>ight colour White<br>Required components:<br>ED HILOM RC12 Z (LH181B)<br>Efficiency 96 %<br>Peak intensity 2.1 colfm<br>Efficiency 96 %<br>Peak intensity 96 %<br>Peak intensity 96 %<br>Peak intensity 96  |       |                  | 400                             |
| Required components:<br>PHILEDS<br>ED Fortimo FastFlex LED 2x8 DA G4+<br>WHM / FVTTM Asymmetric<br>Efficiency 94%<br>Peak intensity 1.4 cd/m<br>EDS/each optic 1<br>ight colour White<br>Required components:<br>SAMS UNG<br>ED HILOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>Efficiency 96%<br>Peak intensity 2.1 cd/m<br>EDS/each optic 1<br>Efficiency 96%<br>Peak intensity 2.1 cd/m<br>Efficiency 96%   |       |                  |                                 |
| PHILIPS<br>ED Fortimo FastFlex LED 2x8 DA G4+<br>WMH / FVTTM Asymmetric<br>Efficiency 94%<br>Peak intensity 1.4 cd/lm<br>EDS/each optic 1<br>Light colour White<br>Required components:<br>ED HILOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>Efficiency 96%<br>Peak intensity 2.1 cd/lm<br>EDS/each optic 1<br>Light colour White<br>Required components:   |       |                  |                                 |
| PHILIPS<br>ED Fortimo FastFlex LED 2x8 DA G4+<br>WHM / FWTM Asymmetric<br>#ficiency 94 %<br>reak intensity 1.4 cd/m<br>EDS/each optic 1<br>.ight colour White<br>Required components:<br>SAMS UNG<br>.ED HILOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>#ficiency 96 %<br>reak intensity 2.1 cd/m<br>.EDS/each optic 1<br>.ight colour White<br>Required components:  |       |                  |                                 |
| PHILIPS<br>ED Fortimo FastFlex LED 2x8 DA G4+<br>WHM / FWTM Asymmetric<br>#ficiency 94 %<br>reak intensity 1.4 cd/m<br>EDS/each optic 1<br>.ight colour White<br>Required components:<br>SAMS UNG<br>.ED HILOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>#ficiency 96 %<br>reak intensity 2.1 cd/m<br>.EDS/each optic 1<br>.ight colour White<br>Required components:  |       |                  | 800                             |
| PHILIPS<br>ED Fortimo FastFlex LED 2x8 DA G4+<br>WHM / FWTM Asymmetric<br>#ficiency 94 %<br>reak intensity 1.4 cd/m<br>EDS/each optic 1<br>.ght colour White<br>Required components:<br>SAMS UNG<br>.ED HILOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>#ficiency 96 %<br>reak intensity 2.1 cd/m<br>.EDS/each optic 1<br>.ght colour White<br>Required components:  |       |                  |                                 |
| ED       Fortimo FastFlex LED 2x8 DA G4+         WHM / FWTM       Asymmetric         Efficiency       94 %         Peak intensity       1.4 cd/lm         LEDs/each optic       1         ight colour       White         Required components:       Image: Colour Colo   |       |                  |                                 |
| ED       Fortimo FastFlex LED 2x8 DA G4+         WHM / FWTM       Asymmetric         Efficiency       94 %         Peak intensity       1.4 cd/lm         LEDs/each optic       1         ight colour       White         Required components:       Image: Colour Colo   | DHIID | S                |                                 |
| WHM / FWTM Asymmetric<br>ffliciency 94 %<br>Peak intensity 1.4 cd/m<br>EDs/each optic 1<br>ight colour White<br>Required components:<br>SAMSUNG<br>LED HILOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>ffliciency 96 %<br>Peak intensity 2.1 cd/m<br>.EDs/each optic 1<br>ight colour White<br>Required components:  |       |                  | 90° 90°                         |
| Efficiency 94 %<br>Peak intensity 1.4 cd/lm<br>EDS/each optic 1<br>Ight colour White<br>Required components:<br>SAMSSUNG<br>ED HILOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>Efficiency 96 %<br>Peak intensity 2.1 cd/lm<br>EDS/each optic 1<br>Ight colour White<br>Required components:  |       |                  | 751 751                         |
| Peak intensity 1.4 cd/lm<br>EDs/each optic 1<br>light colour White<br>Required components:<br>SAMSUNG<br>ED HiLOM RC12 Z (LH181B)<br>EVHM / FWTM Asymmetric<br>Efficiency 96 %<br>Peak intensity 2.1 cd/lm<br>EDS/each optic 1<br>light colour White<br>Required components:   |       |                  |                                 |
| LEDs/each optic 1<br>ight colour White<br>Required components:<br>SAMSUNG<br>LED HILOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>Efficiency 96 %<br>Peak intensity 2.1 cd/lm<br>LEDs/each optic 1<br>ight colour White<br>Required components:   |       |                  | .00*                            |
| ight colour White<br>Required components:<br>SAMSUNG<br>ED HILOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>Efficiency 96 %<br>Peak intensity 2.1 cd/lm<br>EDS/each optic 1<br>ight colour White<br>Required components:  |       |                  | 400                             |
| Required components:   |       |                  |                                 |
| SAMSUNG<br>ED HILOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>Efficiency 96 %<br>Peak intensity 2.1 cd/lm<br>EDS/each optic 1<br>.ight colour White<br>Required components:  |       |                  | 50 500 V                        |
| ED HILOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>Efficiency 96 %<br>Peak intensity 2.1 cd/lm<br>EDs/each optic 1<br>.ight colour White<br>Required components:   |       |                  | $\times$                        |
| SAMSUNG<br>ED HiLOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>Efficiency 96 %<br>Peak intensity 2.1 cd/lm<br>EDs/each optic 1<br>.ight colour White<br>Required components:  |       |                  | 810                             |
| SAMSUNG<br>ED HiLOM RC12 Z (LH181B)<br>WHM / FWTM Asymmetric<br>Efficiency 96 %<br>Peak intensity 2.1 cd/lm<br>EDs/each optic 1<br>.ight colour White<br>Required components:  |       |                  | $\times$ / $\setminus$ $\times$ |
| ED     HiLOM RC12 Z (LH181B)       FWHM / FWTM     Asymmetric       Efficiency     96 %       Peak intensity     2.1 cd/lm       LEDs/each optic     1       Light colour     White       Required components:     ************************************  |       |                  | 30° 15° 30°                     |
| ED     HiLOM RC12 Z (LH181B)       FWHM / FWTM     Asymmetric       Efficiency     96 %       Peak intensity     2.1 cd/lm       LEDs/each optic     1       Light colour     White       Required components:     ************************************  | SAMSI | ING              |                                 |
| FWHM / FWTM     Asymmetric       Efficiency     96 %       Peak intensity     2.1 cd/lm       .EDs/each optic     1       .ight colour     White       Required components:  |       |                  | 90* 90*                         |
| Efficiency 96 %<br>Peak intensity 2.1 cd/lm<br>.EDs/each optic 1<br>.ight colour White<br>Required components:   |       |                  | 720 250                         |
| Peak intensity 2.1 cd/lm<br>EDs/each optic 1<br>.ight colour White<br>Required components:   |       |                  | 200 070                         |
| LEDs/each optic 1<br>Light colour White<br>Required components:  |       |                  | .50°                            |
| Light colour White<br>Required components:   |       |                  | X / tot X                       |
| Required components:   |       |                  |                                 |
|  |       |                  | er 000 er                       |
|  |       | lio.             | $\times$                        |
|  |       |                  | 800                             |
|  |       |                  |                                 |
| 2.9 0, 12,   |       |                  | 30* <u>1000</u> 30* 30*         |



