Optical innovation for LED illumination

LED lighting for machine vision
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Company overview

Mission

EFFILUX is an innovative French company with expertise in optics and LEDs whose mission is to design, manufacture and market LED lighting systems integrating optical technologies in order to improve industrial processing.

Offer

Wide range of standard lighting systems for machine & Custom and innovative lighting systems for technical domains

Ambition

EFFILUX’s ambition is to be recognized worldwide as a high-tech company able to offer:

- Very high level of expertise in machine vision lighting
- High quality and sustainable products
- Strong network able to technically support customers worldwide
Wavelength & Connector

Typical Wavelength

How to select wavelength into purchased product’s part number?

Example: EFFI-Sharp-NF-YYY 2

<table>
<thead>
<tr>
<th>Pin number</th>
<th>Cable color</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown</td>
<td>+24V</td>
</tr>
<tr>
<td>2</td>
<td>White</td>
<td>n.a.</td>
</tr>
<tr>
<td>3</td>
<td>Blue</td>
<td>GND</td>
</tr>
<tr>
<td>4</td>
<td>Black</td>
<td>DIM – max 24V</td>
</tr>
</tbody>
</table>

White color used into LED product is 5500 +/- 500 °K. In order to warranty repeatability and sustainability of its products, EFFILUX always integrates LEDs with similar wavelength and same white.

Connectors

Classic configuration: 24 V DC, Power < 80

<table>
<thead>
<tr>
<th>Pin number</th>
<th>Cable color</th>
<th>Designation</th>
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</thead>
<tbody>
<tr>
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</tr>
<tr>
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<td>+</td>
</tr>
<tr>
<td>4</td>
<td>Black</td>
<td>GND</td>
</tr>
</tbody>
</table>

Strobe configuration

<table>
<thead>
<tr>
<th>Pin number</th>
<th>Cable color</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown</td>
<td>n.a.</td>
</tr>
<tr>
<td>3</td>
<td>Blue</td>
<td>+</td>
</tr>
<tr>
<td>4</td>
<td>Black</td>
<td>GND</td>
</tr>
</tbody>
</table>

LED is not protected in “strobe configuration. Please read datasheets and instructions before connecting products.
EFFI-Line 5-15 : LineScan lighting system

EFFI-Line-5-15-LX-WWWW- XXX-Y-

Lens
Mechanical length
Wavelength
Power version
Cooling

Dimensions
64,4 mm
64,2 mm
M12

Illumination Vs Working distance

EFFI-Line 5-15 will be replaced by EFFI-Line V2.0 on the 1st of October 2013.
It will be still produced to provide sustainability to our customers.
EFFI-Line : Customization?

**EFFI-Line - Mini**

*Application*
Linescan application when place is reduced

**EFFI-Line – 20-60**

*Application*
Hot steel inspection – Optical sorting
EFFI-Line 20-60 generates high intensity light line at more than 500 mm working distance.

**EFFI-Line – Backlight**

*Application*
Inspection of transparent web with linescan camera.
EFFI-Line V2.0: Powerful line-scan illumination

NEW

Dimensions

Illumination Vs Working distance

<table>
<thead>
<tr>
<th>Power version</th>
<th>Cooling</th>
<th>Illumination at 100 mm working distance (white)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard (S)</td>
<td>Passive dissipation</td>
<td>200 000 Lux</td>
</tr>
<tr>
<td>Power (P)</td>
<td>Fans</td>
<td>400 000 Lux</td>
</tr>
<tr>
<td>High Power (HP)</td>
<td>Water cooling</td>
<td>800 000 Lux</td>
</tr>
</tbody>
</table>

Available on the 1st of October 2013
**EFFI-Sharp: High end projector**

**Working distance L (mm)**

- **Typical working distance**
  - Near Field (NF): 110 - 120 mm
  - Middle Field (MF): 115 - 132 mm
  - Far Field (FF): 132 - 166 mm

**Illuminance**

- Near Field (NF): 100 - 800 mm
- Middle Field (MF): 400 - 1600 mm
- Far Field (FF): 500 - 1800 mm

