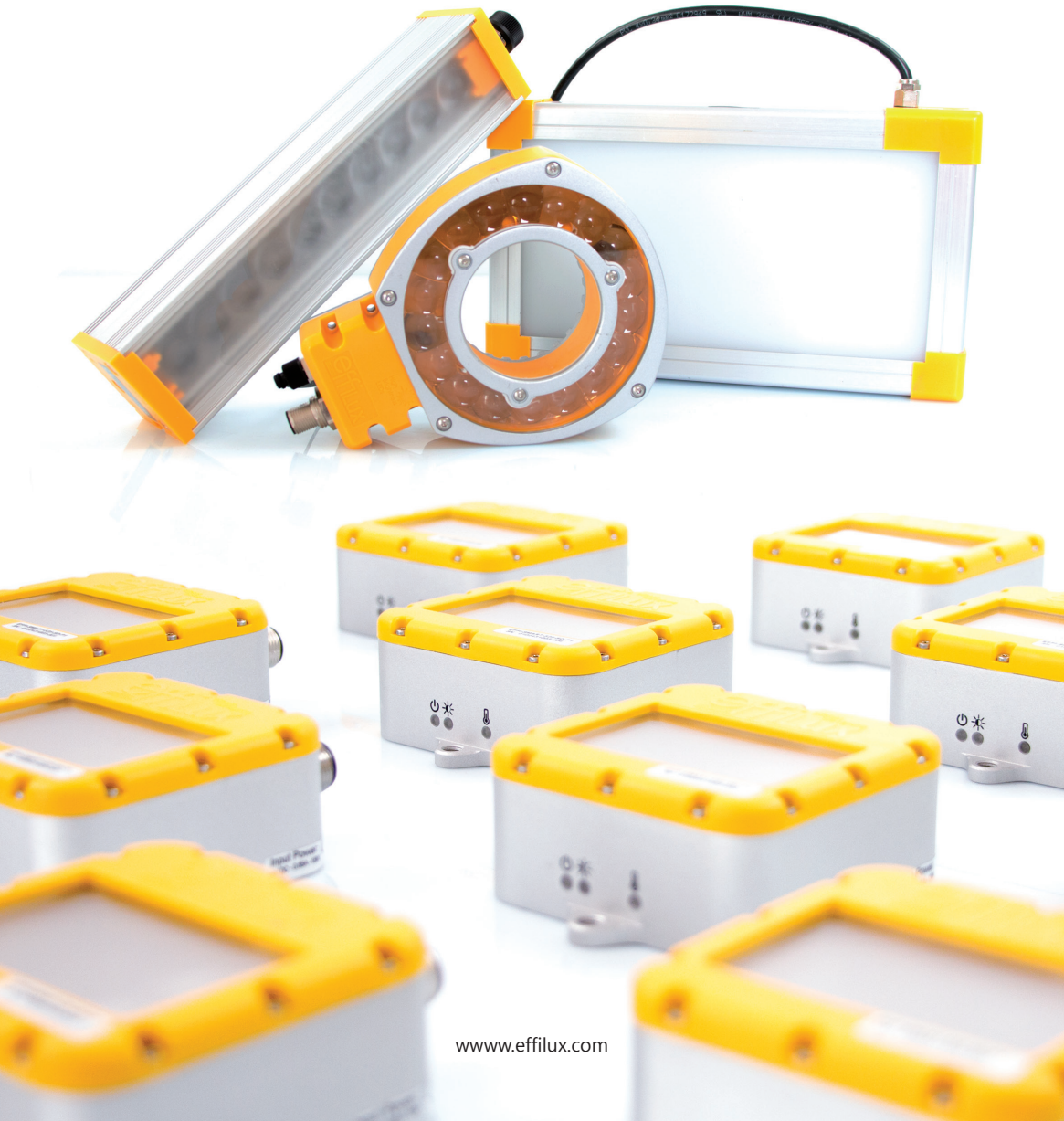


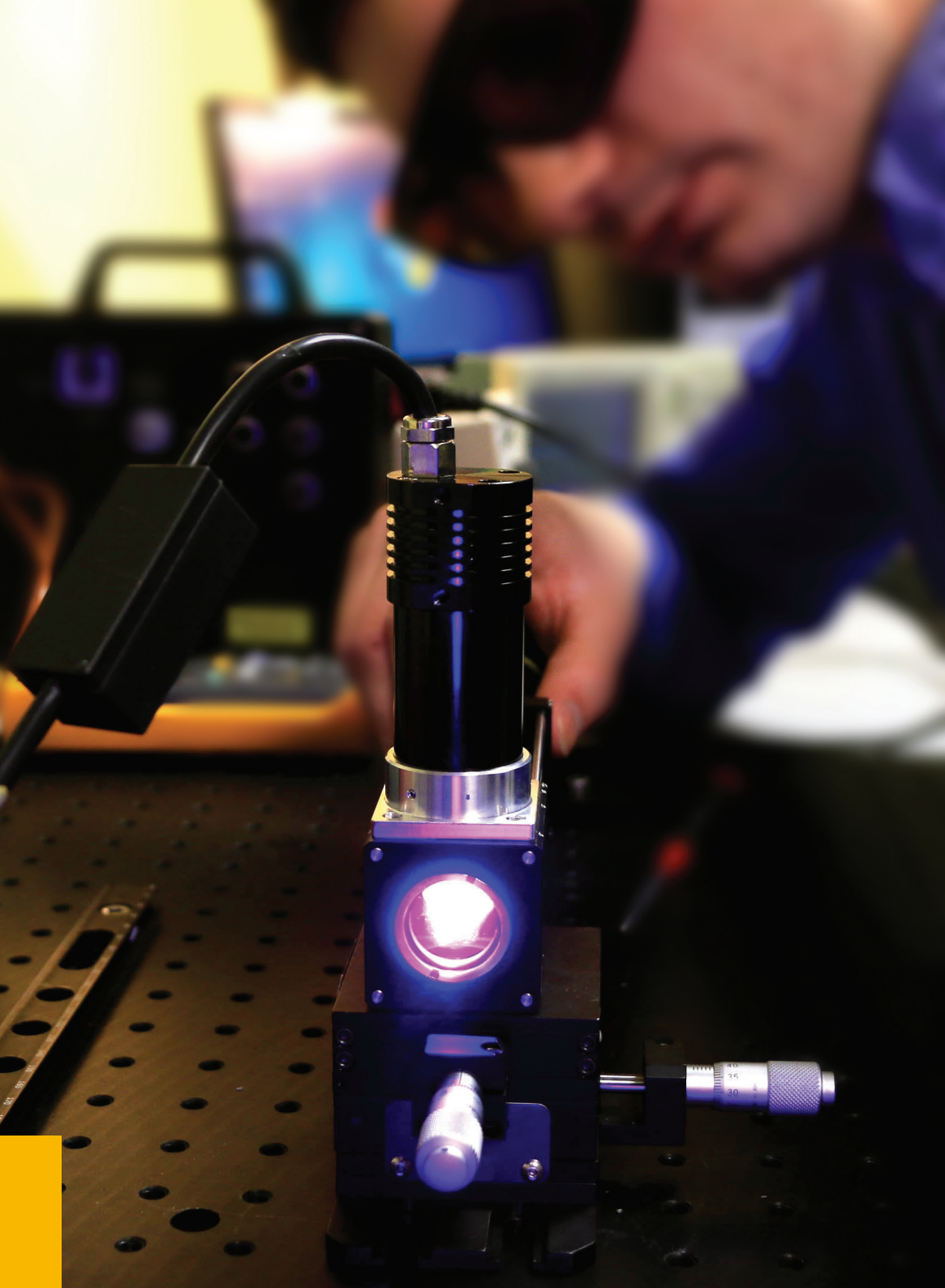
# effiLux

Efficient  
Led Lighting

Catalog 2018 - 2019



[www.effilux.com](http://www.effilux.com)





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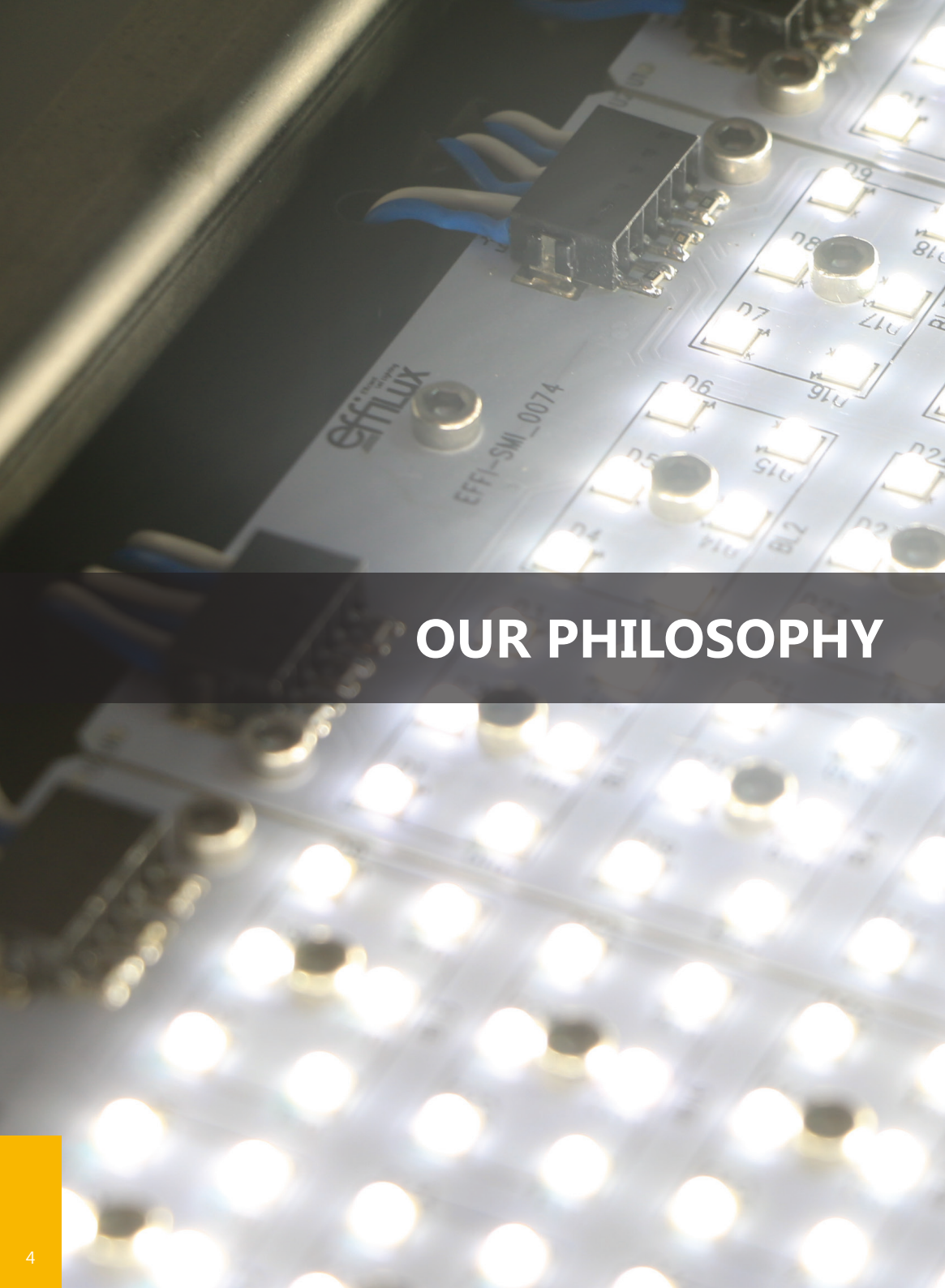
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# OUR PHILOSOPHY



EFFILUX designs and manufactures innovative LED lighting for machine vision.

Innovation has been embedded in the DNA of the company since its inception. The company differentiates itself through its control of LED lighting, its advanced optical expertise, innovative products and quality services. Even today its key differentiators enable EFFILUX to post growth of over 40% per year over the last three years.

In less than 9 years, EFFILUX has established trusted relationships with leading distributors of machine vision components in Europe. The company occupies the place of leader in European machine vision lighting. With 50% of export sales, a subsidiary in Germany, an office in UK and Italy and trade agreements signed in the USA, EFFILUX is resolutely turned towards international markets.

The success and growth of the company can be explained mainly by the quality of the team that makes up the firm. EFFILUX management has always sought to create a united team, with each person bringing his skills and personality. Every day, this team is devoted to delivering quality products to its customers in ever shorter deadlines.

At EFFILUX, we believe flexibility is the key of success in the machine vision world.

Also, EFFILUX products will be compatible with the next industrial revolution : Industry 4.0.

We look forward to working together,

Arnaud Mestivier & Jean-Philippe Blanchot



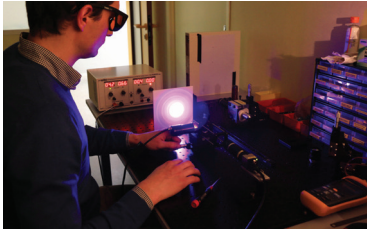
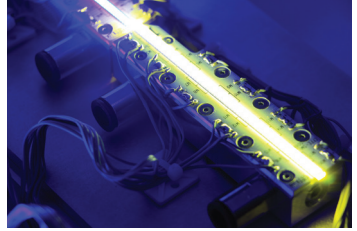


## COMPANY Expertise

From design to delivery, EFFILUX uses all its expertise and knowledge to meet customer's specifications.

### Engineering knowledge

- > Optical engineers.
- > Experience in industrial integration.
- > LED expertise.



### Reactivity and flexibility

- > A reactive team to meet your goals.
- > Delivery of the most standard products within a week.



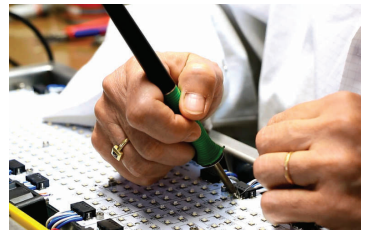
We guarantee quality products to meet your requirements. For us quality is key !

### Outsourcing Network

- > Proven mechanical subcontractors.
- > Electronic partners for design and high volume manufacture.
- > Partnerships with leading optical manufacturers.



EFFILUX offers efficient lightings with state of the art techno



Every lighting system is tested and validated to deliver to the customer a reliable and robust product.

## Softwares

 **SOLIDWORKS**

  
personal automated design system™

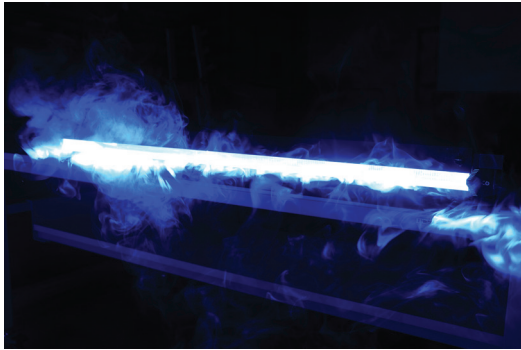




## SERVICE Effilux's Design Department is Unique in Europe

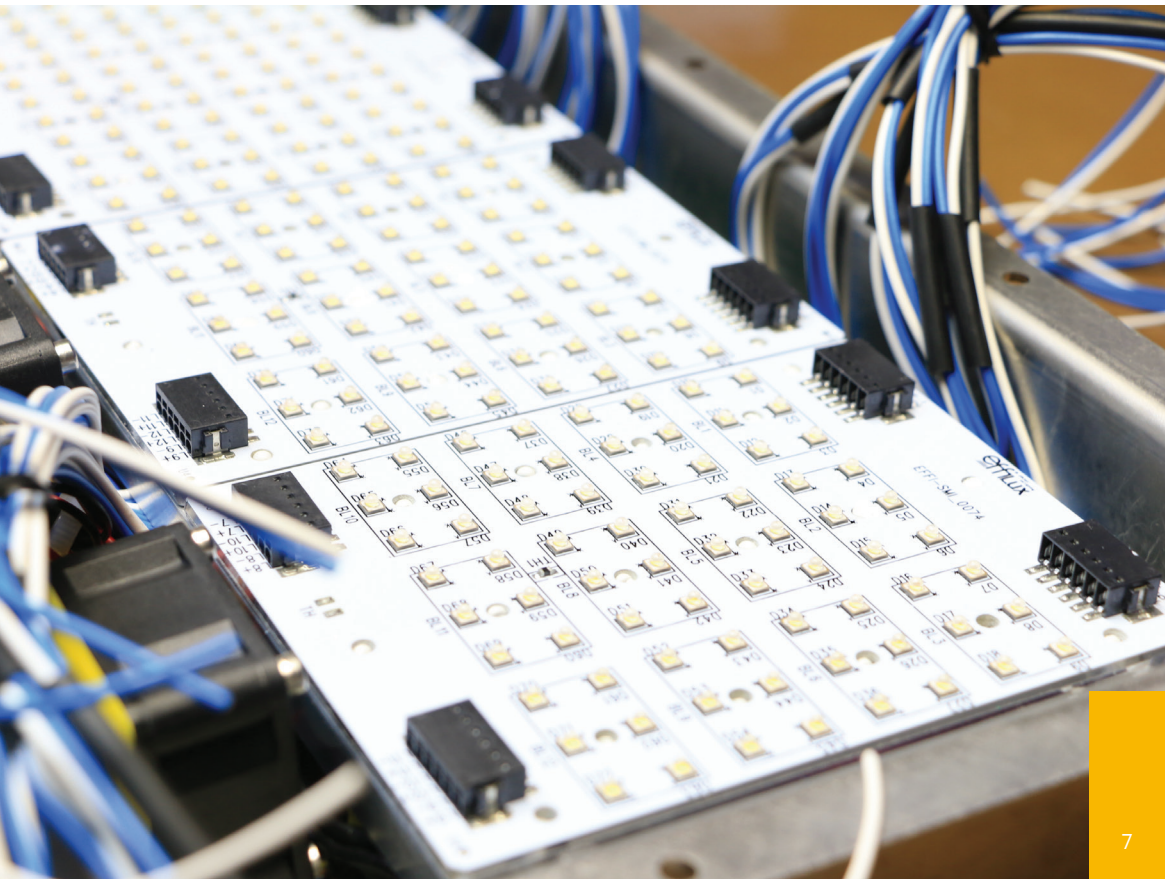
### > Why choosing and trusting EFFILUX ?

The custom development represents 50% of our business.



#### Added values

- Project management from specifications to mass delivery
- Optical, mechanical and electronical research department
- Knowledge of LED technology
- Optical expertise
- Industrialization expertise
- Proven experience in sensors and machine vision
- Quality
- Reactivity



### All Effilux Technologies are ready for OEM requests

The company develops both standard and custom products

#### Standard Products

Dedicated to System Integrators & Distributors

All products developed are innovative and/or differentiate themselves from the market

High-margin products

#### Custom Products

Dedicated to OEM customers

Various Effilux technology bricks assembled together to propose high end & innovative solutions to OEM customers

Repeat business

### EFFILUX masters 3 Kind of OEM bricks : Optical, Mechanical and Electronical

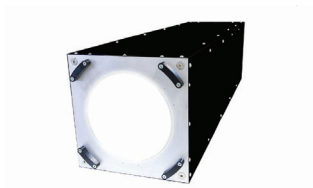
- Numerous technology bricks have been developed to be able to quickly answer to OEM requests: All OEM solutions are assemblies of EFFILUX's technology bricks

Optical Bricks	Mechanical Bricks	Electronic Bricks
<b>Multi wavelength</b> <ul style="list-style-type: none"><li>- Many wavelength integrated in same optical axis for multispectral measurement</li><li>- Filtering</li></ul> <b>Flexible lenses</b> <ul style="list-style-type: none"><li>- Depending on position, optical aperture is easily updatable.</li></ul> <b>Optical concentrator</b> <ul style="list-style-type: none"><li>- LED luminance increase</li></ul>	<b>Liquid cooling</b> <b>Aluminum extrusion</b> <b>Low cost &amp; quality aluminum milling</b> (machine in-house for prototyping & French supplier for OEM quantities)	<b>Ethernet control</b> <ul style="list-style-type: none"><li>- Multi-wavelength</li><li>- Timing – strobe control</li><li>- Records</li><li>- FUTURE : LED control for machine vision</li></ul> <b>Many different drivers</b> <ul style="list-style-type: none"><li>- Mid power / High power and very high power LED (50 A)</li><li>- Micro controller technology to control &amp; protect</li><li>- Very short rising time ( &lt; 5μs)</li></ul>

- EFFILUX design department is adapted and formatted only for LED light design in industry

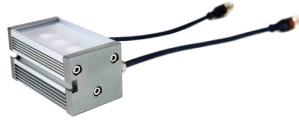


### Full custom products



**Pattern projector (50m distance)**

Safety : Red cross projected at 50 meter working distance.



**EFFI-Flex**

3 X 20W IR LED for multispectral inspection project.



**Led bar**

Blue/white double row of LED lines of light  
More than 200 KLux on a 50mm X 3,5 surface at  
600 mm working distance.



**Custom EFFI-Lase**

With large heat sink.



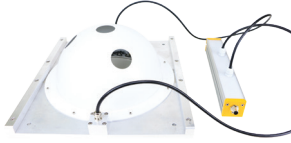
**Light sheet**

Line of LED producing a sheet of light thanks to  
an innovation optical system.



**EFFI-SMI**

20 X 40 X 15 mm<sup>3</sup> IP67  
6 LED + integrated driver solution developed  
for an OEM.



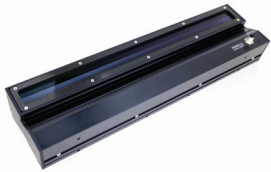
### **Dome**

Multi hole large size dome light.



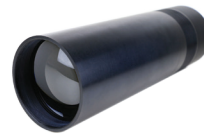
### **EFFI-Lase**

Custom connectors.



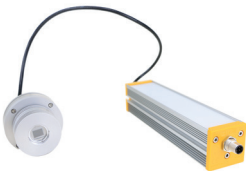
### **Coaxial**

Linescan on axis for inspection of reflective web.



### **EFFI-Sharp**

5 millions Lux for a 10mm diameter circle at 500mm working distance.



### **EFFI-Lase Flex électronique**

High powerful driver integrated inside an EFFI-Flex profile.



### **Multi-EFFI-Sharp**

12 EFFI-Sharp Focus light solution for xenon flash replacement.



### **Half tunnel**

5 meters long, liquid cooling IP68 and double windows protection.



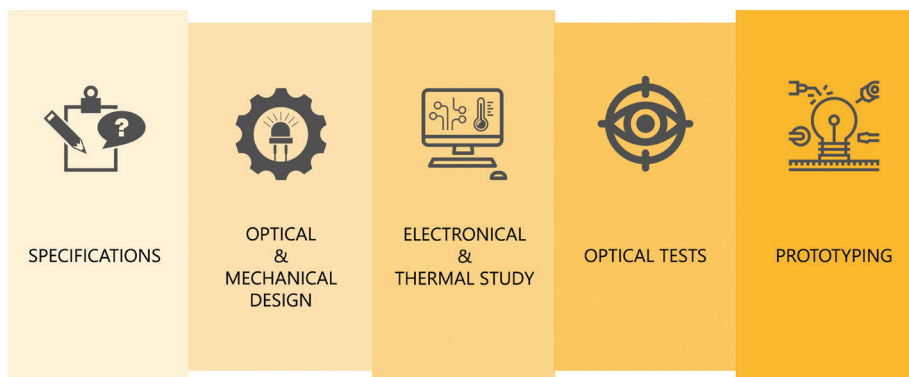
### **EFFI-BL**

powerful backlight aircooled. Red and blue LEDs.

### Custom product

Thanks to its know-how EFFILUX offers, besides its complete range of lighting products, tailored products to meet your needs and technical/economical constraints.

For an adaptation of a standard product or a specific request (OEM) the process is as follows :



With this personalized service, you can modify a certain number of parameters :

#### Mechanical setting

- Dimensions
- Shape
- Thin edge(s)
- Attachments
- Additional camera holes
- Waterproof

#### Optical settings

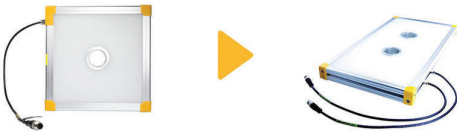
- Illumination angle
- Light output intensity
- Wavelength

#### Electronical setting

- Number, type & connectors position
- Cable length
- Courant max et technologies de consommation
- Strobe or continuous

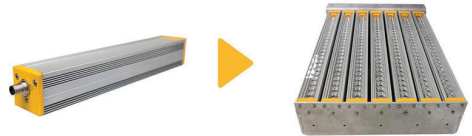


## Adapted products



### EFFI-FD custom

Flat dome with 2 camera holes & 2 connectors.