| SVWSI                            | ING                   |   |
|----------------------------------|-----------------------|---|
|                                  |                       | 90*   |
|                                  | HiLOM RH12 Z (LH351C) | 751   |
| FWHM / FWTM                      | Asymmetric<br>97 %    |   |
| Efficiency                       |                       | 60%   |
| Peak intensity                   | 1.5 cd/lm             |   |
| LEDs/each optic                  | 1<br>White            |   |
| Light colour<br>Required compone |                       |   |
| Required compone                 | ans.                  |   |
|                                  |                       |   |
|                                  |                       | 00  |
|                                  |                       | 30* 15 <sup>*</sup> 0* 15 <sup>*</sup>  |
| SAMSI                            | ING                   |   |
|                                  |                       | 90*   |
| LED                              | HiLOM RH16 (LH351C)   | 75  |
| FWHM / FWTM                      | Asymmetric            |   |
| Efficiency                       | 94 %                  |   |
| Peak intensity                   | 1.5 cd/lm             | 40  |
| LEDs/each optic                  | 1                     |   |
| Light colour                     | White                 | 45* 600   |
| Required compone                 | ents:                 |   |
|                                  |                       |   |
|                                  |                       |   |
|                                  |                       | 30° is or is  |
| SAMSI                            | ING                   |   |
|                                  |                       | 90* S   |
|                                  | HiLOM RM12 Z (LH502C) | 74  |
| FWHM / FWTM                      | Asymmetric<br>97 %    |   |
| Efficiency                       |                       | 60 <sup>x</sup>   |
| Peak intensity                   | 0.9 cd/lm<br>1        |   |
| LEDs/each optic<br>Light colour  | ı<br>White            |   |
| Required compone                 |                       | 45*   |
| Required compone                 | 911S.                 | 200   |
|                                  |                       | $\times$ / T $\setminus$ $\times$   |
|                                  |                       | 1000  |
|                                  |                       | 100 - |
| SAMSI                            | ING                   |   |
|                                  |                       |   |
| LED                              | HiLOM RM16 Z (LH502C) |   |
| FWHM / FWTM                      | Asymmetric            |   |
| Efficiency                       | 98 %                  |   |
| Peak intensity                   | 0.9 cd/lm             |   |
| LEDs/each optic                  | 1                     |   |
| Light colour                     | White                 |   |
| Required compone                 | ents:                 |   |
| Required compone                 |                       |   |
|                                  |                       |   |
| Required compone                 |                       |   |



| SVWSI               | JNG                  | 90* 99                                      |
|---------------------|----------------------|---|
| LED                 | HiLOM RM8 Z (LH502C) |   |
| FWHM / FWTM         | Asymmetric           | 28 201                                      |
| Efficiency          | 97 %                 |   |
| Peak intensity      | 0.9 cd/lm            | 50 <sup>15</sup> 400 50                     |
| LEDs/each optic     | 1                    |   |
| Light colour        | White                | 51 80 80                                    |
| Required compone    | nts:                 |   |
|                     |                      | **  |
|                     |                      | 1000<br>1001 101 101 101 101 101 101 101 10 |
|                     |                      | 99°   |
| LED                 | Z5M3                 |   |
| FWHM / FWTM         | Asymmetric           | 78  |
| Efficiency          | 94 %                 |   |
| Peak intensity      | 1.5 cd/lm            | 60 <sup>4</sup> 60                          |
| LEDs/each optic     | 1                    |   |
| Light colour        | White                | 4° 00 97                                    |
| Required compone    | nts:                 |   |
|                     |                      | 80  |
|                     |                      | $\times$ / $\times$                         |
|                     |                      | 200 200                                     |
| _                   |                      |   |
| SEOUL SEMICONDUCTOR |                      | 90* 90*                                     |
| LED                 | Z5M4                 |   |
| FWHM / FWTM         | Asymmetric           |   |
| Efficiency          | 96 %                 |   |
| Peak intensity      | 1.5 cd/lm            | 50 <sup>4</sup>                             |
| LEDs/each optic     | 1                    | X / X                                       |
| Light colour        | White                | 67  |
| Required compone    | nts:                 |   |
|                     |                      | 800   |