Elluminated area Vs Working distance

**Dimensions**

- M 4 * 10
- 20 * 23 * 50 mm³
- M12
- 4 pins

** EFFI-Sharp XX XXX X**

- Working distance
- Wavelength
- Shape
EFFI-Sharp-Power: High power projector

Working distance L (mm) Typical working distance Illuminance

<table>
<thead>
<tr>
<th>Field</th>
<th>Working distance</th>
<th>Typical working distance</th>
<th>Illuminance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near Field</td>
<td>135 - 145</td>
<td>100 – 800 mm</td>
<td>250 000 Lux at 100 mm</td>
</tr>
<tr>
<td>Middle Field</td>
<td>140 - 157</td>
<td>400 – 1600 mm</td>
<td>12 500 Lux at 500 mm</td>
</tr>
<tr>
<td>Far Field</td>
<td>157 - 191</td>
<td>500 – 1800 mm</td>
<td>1 500 Lux at 2 000 mm</td>
</tr>
</tbody>
</table>

Illuminated area Vs Working distance
EFFI-Sharp Focus Light: Very focused illumination

- **Near Field (NF):**
  - Working distance: 154 - 164 mm
  - Typical working distance: 40 – 70 mm
  - Illuminance: 1 000 000 Lux at 50 mm

- **Middle Field (MF):**
  - Working distance: 159 - 176 mm
  - Typical working distance: 80 – 120 mm
  - Illuminance: 300 000 Lux at 100 mm

- **Far Field (FF):**
  - Working distance: 176 - 210 mm
  - Typical working distance: 150 – 300 mm
  - Illuminance: 150 000 Lux at 180 mm

**Dimensions**
- L: 30 – 33 mm
- M4 * 10
- 20*23*50 mm³
- M12
- 4 pins

**Efficiency:**
- EFFI-Sharp-FL_XX_XXX_X

**Working distance:**
- Dimensions: 20*23*50 mm³
- M12
- 4 pins

**Illuminated area Vs Working distance**

---

**Working distance**
- Near Field (NF): 154 - 164 mm
- Middle Field (MF): 159 - 176 mm
- Far Field (FF): 176 - 210 mm

**Typical working distance**
- Near Field (NF): 40 – 70 mm
- Middle Field (MF): 80 – 120 mm
- Far Field (FF): 150 – 300 mm

**Illuminance**
- Near Field (NF): 1 000 000 Lux at 50 mm
- Middle Field (MF): 300 000 Lux at 100 mm
- Far Field (FF): 150 000 Lux at 180 mm
EFFI-Lase : Structured light

Applications

3D Profilometry
Accuracy
All wavelengths

3D StereoVision
Power
LED light

Alignment
No Ocular hazard
Life time

Dimensions

EFFI-Lase-CM

XXX

Mask

Wavelength

Dimensions:

L

30 mm

M 4 * 10

20*23*50 mm³

M12
4 pins

How to calculate the projected pattern size? (example: Line)

Mask dimensions:

Projected pattern dimensions:

\[ W = w \times \frac{L}{l} \]

- Compatible with any C-Mount objectives
- Large choice of standard masks
- Homogeneity > 80%
- Long lifetime > 50 000 hours
- No Speckle
- Eye safety
EFFI-Lase: Standard masks

Alignment:

Cross
Ref = A01

Circle
Ref = A02

3D Profilometry

1 Line
L01: thickness = 50 µm
L02: thickness = 20 µm
L01: thickness = 10 µm

3 Lines
Thickness: 50 µm
Pitch = 500 µm
Ref = L04

5 Lines
Thickness: 100 µm
Pitch = 750 µm
Ref = L06

100 Lines
Thickness: 45 µm
Pitch = 67.5 µm
Ref = L07

3D Stereovision

Clouds of dots
C02: Density = 50%

Clouds of dots
C03: Density = 17%

Grid
Thickness: 50 µm
Pitch = 205 µm
Ref = G03 – G04

Round / Squares
Diameter / Side: 50 µm
Round = G01
Square = G05
EFFI-Flex: Bar of LEDs

Build your own EFFI-Flex

1. Wavelength
   Select your color
   UV: 405 nm
   Blue: 465 nm
   Green: 525 nm
   Red: 625 nm
   IR: 850 nm

2. Length
   Number of LEDs
   1 LED
   3 LED
   5 LED
   10 LED
   Up to 4 meters

3. Lens
   Adjust the lens yourself
   90°
   45°
   25°
   10°

4. Glass
   Choose your glass
   Semi-diffuse
   Transparent
   Opaline

**DO IT YOURSELF**

<table>
<thead>
<tr>
<th>Number of LEDs</th>
<th>Length (mm)</th>
<th>Part Number</th>
<th>Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Classic version</td>
<td>-</td>
<td>Just add &quot;1/2&quot; at the end of part number</td>
</tr>
<tr>
<td>1</td>
<td>55</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>95</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>135</td>
<td>5</td>
<td>235</td>
</tr>
<tr>
<td>10</td>
<td>235</td>
<td>10</td>
<td>435</td>
</tr>
<tr>
<td>15</td>
<td>335</td>
<td>15</td>
<td>635</td>
</tr>
<tr>
<td>...</td>
<td>Up to 4000</td>
<td>...</td>
<td>Up to 4000</td>
</tr>
</tbody>
</table>