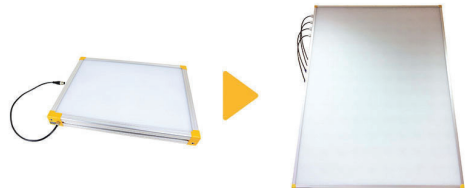
### EFFI-Flex custom

Multiple LED bars  
(more luminance and greater illuminated area).



### EFFI-BL custom

Waterproof thin edges backlight with 2 connectors & custom attachment.



### EFFI-BL custom

Large backlight (1000x3000mm).



### EFFI-Flex custom

Tri-color LED bar - 3 wavelengths.



### EFFI-Telecentric custom

Large telecentric.



### EFFI-BL custom

Backlight custom form with 2 connectors  
& specific dimension.

## SERVICE Technical support for specification definition - Before Sales

For each project of machine vision, a lighting solution must be tested and validated. EFFILUX reviews your application for free, provides you advice and technical support to finally deliver you either a standard product of its range, a custom development (see page 6).

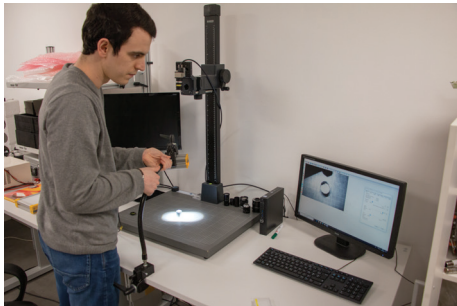
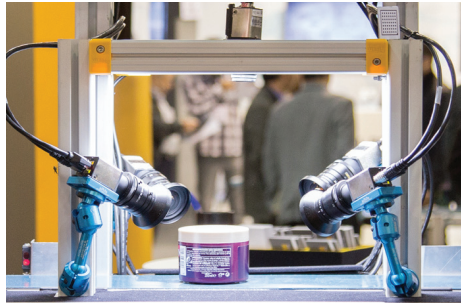
Your need ? (see Annex page 107)

Optical ?

Mechanical ?

Electronical ?

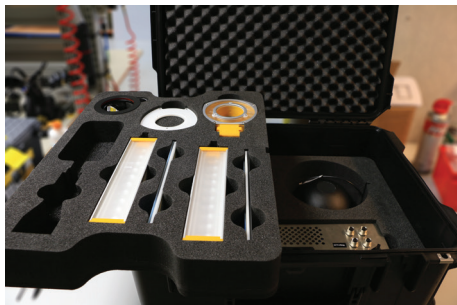
Environment ?



Free feasibility machine vision system integration  
EFFILUX helps to determine the best lighting solution within the constraints of the project.

Loans of standard products

To accelerate tests and feasibilities at customer's facilities, EFFILUX affords free loans to customers and partners.



Demo package

EFFILUX offers the opportunity for its partners to acquire demo package cases at discounted prices.

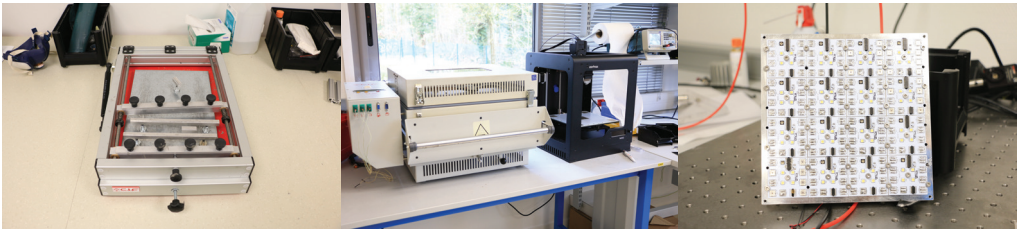
## SERVICE From prototyping to full production

At first stage of a project quick prototyping is a key point to validate the lighting solution in a short term  
Reactivity and flexibility are a part of the DNA of EFFILUX

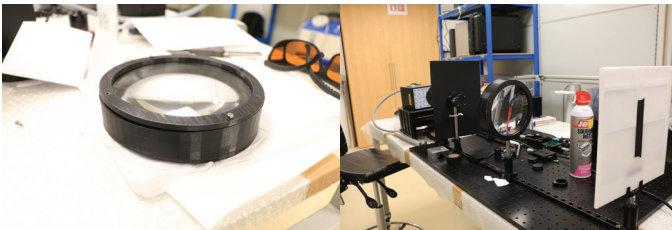
### Mechanical prototyping



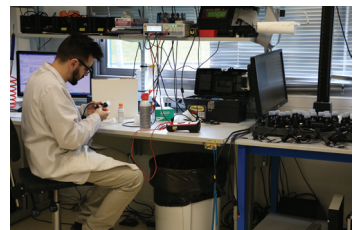
### Électronique prototyping



### Optical prototyping



All our products are manufactured and assembled in our workshop in Les Ulis.



All our products are tested before shipping to our customers.





### ISO in EFFILUX

---

Since its foundation in 2009, EFFILUX designs and manufactures LED lighting systems for machine vision. Innovation has always been part of the company. We are different from the other lighting suppliers thanks to our LED knowledge, our highly skills in optical engineering, our flexible and innovative products and the quality of our service.

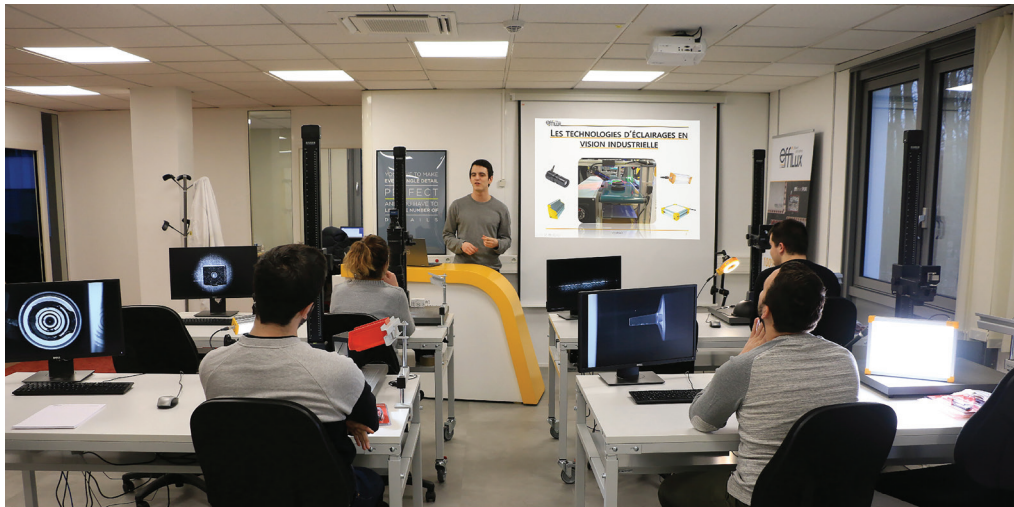
EFFILUX is living an important growth since several years and is now part of the European leader on this market. In order to stay an important stakeholder on the market in the next decade, EFFILUX wants to ensure its products reliability level. Therefore, EFFILUX decided to run a formalized continuous improvement plan.

Generally speaking, EFFILUX teams commit to satisfy all customers requirements and regulatory requirements by providing all the needed resources for Quality Management System set up.

EFFILUX teams, trained in machine vision industry, ensure their projects success. Their professional approach allow EFFILUX to deliver robust products in short delivery leadtime, referenced and designed for customers' needs.

Our goals are the following and to reach them is tracked thanks to our key performance indicators :

- Products reliability
- Customer satisfaction
- Reactivity



## Training session

Thanks to our optical and machine vision skills, EFFILUX can propose several training sessions. Many different lessons, with different levels from basic lessons as "how to choose a correct light" to "when and how should we use polarization?". EFFILUX is also proposing bespoke sessions to reach your specific requirements.

## All our training sessions



### LEVEL 1

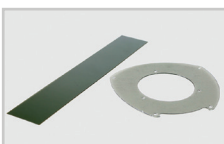
To choose a machine vision lighting  
(novice)

#### MORNING

Theory on interactions between light & materials, depending on lighting source (razing, dome light, etc.)

#### AFTERNOON

Practical sessions, tests in technical laboratory...



### LEVEL 2

Polarization & fluorescence  
(advanced)

#### MORNING

Theory on polarization and fluorescence.

#### AFTERNOON

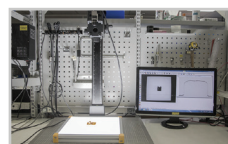
Practical tests, UV tests, fluorescence etc.



### LEVEL 1 & 2

Choice of machine vision lighting and polarization  
(whole training session)

This 2 days training session will allow you to learn all the basics about machine vision lighting and to get new skills in polarization and fluorescence as well.

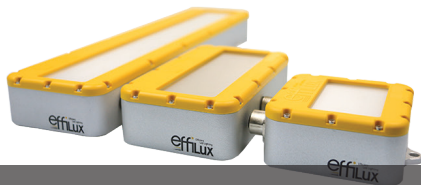
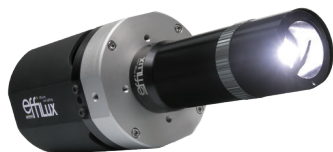
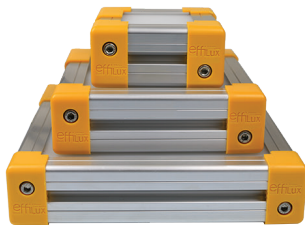


### BESPOKE TRAINING

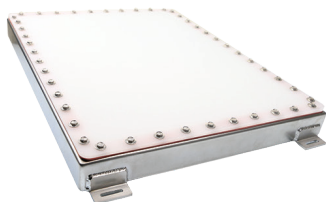
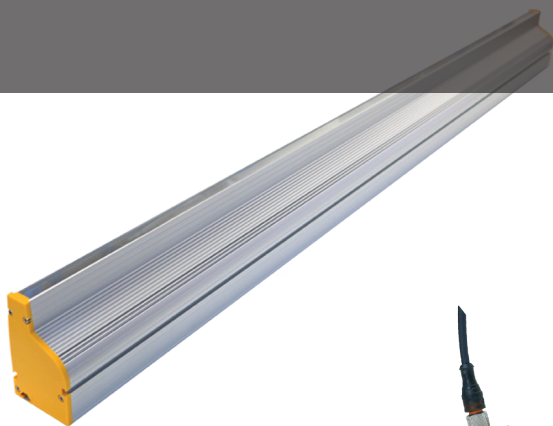
Project  
(custom level)

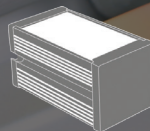
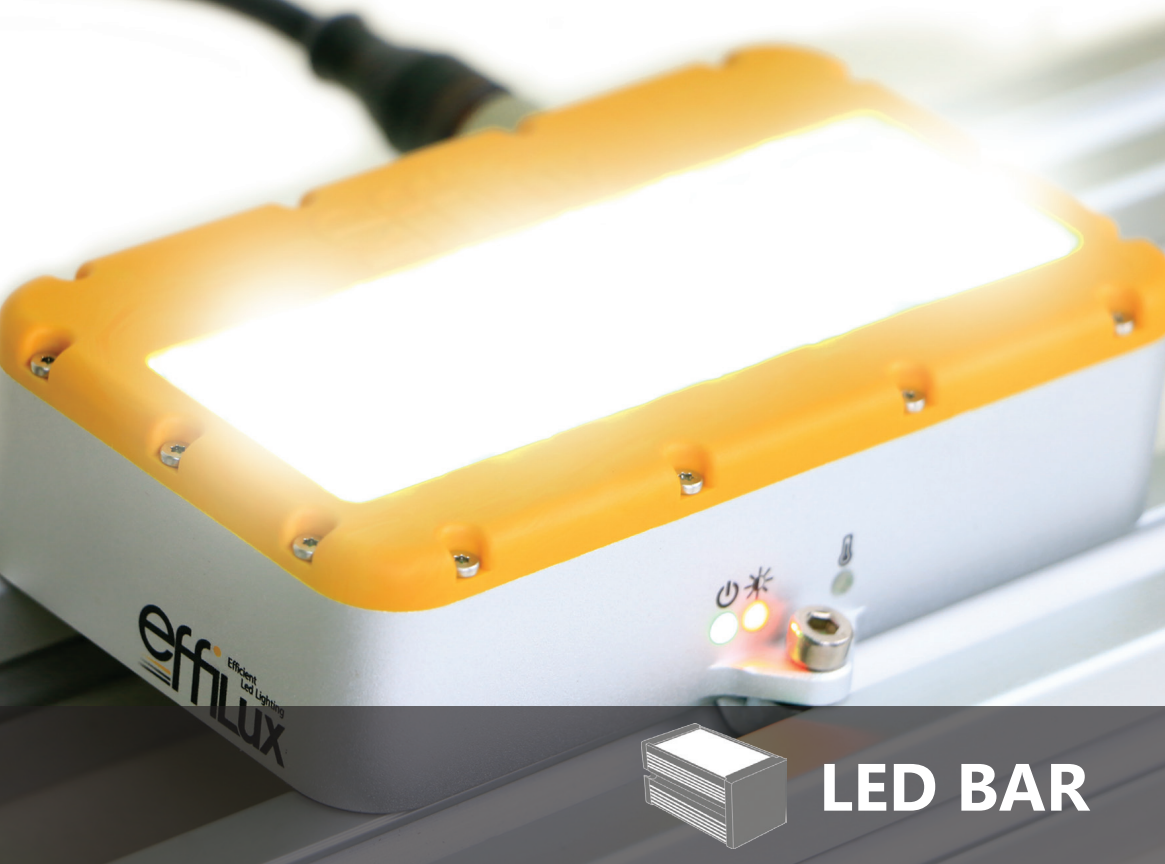
You have a new vision systems issue in your company ? Something that you can't solve by yourself ? A new project you want to develop but your miss vision and lighting skills ?

This bespoke training session is yours ; we will design it with you to meet your specific requirements.



# PRODUCTS





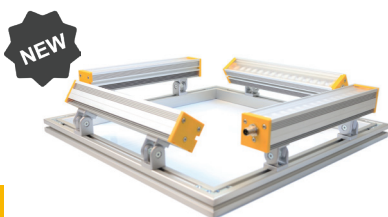
# LED BAR



EFFI-FLEX



EFFI-FLEX-CPT



EFFI-Square



EFFI-Smart



# EFFI-FLEX Adjustable beam angle LED bar.



## Description

Available in every wavelengths compact and every to set up, it's a very flexible products: you can choose the emission angle by just changing the lens position.

The EFFI-Flex led bars are fitted with high power LED. Through its diffusers (transparent, semi-diffuse and opaline) and polarizers, EFFI-Flex provides a directional, darkfield or diffuse lighting adapted to many machine vision applications windows are every to assembly as well.

## Applications

- Automatic identification applications
- Quality control
- ...

## Optical configurations

### - Length depending on number of LED

WW : number of LED	1	3	5	10	15	...
Standar version	55 mm	95 mm	135 mm	235 mm	335 mm	More than 4 M
1 LED / 2 version	-	-	235 mm	435 mm	635 mm	More than 4 M

**Part number :** EFFI-FLEX-WW...

If 1 LED / 2 version, add -L2 (Length X 2) before the number of LED

### - Available wavelengths

Color	UV 365*	UV	Blue	Green	Red	IR	White (T* = 5500 k ± 500 K)
XXX : wavelength (nm)	365	405	465	525	625	850	000

\* If UV 365 : no lens (not supported) and glass window

**Part number :** EFFI-FLEX-WW-XXX ...

if RGB : -RGB

Other wavelengths are available on request : 385 nm, 660 nm, 740 nm, 940nm...

# EFFI-FLEX Adjustable beam angle LED bar.

## - Windows

TR : Transparent



SD : Semi-diffuse



OP : Opaline



+ Powerful ← ————— → + Homogeneous

EFFILUX offers different types of interchangeable windows to find a good compromise between power and homogeneity depending on the nature of the object to control.

**Part number :** EFFI-FLEX-**WW-XXX-YY** ...

**YY :** TR, SD ou OP

If not specified, default semi-diffuse window

## - Emission angle according to the lens position



EFFI-Flex offers 4 lens configurations, manually adjustable to change the angles of emission

Position	P0*	P1	P2	P3
Angle	90° 	45° 	25° 	10° 

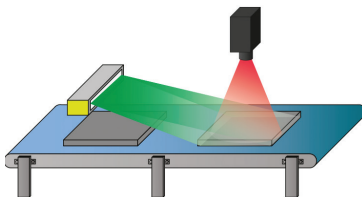
\* Without lens

**Part number :** EFFI-FLEX-**WW-XXX-YY-ZZ**

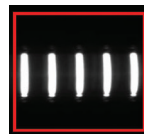
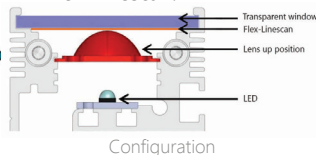
**ZZ :** P0, P1, P2 ou P3

If not specified, default P2 position

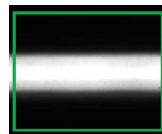
## - EFFI-Flex Linescan



Thanks to its optical accessory Flex-Linescan, the led bar EFFI-Flex is transformed into a linear lighting or a darkfield lighting :  
EFFI-Flex-Linescan.



Without linescan



With linescan

**Part number :** EFFI-FLEX-**WW-XXX-YY-ZZ-LS**

**LS :** flex-linescan accessory

If flex-linescan, add -LS in the part number

Possibility to buy only the accessory (page 95)

# EFFI-FLEX Adjustable beam angle LED bar.

## - Polarizer

The optical accessory Polarizer eliminates glare caused by the lighting on parts to control. The camera can then analyze the part, without being disturbed by the glow effects.



Without polarizer



With polarizer

**Part number :** EFFI-FLEX-**WW-XXX-YY-ZZ-POL**

**POL :** polarizer accessory

If polarizer, add -POL in the part number

Possibility to buy only the accessory (page 95)

## - Custom

On request

Ex : Cylindrical lens



Ex : Protective windows



## Mechanical configurations

### - Standard EFFI-Flex

Version	1 LED	3 LED	5 LED	10 LED	15 LED	20 LED	25 LED	30 LED	...
L : 1 LED/1 position (mm)	55	95	135	235	335	435	535	635	More than 4m
L : 1 LED/2 positions (mm)	-	-	235	435	635	835	1035	1235	More than 4m

### - EFFI-Flex Compact (IP67)

Version	1 LED	3 LED	5 LED	10 LED	15 LED	20 LED	25 LED	30 LED	40 LED	50 LED	...
L : 1 LED/1 position (mm)	57	97	137	237	337	437	537	637	737	837	More than 4m
L : 1 LED/2 positions (mm)	-	-	237	437	637	837	1037	1237	1437	1637	More than 4m



Standard EFFI-Flex



EFFI-Flex Compact (IP67)

### EFFI-FLEX vs. EFFI-FLEX CPT

	Smooth walls (avoid dust accumulation)	Waterproof (IP67)	«Openable» body adjustable lens	Watercooling Available (option)
Standard EFFI-Flex	✗	✗	✓	✗
EFFI-FLEX Compact	✓	✓	✗	✓

# EFFI-FLEX Adjustable beam angle LED bar.

The optical and electronical characteristics are the same as those of the Standard EFFI-Flex.

For the Compact Version, add «-CPT» between EFFI-FLEX & wavelength.

(exemple : EFFI-FLEX-CPT-625...)

For the Watercooling Option, add «-WTR» between EFFI-FLEX-CPT & wavelength.

(exemple : EFFI-FLEX-CPT-WTR-625...)

Between Standard EFFI-FLEX & EFFI-FLEX Compact, only the mechanical features are different.

## - Custom

On request

Ex : Positions of connectors, customized cheeks...

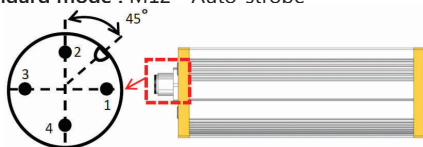


## Electronical configurations

### - Connectivity

EFFI-Flex is powered by a 24V constant voltage. DIM pin should be connected, it allows synchronization with the camera.

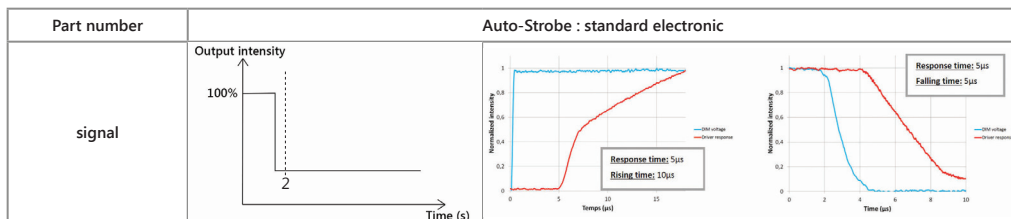
Standard mode : M12 - Auto-strobe



Pin number	cable color	Designation
1	Brown	+24V
2	White	n.a.
3	Blue	GND
4	Black	TRIG or DIM (ELS)

### - Drivers

> Auto-strobe (standard)



AUTO-STROBE



NO DIM



Since the standard product (Auto-Strobe) is not dimmable, EFFILUX offers an alternative electronic configuration to adjust the luminous intensity of the product according to the input signal (DIM):

This is the ELS Mode









Available with different Pw



# EFFI-FLEX Adjustable beam angle LED bar.

## > ELS Mode

Thanks to this version, several configurations are possible to meet your needs \*\* :

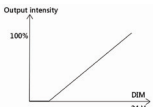
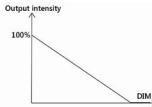
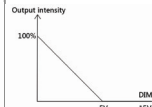
		Cooling system			
XXX	Output current (mA) [0-100%]	EFFI-FLEX	EFFI-FLEX 1 LED/2	EFFI-FLEX-CPT	EFFI-FLEX-CPT 1 LED/2
350	0-350 mA	 Passive cooling	 Passive cooling	 Passive cooling	 Passive cooling
500	0-500 mA	 Passive cooling + fan (if duty cycle > 75%)		 Passive cooling + fan (if duty cycle > 50%)	
700	0-700 mA	 Passive cooling + fan (if duty cycle > 50%)		 Passive cooling + fan (if duty cycle > 30%)	
1000	0-1000 mA	From a duty cycle > 30%, contact us.			