| bridgelux.   |   |   |
|--|---|---|
| LED  | Bridgelux SMD 5050  | *   |
| FWHM / FWTM  | Asymmetric  | 75° 00 75°  |
| Efficiency   | 79 %  |   |
| Peak intensity   | 0.5 cd/lm   | 66* 200 66*   |
| LEDs/each optic  | 1   |   |
| Light colour   | '<br>White  |   |
| Required components:   | White   | 45. 400 45.   |
| Required components.   |   |   |
| Protective plate   | e, glass  | 500   |
|  |   |   |
|  |   | 20° 15° 30°   |
|  |   | 90° 90°   |
| LED  | XHP35 HD  |   |
| FWHM / FWTM  | Asymmetric  |   |
| Efficiency   | 94 %  |   |
| Peak intensity   | 1.4 cd/lm   | 60* 60*   |
| LEDs/each optic  | 1   |   |
| Light colour   | White   | 45* 500 45*   |
| Required components:   |   |   |
|  |   |   |
|  |   | $\times$  |
|  |   | 30* 1000  |
|  |   |   |
|  |   | 12 <sup>5</sup> 0 <sup>6</sup> 12 <sup>6</sup>  |
|  |   | 20 <sup>2</sup> 0 <sup>3</sup> 13 <sup>3</sup>  |
|  | XM-L2   | 20 <sup>1</sup> 23 <sup>2</sup> 0 <sup>4</sup> 23 <sup>4</sup>  |
|  | XM-L2<br>Asymmetric   | 10 <sup>-</sup> |
| LED  |   |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity   | Asymmetric  | 25 <sup>4</sup> 0 <sup>5</sup> 15 <sup>4</sup> 75 <sup>4</sup>  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | Asymmetric<br>94 %<br>1.4 cd/lm   | 40° 600 40°   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White   |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>XP-G2  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>XP-G2<br>Asymmetric                                    |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:  | Asymmetric<br>94 %<br>1.4 cd/m<br>1<br>White<br>XP-G2<br>Asymmetric<br>81 %                             |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>CREE LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity   | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>XP-G2<br>Asymmetric<br>81 %<br>1.1 cd/lm               |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>CREE LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>XP-G2<br>Asymmetric<br>81 %<br>1.1 cd/lm<br>1          |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>CREE LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour                          | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>XP-G2<br>Asymmetric<br>81 %<br>1.1 cd/lm               |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>CREE LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>XP-G2<br>Asymmetric<br>81 %<br>1.1 cd/lm<br>1          |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>CREE LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour                          | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>XP-G2<br>Asymmetric<br>81 %<br>1.1 cd/lm<br>1<br>White |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>CREE CLED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components: | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>XP-G2<br>Asymmetric<br>81 %<br>1.1 cd/lm<br>1<br>White |   |



| LED   | XP-G2 HE  | 10-  |
|---|---|--|
| FWHM / FWTM   | Asymmetric  | 73° 7°   |
| Efficiency  | 90 %  |  |
| Peak intensity  | 1.2 cd/lm   | 60 <sup>4</sup> 60 <sup>4</sup> .  |
| LEDs/each optic   | 1   |  |
| Light colour  | White   |  |
| Required components:  |   |  |
|   |   |  |
|   |   |  |
|   |   | 1000   |
|   |   | (30* 30* 30* 30*   |
|   |   | 90* 90*  |
| LED   | XP-G3   |  |
| FWHM / FWTM   | Asymmetric  |  |
| Efficiency  | 77 %  |  |
| Peak intensity  | 0.8 cd/lm   | -60°   |
| LEDs/each optic   | 1   | 40   |
| Light colour  | White   | 45° 500 45 <sup>°</sup>  |
| Required components:  |   | 60   |
| Drotostivo ploto  |   |  |
| Protective plate  | e, glass  | 700  |
|   |   | 30* 15 <sup>3</sup> 0 <sup>6</sup> 15 <sup>4</sup> 30 <sup>4</sup>   |
|   |   |  |
|   |   |  |
|   | XP-1 2  | 10°  |
| LED   | XP-L2<br>Asymmetric   | 90° 90°<br>78° 77.   |
| LED<br>FWHM / FWTM  | Asymmetric  | 92 <sup>4</sup><br>28<br>28  |
| LED<br>FWHM / FWTM<br>Efficiency  |   | 92 <sup>4</sup><br>92 <sup>4</sup><br>0 <sup>4</sup><br>0 <sup>4</sup><br>0 <sup>4</sup><br>0 <sup>4</sup><br>0 <sup>4</sup><br>0 <sup>4</sup><br>0 <sup>4</sup>   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity  | Asymmetric<br>78 %  | 90 <sup>-</sup><br>90 |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic   | Asymmetric<br>78 %<br>0.7 cd/lm   | 50° 50° 50° 50° 50° 50° 50° 50° 50° 50°  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity  | Asymmetric<br>78 %<br>0.7 cd/lm<br>1  | 5° 50 Cr   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White   |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White   | 97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>9  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White   | 92<br>93<br>94<br>95<br>96<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate   | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White   |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate   | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White   |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate   | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White<br>P, glass                               |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate   | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White<br>P, glass<br>XP-L2<br>Asymmetric        |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>CREE LED<br>LED<br>FWHM / FWTM<br>Efficiency   | Asymmetric<br>78 %<br>0.7 cd/m<br>1<br>White<br>P, glass<br>XP-L2<br>Asymmetric<br>92 % |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Protective plate   | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White<br>P, glass<br>XP-L2<br>Asymmetric        |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Protective plate<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic          | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White<br>Asymmetric<br>92 %<br>0.9 cd/lm<br>1   |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>CREE LED<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White<br>Asymmetric<br>92 %<br>0.9 cd/lm        |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Protective plate<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic          | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White<br>Asymmetric<br>92 %<br>0.9 cd/lm<br>1   |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>CREE LED<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White<br>Asymmetric<br>92 %<br>0.9 cd/lm<br>1   |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>CREE 	LED<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour | Asymmetric<br>78 %<br>0.7 cd/lm<br>1<br>White<br>Asymmetric<br>92 %<br>0.9 cd/lm<br>1   |  |