EFFI-Flex _XX_ XXX (_Y_ _Z_)

- **Number of LEDs**
- **Wavelength**
  - Y: Type of glass
  - Z: Lens position

**Dimensions**

- L: 51 mm
- 49 mm

- M12
- 4 pins

**Lens**

- 90°
- 45°
- 25°
- 10°
**EFFI-Flex: Applications**

### Direct illumination

**Configuration:**
1 or 2 EFFI-Flex with semi-diffusive window.

**Application:**
Quality control, bar code reading...

### Pick & Place

**Configuration:**
2 EFFI-Flex with semi-diffusive window. Additional polarizer if objects are reflective.

**Application:**
Robotic vision, robot guidance

### Indirect illumination

**Configuration:**
2 / 4 EFFI-Flex illuminating inside a white box.

**Application:**
Tunnel or dome light effect. Inspection of shiny objects

### Darkfield illumination

**Configuration:**
EFFI-Flex with lens at position 3 (10°)

**Application:**
Engraved codes reading, crashes inspection
EFFI-Flex: Special configurations

**Linescan**

Configuration:
EFFI-Flex with lens at highest position (10°)
Transparent glass + accessory “Flex-Linescan”

Application:
Web inspection (paper, glass, wood)

Options to turn EFFI-Flex into a linescan illumination system:
- “Flex-Linescan” accessory: Diffusor to homogenize light into one direction. It improves homogeneity.
- “ELS”: Electronic for linescan, to be added at the end of part number. If this option is selected, EFFILUX integrates a more suited electronic driver.

**Backlight: EFFI-Flex-BL**

Configuration:
EFFI-Flex with different LEDs + opaline glass

Application:
Optical sorting, width gauge, etc.

EFFI-Flex-BL is not the same as EFFI-Flex. It uses the same mechanical basis, but has been totally adapted to backlight application using linescan cameras.

Available up to 4 meters long
**EFFI-BL: Backlight**

**Application:**
*Any machine vision applications with backlights*

- Economic
- Robust
- Easy integration
- Homogeneous
- From 50*50 mm² to 1500*1500 mm²

**Camera**

**Dimensions:**
- LENGTH = 39 mm + optical length
- WIDTH = 39 mm + optical width
- M12 4 pins
- 43.2 mm

---

**EFFI-BL _XXX_ _XXX_ _XXX**

**Length**

**Width**

**Wavelength**
EFFI-FD: Flat dome light

Application:

EFFI-FD is used on shiny object to avoid reflectivity. It can be compared to a dome light.

- Robust
- Easy integration
- Homogeneous
- From 50*50 mm² to 1500*1500 mm²

Camera support accessory

Ref: EFFI-FD-camera

L = 39 mm + optical length
W = 39 mm + optical width

M12 4 pins

Length
Width
Wavelength

EFFI-FD XXX XXX XXX

43.2 mm
**EFFI-Telecentric: Telecentric lighting system**

**Application:**
Very accurate measurement. *EFFI-Telecentric* has to be used with a telecentric lens on the camera.

<table>
<thead>
<tr>
<th>EFFI-Telecentric_20_XXX</th>
<th>Length (mm)</th>
<th>Optical diameter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>117</td>
<td>20</td>
</tr>
<tr>
<td>EFFI-Telecentric_45_XXX</td>
<td>147</td>
<td>45</td>
</tr>
<tr>
<td>EFFI-Telecentric_70_XXX</td>
<td>245</td>
<td>70</td>
</tr>
<tr>
<td>EFFI-Telecentric_145_XXX</td>
<td>450</td>
<td>145</td>
</tr>
</tbody>
</table>
UV, IR and IP69K lights