Part number : EFFI-FLEX-[...]\*-ELS-VVV-24V

XXX : output current (100%)

\* [...] : see optical configurations

\*\*Intended for continuous use and linear applications

Part Number	ELS-XXX-24V	ELS-IN-XXX-24V	ELS-IN-XXX-5V
Signal			

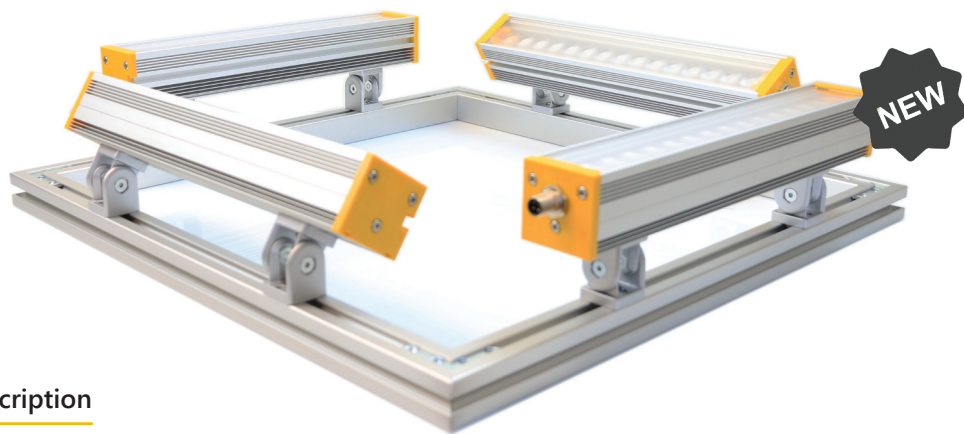


NO AUTO-STROBE



DIM OK

# EFFI-SQUARE Multiple EFFI-FLEX barlights system.

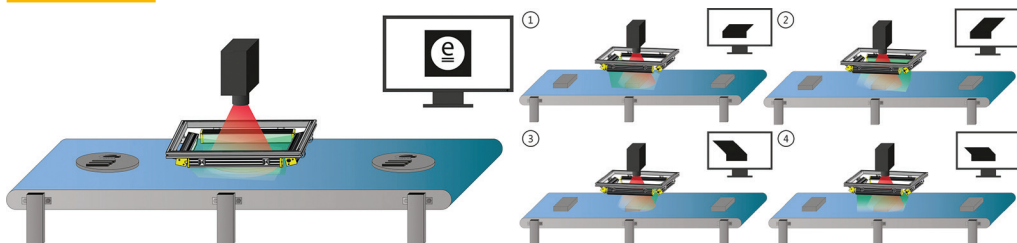


## Description

EFFI-SQUARE is a 4 EFFI-FLEX (barlights) system. Each EFFI-FLEX could be set up independently at the order:

- Colour
- Position of the lens
- Diffuser / Polarizer
- Orientation
- Electronic

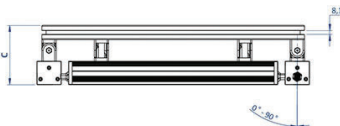
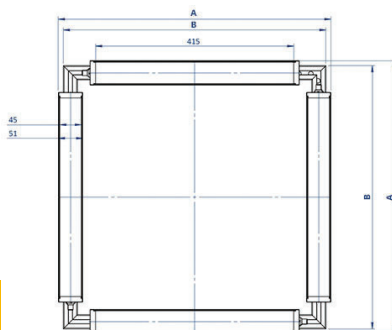
## Applications



Razing application : EFFI-SQUARE with an homogenous light

Photometric stereo (4 barlights strobed independently)

## Mechanical configuration



EFFI-SQUARE part number is made from EFFI-FLEX parts numbers. To get the correct one, several options are available : to choose 4 same EFFI-FLEX, or 2 combinations of 2 EFFI-FLEX or 4 independent EFFI-FLEX.

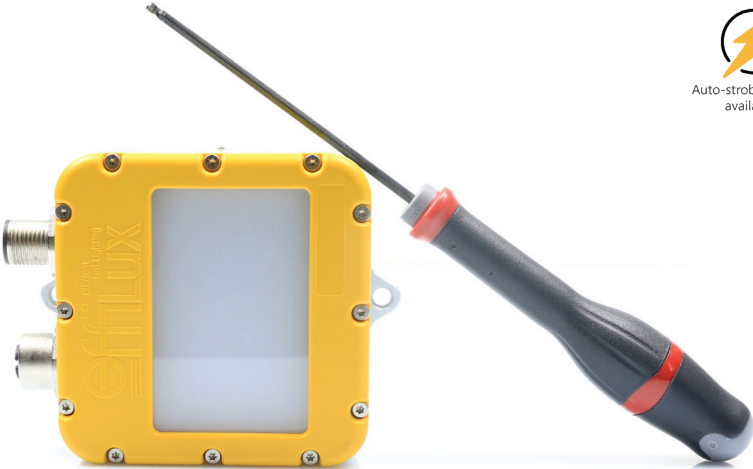
**Part number :** EFFI-SQR-XXX-4YYY (4 same EFFI-FLEX)

- EFFI-SQR-XXX-2YYY-2YYY (2 combinations of 2 EFFI-FLEX)

- EFFI-SQR-XXX-YYY-YYY-YYY-YYY (4 independent EFFI-FLEX)

XXX : Number of LEDs

YYY : Wavelengths



**Description**

EFFI-Smart is a double row high power LED bar available in many wavelengths and in 3 configurations (2 rows of 3, 12 or 36 LED). This is the most powerful solution of EFFILUX (2 times more powerful than the previous LED bar EFFI-Flex).

Providing IP67 sealing, the product is customizable by the customer. He cold open it to change the position of the lens (4 positions) and the window (transparent, semi-diffuse and opaline). Therefore, the client controls both the emission angle and the homogeneity/power.

EFFI-Smart is in some ways the assembly of tricks and technologies of EFFILUX in one product :


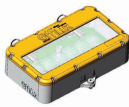
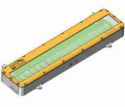
- Robust
- Waterproof (IP67)
- Flexible
- Chainable: Double I/O connectors
- Auto-strobe
- Fast rise time (10  $\mu$ s)

**Applications**

- Automatic identification applications
- Quality control
- ...

**Optical configurations**

- Length depending on number of LED

WW : number of LED	6	12	36
Configuration	 2 rows of 3 LED	 2 rows of 6 LED	 2 rows of 18 LED

Part number : EFFI-SMART-WW ...

# EFFI-SMART Double row LED bar

## - Available wavelengths

Color	UV	Blue	Green	Red	IR	White (T° = 5500 K ± 500 K)
XXX : Wavelength	405	465	525	625	850	000

**Part number :** EFFI-SMART-**WW-XXX** ...

## - Windows

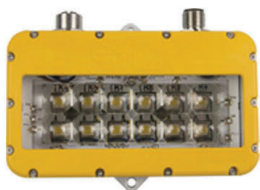
EFFILUX offers different types of interchangeable windows to find a good compromise between power and homogeneity depending on the nature of the object to control.

**TR** : Transparent

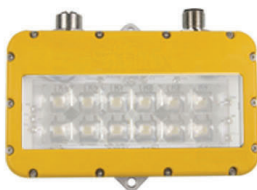
**SD** : Semi-diffuse

**OP** : Opaline

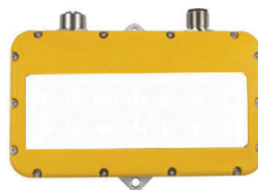
TR : Transparent



SD : Semi-diffuse



OP : Opaline



+ Powerful ← ————— → + Homogeneous

**Part number :** EFFI-SMART-**WW-XXX-YY** ...

If not specified, default semi-diffuse window

## - Emission angle according to the position of the lens

EFFI-Smart offers 4 lens configurations, manually adjustable to change the emission angle.



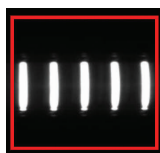
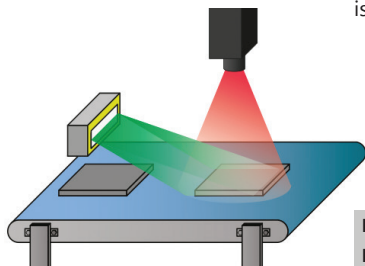
ZZ : position	P0*	P1	P2	P3
Angle	 90° : without lens	 45°	 25°	 10°

**Part number :** EFFI-SMART-**WW-XXX-YY-ZZ**

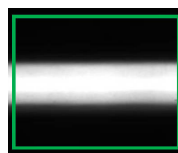
if not specified, default P1 position

## - Smart-Linescan

Thanks to the optical accessory Smart-Linescan, the EFFI-Smart LED Bar is transformable in a linear lighting or a grazing lighting.



Without linescan



With linescan

**Part number :** EFFI-SMART-**WW-XXX-YY-ZZ-LS**

**LS** : flex-linescan accessory



# EFFI-SMART Double row LED bar

## - Polarizer

The optical accessory Polarizer eliminates glare caused by the lighting on parts to control. The camera can then analyze the part, without being disturbed by the glow effects.



Without polarizer



With polarizer

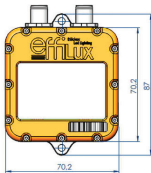
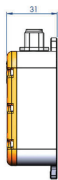
**Part number :** EFFI-SMART-**WW-XXX-YY-ZZ-POL**

**POL :** polarizer accessory

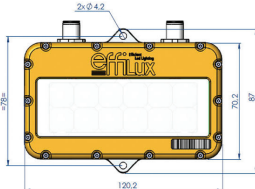
If polarizer, add -POL in the part number

Possibility to buy only the accessory (page 95)

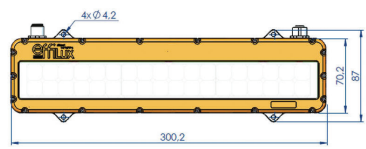
## Mechanical configurations



EFFI-Smart 6





EFFI-Smart 12

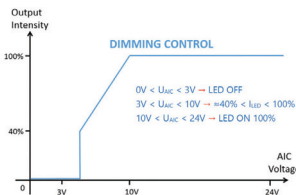
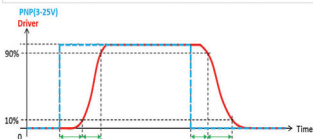
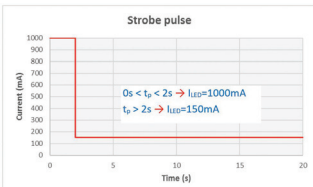


EFFI-Smart 36

Two or four threaded holes for M4 screws can be used to attach the device to the SMART adapter. (page 102)

## Electronical configurations

EFFI-SMART			
Pin number	Cable color	Contact	Detail
1	Brown	 Male connector	+24V
2	White		NPN [triggered on falling edge] - max 24V
3	Blue		GND
4	Black	 Female connector	NPN [triggered on rising edge] - max 24V
5	Grey		Analog Intensity Control: 0-10V



CHAINABLE



FAST RISE TIME



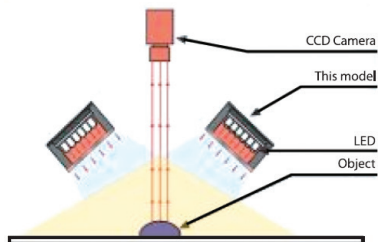
AUTO-STROBE



DIODE STATE



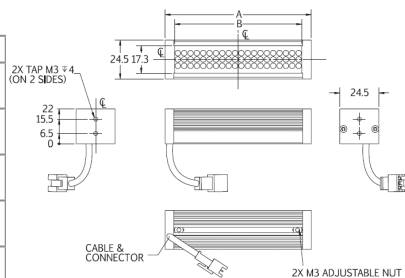
## EFFI-LBRX Small LED bar



### Part Number

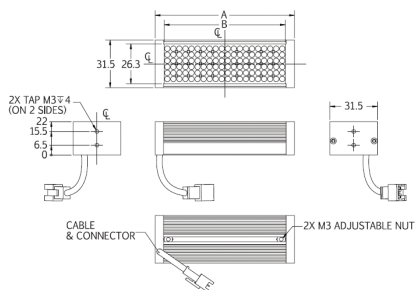
#### - 3 rows of LED

part number	A(mm)	B(mm)	color	voltage/power	current
EFFI-LBRX-00-040-3-X	52.0	40.0	R / G / B / W	24V / 0.79W 24V / 1.01W	33mA 42mA
EFFI-LBRX-00-080-3-X	92.0	80.0	R / G / B / W	24V / 1.58W 24V / 2.02W	66mA 84mA
EFFI-LBRX-00-120-3-X	132.0	120.0	R / G / B / W	24V / 2.38W 24V / 3.02W	99mA 126mA
EFFI-LBRX-00-160-3-X	172.0	160.0	R / G / B / W	24V / 3.17W 24V / 4.03W	132mA 168mA
EFFI-LBRX-00-200-3-X	212.0	200.0	R / G / B / W	24V / 3.96W 24V / 5.04W	165mA 210mA

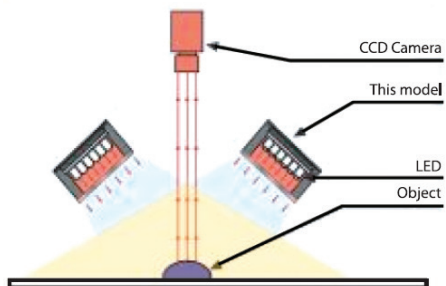


#### - 6 rows of LED

part number	A(mm)	B(mm)	color	voltage/power	current
EFFI-LBRX-00-040-6-X	52.0	40.0	R / G / B / W	24V / 1.87W 24V / 1.73W	78mA 72mA
EFFI-LBRX-00-080-6-X	92.0	80.0	R / G / B / W	24V / 3.74W 24V / 3.46W	156mA 144mA
EFFI-LBRX-00-120-6-X	132.0	120.0	R / G / B / W	24V / 5.62W 24V / 5.18W	234mA 216mA
EFFI-LBRX-00-160-6-X	172.0	160.0	R / G / B / W	24V / 7.49W 24V / 6.91W	312mA 288mA
EFFI-LBRX-00-200-6-X	212.0	200.0	R / G / B / W	24V / 9.36W 24V / 8.64W	390mA 360mA

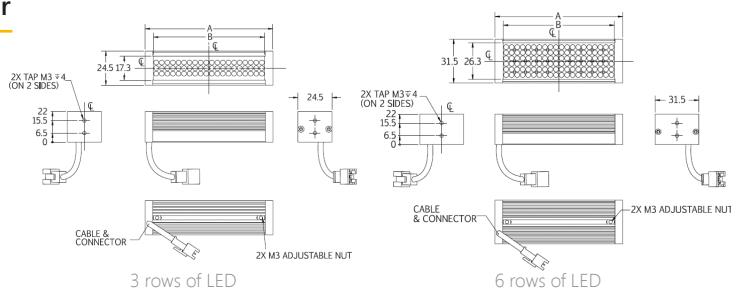


## EFFI-LBRQ Multiple rectangular LED illuminations



# EFFI-LBRQ Multiple rectangular LED illuminations

## Part Number



### - 3 rows of LED

part number	A(mm)	B(mm)	C(mm)	color	voltage/power	current
EFFI-LBRQ-00-040-3-X	120.0	95.8	70.0	R / G / B / W	24V / 3.17W 24V / 4.03W 24V / 4.32W 24V / 4.80W	132mA 168mA 180mA 200mA
EFFI-LBRQ-00-080-3-X	160.0	135.8	110.0	R / G / B / W	24V / 6.34W 24V / 8.06W 24V / 8.64W 24V / 9.60W	264mA 336mA 360mA 400mA
EFFI-LBRQ-00-120-3-X	200.0	175.8	150.0	R / G / B / W	24V / 9.50W 24V / 12.10W 24V / 12.96W 24V / 14.40W	396mA 504mA 540mA 600mA
EFFI-LBRQ-00-160-3-X	240.0	215.8	190.0	R / G / B / W	24V / 12.67W 24V / 16.13W 24V / 17.28W 24V / 19.20W	528mA 672mA 720mA 800mA
EFFI-LBRQ-00-200-3-X	280.0	255.8	230.0	R / G / B / W	24V / 15.84W 24V / 20.16W 24V / 21.60W 24V / 24.00W	660mA 840mA 900mA 1000mA

### - 6 rows of LED

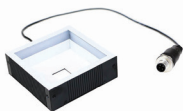
part number	A(mm)	B(mm)	C(mm)	color	voltage/power	current
EFFI-LBRQ-00-040-6-X	120.0	95.8	70.0	R / G / B / W	24V / 7.49W 24V / 6.91W 24V / 6.91W 24V / 9.22W	312mA 288mA 288mA 384mA
EFFI-LBRQ-00-080-6-X	160.0	135.8	110.0	R / G / B / W	24V / 14.98W 24V / 13.82W 24V / 13.82W 24V / 18.43W	624mA 576mA 576mA 768mA
EFFI-LBRQ-00-120-6-X	200.0	175.8	150.0	R / G / B / W	24V / 22.46W 24V / 20.74W 24V / 20.74W 24V / 27.65W	936mA 864mA 864mA 1152mA
EFFI-LBRQ-00-160-6-X	240.0	215.8	190.0	R / G / B / W	24V / 29.95W 24V / 27.65W 24V / 27.65W 24V / 36.86W	1248mA 1152mA 1152mA 1536mA
EFFI-LBRQ-00-200-6-X	280.0	255.8	230.0	R / G / B / W	24V / 37.44W 24V / 34.56W 24V / 34.56W 24V / 46.08W	1560mA 1440mA 1440mA 1920mA



# RING / ANNULAR



EFFI-Ring



EFFI-DL



EFFI-DLR

EFFI-HPD



EFFI-LLA



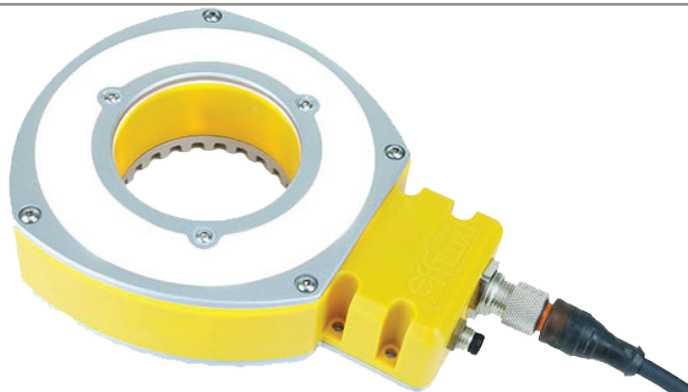
EFFI-LSW



EFFI-DFR



# EFFI-RING Adjustable beam power ring.



## Description

EFFI-Ring meets the major needs of industry by enabling the user to adjust the lighting beam angle, by removing the product and by changing the position of lens to focus more or less the light beam. (P0 : 90°, P1 : 45°, P2 : 25° et P3 : 10°).

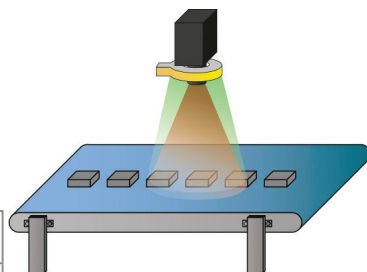
## Applications

- Quality control
- Pick and place

## Optical configurations

### - Available wavelengths

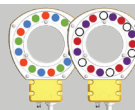
Color	UV	Blue	Green	Red	IR	White (T° = 5500 K ± 500 K)
XXX : wavelength (nm)	405	465	525	625	850	000



**Part number : EFFI-RING-XXX**

Tricolor versions :

If RGB : **-RGB**, If WUI (White-UV-IR) : **-WUI**



### - Windows

TR : Transparent



SD : Semi-diffuse



OP : Opaline



+Powerful



+Homogeneous

EFFILUX offers different types of interchangeable windows to find a good compromise between power and homogeneity depending on the nature of the object to control.

See optical accessory (page 92)

**Part number : EFFI-Ring-XXX-YY...**

YY : TR, SD ou OP





If not specified, default semi-diffuse window

# EFFI-RING Adjustable beam power ring.

## - Emission angle according to the lens position

EFFI-Flex offers 4 lens configurations, manually adjustable to change the emission angle



Position	P0*	P1	P2	P3
Angle	 90° Without lens	 45°	 25°	 10°

**Part number :** EFFI-Ring-XXX-YY-ZZ

ZZ : P0, P1, P2 ou P3

If not specified, default position P2

## - Polarizer

The optical accessory Polarizer eliminates glare caused by the lighting on parts to control. The camera can then analyze the part, without being disturbed by the glow effects.



Without polarizer



With polarizer

**Part number :** EFFI-Ring-XXX-YY-ZZ-POL

**POL :** polarizer accessory

If polarizer, add -POL in the part number

Possibility to buy only the accessory (page 95)

## Mechanical configurations

### - Fixing accessory for camera

EFFILUX proposes a camera mounting bracket for combining an EFFI-Ring lighting with a camera.

See this mechanical accessory (page 101)



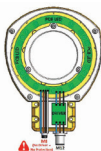
## Electronical configurations

### - Connectivity

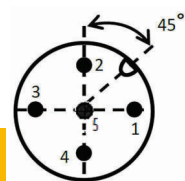
Electronic choices

Standard mode : M12 - auto-strobe

Expert mode : M8 - direct control



### - M12 connector - internal driver (standard mode)



Number	Pin color	Designation - Monochrome version	Designation - RGB/WUI versions
1	brown	+24V	+24V
2	white	n.a.	TRIG blue/white
3	blue	GND	GND
4	black	DIM - 24V	TRIG red/UV - max 24V
5	grey	n.a.	TRIG green/IR - max 24V

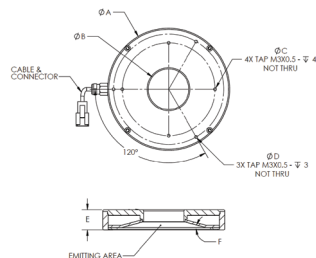
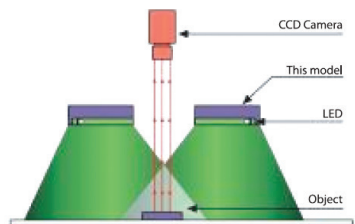
EFFI-Ring is powered by a 24V DC source

## EFFI-DFR Diffused ring lighting



### - EFFI-DFR 4

Part number	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F"	Color (X)	Voltage/Power	Current
EFFI-DFR4-00-050-1-X	56.0	8.0	25.0	35.0	18.0	0	R / G / B / W	24V / 1.80W 24V / 1.68W	75mA 70mA
EFFI-DFR4-00-080-1-X	81.0	21.0	54.0	56.0	18.0	0	R / G / B / W	24V / 2.88W 24V / 3.96W	120mA 165mA
EFFI-DFR4-00-100-1-X	105.2	30.0	80.0	95.0	18.0	0	R / G / B / W	24V / 3.96W 24V / 5.04W	165mA 210mA
EFFI-DFR4-00-130-1-X	131.5	45.0	95.0	106.0	18.0	0	R / G / B / W	24V / 5.04W 24V / 6.48W	210mA 270mA
EFFI-DFR4-15-080-1-X	81.0	19.0	54.0	56.0	17.5	15	R / G / B / W	24V / 2.88W 24V / 3.96W	120mA 165mA
EFFI-DFR4-15-100-1-X	105.2	35.0	80.0	95.0	17.5	15	R / G / B / W	24V / 3.96W 24V / 5.04W	165mA 210mA
EFFI-DFR4-15-130-1-X	131.5	45.6	95.0	106.0	17.5	15	R / G / B / W	24V / 5.04W 24V / 6.48W	210mA 270mA
EFFI-DFR4-30-050-1-X	56.0	12.0	25.0	35.0	17.5	30	R / G / B / W	24V / 1.80W 24V / 1.68W	75mA 70mA
EFFI-DFR4-30-080-1-X	81.0	25.0	54.0	56.0	17.5	30	R / G / B / W	24V / 2.88W 24V / 3.96W	120mA 165mA
EFFI-DFR4-30-100-1-X	105.2	44.0	80.0	95.0	17.5	30	R / G / B / W	24V / 3.96W 24V / 5.04W	165mA 210mA
EFFI-DFR4-30-130-1-X	131.5	66.0	95.0	106.0	17.5	30	R / G / B / W	24V / 5.04W 24V / 6.48W	210mA 270mA

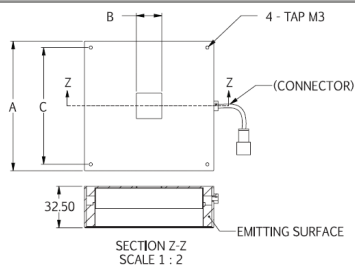


## EFFI-DL Diffused square lighting



### - DLQ2 & DLF2

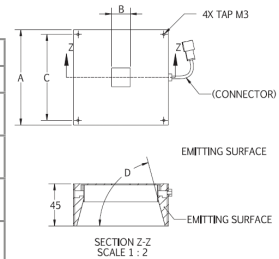
Part number	A(mm)	B(mm)	C(mm)	Color (X)	Voltage/Power	Current
EFFI-DLQ2-90-030-1-X	31.8	10	21	R / G / B / W	24V / 1.44W	60 mA
EFFI-DLQ2-90-050-1-X	50.8	10	40	R / G / B / W	24V / 2.88W	120 mA
EFFI-DLQ2-90-070-1-X	76.2	20	66	R / G / B / W	24V / 2.88W 24V / 4.32W	120 mA 180 mA
EFFI-DLQ2-90-100-1-X	101.6	20	91.5	R / G / B / W	24V / 4.32W 24V / 5.76W	180 mA 240 mA
EFFI-DLF2-90-050-1-X	50.8	26	40	R / G / B / W	24V / 2.88W	120 mA
EFFI-DLF2-90-070-1-X	76.6	55	66	R / G / B / W	24V / 2.88W 24V / 4.32W	120 mA 180 mA
EFFI-DLF2-90-100-1-X	101.6	80	91.5	R / G / B / W	24V / 4.32W 24V / 5.76W	180 mA 240 mA