|   |   | 90* 90*  |
|---|---|--|
| LED   | XP-L2   | 195*   |
| FWHM / FWTM   | Asymmetric  | 736 700 756  |
| Efficiency  | 78 %  | 20   |
| Peak intensity  | 0.7 cd/lm   | 60* 60*  |
| LEDs/each optic   | 1   |  |
| Light colour  | White   | 400  |
| Required components:  |   | 50   |
|   |   | 600  |
| Protective plate  | e, glass  | 710  |
|   |   |  |
|   |   | 30* 15 <sup>5</sup> 0 <sup>6</sup> 15 <sup>5</sup> 36 <sup>4</sup>   |
|   |   | 90* 90*  |
| LED   | XT-E  |  |
| FWHM / FWTM   | Asymmetric  | 73°  |
| Efficiency  | 93 %  |  |
| Peak intensity  | 1.5 cd/lm   |  |
| LEDs/each optic   | 1   | 60   |
| Light colour  | White   | 65° 67   |
| Required components:  |   | 00   |
|   |   | 1000   |
|   |   | $\times$   |
|   |   | 30* 1200 30*   |
|   |   | 15° 0° 15°   |
|   | 5   | 13 <sup>5</sup> 0 <sup>6</sup> 13 <sup>5</sup>   |
|   |   | 90°  |
| LED   | LUXEON 3030 2D (Round LES)  | 35 <sup>4</sup> 50 <sup>4</sup> 10 <sup>5</sup> 90 <sup>4</sup> 10 <sup>5</sup>  |
| LED<br>FWHM / FWTM  | LUXEON 3030 2D (Round LES)<br>Asymmetric  | 12'         0"         12'           92'         20'         52'   |
| LED<br>FWHM / FWTM<br>Efficiency  | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %  | 12 <sup>2</sup> 0 <sup>4</sup> 12 <sup>2</sup><br>12 <sup>4</sup> 0 <sup>4</sup> 12 <sup>4</sup><br>12 <sup>4</sup> 0 <sup>4</sup> 12 <sup>4</sup><br>12 <sup>4</sup> 0 <sup>4</sup> 0 <sup>4</sup>  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity  | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm   |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1  |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm   | 12 <sup>3</sup> 0 <sup>4</sup> 13 <sup>3</sup><br>0 <sup>4</sup><br>0 <sup>4</sup> |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1  |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1  |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1  | 60° 60° 60° 60° 60° 60° 60° 60° 60° 60°  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1  |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1<br>White   | 60° 60° 60° 60° 60° 60° 60° 60° 60° 60°  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1<br>White   | 60° 60° 60° 60° 60° 60° 60° 60° 60° 60°  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1<br>White   | 60° 60° 60° 60° 60° 60° 60° 60° 60° 60°  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1<br>White   | 60° 60° 60° 60° 60° 60° 60° 60° 60° 60°  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1<br>White<br>S<br>LUXEON 3030 2D (Square LES)<br>Asymmetric<br>94 %                   | 60° 60° 60° 60° 60° 60° 60° 60° 60° 60°  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1<br>White   | 60° 60° 60° 60° 60° 60° 60° 60° 60° 60°  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br><b>Volume LUMILEC</b><br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1<br>White<br>S<br>LUXEON 3030 2D (Square LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm      | 60° 60° 60° 60° 60° 60° 60° 60° 60° 60°  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1<br>White<br>S<br>LUXEON 3030 2D (Square LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1 |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1<br>White<br>S<br>LUXEON 3030 2D (Square LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1 |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1<br>White<br>S<br>LUXEON 3030 2D (Square LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1 |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | LUXEON 3030 2D (Round LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1<br>White<br>S<br>LUXEON 3030 2D (Square LES)<br>Asymmetric<br>94 %<br>1.6 cd/lm<br>1 |  |



| [   |  |   |
|---|--|---|
| MUMILED   | DS   |   |
| LED   | LUXEON 5050 HE   |   |
| FWHM / FWTM   | Asymmetric   | 12 c Alan 25 c  |
| Efficiency  | 81 %   | 200   |
| Peak intensity  | 0.7 cd/lm  | 50° 50°.  |
| LEDs/each optic   | 1  | X X AND X X   |
| Light colour  | White  | 45°   |
| Required components:  |  |   |
|   |  | 60  |
| Protective plate  | e, glass   | 700   |
|   |  | 30* 80 30*  |
|   |  | 13 <sup>5</sup> 0 <sup>6</sup> 13 <sup>5</sup>  |
|   | 15   | 90*   |
| LED   | LUXEON 5050 Round LES  |   |
| FWHM / FWTM   | Asymmetric   | 78 200 78   |
| Efficiency  | 94 %   | 60° 60°.  |
| Peak intensity  | 0.9 cd/lm  | 40  |
| LEDs/each optic   | 1  |   |
| Light colour  | White  | 43° 600 63°   |
| Required components:  |  |   |
|   |  |   |
|   |  | 1000  |
|   |  | 30° 15° 30°   |
|   |  |   |
|   | )S   |   |
|   |  | 90°   |
| LED   | LUXEON 5050 Round LES  | 123<br>154<br>154   |
| LED<br>FWHM / FWTM  | LUXEON 5050 Round LES<br>Asymmetric  | 90°<br>13°<br>200   |
| LED<br>FWHM / FWTM<br>Efficiency  | LUXEON 5050 Round LES<br>Asymmetric<br>84 %  | 10 <sup>1</sup><br>10 <sup>1</sup> 1 |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity  | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm   |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic   | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1  |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm   | 90°<br>10°<br>10°<br>10°<br>10°<br>10°<br>10°<br>10°<br>1   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White   | 6° 60 67  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White   |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White   |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate   | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White   |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate   | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White<br>a, glass   |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate   | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White<br>a, glass   |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate   | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White<br>a, glass<br>LUXEON 5050 Square LES<br>Asymmetric                           |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Vertice plate<br>ED<br>FWHM / FWTM<br>Efficiency   | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White<br>a, glass<br>LUXEON 5050 Square LES<br>Asymmetric<br>94 %                   |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Protective plate<br>ED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity  | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White<br>e, glass<br>LUXEON 5050 Square LES<br>Asymmetric<br>94 %<br>0.8 cd/lm      |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Who Protective plate<br>ED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic                 | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White<br>e, glass<br>LUXEON 5050 Square LES<br>Asymmetric<br>94 %<br>0.8 cd/lm<br>1 |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Who Protective plate<br>ED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White<br>e, glass<br>LUXEON 5050 Square LES<br>Asymmetric<br>94 %<br>0.8 cd/lm      |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Who Protective plate<br>ED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic                 | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White<br>e, glass<br>LUXEON 5050 Square LES<br>Asymmetric<br>94 %<br>0.8 cd/lm<br>1 |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Who Protective plate<br>ED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White<br>e, glass<br>LUXEON 5050 Square LES<br>Asymmetric<br>94 %<br>0.8 cd/lm<br>1 |   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Who Protective plate<br>ED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour | LUXEON 5050 Round LES<br>Asymmetric<br>84 %<br>0.7 cd/lm<br>1<br>White<br>e, glass<br>LUXEON 5050 Square LES<br>Asymmetric<br>94 %<br>0.8 cd/lm<br>1 |   |