EFFILUX delivers UV and IR lights

**UV EFFILUX illumination systems**

405 nm
All EFFILUX’s portfolio is available at 405 nm

365 nm
EFFI-Sharp is available at 365 nm
EFFI-Flex can be delivered at 365 nm with custom glass and without lenses

385 nm
EFFILUX can deliver customized products with other UV wavelength

**IR EFFILUX illumination systems**

850 nm
All EFFILUX’s portfolio is available at 850 nm

740 nm
EFFILUX also delivers EFFI-Flex, EFFI-Sharp and EFFI-line at 740 nm on request

Other wavelength up to 1300 nm exists. Please contact us

**Water proof and stainless**

EFFILUX can deliver water proof and stainless solutions.
## Accessories

### Electrical accessories

#### Cables

<table>
<thead>
<tr>
<th>Part-number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFC-Cable_M12_0002</td>
<td>M12 cable – 4 pins – 2m long</td>
</tr>
<tr>
<td>EFFC-Cable_M12_0003</td>
<td>M12 cable – 4 pins – 5m long</td>
</tr>
<tr>
<td>EFFC-Cable_M12_0004</td>
<td>M12 cable – 4 pins – 10m long</td>
</tr>
<tr>
<td>EFFC-Cable_M12_0025</td>
<td>M12 cable – 4 pins – HighFlex – 1.5m long</td>
</tr>
<tr>
<td>EFFC-Cable_M12_0026</td>
<td>M12 cable – 4 pins – HighFlex – 3m long</td>
</tr>
</tbody>
</table>

#### Strobe controller

*Minimum pulse time: 1µs.*
*Maximum current: Up to 10 A*

### Brackets

<table>
<thead>
<tr>
<th>Part-Number</th>
<th>EFFILUX range compatibility</th>
<th>Description</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFV-Bolt_0011</td>
<td>BL, FD, Flex</td>
<td>T-nut to insert in the slot Delivered with a screw</td>
<td></td>
</tr>
<tr>
<td>EFFM_1_0021</td>
<td>BL, FD, Flex</td>
<td>Bracket to fasten the device – 2 ridges Delivered with EFFV-Bolt_0008 and a screw</td>
<td></td>
</tr>
<tr>
<td>EFFM_1_0009</td>
<td>Sharp, Lase , Tele</td>
<td>Fastener used to simplify the projector integration (orientation) – drilled Delivered with 2 M4x12 screws</td>
<td></td>
</tr>
<tr>
<td>EFFM_1_0002</td>
<td>BL, FD, Flex</td>
<td>Fastener used to simplify the projector integration (orientation) – undrilled Delivered with EFFV-Bolt_0008 and a M5x12 screw</td>
<td></td>
</tr>
<tr>
<td>EFFM_1_0001</td>
<td>Sharp, Lase, Tele</td>
<td>Fastener used to simplify the projector integration (clamp) Delivered with 2 M4x20 screws</td>
<td></td>
</tr>
</tbody>
</table>
Accessories

Optical accessories

Objectives

Standard: C-Mount, F-Mount

Custom design

Optical filters

Bandpass, Longpass & Shortpass

Polarizers

Polarizers for EFFIUX’s illumination systems.
Polarizers for Cameras

EFFI-Angle

Part-number = EFFO_0006
### Brand labeling

#### Direct illumination

**Ring light**

- **Part Number** | **A (mm)** | **B (mm)** | **α (°)** | **D (mm)**
- EFFI-LSW-00  | 43 -> 92 | 15 -> 40 | 0 | 20
- EFFI-LSW-15  | 50 -> 103 | 28 -> 48 | 15 | 16 -> 22
- EFFI-LSW-30  | 46 -> 92 | 20 -> 48 | 30 | 16 -> 22
- EFFI-LSW-45  | 54 -> 100 | 25 -> 48 | 45 | 20 -> 30
- EFFI-LLA-60  | 74 -> 202 | 41 -> 167 | 60 | 20.5 -> 23.5
- EFFI-LLA-75  | 131 -> 175 | 94 -> 136 | 75 | 24.5

**Dark-field ring light**

- **Part Number** | **A (mm)** | **B (mm)**
- EFFI-LLA-90-050  | 56 | 24
- EFFI-LLA-90-080  | 80 | 50
- EFFI-LLA-90-100  | 101 | 71
- EFFI-LLA-90-150  | 151 | 121
- EFFI-LLA-90-180  | 181 | 151
- EFFI-LLA-90-210  | 211 | 181