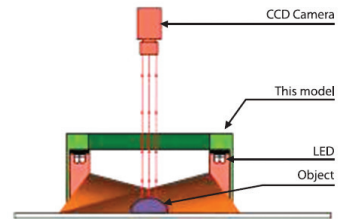
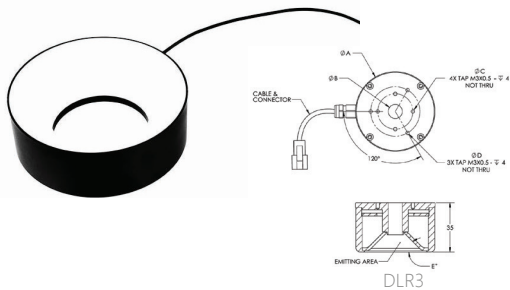
## EFFI-DL Diffused square lighting

### - DLS2 & DLW2

Part number	A(mm)	B(mm)	C(mm)	D°	Color (X)	Voltage/Power	Current
EFFI-DLS2-60-050-1-X	50.8	16.0	40.0	60	R / G / B / W	24V / 2.88W	120mA
EFFI-DLS2-60-070-1-X	76.2	20.0	66.0	60	R / G / B / W	24V / 2.88W 24V / 4.32W	120mA 180mA
EFFI-DLS2-60-100-1-X	101.6	20.0	91.5	60	R / G / B / W	24V / 4.32W 24V / 5.76W	180mA 240mA
EFFI-DLW2-60-070-1-X	76.2	40.0	66.0	60	R / G / B / W	24V / 2.88W 24V / 4.32W	120mA 180mA
EFFI-DLW2-60-100-1-X	101.6	66.0	91.5	60	R / G / B / W	24V / 4.32W 24V / 5.76W	180mA 240mA



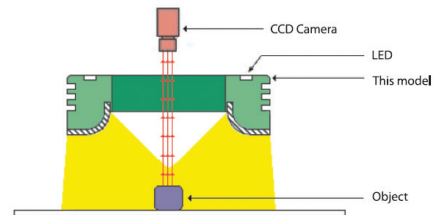
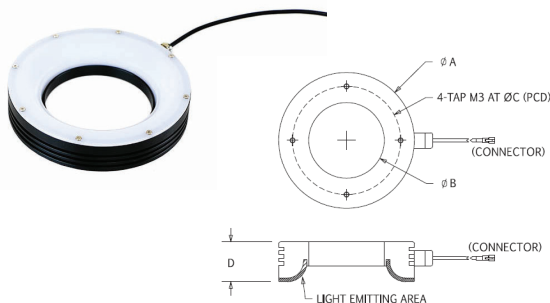
## EFFI-DLR Diffused angular lighting



### - DLR3

Part number	A(mm)	B(mm)	C(mm)	D(mm)	E°	Color (X)	Voltage/Power	Current
EFFI-DLR3-45-050-1-X	56.4	10.0	25.0	35.0	45	R / G / B / W	24V / 2.90W 24V / 2.90W	120mA 120mA
EFFI-DLR3-45-080-1-X	81.0	30.5	54.0	56.0	45	R / G / B / W	24V / 4.30W 24V / 4.30W	180mA 180mA
EFFI-DLR3-45-100-1-X	105.2	45.6	80.0	95.0	45	R / G / B / W	24V / 6.50W 24V / 6.50W	270mA 270mA
EFFI-DLR3-45-130-1-X	131.5	74.0	95.0	106.0	45	R / G / B / W	24V / 8.60W 24V / 8.60W	360mA 360mA
EFFI-DLR3-60-050-1-X	56.4	10.0	25.0	35.0	60	R / G / B / W	24V / 2.90W 24V / 2.90W	120mA 120mA
EFFI-DLR3-60-080-1-X	81.0	36.2	54.0	56.0	60	R / G / B / W	24V / 4.30W 24V / 4.30W	180mA 180mA
EFFI-DLR3-60-100-1-X	105.2	57.0	80.0	95.0	60	R / G / B / W	24V / 6.50W 24V / 6.50W	270mA 270mA
EFFI-DLR3-60-130-1-X	131.5	84.0	95.0	106.0	60	R / G / B / W	24V / 8.60W 24V / 8.60W	360mA 360mA

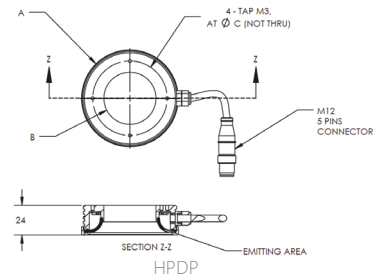
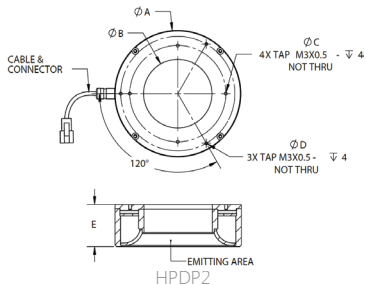
## EFFI-HPD Uniform ring lighting



# EFFI-HPD Uniform ring lighting

## - HPD

Part number	A(mm)	B(mm)	C(mm)	D°	Color (X)	Voltage/Power	Current
EFFI-HPD-00-070-1-X	75.5	42.0	60.0	22	R / G / B / W	24V / 1.80W 24V / 2.16W	75mA 90mA
EFFI-HPD-00-110-2-X	114.0	68.0	90.0	22	R / G / B / W	24V / 3.96W 24V / 4.37W	165mA 182mA
EFFI-HPD-00-170-1-X	176.6	111.0	150.0	29.6	R / G / B / W	24V / 18.0W	750mA
EFFI-HPD-00-240-1-X	245.0	158.5	200.0	38	R / G / B / W	24V / 25.20W 24V / 26.88W	1050mA 1120mA



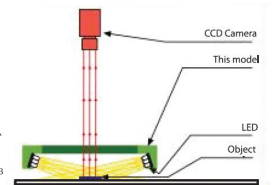
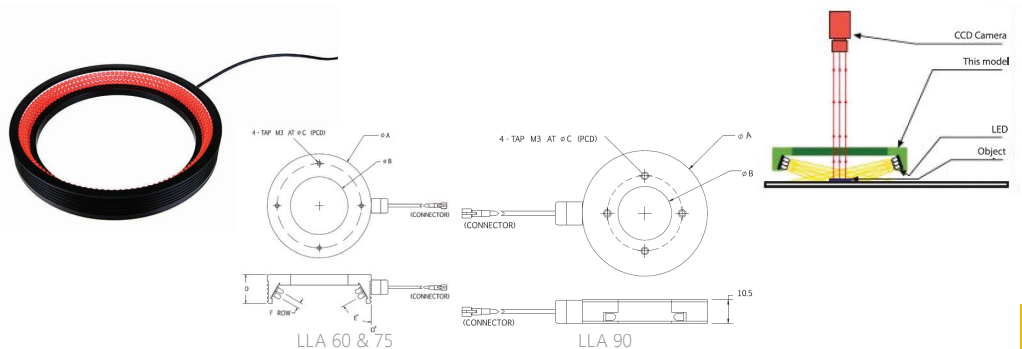
## - HPD2

Part number	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	Color (X)	Voltage/Power	Current
EFFI-HPD2-00-050-1-X	56.0	15.5	25.0	35.0	35.0	R / G / B / W	24V / 2.90W 24V / 2.90W	120mA 120mA
EFFI-HPD2-00-80-1-X	81.0	34.2	54.0	56.0	35.0	R / G / B / W	24V / 4.30W 24V / 4.30W	165mA 182mA
EFFI-HPD2-00-100-1-X	105.2	57.0	80.0	95.0	35.0	R / G / B / W	24V / 6.50W 24V / 6.50W	270mA 270mA
EFFI-HPD2-00-130-1-X	131.5	84.0	106.0	95.0	35.0	R / G / B / W	24V / 8.60W 24V / 8.60W	360mA 360mA

## - HPDP

Part number	A(mm)	B(mm)	C(mm)	Color (X)	Voltage/Power	Current
EFFI-HPDP-00-070-1-X	78.0	42.0	60.0	R / G / B / W	24V / 1.80W 24V / 2.16W	75mA 90mA
EFFI-HPDP-00-110-2-X	116.4	68.0	90.0	R / G / B / W	24V / 3.96W 24V / 4.37W	165mA 182mA

# EFFI-LLA Low angle lighting





# EFFI-LLA Low angle lighting

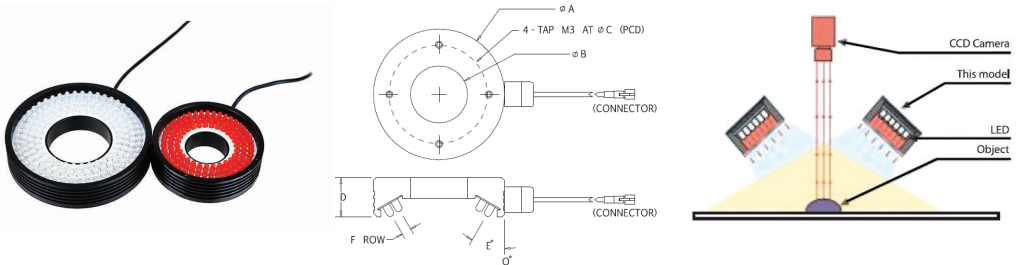
## - LLA 60 & 75

Part number	A(mm)	B(mm)	C(mm)	D(mm)	E°	F(Row)	Color (X)	Voltage/Power	Current
EFFI-LLA-60-070-2-X	74.0	41.0	60.0	20.5	60	2	R / G / B / W	24V / 3.60W 24V / 4.68W	150mA 195mA
EFFI-LLA-60-090-2-X	90.0	57.0	75.0	20.5	60	2	R / G / B / W	24V / 4.32W 24V / 5.76W	180mA 240mA
EFFI-LLA-60-150-3-X	151.0	114.0	136.0	23.5	60	3	R / G / B / W	24V / 11.88W 24V / 15.12W	495mA 630mA
EFFI-LLA-60-200-2-X	202.0	167.0	186.0	20.5	60	2	R / G / B / W	24V / 10.80W 24V / 14.04W	450mA 585mA
EFFI-LLA-75-130-3-X	131.0	94.0	116.0	24.5	75	3	R / G / B / W	24V / 10.08W 24V / 12.96W	420mA 540mA
EFFI-LLA-75-170-3-X	175.0	136.0	159.0	24.5	75	3	R / G / B / W	24V / 13.68W 24V / 17.64W	570mA 735mA

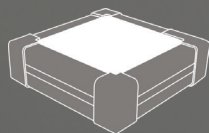
## - LLA 90

Part number	A(mm)	B(mm)	C(mm)	D(mm)	E°	F(Row)	Color (X)	Voltage/Power	Current
EFFI-LLA-90-050-1-X	56.0	24.0	33.5	10.5	90	1	R / G / B / W	24V / 1.08W 24V / 1.44W	45mA 60mA
EFFI-LLA-90-080-1-X	80.	50.0	56.5	10.5	90	1	R / G / B / W	24V / 1.80W 24V / 2.52W	75mA 105mA
EFFI-LLA-90-100-1-X	101.0	71.0	77.5	10.5	90	1	R / G / B / W	24V / 2.52W 24V / 3.24W	105mA 135mA
EFFI-LLA-90-150-1-X	151.0	121.0	127.5	10.5	90	1	R / G / B / W	24V / 3.96W 24V / 5.04W	165mA 210mA
EFFI-LLA-90-180-1-X	181.0	151.0	157.5	10.5	90	1	R / G / B / W	24V / 4.68W 24V / 6.12W	105mA 135mA
EFFI-LLA-90-210-1-X	211.0	181.0	187.0	10.5	90	1	R / G / B / W	24V / 5.76W 24V / 7.20W	240mA 300mA

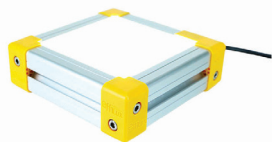
# EFFI-LSW Ring lighting



Part number	A(mm)	B(mm)	C(mm)	D(mm)	E°	F(Row)	Color (X)	Voltage/Power	Current
EFFI-LSW-00-040-2-X	43.0	15.0	28.0	20.0	0	2	R / G / B / W	24V / 1.44W 24V / 1.80W	60mA 75mA
EFFI-LSW-00-050-2-X	54.0	23.5	41.0	20.0	0	2	R / G / B / W	24V / 2.16W 24V / 2.88W	90mA 120mA
EFFI-LSW-00-070-3-X	70.0	26.0	56.0	20.0	0	3	R / G / B / W	24V / 4.32W 24V / 5.40W	180mA 225mA
EFFI-LSW-00-090-4-X	92.0	40.0	70.0	20.0	0	4	R / G / B / W	24V / 6.48W 24V / 8.28W	270mA 345mA
EFFI-LSW-15-050-2-X	50.0	28.0	40.0	16.0	15	2	R / G / B / W	24V / 2.16W 24V / 2.52W	90mA 105mA
EFFI-LSW-15-070-3-X	70.0	32.0	56.0	20.5	15	3	R / G / B / W	24V / 4.32W 24V / 5.76W	180mA 240mA
EFFI-LSW-15-090-4-X	92.0	47.0	70.0	20.5	15	4	R / G / B / W	24V / 7.92W 24V / 10.08W	330mA 420mA
EFFI-LSW-15-100-5-X	103.0	48.0	80.0	22.0	15	5	R / G / B / W	24V / 10.80W 24V / 13.68W	450mA 570mA
EFFI-LSW-30-040-2-X	46.0	20.0	35.0	16.0	30	2	R / G / B / W	24V / 1.80W 24V / 2.52W	75mA 105mA
EFFI-LSW-30-050-2-X	54.0	23.5	41.0	18.0	30	3	R / G / B / W	24V / 2.16W 24V / 2.88W	90mA 120mA
EFFI-LSW-30-070-3-X	70.0	32.0	56.0	20.0	30	3	R / G / B / W	24V / 4.32W 24V / 5.40W	180mA 225mA
EFFI-LSW-30-090-4-X	92.0	48.0	70.0	22.0	30	4	R / G / B / W	24V / 8.28W 24V / 10.44W	345mA 435mA
EFFI-LSW-45-050-2-X	54.0	25.0	44.0	20.0	45	2	R / G / B / W	24V / 2.16W 24V / 2.88W	90mA 120mA
EFFI-LSW-45-070-3-X	70.0	35.0	60.0	21.0	45	3	R / G / B / W	24V / 4.68W 24V / 5.76W	195mA 240mA
EFFI-LSW-45-090-4-X	92.0	52.0	70.0	24.0	45	4	R / G / B / W	24V / 8.28W 24V / 10.44W	345mA 435mA
EFFI-LSW-45-100-5-X	100.0	48.0	80.0	30.0	45	5	R / G / B / W	24V / 11.16W 24V / 14.40W	465mA 600mA



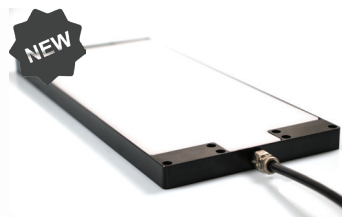
# BACKLIGHT



EFFI-BL



FLEX-BL



EFFI-SBL



EFFI-BHD



EFFI-BHS

# EFFI-BL Backlight



## Description

EFFI-BL is a large, powerful and homogeneous LED backlight. The strong luminance and greater than 90% homogeneity make it the ideal product for camera inspection by backlight.

The backlight sources are placed behind the part to highlight their figure into «shadow». These lightings offer a very homogeneous, uniform and diffuse light, avoiding the reflections generated by the incidence of light rays on parts to control.

## Applications

- Highlighting the silhouette of the object (maximum contrast between the background and the form)
- Dimensional control and the absence / presence of holes
- Control of transparent and translucent materials (glass, fabric, printed circuit...)
- Liquid level control in a bottle

- ...

## Optical configurations

### - Dimensions

XXX : optical width (mm)

YYY : optical length (mm)

EFFILUX offers all possible dimensions for XXX and YYY every 50 mm up to 1.5 m.

**Part number :** EFFI-BL-XXX-YYY...

### - Available wavelengths

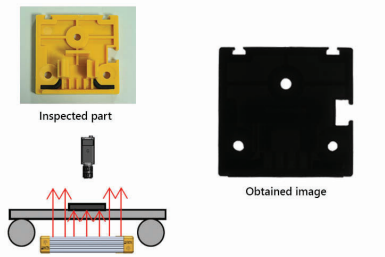
Color	Red	IR	White (T°= 5500 k ± 500 K)
ZZZ : wavelength (nm)	625	850	000

**Part number :** EFFI-BL-XXX-YYY-ZZZ

### - Polarizer

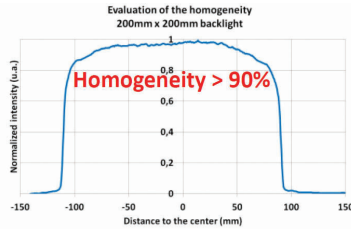
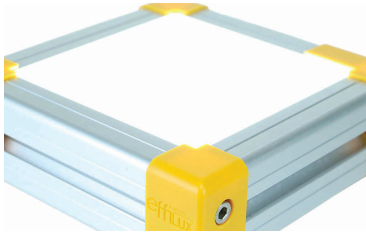
The Polarizer option eliminates glare caused by the lighting on parts to control. The camera can then analyze the part, without being disturbed by the glow effects.

**Part number :** EFFI-BL-XXX-YYY-ZZZ-POL  
If polarizer, add -POL in the part number



# EFFI-BL Backlight

## - Homogeneity



Unlike standard backlights, EFFI-BL has an anti-reflection system which absorbs reflections of parasite lighting around the system.

## Mechanical configurations

EFFILUX offers all possible dimensions for EFFI-BL to 1m in step of 50 mm.

Thin edges : add «T» after the dimension which must be reduced.

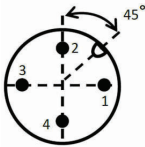
## - Custom

On demand : Position of connectors, IP version, extra fine edges, other dimension.

## Electronical configurations

### - Connectivity

EFFI-BL is connected to the supply by a M12 4-pin connector.



Pin number	Cable color	Designation
1	Brown	+ 24V
2	White	n.a.
3	Blue	GND
4	Black	DIM - max 24

### - Dimming control

EFFI-BL is powered by a 24V DC source.

By using the DIM pin, the light intensity can be increased linearly:

- 0V - OFF
- 24V - Full ON

### - Power version

- 3 times more powerful
- Compulsory use with a duty cycle < 30% !
- Power = EFFI-BL power X 3

Configuration : 150 mA, strobe mode, only white (000).

The standard configuration is 50 mA.

Other configurations are available on request.

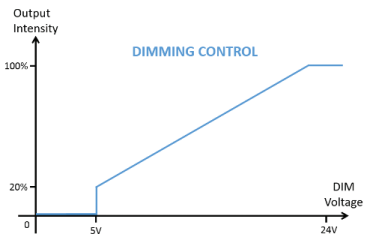
If power version, add -S150 at the end of the part number

### - High Power version

- 15 times more powerful
- Compulsory use with a duty cycle < 5% !
- High power LED
- Power = EFFI-BL power X 15

Configuration : 600 mA, strobe mode, different wavelengths available. (625, 850, 000)

If high power version, add -S600 at the end of the part number



# EFFI-FLEX-BL Backlight in LED bar version



## Description

EFFI-Flex-BL is usually used in backlight mode to display the outline of the parts to be inspected. However, it could also serve as very diffuse directional lighting.

This is mainly a lighting for linear camera, allowing control of paper, glass, transparent material... It's an adjustable product in terms of wavelength, it's a compact, easy to install and adjustable product. Many wavelengths are available.

## Applications

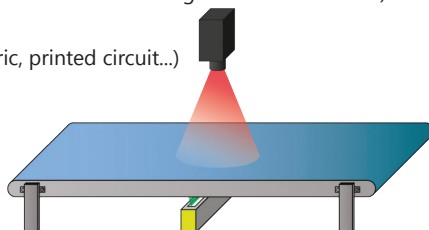
- Highlighting the silhouette of the object (maximum contrast between the background and the form)
- Dimensional control and the absence / presence of holes
- Control of transparent and translucent materials (glass, fabric, printed circuit...)
- Liquid level control in a bottle
- ...

## Optical configurations

### - Dimensions

YYY : optical length (mm)

EFFILUX offers all possible dimensions for YYY every 100 mm up to 4 m.



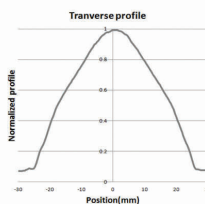
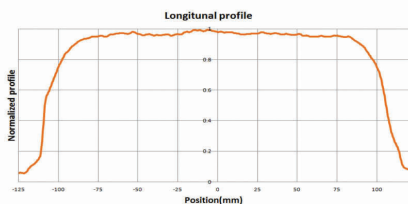
**Part number :** EFFI-FLEX-BL-YYY...

### - Available wavelengths

Color	Blue	Green	Red	IR	White ( $T^{\circ} = 5500 \text{ K} \pm 500 \text{ K}$ )
ZZZ : wavelength (nm)	465	525	625	850	000

**Part number :** EFFI-FLEX-BL-YYY-ZZZ

### - Homogeneity and luminance



Homogeneity > 90%

These measures were taken on a EFFI-Flex-BL with an optical length of 200mm.

EFFI-FLEX-BL comes with a default opaline window (OP)



# EFFI-FLEX-BL Backlight in LED bar version

## - Cylindrical lens

The cylindrical lens option improves collimation (concentration of luminous flow), allowing to increase the luminance on the exit windows by a factor of 20 : the illuminated area becomes thinner.

WITH CYLINDRICAL LENS



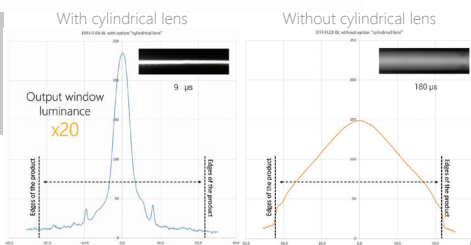
WITHOUT CYLINDRICAL LENS



Référence : EFFI-FLEX-BL-YYY-ZZZ-CYL

CYL : cylindrical lens accessory

EFFI-FLEX-BL-CYL comes with a default transparent window (TR) & linescan (LS)



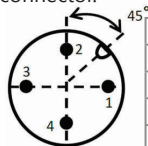
## Mechanical configurations

Par number	Electrical power (w)	Optical Length L op(mm)	Mechanical Length L (mm)	Type of connectors
EFFI-FLEX-BL-200-XXX	10	215	235	M12
EFFI-FLEX-BL-300-XXX	15	315	335	M12
EFFI-FLEX-BL-400-XXX	20	415	435	M12
EFFI-FLEX-BL-500-XXX	25	515	535	M12
EFFI-FLEX-BL-600-XXX	30	615	635	M12
EFFI-FLEX-BL-700-XXX	35	715	735	M12
EFFI-FLEX-BL-800-XXX	40	815	835	M12
EFFI-FLEX-BL-900-XXX	45	915	935	M12
EFFI-FLEX-BL-1000-XXX	50	1015	1035	M12
EFFI-FLEX-BL-1600-XXX	80	1615	1635	M12P
EFFI-FLEX-BL-1700-XXX	85	1715	1735	M12P
EFFI-FLEX-BL-2500-XXX	115	2515	2535	M12P
EFFI-FLEX-BL-3200-XXX	160	3256	3200	M12P
EFFI-FLEX-BL-4000-XXX	200	4056	4000	M12P

## Electronical configurations

### - Connectivity

EFFI-BL is connected to the supply by a M12 4-pin connector.



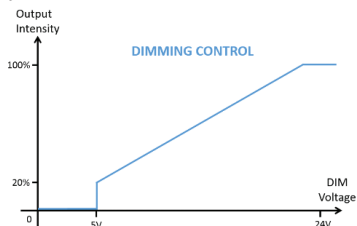
Pin number	Cable color	Designation
1	Brown	+24V ± 5%
2	White	n.a.
3	Blue	GND
4	Black	DIM - max 24

### - Dimming control

EFFI-BL is powered by a 24V DC source.