| UMILEC   | DS  | 90* 90   |
|--|---|--|
| LED  | LUXEON 5050 Square LES  |  |
| FWHM / FWTM  | Asymmetric  | 75%  |
| Efficiency   | 81 %  |  |
| Peak intensity   | 0.7 cd/lm   | 50° 66   |
| LEDs/each optic  | 1   | 400  |
| Light colour   | White   | 45*  |
| Required components:   |   | 000  |
| Protective plate   | e, glass  | 00   |
|  |   | 30° 13° 30°  |
|  | 95  | 90*  |
| LED  | LUXEON HL2X   |  |
| FWHM / FWTM  | Asymmetric  | 756 75   |
| Efficiency   | 80 %  |  |
| Peak intensity   | 0.9 cd/lm   | 50 300 60'   |
| LEDs/each optic  | 1   | 400  |
| Light colour   | White   | 45* 700 45   |
| Required components:   |   |  |
| Protective plate   | , glass   | 700  |
|  |   |  |
|  |   | 30* <u>30*</u> 30* 30*   |
| UMILEC   | DS  | 90* 90'  |
| LED  | LUXEON TX   |  |
| FWHM / FWTM  | Asymmetric  | 75° 200 75'  |
| Efficiency   | 79 %  |  |
| Peak intensity   | 1.1 cd/lm   | 50° 60'  |
| LEDs/each optic  | 1   |  |
| Light colour   | White   | 45* 45   |
|  |   |  |
| Required components:   |   |  |
|  |   |  |
| Required components:<br>Protective plate   |   | 000  |
|  |   | 20 <sup>4</sup> 20 <sup>5</sup> 20 <sup>5</sup> 20 <sup>4</sup> 20 <sup>4</sup>  |
|  | e, glass  |  |
| Protective plate   | e, glass  | 20°  |
| Protective plate   | e, glass  | 200<br>201<br>201<br>201<br>201<br>201<br>201<br>201<br>201<br>201   |
| Protective plate   | e, glass  | 200<br>201<br>201<br>201<br>201<br>201<br>201<br>201<br>201<br>201   |
| Protective plate<br>Protective plate<br>LED<br>FWHM / FWTM<br>Efficiency   | e, glass<br>DS<br>LUXEON V<br>Asymmetric                          | 200<br>201<br>201<br>201<br>201<br>201<br>201<br>201<br>201<br>201   |
| Protective plate<br>Protective plate<br>LED<br>FWHM / FWTM<br>Efficiency   | e, glass<br>S<br>LUXEON V<br>Asymmetric<br>91 %                   | 20°  |
| Protective plate<br>Protective plate<br>Constraints<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic   | e, glass<br>S<br>LUXEON V<br>Asymmetric<br>91 %<br>0.9 cd/lm      | 200<br>201<br>201<br>201<br>201<br>201<br>201<br>201<br>201<br>201   |
| Protective plate<br>Protective p | e, glass<br>S<br>LUXEON V<br>Asymmetric<br>91 %<br>0.9 cd/lm<br>1 | 200<br>200<br>200<br>200<br>200<br>200<br>200<br>200   |
| Protective plate<br>Protective plate<br>ED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | e, glass<br>S<br>LUXEON V<br>Asymmetric<br>91 %<br>0.9 cd/lm<br>1 | 20 <sup>4</sup><br>20 |
| Protective plate<br>Protective plate<br>ED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | e, glass<br>S<br>LUXEON V<br>Asymmetric<br>91 %<br>0.9 cd/lm<br>1 | 200<br>200<br>200<br>200<br>200<br>200<br>200<br>200   |
| Protective plate   | e, glass<br>S<br>LUXEON V<br>Asymmetric<br>91 %<br>0.9 cd/lm<br>1 | 200<br>200<br>200<br>200<br>200<br>200<br>200<br>200   |