**High density rectangular illumination**

- **Part Number** | **L (mm)**
- EFFI-LBS2-00-050-3  | 50
- EFFI-LBS2-00-080-3  | 80
- EFFI-LBS2-00-100-3  | 100
- EFFI-LBS2-00-140-3  | 144
- EFFI-LBS2-00-190-3  | 190
### Brand labeling

#### Diffused illumination

**Diffused ring light**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>α (°)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFI-DLR-45</td>
<td>50.8 - &gt; 126.5</td>
<td>8 - &gt; 71</td>
<td>45</td>
</tr>
<tr>
<td>EFFI-DLR-60</td>
<td>50.8 - &gt; 126.5</td>
<td>18 - &gt; 93</td>
<td>60</td>
</tr>
</tbody>
</table>

**Diffused Square illumination**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>31 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFI-DLQ-90-030</td>
<td>31.8</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>EFFI-DLQ-90-050</td>
<td>50.8</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>EFFI-DLQ-90-070</td>
<td>76.2</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>EFFI-DLQ-90-100</td>
<td>101.6</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>EFFI-DLF-90-050</td>
<td>50.8</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>EFFI-DLF-90-070</td>
<td>76.2</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>EFFI-DLF-90-100</td>
<td>101.6</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

#### Other diffused illumination series

- **LBDQ series**
- **DFR2 series**
- **DLS & DLW series**
Brand labeling

Dome & Tunnel light

Dome light

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>D (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFI-IDS3-00-050</td>
<td>68</td>
<td>10</td>
<td>53</td>
</tr>
<tr>
<td>EFFI-IDS3-00-070</td>
<td>95</td>
<td>20</td>
<td>78</td>
</tr>
<tr>
<td>EFFI-IDS3-00-100</td>
<td>118</td>
<td>25</td>
<td>103</td>
</tr>
<tr>
<td>EFFI-IDS3-00-150</td>
<td>185</td>
<td>40</td>
<td>165</td>
</tr>
<tr>
<td>EFFI-IDS3-00-200</td>
<td>232</td>
<td>50</td>
<td>212</td>
</tr>
<tr>
<td>EFFI-IDS3-00-250</td>
<td>284</td>
<td>50</td>
<td>261.6</td>
</tr>
</tbody>
</table>

Very large square “dome” light

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A (mm)</th>
<th>E (mm)</th>
<th>J (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFI-IDQ-00-100</td>
<td>180</td>
<td>200</td>
<td>35</td>
</tr>
<tr>
<td>EFFI-IDQ-00-190</td>
<td>270</td>
<td>290</td>
<td>35</td>
</tr>
<tr>
<td>EFFI-IDQ-00-300</td>
<td>412</td>
<td>452</td>
<td>50</td>
</tr>
</tbody>
</table>

Tunnel illumination

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A (mm)</th>
<th>H (mm)</th>
<th>C (mm)</th>
<th>I (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFI-IDT-00-100</td>
<td>100</td>
<td>71</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>EFFI-IDT-00-150</td>
<td>150</td>
<td>96</td>
<td>25</td>
<td>150</td>
</tr>
<tr>
<td>EFFI-IDT-00-200</td>
<td>200</td>
<td>121</td>
<td>25</td>
<td>200</td>
</tr>
</tbody>
</table>
### Brand labeling

#### Back light illumination

**Side illumination back light**

![Diagram of side illumination back light]

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>D (mm)</th>
<th>E (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFI-BHDS-00-25x36</td>
<td>43.5</td>
<td>38.5</td>
<td>25</td>
<td>36</td>
<td>5.3</td>
</tr>
<tr>
<td>EFFI-BHDS-00-31x58</td>
<td>43.5</td>
<td>60</td>
<td>31</td>
<td>58</td>
<td>5.3</td>
</tr>
<tr>
<td>EFFI-BHDS-00-070</td>
<td>84.5</td>
<td>98.5</td>
<td>70</td>
<td>70</td>
<td>5.3</td>
</tr>
<tr>
<td>EFFI-BHD-00-070</td>
<td>98.5</td>
<td>98.5</td>
<td>70</td>
<td>70</td>
<td>5.3</td>
</tr>
<tr>
<td>EFFI-BHD-00-100</td>
<td>128.5</td>
<td>128.5</td>
<td>100</td>
<td>100</td>
<td>5.3</td>
</tr>
</tbody>
</table>