By using the DIM pin, the light intensity can be increased linearly:

- 0V - OFF
- 24V - Full ON



# EFFI-SBL Small backlight



## Description

- IP67
- Anto-strobe and dimmable electronic
- 15 mm thickness
- > 90% Homogeneity

## Dimension

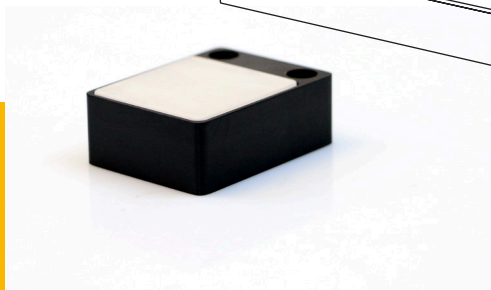
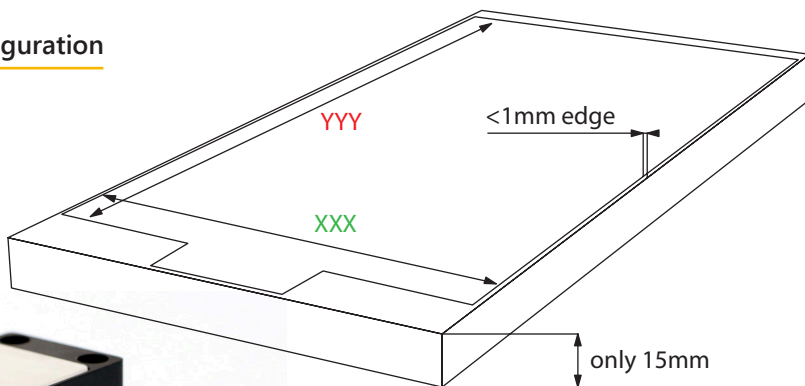
- From 25x25 to 200x200 mm<sup>2</sup>
- Managing length & width by 25mm step
- Any size configurable and custom request

## Part number

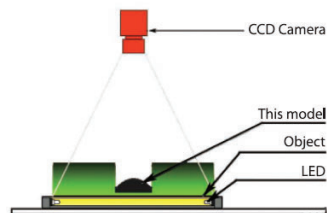
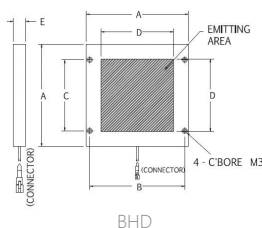
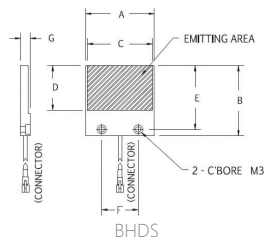
**Part number :** EFFI-SBL-**XXX-YYY-ZZZ**

**ZZZ** = Color

## Mechanical configuration



# EFFI-BHD Small backlight



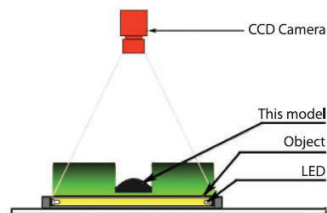
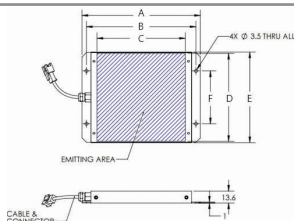
## - BHDS

Part number	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	Color (X)	Voltage/Power	Current
EFFI-BHDS-00-25X36-1-X	38.5	43.5	36.5	25.0	5.3	R / G / B / W	24V / 0.36W 24V / 0.48W	15mA 20mA
EFFI-BHDS-00-31X58-1-X	60	43.5	58.0	31.0	5.3	R / G / B / W	24V / 0.72W	20mA
EFFI-BHDS-00-070-1-X	98.5	84.5	70.0	70.0	5.3	R / G / B / W	24V / 2.16W	30mA

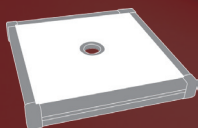
## - BHD

Part number	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	Color (X)	Voltage/Power	Current
EFFI-BHD-00-070-1-X	98.5	91.5	68.5	70.0	5.3	R / G / B / W	24V / 2.88W	120mA
EFFI-BHD-00-100-1-X	128.5	121.5	100.0	100.0	5.3	R / G / B / W	24V / 4.32W 24V / 3.84W	180mA 160mA

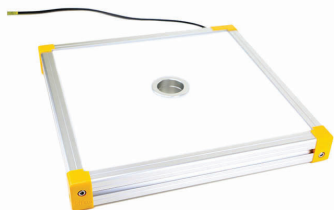
# EFFI-BHS Small backlight



Part number	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	Color (X)	Voltage/Power	Current
EFFI-BHS4-00-025-X	59.0	49.0	25.0	28.0	25.0	17.0	R / G / B / W	24V / 1.44W 24V / 0.576W 24V / 0.432W	60mA 24mA 18mA
EFFI-BHS4-00-030-X	64.0	54.0	30.0	33.0	30.0	22.0	R / G / B / W	24V / 1.44W 24V / 0.576W 24V / 0.432W	60mA 24mA 18mA
EFFI-BHS4-00-050-X	84.0	74.0	50.0	30.0	50.0	30.0	R / G / B / W	24V / 2.304W 24V / 1.728W	96mA 72mA
EFFI-BHS4-00-60-X	94.0	84.0	60.0	63.0	60.0	40.0	R / G / B / W	24V / 2.304W 24V / 1.728W	96mA 72mA
EFFI-BHS4-00-75-X	109.0	99.0	75.0	78.0	75.0	38.5	R / G / B / W	24V / 5.184W 24V / 3.888W	216mA 162mA
EFFI-BHS4-00-90-X	124.0	114.0	90.0	93.0	90.0	70.0	R / G / B / W	24V / 5.184W 24V / 3.888W	216mA 162mA
EFFI-BHS4-00-100-X	134.0	124.0	100.0	103.0	100.0	60.0	R / G / B / W	24V / 9.216W 24V / 6.912W	384mA 288mA
EFFI-BHS4-00-120-X	154.0	144.0	120.0	123.0	120.0	100.0	R / G / B / W	24V / 9.216W 24V / 6.912W	384mA 288mA



## DOME / FLAT DOME



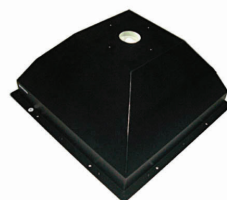
EFFI-FD



EFFI-IDS

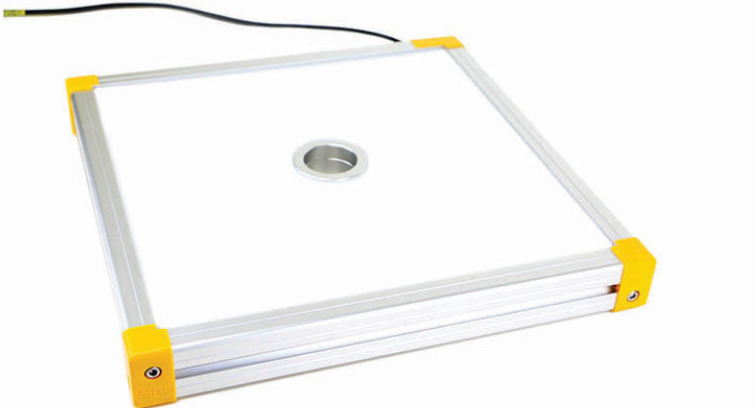


EFFI-IDT



EFFI-IDQ

# EFFI-FD Flat dome



## Description

EFFI-FD is a diffused LED lighting flat dome for reflective surfaces. It is ideal for machine vision applications where light is both direct and diffused.

EFFI-FD offers the advantage of being easily integrated on a production line. It is even often used as the main mechanical basic vision application. In some cases EFFI-FD can replace dome lighting.

## Applications

- Characters detection on a reflective packaging ( metal for example)
- Bas code reading on the curved bottom of a box
- Objects control whose surface is regular
- ...

## Optical configuration

### - Dimensions

XXX : optical width (mm)  
YYY : optical lenght (mm)

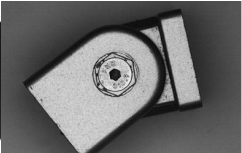
Effilux offers all possible dimensions for XXX and YYY every 50 mm to 1.5 m.



Inspected part



Inadequate part



Dome lighting

Part number : EFFI-FD-**XXX**-**YYY**...

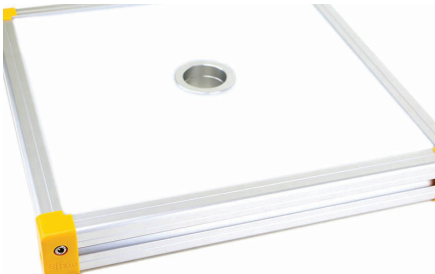
### - Available wavelenghts

Color	Red	IR	White (T°= 5500 k ± 500 K)
ZZZ : wavelenght (nm)	625	850	000

Part number : EFFI-FD-**XXX**-**YYY**-**ZZZ**

### - Homogeneity

Homogeneity > 90%  
Useful surface ≈ illuminated surface





## Mechanical configurations

### - Fixing accessory for camera

Efflux proposes a camera mounting bracket for combining an EFFI-FD lighting with a camera. (page 101)

### - Custom

On request

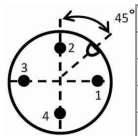
Positions of connectors, extra thin edges, extra hole, hole diameter (39mm and 58mm) ...



## Electronical configurations

### - Connectivity

EFFI-BL is connected to the supply by a M12 4-pin connector.



Pin number	Cable color	Designation
1	Brown	+24V $\pm$ 5%
2	White	n.a.
3	Blue	GND
4	Black	DIM - max 24

### > EFFI-FD - Power (W)

The power of an EFFI-FD is proportional to its surface and is worth 7W for 100mm<sup>2</sup>.

Indeed, an EFFI-FD 100x100 consumes about 7W, an EFFI-FD 100x200 about 14W, an EFFI-FD 200x200 about 28W, and so on.

Type and number of connectors depending on power. 1 M12 connector is enough up to 85W.

From 85W, several M12 connectors are required. It is then possible to replace the M12 with M12 PWR. 1 MW PWR connector from 85W up to 260W.

### - Dimming control

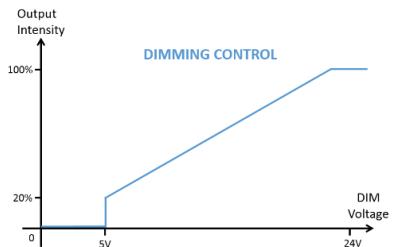
EFFI-FD is powered by a 24V DC source.

By using the DIM pin, the light intensity can be increased linearly:

- 0V - OFF
- 24V - Full ON

### - Power version

- 3 times more powerful
- Compulsory use with a duty cycle < 30% !
- Power = power EFFI-FD X 3

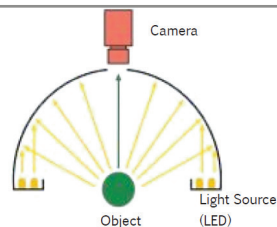
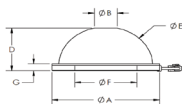


The standard configuration is 50 mA.

Other configurations are available on request.

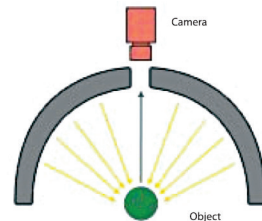
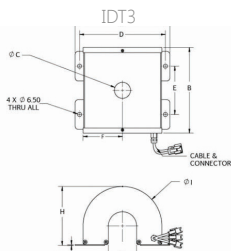
If power version, add -S150 at the end of the part number (available only in 000)

## EFFI-IDS Indirect dome lighting



Part number	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Color (X)	Voltage/Power	Current
EFFI-IDS5-00-050-1-X	68.0	10.0	60.0	33.8	53.0	37.4	9.0	R / G / B / W	24V / 5.83W 24V / 7.56W 24V / 1.54W	243mA 315mA 64mA
EFFI-IDS5-00-070-1-X	95.0	20.0	85.0	44.5	78.0	61.0	9.0	R / G / B / W	24V / 9.07W 24V / 11.76W 24V / 2.304W	378mA 490mA 96mA
EFFI-IDS5-00-100-1-X	118.0	25.0	110.0	56.8	103.0	85.4	9.0	R / G / B / W	24V / 12.96W 24V / 16.8W 24V / 3.84W	540mA 700mA 160mA
EFFI-IDS5-00-150-1-X	185.0	40.0	172.0	89.8	165.0	138.0	12.0	R / G / B / W	24V / 21.60W 24V / 22.32W 24V / 24.0W	900mA 930mA 1000mA
EFFI-IDS5-00-200-1-X	232.0	50.0	222.0	112.8	212.0	193.0	12.0	R / G / B / W	24V / 31.92W 24V / 33.12W 24V / 30W	1330mA 1380mA 1250mA
EFFI-IDS5-00-250-1-X	284.0	50.0	272.0	139.4	261.6	240.0	12.0	R / G / B / W	24V / 36.0W 24V / 38.4W 24V / 36.0W	1500mA 150mA 1500mA
EFFI-IDS5-00-360-X-X	381.0	36.5	369.0	189.0	360.0	300.0	12.0	R / G / B / W	24V / 37.2W 24V / 37.2W	1550mA 1550mA
EFFI-IDS4-00-150-1-RGB	185.0	40.0	172.0	89.8	165.0	113.0	12.0	R / G / B / W	24V / 7.2W 24V / 6.72W 24V / 6.72W	300mA 280mA 280mA
EFFI-IDS4-00-200-1-RGB	232.0	50.0	222.0	112.8	212.0	160.0	12.0	R / G / B / W	24V / 6.72W 24V / 6.72W 24V / 6.72W	280mA 280mA 280mA

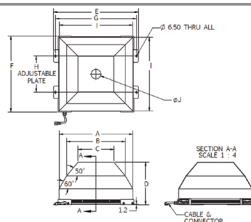
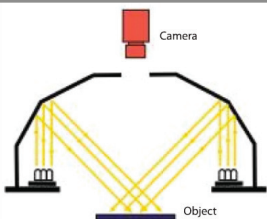
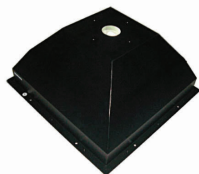
## EFFI-IDT Indirect tunnel lighting



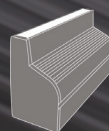
### - IDT3

Part number	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	G(mm)	H(mm)	I(mm)	Color (X)	Voltage/Power	Current
EFFI-IDT3-00-120-1-X	148.0	133.0	25.0	133.6	75.0	61.3	44.0	91.5	122.5	R / G / B / W	24V / 8.64W 24V / 7.68W	360 mA 320mA
EFFI-IDT3-00-150-1-X	177.8	163.0	25.0	163.8	103.9	76.3	74.0	106.5	152.5	R / G / B / W	24V / 10.8W 24V / 9.60W	450mA 400mA
EFFI-IDT3-00-200-1-X	227.2	163.0	25.0	213.2	105.0	101.3	124.0	131.5	202.5	R / G / B / W	24V / 10.8W 24V / 9.60W	450mA 400mA

# EFFI-IDQ Indirect square lighting



Part number	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	G(mm)	H(mm)	I(mm)	J(mm)	Color (X)	Voltage/Power	Current
EFFI-IDQ3-00-120-X-X	210.0	169.6	110.9	126.2	240	218.0	226	74.0	138.2	35.0	R / G / B / W	24V / 17.28W 24V / 15.36W	720mA 640mA
EFFI-IDQ3-00-190-X-X	270.0	215.7	131.1	156.0	300.2	278.0	286.2	134.0	198.0	35.0	R / G / B / W	24V / 25.92W 24V / 23.04W	1080mA 960mA
EFFI-IDQ3-00-300-X-X	390.0	335.5	251.3	156.0	419.4	398.0	405.4	254.0	318.2	35.0	R / G / B / W	24V / 43.20W 24V / 38.40W	1800mA 1600mA
EFFI-IDQ3-00-120-X-RGB	210.0	169.6	110.9	126.2	240	218.0	226.0	74.0	138.2	35.0	R / G / B / W	24V / 9.60W 24V / 7.68W	400mA 320mA
EFFI-IDQ3-00-190-X-RGB	270.0	215.7	131.1	156.0	300.2	278.0	286.2	134.0	198.0	35.0	R / G / B / W	24V / 14.40W 24V / 11.52W	600mA 480mA
EFFI-IDQ3-00-300-X-RGB	390.0	335.5	251.3	156.0	419.4	398.0	405.4	254.0	318.2	35.0	R / G / B / W	24V / 24.00W 24V / 19.20W	1000mA 800mA



**LINEAR**



EFFI-Line



EFFI-SLine



**Description**

EFFI-Line V2 is a linear LED lighting designed for short linear inspection applications. The luminance of the diffuser is perfectly homogeneous and extremely powerful. This quality of light makes it the ideal product for linear inspection applications on reflective or transparent surfaces.

**Applications**

- Large areas control (strips of paper in printing for example)
- Control of parts moving at high speed
- Highlighting of elements on one line or a specific plan
- Quality control
- Linear inspection of transparent products (cigarette paper, plastic films...)
- Linear inspection of reflective products (glass plates, varnish, solar panels...)

...

**Optical configurations**

**- Optical length**

EFFILUX offers all possible dimensions for **WWW** every 100 mm up to 4 m.

Part number : EFFI-LINE-**WWW**...

**- Available wavelengths**




Color	UV	Blue	Green	Red	IR	White (T°= 5500 k ± 500 K)
<b>XXX : wavelength (nm)</b>	405	465	525	625	850	000

**Part number :** EFFI-LINE-**WWW-XXX** ...  
If RGB : -**RGB**



# EFFI-LINE High power linear lighting

## - Choice of power

Power version	Cooling system	Illumination at a working distance = 100mm (white)
EFFI-Line	 Passive cooling	200 000 Lux
EFFI-Line Power (PWR)	 Passive cooling + fan	400 000 Lux
EFFI-Line High Power (HP)	 passive cooling + water cooling	1 000 000 Lux

**Part number :** EFFI-LINE-**WWW**-**XXX**-**YYY** ...

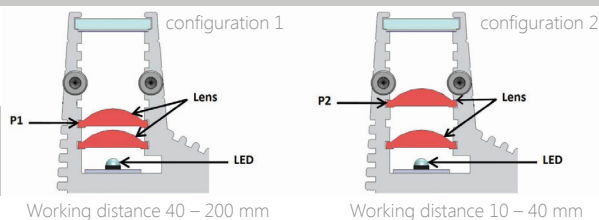
**YYY** : PWR ou HP if necessary

## - Lenses position

**Part number :**

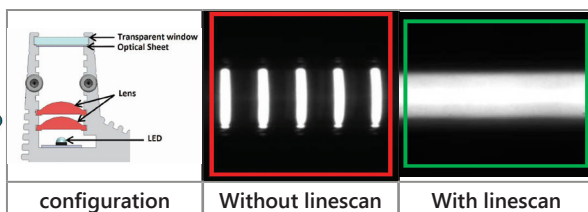
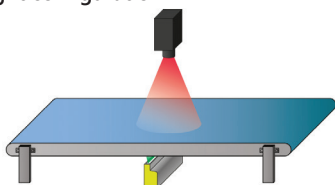
EFFI-LINE-**WWW**-**XXX**-**YYY**-**ZZ**

**ZZ** : P1 or P2

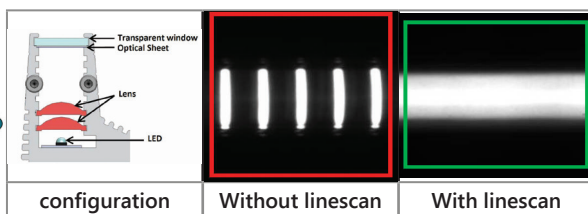
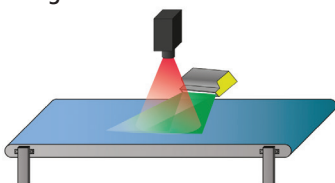


## - Interest of linescan

### > Backlight configuration



### > Direct configuration

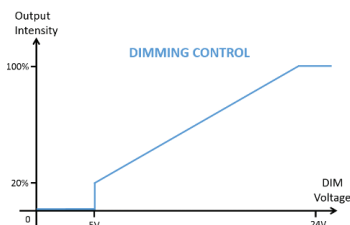


## Electronical configurations

EFFI-Line V2 is powered by a 24VDC source.

By using the DIM pin, the luminous intensity may be increased in a linear way :

- 0V - OFF
- 24V - Full ON



# EFFI-SLINE Powerful linear lighting, thin & compact.

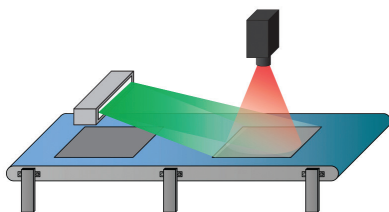


## Description

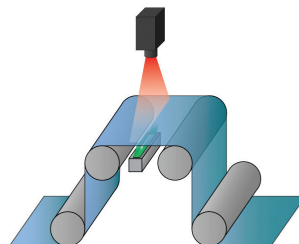
EFFI-SLINE is a high-powerful linear lighting. Its design has been thinking to be easily integrated in constrained areas. Indeed, this is the ideal lighting to integrate between two rollers on a linear application or even on a grazing application to be closer to the inspected product.

Drivers externalization allow a large possible choice of power modes depending on your application.

## Applications



Grazing inspection on weaved materials



Linear inspection with linear camera in constrained area

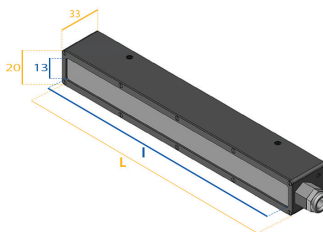
## Optical configurations.

### - Optical length

EFFI-SLINE total length could be between 50mm and 300mm, with a step of 50mm (50mm, 100mm, 150mm etc.)

Classical optical step between each LED is 15mm.

WWW : optical length (mm)	50	100	150	200	250	300
L (mm)	55	105	155	205	255	305



Part number : EFFI-SLINE-WWW...

### - Available wavelengths

From UV 405nm to IR 850nm, all the classical wavelengths are available for standard products.

Color	UV	Blue	Green	Red	IR	White (T°= 5500 k ± 500 K)
XXX : wavelength (nm)	405	465	525	625	305	000

Part number : EFFI-SLINE-WW-XXX...

If RGB : -RGB

### - Optical flexibility

Lense position is fixed. It is well located from the LED to allow the best possible optical focalization to guarantee an optimized optical beam. On the other hand, EFFILUX developed some optical accessories in order to allow the user to optimize its configuration :

# EFFI-SLINE Powerful linear lighting, thin & compact.

## > Linescan diffuser

If EFFI-SLINE should be ordered without the linescan diffuser, please order the following product reference :

EFFI-SLINE-WWW-YYY-**NLS**

If EFFI-SLINE & LINESCAN are ordered separately, product reference is :

EFFI-SLINE-**LS**-XXX (XXX = wavelength)

## > Polarizer

A polarizer accessory has been specifically developed for EFFI-SLINE.

It could be integrated very easily between the lense and the window, (but tu be implemented between LINESCAN & window, to keep the polarized effect).

To get this accessory included in your EFFI-SLINE, product reference is :

EFFI-SLINE-WWW-YYY-**NPOL**

To get this accessory separated from the EFFI-SLINE, product reference is :

EFFI-SLINE-**POL**-XXX (XXX = wavelength)

## Mechanical configurations.

Optical length (mm)	L (mm)	I (mm)
50	55	50
100	105	100
150	155	150
200	205	200
250	255	250
300	305	300

Effilux is proposing every possible dimensions until 300mm (feasible length every 50mm).

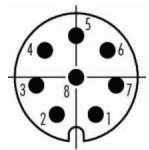
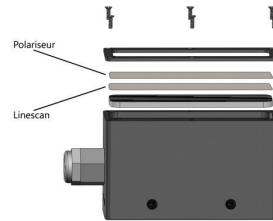
## Électronical configurations.

### - Connections

EFFI-SLINE is only available with an external driver.

Driver is connected on EFFI-SLINE thanks to its M8 8pins connections ; cable length is 500mm.

According to the length of the EFFI-SLINE, 2, 4, 6 or 8 pins are used to power all the LEDs.





# PROJECTOR



EFFI-Sharp



EFFI-Sharp V2



EFFI-Spot



EFFI-HBF

# EFFI-SHARP Powerful high-brightness spot



## Description

EFFI-Sharp is a LED projector producing very powerful and focused beams. It projects shapes such as discs or squares (or custom shape) to illuminate objects at short or long distance from 20 mm to 2 m.

The FocusLight version allows to focus the beam for a short working distance, providing a very intense lighting.