| COMPLET              | S S                                | 20*   |
|----------------------|------------------------------------|---|
| LED                  | LUXEON XR-HL2X (L2H2-xxxxxxMLU010) |   |
| FWHM / FWTM          | Asymmetric                         | 73" 214   |
| Efficiency           | 95 %                               |   |
| Peak intensity       | 1.1 cd/lm                          | 50* 440   |
| LEDs/each optic      | 1                                  |   |
| Light colour         | White                              | 451 600   |
| Required components: |                                    |   |
|                      |                                    | 800   |
|                      |                                    | $\times$ / $\land$ $\times$   |
|                      |                                    | 1000  |
|                      |                                    | 12,<br>12,  |
|                      |                                    | 90*   |
| LED                  | LUXEON XR-HL2X (L2H2-xxxxxxMLU010) | 750   |
| FWHM / FWTM          | Asymmetric                         |   |
| Efficiency           | 80 %                               | sur contraction of the second s |
| Peak intensity       | 0.7 cd/lm                          | 30  |
| LEDs/each optic      | 1                                  | 400   |
| Light colour         | White                              | 45* 540   |
| Required components: |                                    | 600   |
| Protective plate     | , dass                             |   |
| i iotootiro piak     | , 9.00                             | 740   |
|                      |                                    | 30 <sup>+</sup> 13 <sup>5</sup> 0 <sup>+</sup> 15 <sup>+</sup> 2  |
| <b>Μ</b> ΝΙCΗΙΛ      |                                    | 90*   |
| LED                  | NV4WB35AM                          |   |
| FWHM / FWTM          | Asymmetric                         | 736 200   |
| Efficiency           | 95 %                               |   |
| Peak intensity       | 1.1 cd/lm                          | 50 <sup>4</sup> 460 2   |
| LEDs/each optic      | 1                                  |   |
| Light colour         | White                              | 45* 640   |
| Required components: |                                    |   |
|                      |                                    | 000   |
|                      |                                    | 1000  |
|                      |                                    | 30*   |
| MICHIΛ               |                                    |   |
| LED                  | NVSW219F                           | 80*   |
| FWHM / FWTM          | Asymmetric                         | 750   |
| Efficiency           | 80 %                               |   |
| Peak intensity       | 1 cd/lm                            | 50 <sup>4</sup> 30  |
| LEDs/each optic      | 1                                  |   |
| Light colour         | White                              | 45*   |
| Required components: |                                    | KXT* TX.  |
|                      |                                    |   |
| Protective plate     | e, glass                           | 700   |
|                      |                                    | 800   |
|                      |                                    | 20° <u>15</u> <sup>2</sup> 0° 15 <sup>2</sup>   |



| <b>ΜΝΙCΗΙΛ</b>  |   | 90* 90*     |
|---|---|-------------|
| LED   | NVSW519A  |             |
| FWHM / FWTM   | Asymmetric  | 750 40 750  |
| Efficiency  | 82 %  | 20          |
| Peak intensity  | 0.7 cd/lm   | 50* 300 60* |
| LEDs/each optic   | 1   | 400         |
| Light colour  | White   | 45*         |
| Required components:  |   | 50 X        |
|   |   | 000         |
| Protective plate  | e, glass  | 740         |
|   |   | 30° - 30°   |
| ~   |   |             |
| <b>Μ</b> ΝΙCΗΙΛ   |   | 90°         |
| LED   | NVSW519A  |             |
| FWHM / FWTM   | Asymmetric  | 200         |
| Efficiency  | 93 %  |             |
| Peak intensity  | 1 cd/lm   | 400         |
| LEDs/each optic   | 1   |             |
| Light colour  | White   | 45° 600 65° |
| Required components:  |   | $\times$    |
|   |   | 00          |
|   |   |             |
|   |   | 30* 30*     |
|   |   |             |
|   |   |             |
| MICHIΛ  |   | 90°         |
|   | NIVSvv10B/NIV/Svv10C  | bi          |
| LED   | NVSxx19B/NVSxx19C   |             |
| LED<br>FWHM / FWTM  | Asymmetric  |             |
| LED<br>FWHM / FWTM<br>Efficiency  | Asymmetric<br>%   |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic   | Asymmetric<br>%<br>1  |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour   | Asymmetric<br>%   |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic   | Asymmetric<br>%<br>1  |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour   | Asymmetric<br>%<br>1  |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour   | Asymmetric<br>%<br>1  |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour<br>Required components:   | Asymmetric<br>%<br>1  |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour   | Asymmetric<br>%<br>1  |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour<br>Required components:   | Asymmetric<br>%<br>1  |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour<br>Required components:   | Asymmetric<br>%<br>1<br>White   |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour<br>Required components:   | Asymmetric<br>%<br>1<br>White<br>NVSxx19B/NVSxx19C  |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour<br>Required components:   | Asymmetric<br>%<br>1<br>White<br>NVSxx19B/NVSxx19C<br>Asymmetric                                  |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour<br>Required components:<br><b>WICHIN</b><br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic                   | Asymmetric<br>%<br>1<br>White<br>NVSxx19B/NVSxx19C<br>Asymmetric<br>82 %<br>1 cd/lm<br>1          |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour<br>Required components:   | Asymmetric<br>%<br>1<br>White<br>NVSxx19B/NVSxx19C<br>Asymmetric<br>82 %<br>1 cd/m                |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour<br>Required components:   | Asymmetric<br>%<br>1<br>White<br>NVSxx19B/NVSxx19C<br>Asymmetric<br>82 %<br>1 cd/lm<br>1          |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour<br>Required components:<br><b>WICHIA</b><br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components: | Asymmetric<br>%<br>1<br>White<br>NVSxx19B/NVSxx19C<br>Asymmetric<br>82 %<br>1 cd/lm<br>1<br>White |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour<br>Required components:   | Asymmetric<br>%<br>1<br>White<br>NVSxx19B/NVSxx19C<br>Asymmetric<br>82 %<br>1 cd/lm<br>1<br>White |             |
| LED<br>FWHM / FWTM<br>Efficiency<br>LEDs/each optic<br>Light colour<br>Required components:<br><b>WICHIA</b><br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components: | Asymmetric<br>%<br>1<br>White<br>NVSxx19B/NVSxx19C<br>Asymmetric<br>82 %<br>1 cd/lm<br>1<br>White |             |