**Classic backlight**

![Diagram of classic backlight]

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>D (mm)</th>
<th>E (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFI-BHS3-00-020</td>
<td>24</td>
<td>52</td>
<td>22</td>
<td>28</td>
<td>15</td>
</tr>
<tr>
<td>EFFI-BHS3-00-050</td>
<td>54</td>
<td>78</td>
<td>52</td>
<td>54</td>
<td>15</td>
</tr>
<tr>
<td>EFFI-BHS3-00-080</td>
<td>84</td>
<td>108</td>
<td>82</td>
<td>84</td>
<td>15</td>
</tr>
<tr>
<td>EFFI-BHS3-00-100</td>
<td>104</td>
<td>128</td>
<td>102</td>
<td>104</td>
<td>15</td>
</tr>
</tbody>
</table>

#### Co-axial illumination

![Diagram of co-axial illumination]

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFI-CAS-00-010</td>
<td>36</td>
<td>29</td>
<td>77.4</td>
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<td>EFFI-CAS-00-020</td>
<td>46</td>
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<tr>
<td>EFFI-CAS-00-040</td>
<td>66</td>
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<td>107.5</td>
<td>48</td>
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<tr>
<td>EFFI-CAS-00-070</td>
<td>95</td>
<td>89</td>
<td>139.6</td>
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<td>70</td>
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<tr>
<td>EFFI-CAS-00-100</td>
<td>123.8</td>
<td>120</td>
<td>168.7</td>
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</tr>
</tbody>
</table>
For each machine vision project, lighting solution has to be tested and validated. EFFILUX advises and technically supports your machine vision projects.

Depending on the project, EFFILUX will:
- Deliver a standard product from its portfolio
- Customize a solution
**Services, Technical support**

**Tryout**

**Loaning and renting**

To accelerate tests and feasibility at customer’s facilities, EFFILUX loans its lighting systems.

**Demo package**

To help customers to be autonomous for testing, EFFILUX proposes some demo package cases at discounted prices.

**Feasibility & Test**

EFFILUX helps its customers to determine which light is most suited for its machine vision project.

EFFILUX’s expertise and well-equipped machine vision laboratory allow us to find some solutions both economically and technically viable.

**Optical studies**

EFFILUX has very special skills in optics. This helps us to innovate and to design very smart and economic lighting solutions for our customers.
EFFILUX can adapt optical components from its products to modify focalization, improve homogeneity or any other optical parameter.

**Optic**

- Custom mechanical body
- Additional assets surfaces
- Heat transfer optimization
- Size reduction

**Mechanic**

- Power supply adaptation
- Custom LED driver
- Ethernet controller integration
- Automatic strobe following camera signals

**Electronic**

EFFILUX conceives and manufactures an illumination system which perfectly fits your requirements.
EFFILUX develops custom lighting systems for machine vision manufacturer.

If many products are purchased recurrently, EFFILUX is able to industrialize products in order to decreases costs.

**Added value**

- Project management from the requirements to the mass delivery
- Optical know-how.
- LED technology mastery
- Industrialization skills
- Sensor and machine vision experience

**Our tools**

- **Software:** Optic (Light tools, Zeemax), Mechanic (SolidWorks), Thermal (Flotherm), ERP & CRM
- **Equipment:** Assembly plant equipped with modern tools
- **Quality control:** Spectrometer, cameras and measurement tools.

**Specifications**

- **Optic:** Wavelength, intensity/illuminance
- **Mechanic:** Dimensions, assets...
- **Electric:** Power supply, strobe?

**Conception**

Optical, Electrical and Mechanical conception

**Optical set up**

Optical validation at a very low cost investment

**Prototype**

**Mass delivery**

**Industrialization**
Before contacting us, please have a look to the technical questions. They will help you to define your specifications.

**Optical specifications**

Wavelength?
Illuminance requirement: How many “Lux” or “mW/cm² at defined working distance?
Illuminated area?
Homogeneity requirement?
For structured light: Depth of field ? Edge sharpness?

**Mechanical constraints**

Dimensions?
Min & Max working distance?
Cooling system?
Attachment?

**Electrical requirements**

Connectors? (M8 – M12, pins…)
Power supply?
Strobe, or continuous? If strobed, which duty cycle and maximum pulse time?

**Environment**

Inspected material? (Size, reflective or not, color…)
Ambient light around the application?
Selected camera?
Atmosphere? Temperature, humidity…
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