The Power version emits a light beam 2.5 times more powerful than EFFI-Sharp. The EFFI-Sharp Power features allow it to illuminate objects at large working distance.

The Focuslight Power includes EFFI-Sharp Focuslight and EFFI-Sharp Power features.

## Applications

- Quality control
- Detection of surface defects
- Detection of contour defects
- Color identification
- ...

## Optical configurations

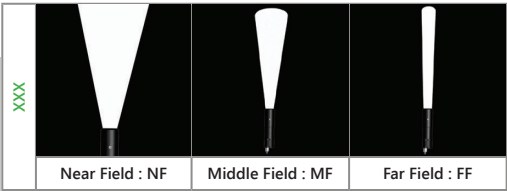
> Versions

EFFI-Sharp	EFFI-Sharp PWR More powerful	EFFI-Sharp FL More focused	EFFI-Sharp PWR FL More powerful and more focused

# EFFI-SHARP Powerful high-brightness spot

> Objectives (for a given working distance)

**Part numbers :**  
Standard : EFFI-SHARP-XXX ...  
Power : EFFI-SHARP-PWR-XXX ...  
Focuslight : EFFI-SHARP-FL-XXX ...  
Focuslight Power : EFFI-SHARP-PWR-FL-XXX



- Available wavelengths

Color	UV 365	UV	Blue	Green	Red	IR	White (T°= 5500 k ± 500 K)
YYY : wavelength (nm)	365	405	465	525	625	850	000

**Part numbers :**  
Standard : EFFI-SHARP-XXX-YYY ...  
Power : EFFI-SHARP-PWR-XXX-YYY ...  
Focuslight : EFFI-SHARP-FL-XXX-YYY ...  
Focuslight Power : EFFI-SHARP-PWR-FL-XXX-YYY

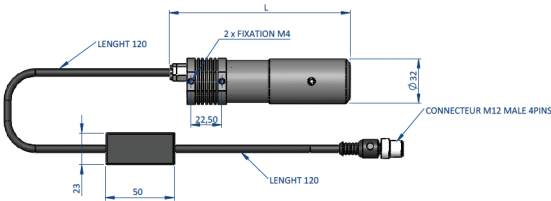
- Pattern projection

**Part numbers :**  
Standard : EFFI-SHARP-XXX-YYY-Z  
Power : EFFI-SHARP-PWR-XXX-YYY-Z  
Focuslight : EFFI-SHARP-FL-XXX-YYY-Z  
Focuslight Power : EFFI-SHARP-PWR-FL-XXX-YYY-Z  
Z : 1, 2 or 3  
For custom shape, please contact us.

Shape	Z : shape number	Masks dimensions
	1	Square 9x9 mm
	2	Disc Ø15.1 mm
	3	Halfmoon R = 9.5 mm

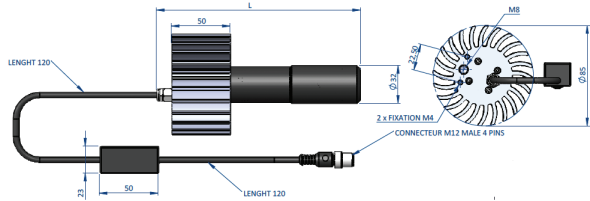
## Mechanical configurations

- EFFI-Sharp



	min L	Max L
EFFI-Sharp NF	123 mm	135 mm
EFFI-Sharp MF	128 mm	144 mm
EFFI-Sharp FF	144 mm	178 mm

- EFFI-Sharp PWR

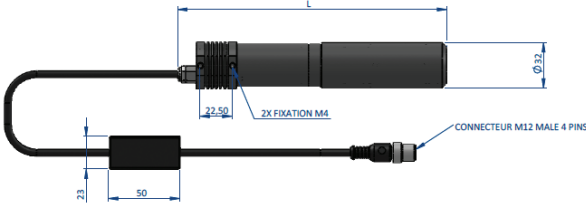


	min L	Max L
EFFI-Sharp PWR NF	144.5 mm	156.5 mm
EFFI-Sharp PWR MF	149.5 mm	165.5 mm
EFFI-Sharp PWR FF	165.5 mm	199.5 mm



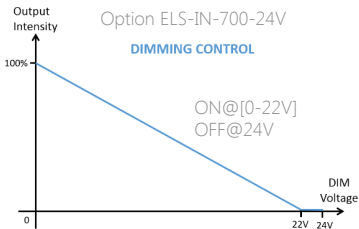
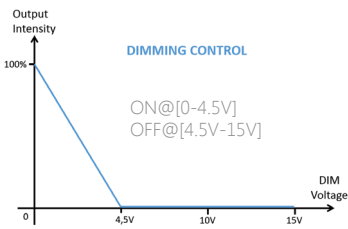
# EFFI-SHARP Powerful high-brightness spot

## - EFFI-Sharp FL



	min L	Max L
EFFI-Sharp FL NF	166.8 mm	178.8 mm
EFFI-Sharp FLMF	171.8 mm	187.8 mm
EFFI-Sharp FL FF	187.8 mm	221.8 mm

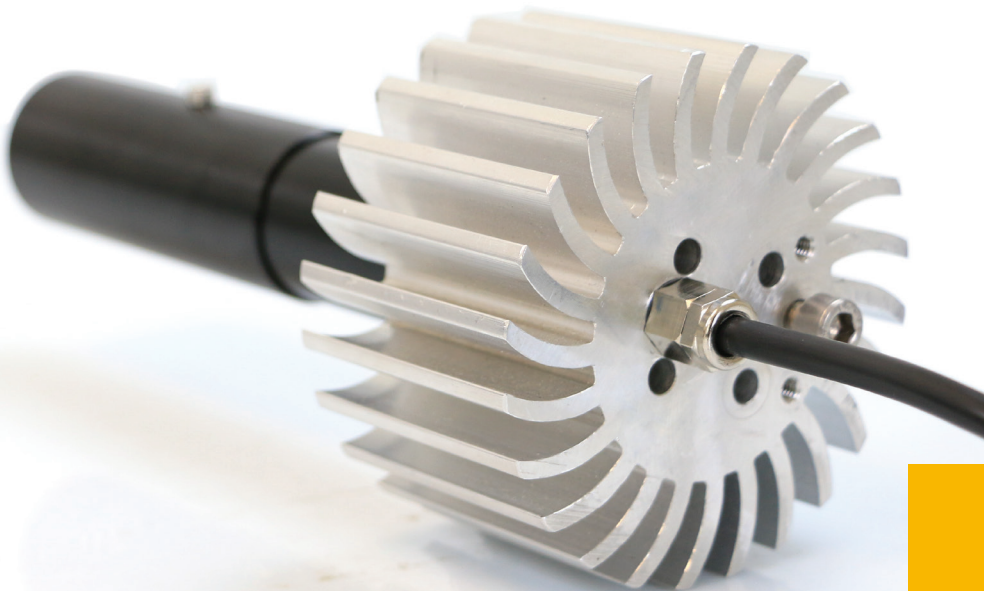
## Electronical configurations



## Electronic choices

Standard mode : M12 - internal driver

Expert mode : M8 - direct control



# EFFI-SHARP V2 New generation of pattern projector



## Description

EFFI-Sharp V2 is the new high power projector from EFFILUX. It projects shapes such as discs, squares or other custom shapes.

Compared to its previous EFFI-Sharp, the V2 is up to 10 times more powerful\* & offers the possibility to easily interchange masks.

There is 3 versions of EFFI-Sharp V2 :

- Compact version (standard) : EFFI-Sharp-CPT
- Heat sink version : EFFI-Sharp-PSV
- Ventilated version : EFFI-Sharp-FAN

Each version offers different electronical & mechanical specifications to suit your needs.

\* depending on the chosen LED card.

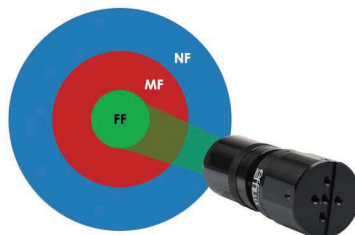
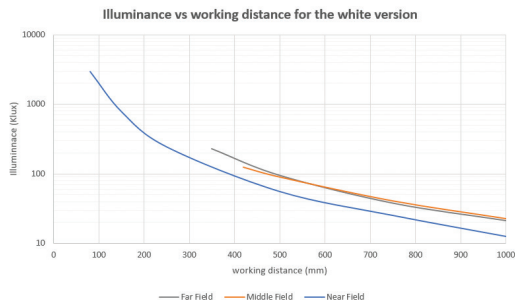
## Applications

- Quality control
- Detection of surface defects
- Detection of contour defects
- Color identification
- ...

## Optical configurations

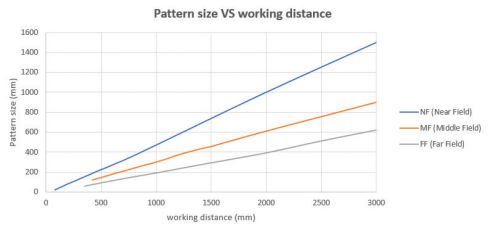
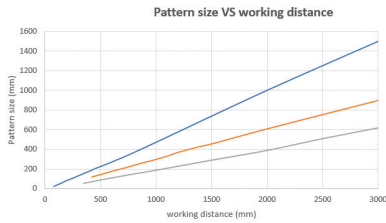
### - Versions, working distances and lenses

#### > Illuminance VS working distance



# EFFI-SHARP V2 New generation of pattern projector

## > Pattern size VS working distance



### Part number :

Compact : EFFI-SHARP-CPT-XX ...

Passive : EFFI-SHARP-PSV-XX ...

Fan : EFFI-SHARP-FAN-XX ...

XX : NF (Near Field), MF (Middle Field) or FF (Far Field)

If not mentioned, default NF lens.

## - Available wavelengths

Color	UV	Blue	Green	Red	IR	White (T° = 5500 k ± 500 K)
XXX : wavelength (nm)	405	465	525	625	850	000



### Part number :

Compact : EFFI-SHARP-CPT-XX-YYY...

Passive : EFFI-SHARP-PSV-XX-YYY...

Fan : EFFI-SHARP-FAN-XX-YYY...

## - Pattern projection

### Part number :

Compact : EFFI-SHARP-CPT-XX-YYY-Z

Passive : EFFI-SHARP-PSV-XX-YYY-Z

Fan : EFFI-SHARP-FAN-XX-YYY-Z

Z : 1, 2 ou 3

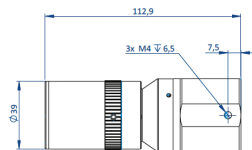
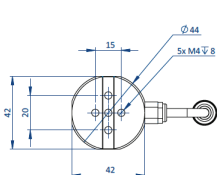
If not mentioned, n°2 default shape.

Shape	Z : shape number	Masks dimensions
	1	Square 9x9 mm
	2	Disc Ø15.1 mm
	3	Halfmoon R = 9.5 mm

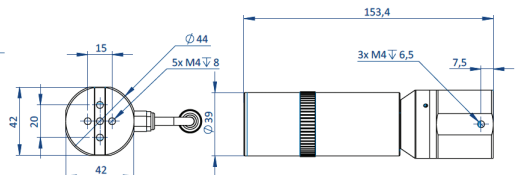
## Mechanical configurations

### - EFFI-Sharp CPT (Compact)

> Focal 35mm & 50mm



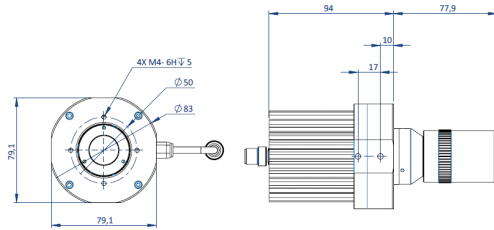
> Focal 75mm



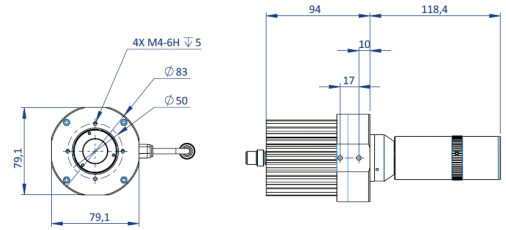
# EFFI-SHARP V2 New generation of pattern projector

## - EFFI-Sharp PSV (Passive)

> Focal 35mm & 50mm

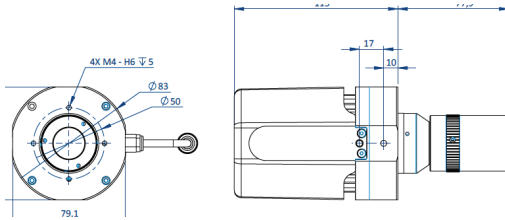


> Focal 75mm

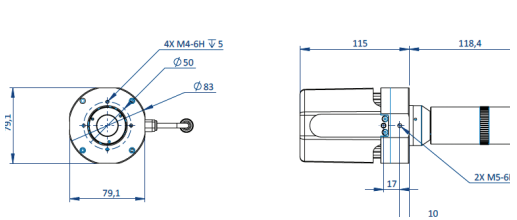


## - EFFI-Sharp FAN (Air Cooled)

> Focal 35mm & 50mm



> Focal 75mm



## Electronical configurations

### - Drivers

	CPT (Compact)	PSV (Heat sink)	FAN (Ventilated)
Version			
Driver	No driver : direct control only M8 connector	Integrated Smart driver M12 connector	Integrated Smart driver M12 connector

# EFFI-SPOT Powerful high-brightness spot



## Description

The EFFI-Spot is an high-power LED projector with an integrated fan.

Optimized for short range working distances (until 50 cm), the EFFI-Spot is perfectly suited for industrial and scientific applications using high-speed cameras: troubleshooting, PIV...

With the Effi-Spot, it is possible to manage the light intensity (dimming control) while avoiding flicker effect (flicker-free).

High compactness and power are the two main features of the EFFI-Spot.

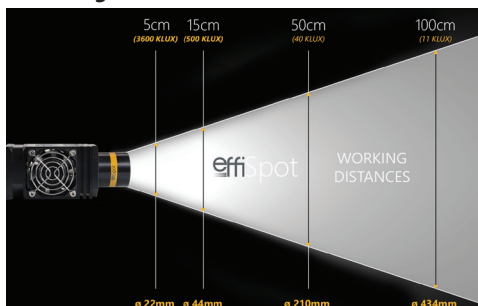
## Optical configurations

### - Available wavelengths

Color	UV			Blue	Green	Red	IR	White (T°= 5500 k ± 500 K)
XXX : wavelength (nm)	365	395	405	465	525	625	850	000

Part number : EFFI-SPOT-XXX

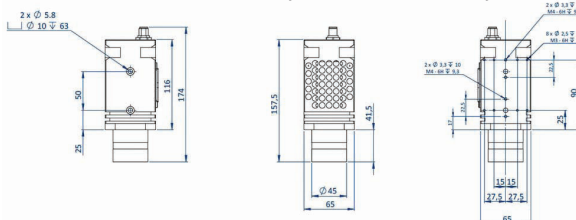
### - Working distances



## Mechanical configurations

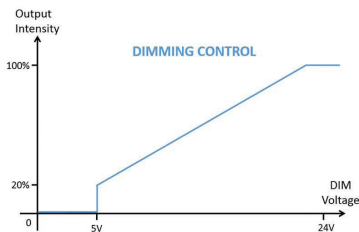
### - Tripod adapter

Thanks to the mechanical accessory Adapter "tripod" it is possible to fasten your EFFI-Spot on any tripod for camera.

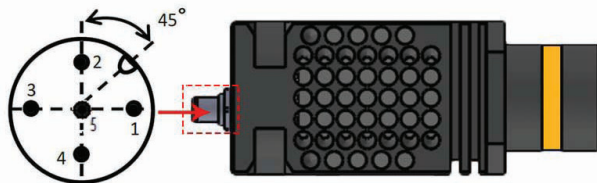


# EFFI-SPOT Powerful high-brightness spot

## Electronical configurations



- **Connectivity**
- > M12 - 5 pins connector (standard mode)



Pin number	Cable color	Part number	Signal
1	Brown	+24V	Power supply DC - 70W
2	White	Not used	-
3	Blue	GND	Common ground
4	Black	Intensity Control - DIM	Voltage : 0 - 24V ou 0-5V (see graph above) Consumption : 0,6mA@24V Rise time : 8 $\mu$ s / Down time : 12 $\mu$ s Response time : 16 $\mu$ s
5	Grey	Not used	-



# EFFI-FIBER LED spot



## Description

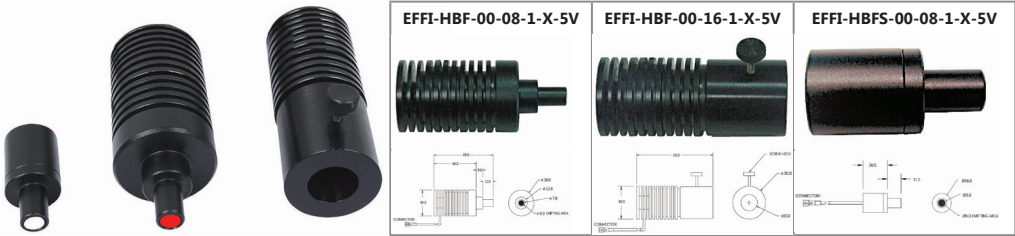
The EFFI-FIBER combines the high performance and benefits of EFFILUX technology in a compact and intuitive system.

The heads are available at 465, 525, 625 or 000 nm and have three sets of interchangeable lenses for different insolation modes.

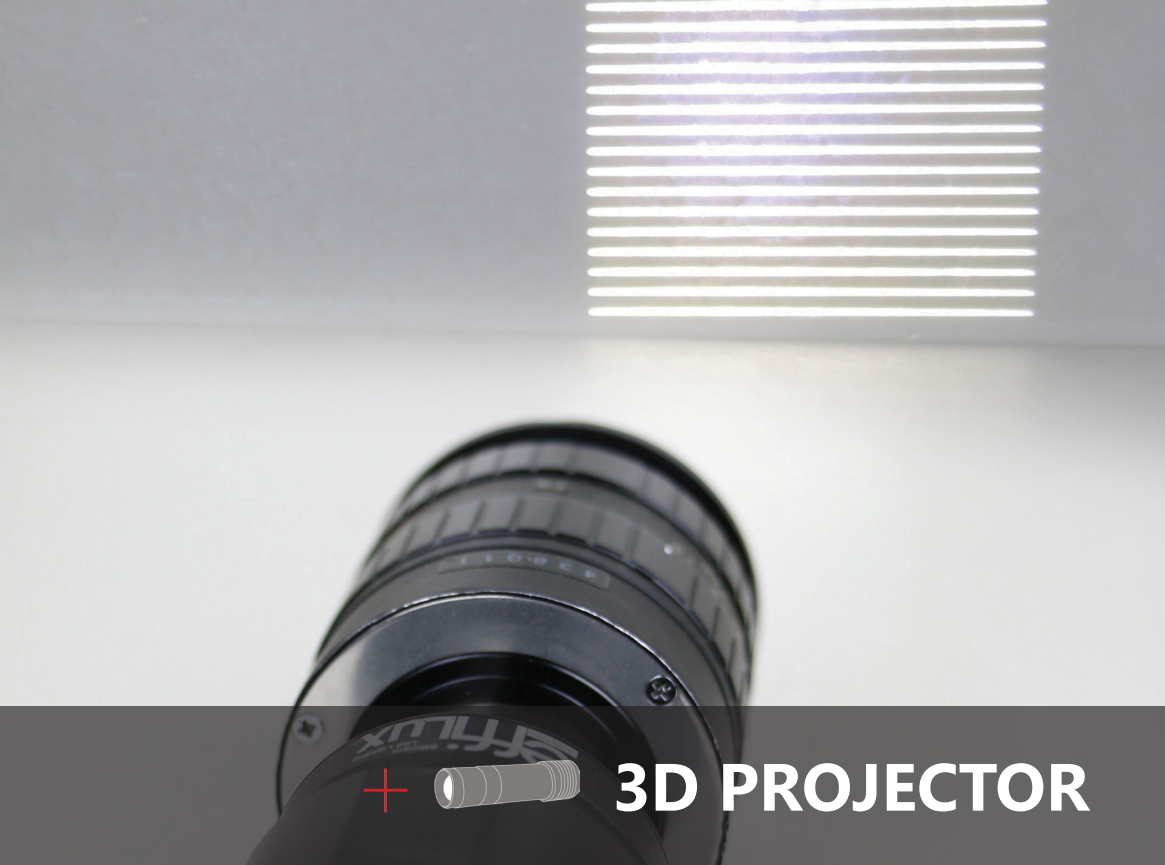
The EFFI-Fiber is ergonomic and designed to adapt to users and controllers. It has been designed to be easily integrated into your production line. Whatever your process (industrial, automated, semi-automated, manual ...) the EFFI-Fiber will meet your needs.

- Available wavelengths: 465, 525, 625 or 000 nm
- Optimized cooling and thermal control
- PLC control for simplified integration
- ON / OFF snapshot, pedals available, etc.

# EFFI-HBF LED spot



Part number	Color (X)	Voltage / Power	Current
EFFI-HBF-00-08-1-X-5V	R / G / B / W	5V / 3W	600mA
EFFI-HBF-00-16-1-X-5V	R / G / B / W	5V / 3W	600mA
EFFI-HBFS-00-08-1-X-5V	R / G / B / W	5V / 0.5W	100mA



EFFI-Lase

EFFI-Lase V2

# EFFI-LASE Structured LED lighting



## Description

EFFI-Lase is a structured LED lighting. It projects powerful and accurate patterns such as : line, cross, cloud of dots... Designed for 3D reconstruction, stereovision and alignment applications, EFFI-Lase has the same quality as a laser beam (precise, powerful, homogeneous) and removing all speckle problem.

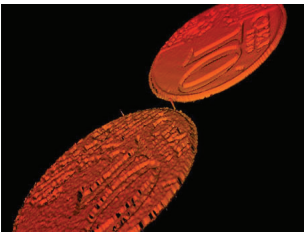
EFFI-Lase Power is a structured LED lighting using standard EFFI-Lase features but emitting a light beam amount 2.5 times more powerful.

Advantages VS Laser :

- NO SPECKLE : more accurate
- Eye safety
- Compatible C-mount objective > 80%
- Several standard masks
- Homogeneity > 80 %

## Applications

- 3D profilometry
- Stereovision
- Alignment



EFFI-Lase (up) vs. Laser (down):  
No speckle = more precision

## Optical configurations

### - Available wavelengths

Color	UV		Blue	Green	Red	IR	White (T°= 5500 k ± 500 K)
YYY : wavelength (nm)	365	405	465	525	625	850	000

### Parts numbers :

Standard : EFFI-LASE-CM-YYY ...

Power : EFFI-LASE-PWR-CM-YYY ...

### - Masks

#### > 3D profilometry

Mask												
ZZZ : part number mask	L01	L02	L03	L04	L05	L06	L07	L08	L09	L12	L13	L41
Designation	1 line 50µm	1 line 20µm	1 line 10µm	3 lines 50µm	3 lines 50µm	5 lines 50µm	100 lines 45µm	22 lines 50µm	1 line 5µm	2 lines 50µm	1 line 50µm 1 line 250µm	1 line 75µm 40 lines 45µm
Line length (mm)	13	13	13	13	13	13	13	13	13	13	13	13
Step between each line (µm)	-	-	-	500	200	750	67,5		-	500	500	

# EFFI-LASE Structured LED lighting

## > Stereovision

Mask							
ZZZ : part number mask	G01	G02	G03	G04	G05	C02	C03
Designation	Round Ø50µm	Round Ø50µm	Grid 40*40 lines 50µm	Grid 50*50 lines 50µm	Square 50*50µm²	Cloud of dots : density 50%	Cloud of dots : density 17%
Pattern surface (mm²)	10x10	13x13	10x10	13x13	10x10	12,8x9,6	12,8x9,6
Step between each pattern (µm)	50	50	50	50	100	-	-

## > Alignment

Mask			
ZZZ : part number mask	A01	A02	A03
Designation	Cross 50µm	Concentric circles 50µm	Square 50µm
Line length (mm)	13	-	10

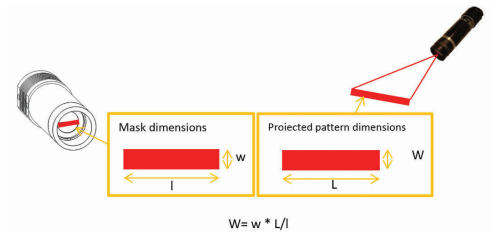
### Parts numbers :

Standard : EFFI-LASE-CM-YY-**ZZZ**

Power : EFFI-LASE-PWR-CM-YY-**ZZZ**

Possibility to buy only the mask (see page 97)

## > How to calculate the size of the projected pattern? ( example : line)

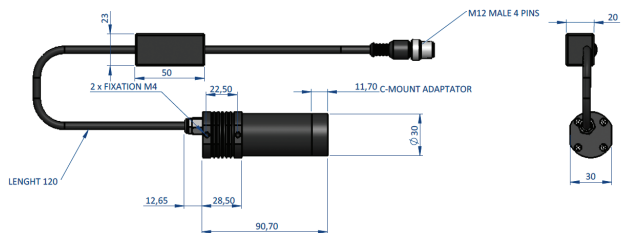


## - C-mount objectives

EFFILUX recommends to use an objective for 1 inch sensor for large masks, such as clouds of dots. The objectives are not included with the projectors. EFFI-Lase is equipped with a C-mount (M25.5). Contact us if necessary.