| OSRAM<br>Opto Semiconductors  |  |  |
|---|--|--|
| LED   | Duris S8   | y  |
| FWHM / FWTM   | Asymmetric   | 73%  |
| Efficiency  | 79 %   | 200  |
| Peak intensity  | 0.6 cd/lm  | .60 <sup>4</sup> 60 <sup>4</sup>   |
| LEDs/each optic   | 1  |  |
| Light colour  | White  | 40°  |
| Required components:  |  | 200  |
|   |  | 200  |
| Protective plate  | e, glass   | 710  |
|   |  |  |
|   |  | 130* 15 <sup>2</sup> 0 <sup>6</sup> 15* 30*  |
| OSRAM<br>Opto Semiconductors  |  | 90° 90°  |
| LED   | OSCONIQ C 2424   |  |
| FWHM / FWTM   | Asymmetric   | 77° 200 77°  |
| Efficiency  | 94 %   |  |
| Peak intensity  | 0.7 cd/lm  | 50 <u>400</u> 00   |
| LEDs/each optic   | 4  |  |
| Light colour  | White  | 45° 600 65°  |
| Required components:  |  |  |
|   |  | 800  |
|   |  | $\times$ / $\setminus$ $\times$  |
|   |  | 30* 1000 30* 30*   |
|   |  |  |
| OSRAM   |  |  |
| OSRAM<br>Opto Semiconductors  |  | 90° 90°  |
| Opto Semiconductors<br>LED  | OSCONIQ P 3737 (2W version)  | 90°  |
| Opto Semiconductors<br>LED<br>FWHM / FWTM   | Asymmetric   | 8 <sup>1</sup><br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7  |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency   | Asymmetric<br>94 %   | 50°  |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity   | Asymmetric<br>94 %<br>1.4 cd/lm  | 99* 99*<br>13*   |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1   | 90° 90°<br>73° 70°<br>60° 60°.   |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | Asymmetric<br>94 %<br>1.4 cd/lm  | 99°<br>99°<br>99°<br>60°<br>60°<br>60°<br>60°  |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1   | 99°<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97  |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1   | 51 <sup>4</sup><br>51 |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1   | 90° 90°<br>60° 60°<br>60° 60°<br>60° 60°   |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1   | 99°<br>99°<br>99°<br>60°<br>60°<br>60°<br>60°<br>60°<br>60°<br>60°<br>60   |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1   | 91         92           92         92           93         93  |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White  |  |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>OSLON Square CSSRM2/CSSRM3  | 99°<br>97°<br>97°<br>97°<br>97°<br>97°<br>97°<br>97°<br>97°<br>97°   |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>OSRAM<br>Opto Semiconductors<br>LED<br>FWHM / FWTM  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White  |  |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>OSRAM<br>Opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>OSLON Square CSSRM2/CSSRM3<br>Asymmetric                                    |  |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>OSRAM<br>Opto Semiconductors<br>LED<br>FWHM / FWTM  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>OSLON Square CSSRM2/CSSRM3<br>Asymmetric<br>82 %                            |  |
| opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:  OSRAM Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>OSLON Square CSSRM2/CSSRM3<br>Asymmetric<br>82 %<br>0.8 cd/lm               |  |
| opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:  OSSRAM Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic   | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>OSLON Square CSSRM2/CSSRM3<br>Asymmetric<br>82 %<br>0.8 cd/lm<br>1          | 92° 92°<br>73° 92°<br>60° 60°  |
| opte Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br><b>POSRAM</b><br>Opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components: | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>OSLON Square CSSRM2/CSSRM3<br>Asymmetric<br>82 %<br>0.8 cd/lm<br>1<br>White | 92° 92°<br>73° 92°<br>60° 60°  |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>OSLON Square CSSRM2/CSSRM3<br>Asymmetric<br>82 %<br>0.8 cd/lm<br>1<br>White | 20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>2  |
| opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>COSRAM<br>Opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:        | Asymmetric<br>94 %<br>1.4 cd/lm<br>1<br>White<br>OSLON Square CSSRM2/CSSRM3<br>Asymmetric<br>82 %<br>0.8 cd/lm<br>1<br>White | 20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>2  |



| OSRAM<br>Opto Semiconductors  |   |  |
|---|---|--|
| LED   | OSLON Square CSSRM2/CSSRM3  | 90°  |
| FWHM / FWTM   | Asymmetric  | 73" 200 73"  |
| Efficiency  | 94 %  |  |
| Peak intensity  | 1.4 cd/lm   | 50 <sup>4</sup> 400 50*  |
| LEDs/each optic   | 1   |  |
| Light colour  | White   |  |
| Required components:  |   |  |
|   |   | X   X  |
|   |   | 1000   |
|   |   | 1700   |
|   |   | 15° 15° 30°  |
| PHILIPS   |   | 90° 90°  |
| LED   | Fortimo FastFlex LED 2x8 DA G4  |  |
| FWHM / FWTM   | Asymmetric  | 13.6 26.   |
| Efficiency  | 80 %  |  |
| Peak intensity  | 1.2 cd/lm   | 50* 50*  |
| LEDs/each optic   | 1   | 400  |
| Light colour  | White   | 45° 65°  |
| Required components:  |   | 500  |
|   |   |  |
| Protective plate  | e, glass  |  |
|   |   | 800  |
|   |   | (30° 30°   |
| DUUUDO  | ц   | 30 <sup>4</sup> 15 <sup>5</sup> 0 <sup>6</sup> 15 <sup>4</sup> 30 <sup>4</sup>   |
| PHILIPS   |   | 20° 20 <sup>°</sup> 20 <sup>°</sup> 20 <sup>°</sup>  |
| LED   | Fortimo FastFlex LED 2x8 DAX G4   | 10° 10° 10° 10° 10°  |
| LED<br>FWHM / FWTM  | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric   | 20° 12° 0° 12° 0°<br>10° 10° 0°<br>20° 0° 10° 0°<br>10° 0° |
| LED<br>FWHM / FWTM<br>Efficiency  | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %   |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity  | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm  |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1   |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm  |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1   |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White  |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White  |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White  |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White  |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White<br>e, glass  |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White<br>e, glass  |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>SAMSUN<br>LED<br>FWHM / FWTM   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White<br>e, glass<br>IG<br>HiLOM RM8 Z (LH502C)<br>Asymmetric                              |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>SAMSUN<br>LED<br>FWHM / FWTM<br>Efficiency   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White<br>e, glass<br>HiLOM RM8 Z (LH502C)<br>Asymmetric<br>85 %                            |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>SAMSUN<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White<br>e, glass<br>HILOM RM8 Z (LH502C)<br>Asymmetric<br>85 %<br>0.8 cd/lm               |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>SAMSSUN<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White<br>e, glass<br>HILOM RM8 Z (LH502C)<br>Asymmetric<br>85 %<br>0.8 cd/lm<br>1          |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Protective plate<br>SANNSUN<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour                         | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White<br>e, glass<br>HILOM RM8 Z (LH502C)<br>Asymmetric<br>85 %<br>0.8 cd/lm               |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>SANNSUN<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic   | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White<br>e, glass<br>HILOM RM8 Z (LH502C)<br>Asymmetric<br>85 %<br>0.8 cd/lm<br>1          |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Protective plate<br>SANNSUN<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour                         | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White<br>e, glass<br>HILOM RM8 Z (LH502C)<br>Asymmetric<br>85 %<br>0.8 cd/lm<br>1<br>White |  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>Protective plate<br>Protective plate<br>SAMSSUN<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components: | Fortimo FastFlex LED 2x8 DAX G4<br>Asymmetric<br>83 %<br>1.1 cd/lm<br>1<br>White<br>e, glass<br>HILOM RM8 Z (LH502C)<br>Asymmetric<br>85 %<br>0.8 cd/lm<br>1<br>White |  |