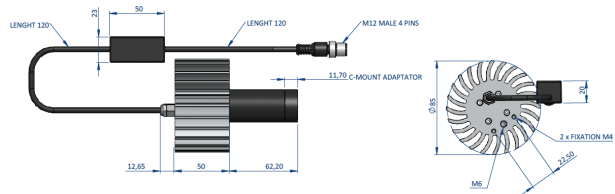
## Mechanical configurations

### - EFFI-Lase

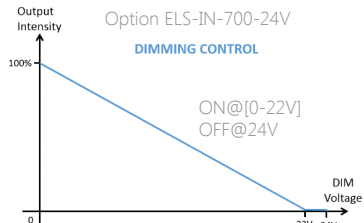
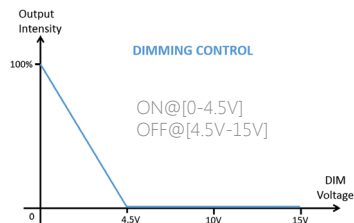


# EFFI-LASE Structured LED lighting

## - EFFI-Lase Power



## Electronical configurations



### Electronic choices

Standard mode : M12 - internal driver

Expert mode : M8 - direct control

### - Connectivity

#### > M12 connector (standard mode)

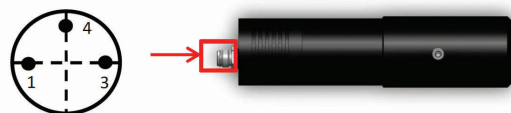
The EFFI-Lase & EFFI-Lase PWR are powered by a constant voltage 24V with the EFFI-Supply cable (attached to the projector). Power consumption = 5 W for the standard version & 15 W for the power version.



Pin Number	Cable color	Designation
1	Brown	+24V
2	White	n.a.
3	Blue	GND
4	Black	DIM - max 15V

#### > M8 connector - direct control (expert mode)

A current source can be used to power EFFI-Sharp, EFFI-Sharp FL and EFFI-Sharp PWR in pulsed mode :



Pin Number	Cable color	Designation
1	Brown	n.a.
2	Blue	+ (Max 700mA dc)
3	Black	GND

**!** In expert mode, the LED is wired directly to the M8 : no protection for the LED !

Possibility to buy only the EFFI-Supply cable, part number : EFFI-SUPPLY-WIRE.

# EFFI-LASE V2 Structured Lighting with interchangeable masks



## Description

EFFI-Lase V2 is the new EFFILUX structured LED lighting. It is designed for 3D reconstruction, stereovision and alignment applications. It projects powerful and with great finesse patterns such as : line, cross, cloud of dots... Compared to the previous EFFI-Lase, it is 6 to 15 times more powerful \* and it allows to easily interchange masks.

There are 3 versions of EFFI-Lase V2 :

- Compact version (standard) : EFFI-Lase-CPT
- Passive cooling version : EFFI-Lase-PSV
- Fan version : EFFI-Sharp-FAN

Each product offers different mechanical and electronic characteristics according to your needs.

*\* Depending on the chosen LED card*

## Applications




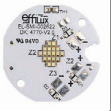
- 3D profilometry
- Stereovision
- Alignment

## Optical configurations

### - LED cards

#### Parts numbers :

Compact : EFFI-LASE-CPT-**XXX** ...  
Passive : EFFI-LASE-PSV-**XXX** ...  
Fan : EFFI-LASE-FAN-**XXX** ...

Card				
	Line LED	Square LED	Square LED 2 drivers	Square LED 3 drivers
<b>XXX : part number card</b>	LX1	MX1	MX2	MX3

### - Available wavelengths

Color	UV	Blue	Green	Red	IR	White (T°= 5500 k ± 500 K)
<b>YYY : wavelength (nm)</b>	365 405	465	525	625	850	000

#### Parts numbers :

Compact : EFFI-LASE-CPT-**XXX-YYY** ...  
Passive : EFFI-LASE-PSV-**XXX-YYY** ...  
Fan : EFFI-LASE-FAN-**XXX-YYY** ...



# EFFI-LASE V2 Structured Lighting with interchangeable masks

## - Masks

### > 3D profilometry

Mask												
ZZZ : part number mask	L01	L02	L03	L04	L05	L06	L07	L08	L09	L12	L13	L41
Designation	1 line 50µm	1 line 20µm	1 line 10µm	3 lines 50µm	3 lines 50µm	5 lines 50µm	100 lines 45µm	22 lines 50µm	1 line 5µm	2 lines 50µm	1 line 50µm 1 line 250µm	1 line 75µm 40 lines 45µm
Line length (mm)	13	13	13	13	13	13	13	13	13	13	13	13
Step between each line (µm)	-	-	-	500	200	750	67,5		-	500	500	

### > Stereovision

Mask							
ZZZ : part number mask	G01	G02	G03	G04	G05	C02	C03
Designation	Round Ø50µm	Round Ø50µm	Grid 40*40 lines 50µm	Grid 50*50 lines 50µm	Square 50*50µm²	Cloud of dots : density 50%	Cloud of dots : density 17%
Pattern surface (mm²)	10x10	13x13	10x10	13x13	10x10	12,8x9,6	12,8x9,6
Step between each pattern (µm)	50	50	50	50	100	-	-

### > Alignment

Mask			
ZZZ : part number mask	A01	A02	A03
Designation	Cross 50µm	Concentric circles 50µm	Square 50µm
Line length (mm)	13	-	10

## Parts numbers :

Compact : EFFI-LASE-CPT-XXX-YYY-ZZZ

Passive : EFFI-LASE-PSV-XXX-YYY-ZZZ

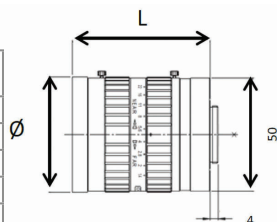
Fan : EFFI-LASE-FAN-XXX-YYY-ZZZ

Possibility to buy only the mask (see page 97 )

Compared to its predecessors EFFI-Lase et EFFI-Lase Power, EFFI-Lase V2 allows to interchange masks.

## - C-mount objectives


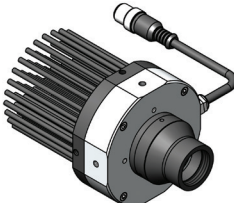

	EFFO-OBJECTIVE -0007 HF12.5SA-1	EFFO-OBJECTIVE -0008 HF25SA-1	EFFO-OBJECTIVE -0009 HF50SA-1	EFFO-OBJECTIVE -0010 HF75SA-1
Focale Distance (mm)	12.5	25	50	75
Diaphragme Aperture	F1.4 – F22		F1.8 – F22	
View Angle (HxV)	38°47' x 29°35'	19°58' x 15°02'	10°03' x 7°33'	6°43' x 5°02'
Filter Mount	M49x0.75	M49x0.75	M49x0.75	M49x0.75
L x Ø (mm)	68.5 x 51 mm	75.5 x 51 mm	55.5x51 mm	76x51 mm



# EFFI-LASE V2 Structured Lighting with interchangeable masks

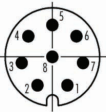
EFFILUX recommends to use an objective for 1 inch sensor for large masks, such as clouds of dots. Objectives are not included with the projectors. EFFI-Lase V2 is equipped with a C-mount (M25.5).


## Electronical configurations

Version			
Driver	No driver : direct control only	Integrated driver	Integrated driver
Connector	M8		M12


### - Connectivity

#### > EFFI-Lase CPT (Compact)


EFFI-Lase-CPT			
Pin number	Cable color	Contact	Detail
1	White	 M8 male connector	-V <sub>LED</sub> n°1 (Z2)
2	Brown		+V <sub>LED</sub> n°1 (Z2)
3	Green		-V <sub>LED</sub> n°2 (Z1)
4	Yellow		+V <sub>LED</sub> n°2 (Z1)
5	Grey		-V <sub>LED</sub> n°3 (Z3)
6	Pink		+V <sub>LED</sub> n°3 (Z3)
7	Blue		-TH <sub>Thermistor</sub>
8	Red		+TH <sub>Thermistor</sub>




DIRECT CONTROL



CPT



NO DRIVER



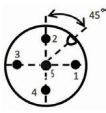
NO HEAT SINK


### Benefits

- Direct control via your own power supply
- Pulse controller : EFFILUX offers, thanks to the LED controller EFFI-IPSC4, to manage, according to your needs, light intensity of your EFFI-Lase V2 over time. (page 99)


*Warning : Does not contain drivers*

#### > EFFI-Lase-PSV (Passive) & EFFI-Lase-FAN (Air Cooled)


EFFI-Lase-PSV/ EFFI-Lase-FAN			
Pin number	Cable color	Contact	Detail
1	Brown	 M12 male connector	+24V
2	White		NPN [triggered in low state] Max 24V
3	Blue		GND
4	Black		PNP [triggered in high state] Max 24V
5	Grey		AIC (Analog Intensity Control 0-10V) Max 24V




AUTO-STROBE



HEAT SINK



PSV

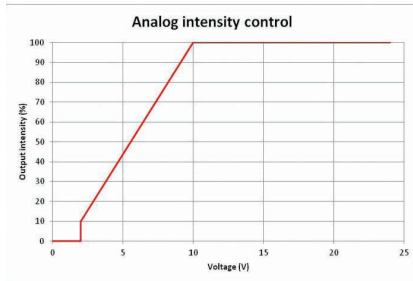


FAN

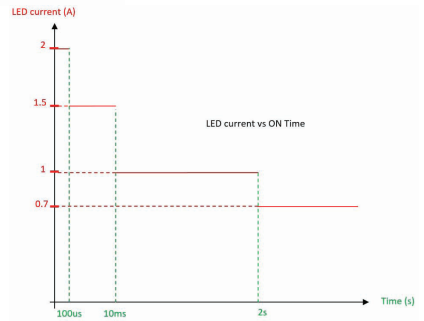
### Benefits

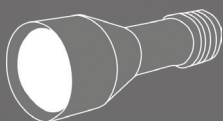
- Integrated driver : Auto-Strobe
- Heat sink

# EFFI-LASE V2 Structured Lighting with interchangeable masks



- 0 – 3V: LED OFF
- 3 – 10V: ≈20% to 100% light intensity
- 10 - 24V: LED ON 100%
- 100% if not connected





# TELECENTRIC



EFFI-Telecentric

# EFFI-TELECENTRIC Telecentric LED lighting

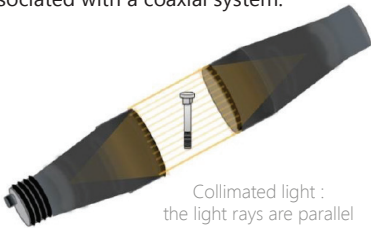


## Description

At the out put of a telecentric lighting, the light is collimated. The collimated light is a parrallel structure of light rays from a point source. The illuminated area and light intensity remain the same whatever the distance  
EFFI-Telecentric is a telecentric LED lighting (parallel light output) for the measurement and edges detection of objects with great accuracy. It is used either by backlighting or associated with a coaxial system.

## Application

- Highlighting of reliefs (dings, dents, scratches, ...) on flat and reflective surfaces
- Edges detection of objects whatever its opacity (no phenomeon of refraction).
- ...



## Optical configuration

### - Optical length

Designation	Length (mm)	XX : Optical diameter (mm)
EFFI-TELE-20	117	20
EFFI-TELE-45	147	45

Part number : EFFI-TELE-XX ...

Other optical diameters are available on request (ex: 70, 145mm, ...)

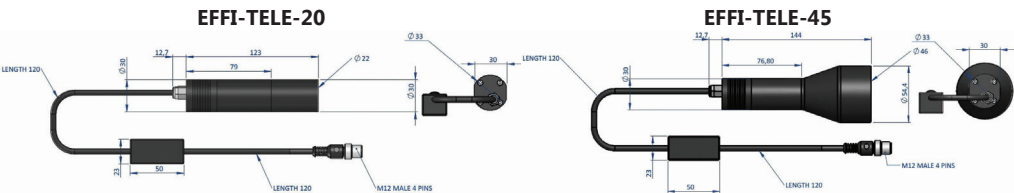
### - Available wavelengths

Color	UV	Blue	Green	Red	IR	White (T°= 5500 K ± 500 K)
YYY : Wavelength	405	465	525	625	850	000

Part number : EFFI-TELE-XX-YYY ...

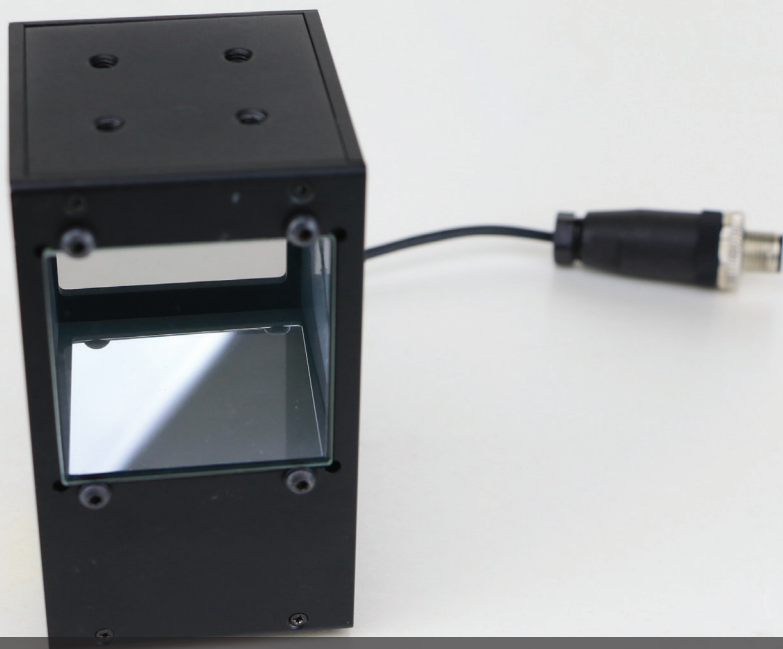
Other wavelengths are available on request

## Mecanical configuration



## Electronical configuration

See electronical on page 67.



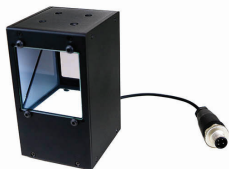
**COAXIAL**



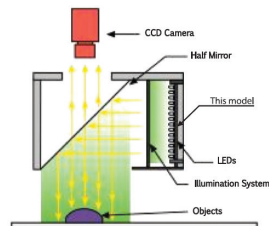
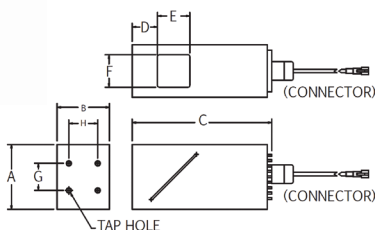
EFFI-CAS



# EFFI-CAS Coaxial lighting



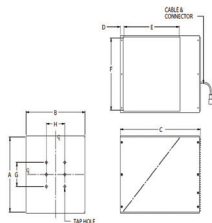
## - CAS2



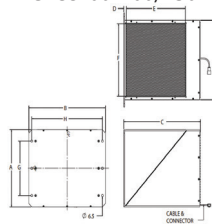
Part number	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	TAP HOLE	Color (X)	Voltage / Power	Current
EFFI-CAS2-00-010-X	36.0	29.0	77.4	14.0	18.0	18.0	15.0	16.0	M3	R / G / B / W	24V / 1.80W 24V / 3.12W	75mA 130mA
EFFI-CAS2-00-020-X	46.0	39.0	87.3	15.5	25.0	24.0	20.0	20.0	M4	R / G / B / W	24V / 1.92W 24V / 3.60W	80mA 150mA
EFFI-CAS2-00-025-X	33.0	33.0	54.0	8.0	25.0	25.6	16.0	15.0	M3	R / G / B / W	24V / 3.60W 24V / 3.84W	150mA 160mA
EFFI-CAS2-00-040-X	66.0	60.0	107.5	14.0	48.0	48.0	25.0	25.0	M5	R / G / B / W	24V / 3.50W 24V / 8.40W	146mA 350mA
EFFI-CAS2-00-070-X	95.0	89.0	139.6	21.2	70.0	70.0	50.0	50.0	M5	R / G / B / W	24V / 12.60W 24V / 13.44W	525mA 560mA
EFFI-CAS2-00-080-X	81.0	104.0	125.5	12.2	65.0	84.0	45.0	50.0	M5	R / G / B / W	24V / 10.80W 24V / 10.94W	450mA 456mA
EFFI-CAS2-00-0100-X	123.8	120.0	168.7	18.2	100.0	100.0	50.0	50.0	M5	R / G / B / W	24V / 10.80W 24V / 18.94W	450mA 781mA
EFFI-CAS2-00-025-X-RGB	33.0	33.0	54.0	8.0	25.0	25.6	16.0	15.0	M3	R / G / B / W	24V / 1.30W 24V / 1.30W 24V / 1.30W	54mA 54mA 54mA
EFFI-CAS2-00-040-X-RGB	66.0	60.0	107.5	14.0	48.0	48.0	25.0	25.0	M5	R / G / B / W	24V / 3.00W 24V / 2.40W 24V / 2.40W	125mA 100mA 100mA
EFFI-CAS2-00-070-X-RGB	95.0	89.0	139.6	21.5	70.0	70.0	50.0	50.0	M5	R / G / B / W	24V / 6.24W 24V / 4.37W 24V / 4.37W	260mA 182mA 182mA
EFFI-CAS2-00-100-X-RGB	123.8	120.0	166.5	18.2	100.0	100.0	50.0	50.0	M5	R / G / B / W	24V / 8.64W 24V / 7.68W 24V / 7.68W	360mA 320mA 320mA

## - CAS3

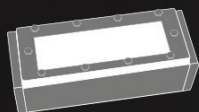
### CAS3-00-150



### CAS3-00-200/250



Part number	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	TAP HOLE	Color (X)	Voltage / Power	Current
EFFI-CAS3-00-150-X	155.6	160.0	217.5	10.0	150.0	150.0	50.0	50.0	-	M6	R / G / B / W	24V / 25.34W 24V / 19.44W	1056mA 810mA
EFFI-CAS3-00-200-X	213.0	260.0	260.5	9.0	200.0	200.0	150.0	240.0	219.0	-	R / G / B / W	24V / 32.40W 24V / 19.20W	1350mA 1584mA
EFFI-CAS3-00-250-X	260.6	310.0	309.5	9.0	250.0	250.0	210.0	290.0	269.0	-	R / G / B / W	24V / 46.66W 24V / 54.00W	1944mA 2250mA



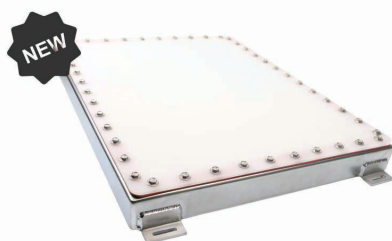
## STAINLESS STEEL RANGE



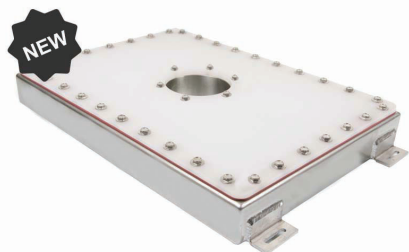
EFFI-Flex-IP69K



EFFI-Smart-IP69K



EFFI-BL-IP69K



EFFI-FD-IP69K

# EFFI-FLEX-IP69K

Waterproof LED bar resistant to washing chemicals of the agri-food industry



  
Auto-strobe version  
available



## Description

By Meeting the requirements of the Food and Drug Administration (FDA), the IP69K series features a 100% waterproof stainless steel profile specially designed for food industry and washing environments.

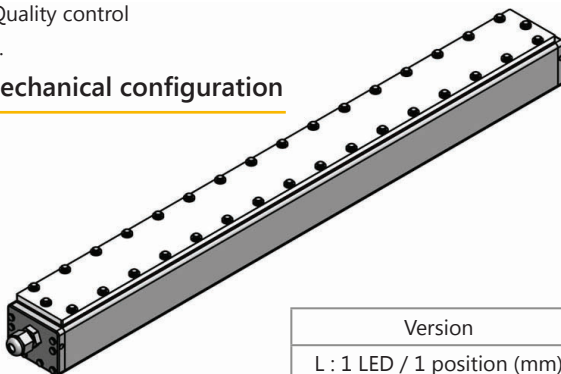
EFFI-Flex IP69K is a product combining robustness, compactness and waterproofness. The optical options of the EFFI-Flex are preserved: thus there remains a product adaptable to the majority of the problems of machine vision.

With its built-in driver, you can choose between Auto-Strobe Mode (standard) or Power Control Mode (optional)

## Applications

- Automatic identification applications
- Quality control
- ...

## Mechanical configuration



Version	5 LED	10 LED	15 LED	25 LED
L : 1 LED / 1 position (mm)	143,5	243,5	343,5	543,5
L : 1 LED / 2 positions (mm)	-	-	243,5	-

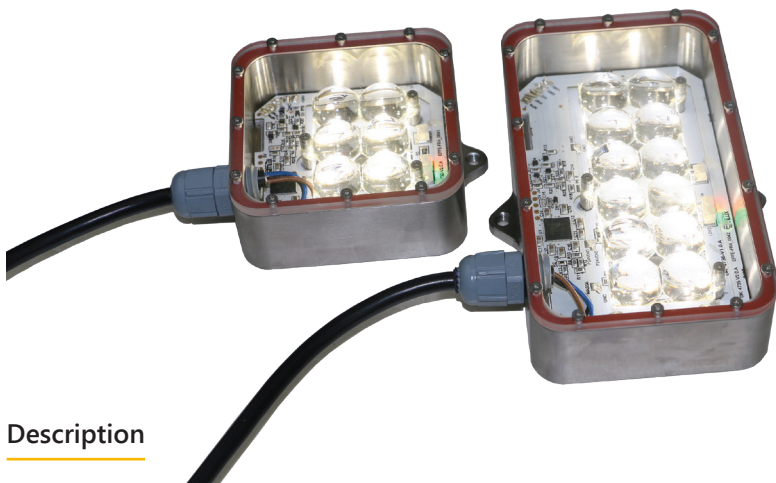
## Cable

ÖLFLEX® ROBUST 210 (Câble 5X0.5 : ref LAPP 0021886) - Weather, bio oil, detergent and hot water resistant for use in food & beverage industry and composting plants

Core insulation made of modified PP / Outer sheath made of special TPE / Sheath colour: black

Length : 10m (other length available on request)

# EFFI-SMART-IP69K Waterproof double row LED bar resistant to washing chemicals of the agri-food industry



Auto-strobe version available



## Description

By Meeting the requirements of the FDA (Food & Drug Administration), the IP69K series are equipped with a 100% waterproof stainless steel profile especially designed for food industry and wash environments.