| SAMSU                               | NG         | 90*  |
|-------------------------------------|------------|--|
| _ED                                 | LH351B     |  |
| FWHM / FWTM                         | Asymmetric | 734  |
| Efficiency                          | 80 %       |  |
| Peak intensity                      | 0.8 cd/lm  | . 60* 300  |
| EDs/each optic                      | 1          | × /  |
| _ight colour                        | White      | 45°  |
| Required components                 | :          |  |
| Protective pla                      |            | 00   |
| Fiblective pla                      | ite, yiass | 100  |
|                                     |            | 30 <sup>•</sup> 13 <sup>•</sup> 0 <sup>0</sup> 19 <sup>•</sup> |
| SAMSU                               | NG         |  |
| _ED                                 | LH351C     | 10° h  |
| -ED<br>FWHM / FWTM                  | Asymmetric | 750 - Alin   |
| Efficiency                          | 88 %       |  |
| Peak intensity                      | 1 cd/lm    | 80°  |
| _EDs/each optic                     | 1          |  |
| _ight colour                        | White      | 40   |
| Required components                 |            | 500  |
|                                     |            |  |
| Protective pla                      | ate, glass |  |
|                                     |            | 700  |
|                                     |            | 20 <u>10 10 10 10 10 10 10 10 10 10 10 10 10 1</u>             |
|                                     |            | 50'  |
|                                     |            | m  |
| ED                                  | Z5M1/Z5M2  | 73   |
| FWHM / FWTM                         | Asymmetric |  |
| Efficiency                          | %          | .55°* 400  |
| _EDs/each optic                     | 1          | $\langle \times \rangle$                                       |
| _ight colour                        | White      | 45* 600  |
| Required components                 | :          |  |
|                                     |            | 000  |
|                                     |            |  |
|                                     |            | 30° (10) (1) (1)   |
| SEOUL                               |            |  |
|                                     |            | 80.  |
|                                     | Z5M3       | 720 30   |
| FWHM / FWTM                         | Asymmetric |  |
| Efficiency                          | 80 %       | eet 3xe  |
| Peak intensity                      | 1 cd/lm    | 40   |
| _EDs/each optic                     | 1          |  |
| _ight colour<br>Required components | White      | 107 500  |
|                                     |            | 00   |
|                                     | ate, glass | No t   |
| Protective pla                      |            |  |
| Protective pla                      |            | 300  |



| r                                 |                                    |             |
|-----------------------------------|------------------------------------|-------------|
| SEOUL SEMICONDUCTOR               |                                    | 90*         |
| LED                               | Z5M4                               |             |
| FWHM / FWTM                       | Asymmetric                         | 730 730     |
| Efficiency                        | 82 %                               |             |
| Peak intensity                    | 0.9 cd/lm                          | 50* 50*     |
| LEDs/each optic                   | 1                                  | 400         |
| Light colour                      | White                              | 45* 45*     |
| Required components:              |                                    | 540         |
|                                   |                                    |             |
| Protective plate                  | a, glass                           |             |
|                                   |                                    | 30* 15° 30* |
| TRIDONIC                          |                                    |             |
|                                   |                                    | 90* 90*     |
| LED                               | RLE G1 49x223mm 4000lm xxx EXC OTD | 750 752     |
| FWHM / FWTM                       | Asymmetric                         |             |
| Efficiency                        | 94 %<br>1.6 cd/lm                  | .50°        |
| Peak intensity<br>LEDs/each optic | 1                                  |             |
| Light colour                      | '<br>White                         |             |
| Required components:              | Winte                              | - 6° - 6° - |
| Required components.              |                                    | 00          |
|                                   |                                    |             |
|                                   |                                    | 1000        |
|                                   |                                    | 30° 30° 30° |



#### **GENERAL INFORMATION:**

NOTE: The typical beam angle will be changed by different color, chip size and chip position tolerance. The typical total beam angle is the full angle measured where the luminous intensity is half of the peak value.

#### MATERIALS:

As part of our continuous research and improvement processes, and to ensure the best possible quality and availability of our products, LEDiL reserves the right to change material grades without notice.

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