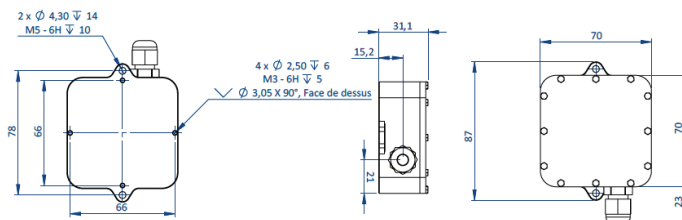
EFFI-Smart IP69K is a double row LED bar. This is the most powerful EFFILUX solution (twice as powerful as the EFFI-Flex LED bar). With its IP69K sealing, it is possible to choose the position of the lens and consequently the emission angle

EFFI-Smart IP69K is in a way the assembly of EFFILUX tricks and technologies in a single product :

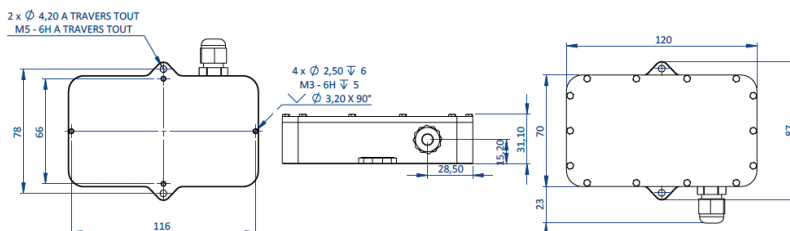
- Robust
- Waterproof (IP69K)
- Flexible
- Auto-strobe
- Very fast response time.

## Mechanical configuration

### EFFI-Smart-IP69K-6



### EFFI-Smart-IP69K-12

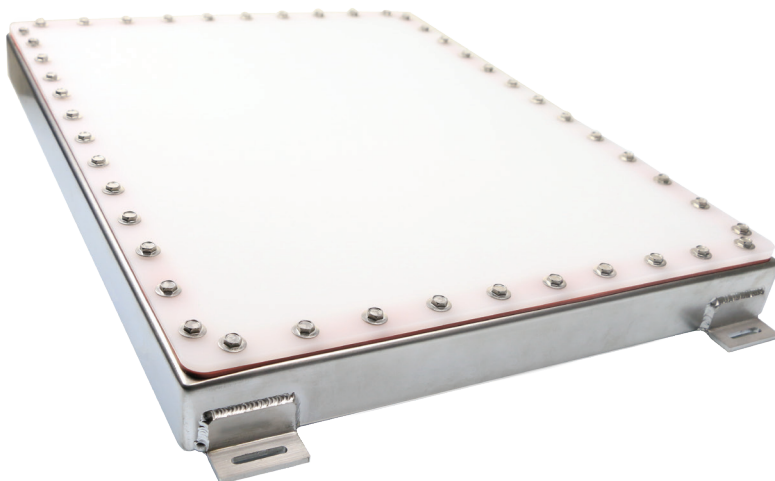


## Cable

See cable on page 77.

# EFFI-BL-IP69K

Waterproof LED Backlight resistant to washing chemicals of the agri-food industry

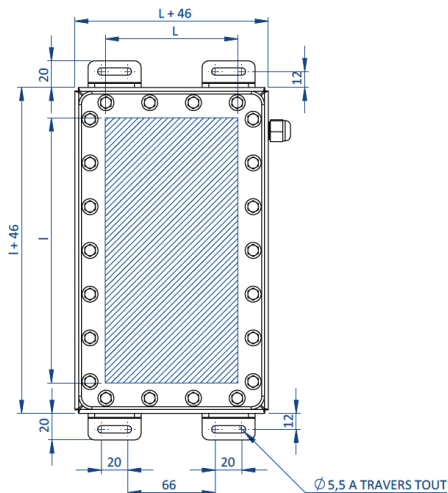
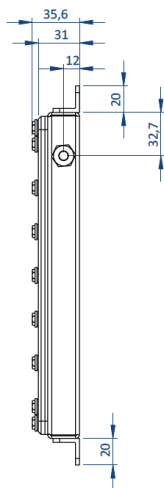


## Description

By Meeting the requirements of the Food and Drug Administration (FDA), the IP69K series features a 100% waterproof stainless steel profile specially designed for food industry and wash environments.

EFFI-BL IP69K is a large, powerful and homogeneous LED backlight. The strong luminance and greater than 90% homogeneity make it the ideal product for camera inspection by backlight

## Mechanical configuration

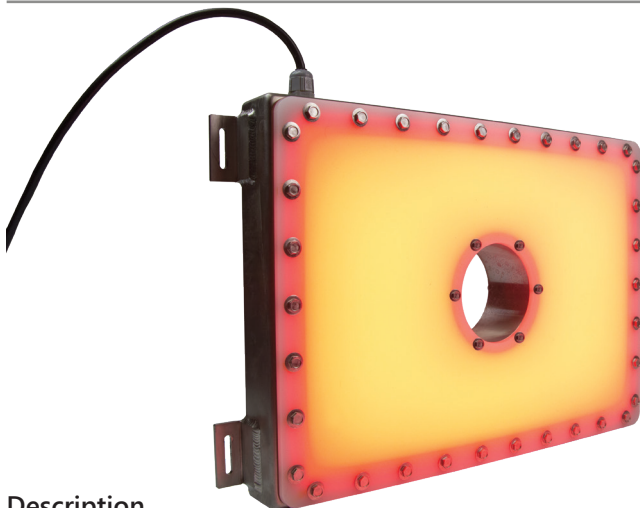


## Cable

See cable on page 77.

# EFFI-FD-IP69K

Waterproof flat dome resistant to washing chemicals of the agri-food industry



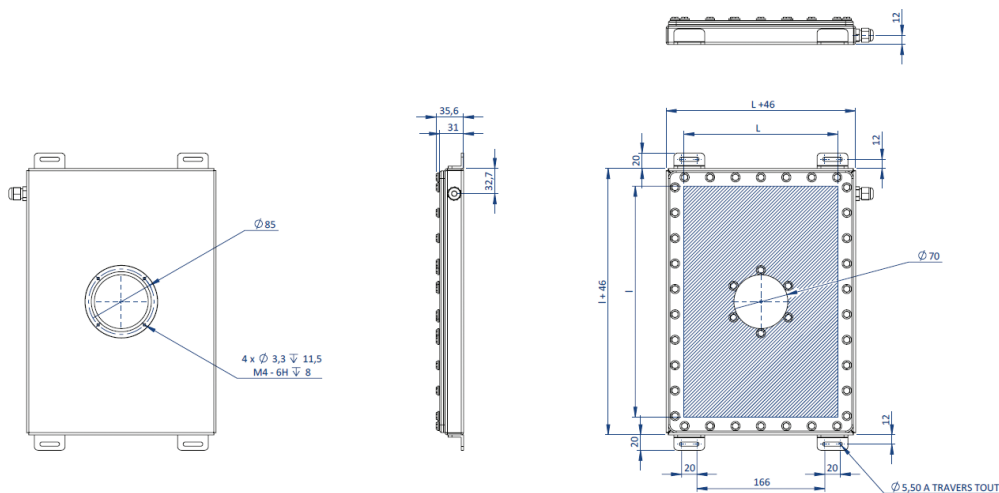
## Description

By Meeting the requirements of the Food and Drug Administration (FDA), the IP69K series features a 100% waterproof stainless steel profile specially designed for food industry and wash environments.

EFFI-FD IP69K is a diffused LED lighting flat dome for reflective surfaces. It is ideal for machine vision applications where light is both direct and diffused.

EFFI-FD IP69K offers the advantage of being easily integrated on a production line. It is even often used as the main mechanical basic vision application. EFFI-FD-INOX can in some cases replace IDS dome lighting.

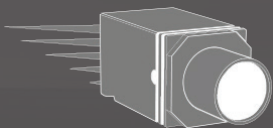
## Mecanical configuration



## Cable

See cable on page 77.





# HIGH-SPEED VIDEO

## Description

The «High-speed Video» lighting range is specially designed for industrial and scientific applications with very short exposure times.

The powerful lightings of this range correspond to the technical requirements of high-speed cameras.

## Applications

- Industry (ex : troubleshooting, ...)
- Research and Development (ex : PIV, ...)
- Crash tests

## High-speed video lighting range



EFFI-Smart  
Double row LED bar  
Page 25

EFFI-BL  
LED Backlight  
Page 38



EFFI-Sharp  
Powerful and homogeneous LED projector  
Page 55

EFFI-Sharp-V2  
New generation of shape projector  
Page 58

EFFI-Spot  
Very powerful and homogeneous LED spot  
Page 61

A collection of various optical components, including lenses and mirrors, are arranged on a blue surface. The components are illuminated from the side, creating strong highlights and shadows. A large, dark, circular lens is the central focus, with several smaller lenses and mirrors scattered around it. The background is a gradient of blue, with a dark blue band across the middle where the text is located.

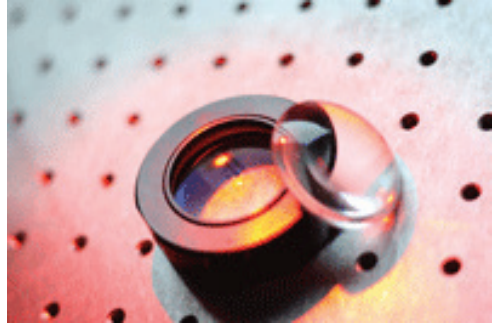
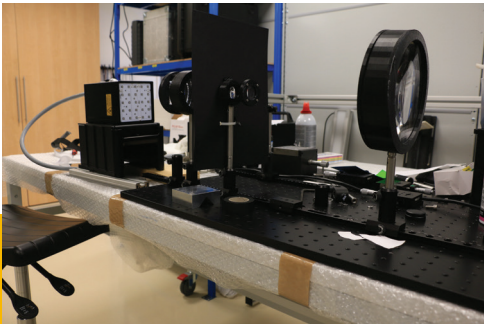
# OPTICAL

Thanks to a skilled team made up of Optical Training engineers, EFFILUX gives all its knowledge at your disposal to with the best solution answer your problem(s).

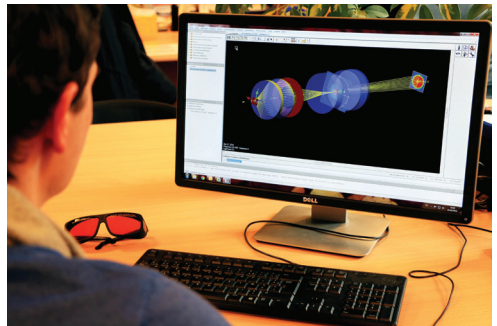
> Custom Made  
Optics Manufacturing



> Software-supported design  
(Zemax, LightTools, ...)

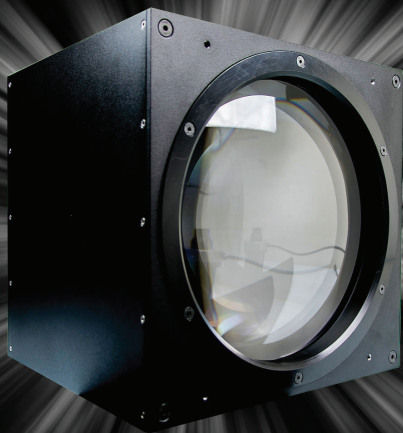


> Industrial integration experience.







> Experimental validation  
(spectrometry, power measurement, prototyping)





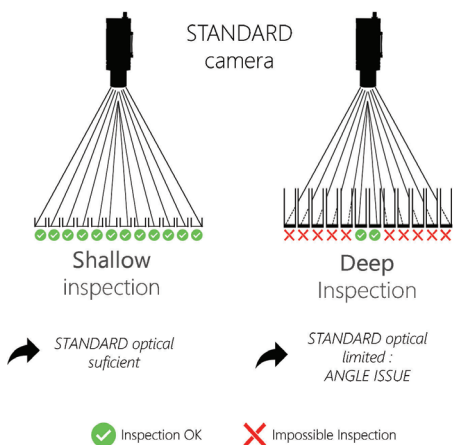
# optiCase

Axial vision system

-  Measure
-  Deep absence / presence detection
-  Limits image distortion
-  Compatible with all market cameras

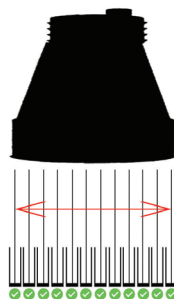
## Type of application

In the following case, we will see how  
**optiCase EffiLux**  
 stands out from an application with  
 «Standard» camera or with «Telecentric» lens



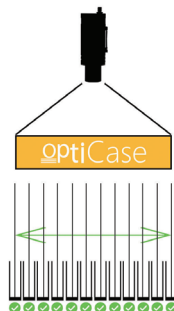
### TELECENTRIC application

- PRICE
- DIMENSIONS
- INSTALLATION
- + ACCURACY



### optiCase application

- + PRICE
- + DIMENSIONS
- + INSTALLATION
- + ACCURACY





**SEE BEYOND VISIBLE**

optile

RATH

PRO



## Description

Hyperspectral imaging represents a growth in machine vision industry because new applications are emerging. Thanks to our optical and LED management skills, EFFILUX has chosen to develop full spectrum LED lighting. Indeed, EFFILUX works closely with hyperspectral camera manufacturers in order to deliver the LED lighting which fits the best with customer needs. The spectrum is totally customizable, EFFILUX can provide either the full spectrum than a one with specific wavelength (from 400nm to 1700nm).

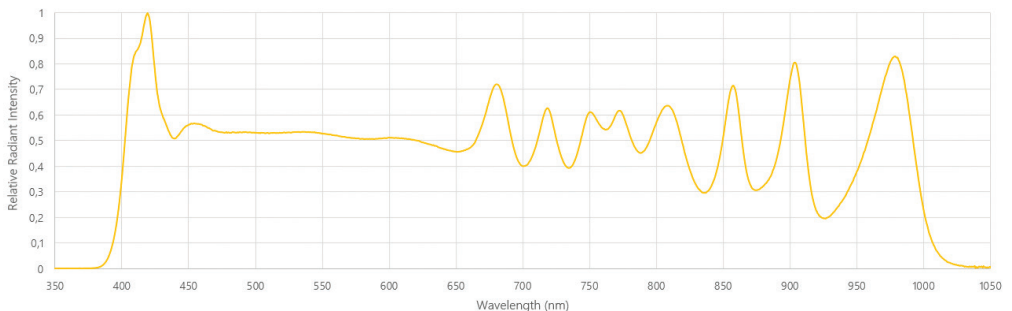


## Applications

- Chemical imaging
- Waste & plastic sorting
- Food & Pharmaceutical inspection
- Tissues discrimination
- and many others industrial

This list provides a quick look of various ways hyperspectral technology is being used today, but perspectives are endless. Hyperspectral imaging has opened new paths where traditional vision systems could not meet user needs so far.

## Full-spectrum example



# SEE BEYOND VISIBLE SWIR LED lighting



## Description

SWIR (Short Wave InfraRed) is the spectrum band typically defined between 900nm and 2500nm. On the boundary between visible and thermal imaging, this spectrum band is particularly interesting. Indeed, its closeness with the visible confers him all its qualities of imaging in term of contrast and resolution, and in the the same time the SWIR spectral range allow to :

- See through opaque materials (ex: silicon, plastics, organical...)
- Reveal elements such as water, lipids, collagen ...
- See through mist, smoke or dust, day and night

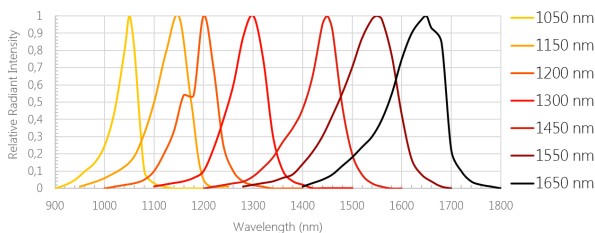


## Applications

Applications in machine vision, quality control and scientific imaging are numerous :

- Silicon wafer inspection
- Electronical examination (in molted systems for example)
- Machine automation
- Filling level detection
- Moisture control
- Liquid discrimination
- Fruit bruising
- Security

## Wavelengths available



Most standard EFFILUX LED lighting are  
SWIR adaptable.  
Other wavelength on request.  
Feel free to contact us !

# UWAVE

INNOVATIVE LED UV SYSTEMS

## UV LED CURING



# UV LED CURING About



UWAVE designs and sells high power UV LED sources for adhesive, resins, varnishes and inks curing applications in industrial environments.

UWAVE consolidates the presence of EFFILUX in the worldwide industry with its expertise in the integration of high power UV LED lighting systems. Spin off of EFFILUX, it adapts existing skills in Engineering (optics, mechanics, etc ..) for the polymerization or simply UV drying market.

UWAVE offers different efficient standard product ranges to meet different market applications. In parallel, it designs, prototypes and manufactures UV LED lighting tailored for OEMs and special machinery manufacturers. Its speed, flexibility and technical expertise make UWAVE a key partner in the success of your projects using high power UV LED lighting.

## UV LED CURING Products

### UV Floods



#### UBAR <sup>TM</sup>

100×100 mm -  $P_{max}$  1W/cm<sup>2</sup>

Homogeneous and reliable illumination profile on the all emission window (less than 10% of variations). Robust and adapted for industrial processes.

**Some Applications :** *Coating in electronic, resins for smart-card, ..*



#### UCUBE <sup>TM</sup>

50×200 mm -  $P_{max}$  0,5W/cm<sup>2</sup>

Homogeneous and reliable illumination profile on the all emission window (less than 10% of variations), optical options available for specific collimation angle. Robust and adapted for industrial processes.

**Some Applications :** *Gluing in electronic and cosmetic, photo-lithography, ..*



#### UV CHAMBER <sup>TM</sup>

100×100 mm -  $P_{max}$  1W/cm<sup>2</sup>

Integration of the UCUBE product into an ergonomic and design oven. Full control of the curing process with the tune of the time, the illumination power as well as the working distance. Great for semi-automatic processes.

**Some Applications :** *Gluing in electronic and cosmetic, photo-lithography, biological tests..*

## UV Circular / Spot



### UFIBER™

Ø 12mm -  $P_{max}$  2W/cm<sup>2</sup>

Very compact and precise spot curing system for manual or automatic processes. It combines the performance and benefits of UV LED technology in an intuitive system.

**Some Applications :** *Gluing in photonic, electronic or medical.*



### UTARGET™

Ø 15mm -  $P_{max}$  2W/cm<sup>2</sup>

One manual version for an simple use, one more automatic for controlled processes. With its own integrated optical system the UTARGET allows you to fine tune the UV spot size.

**Some Applications :** *Gluing in photonic, electronic or medical.*



### USHARP™

Ø 25mm -  $P_{max}$  1W/cm<sup>2</sup>

It provides a well defined and contrasted UV illumination profiles at variable high working distances. Robust and adapted for industrial processes.

**Some Applications :** *Gluing in photonic, electronic or medical.*



### USPOT™

Ø 40mm -  $P_{max}$  4W/cm<sup>2</sup>

Perfect for industrial processes which requires great UV performance. Thanks to its integrated optical system the USPOT takes full advantages of its power at high working distances.

**Some Applications :** *Gluing in photonic, electronic or medical, encapsulation in electronic,...*

## UV Linear / Line



### UPIN™

10×75 ... 300 mm (by 75mm step) -  $P_{max}$  4W/cm<sup>2</sup>

The UPIN characterizes UWAVE's know-how by the finesse and power of its UV LED illumination, optical options are available. Its flexible design allows for different sizes.

**Some Applications :** *Curing ink in digital, screen printing, coating in electronic, ..*

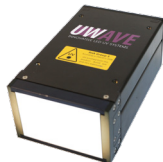


### USTRIGHT™

20×75 ... 300 mm (by 75mm step) -  $P_{max}$  12W/cm<sup>2</sup>

Very powerful by using our air cooling technology. Integrating the latest generation of UV LED it reaches a great illumination output. Its flexible design allows for different sizes.

**Some Applications :** *Curing ink in digital, screen printing, coating in electronic, ..*

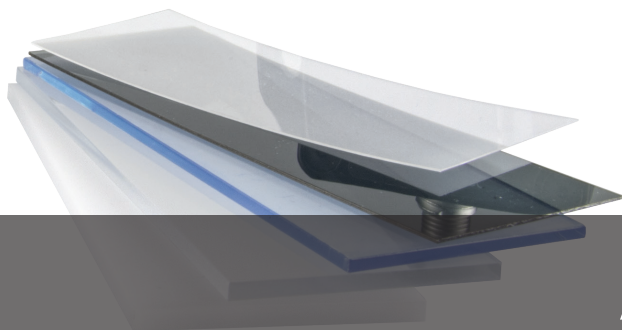


### ULINE™

20×75 ... 300 mm (by 75mm step) -  $P_{max}$  16W/cm<sup>2</sup>

Very powerful by using our water cooling technology. Integrating the latest generation of UV LED it reaches a great illumination output. Its flexible design allows for different sizes.

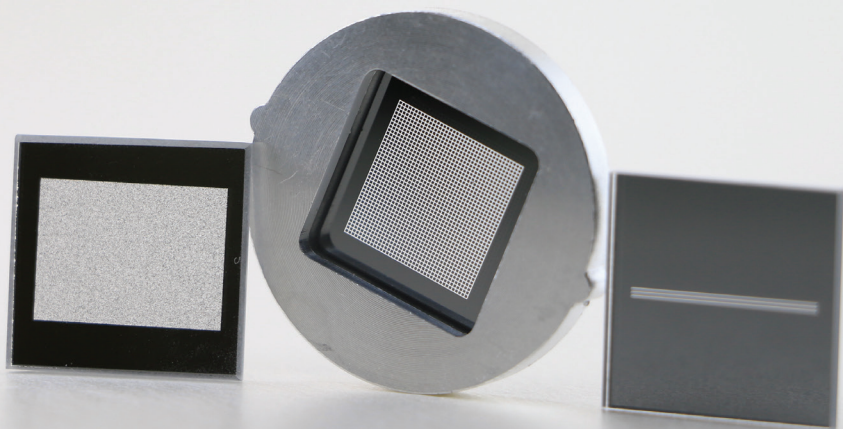
**Some Applications :** *Curing ink in digital, screen printing, coating in electronic, ..*



## ACCESSORIES







# OPTICAL

## Windows

### - Standards range

TR : Transparent



SD : Semi-diffuse



OP : Opaline



+ Powerful ←

→ + Homogeneous

EFFILUX offers different types of interchangeable windows to find a good compromise between power and homogeneity depending on the nature of the object to control.









# ACCESSORIES optical accessories

Windows	Transparent	Semi-difuse	Opaline
EFFI-Flex	 Référence : EFFO-FLEX-TR-XX*	 Référence : EFFO-FLEX-SD-XX*	 Référence : EFFO-FLEX-OP-XX*
EFFI-Ring	 Référence : EFFO-RING-TR	 Référence : EFFO-RING-SD	 Référence : EFFO-RING-OP
EFFI-Smart	 Référence : EFFO-SMART-TR-XX*	 Référence : EFFO-SMART-SD-XX*	 Référence : EFFO-SMART-OP-XX*

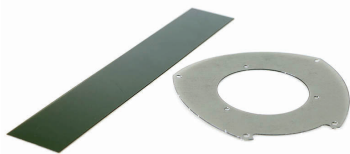
\* XX : Number of LED

## - Standards range

	Product	Part number
EFFI-LLA		EFFO-LLA-60-070-2-DIFFUSER EFFO-LLA-60-090-2-DIFFUSER EFFO-LLA-60-150-3-DIFFUSER EFFO-LLA-60-200-2-DIFFUSER EFFO-LLA-75-130-3-DIFFUSER EFFO-LLA-75-170-3-DIFFUSER
EFFI-LSW		EFFO-LSW-00-040-2-DIFFUSER EFFO-LSW-00-050-2-DIFFUSER EFFO-LSW-00-070-3-DIFFUSER EFFO-LSW-00-090-4-DIFFUSER EFFO-LSW-15-050-2-DIFFUSER EFFO-LSW-15-070-3-DIFFUSER EFFO-LSW-15-090-4-DIFFUSER EFFO-LSW-15-100-5-DIFFUSER
EFFI-LBRX 3		EFFO-LBRX-00-200-3-DIFFUSER EFFO-LBRX-00-160-3-DIFFUSER EFFO-LBRX-00-120-3-DIFFUSER EFFO-LBRX-00-080-3-DIFFUSER EFFO-LBRX-00-040-3-DIFFUSER
EFFI-LBRX 6		EFFO-LBRX-00-200-6-DIFFUSER EFFO-LBRX-00-160-6-DIFFUSER EFFO-LBRX-00-120-6-DIFFUSER EFFO-LBRX-00-080-6-DIFFUSER EFFO-LBRX-00-040-6-DIFFUSER
EFFI-LBRQ 3		EFFO-LBRQ-00-200-3-DIFFUSER EFFO-LBRQ-00-160-3-DIFFUSER EFFO-LBRQ-00-120-3-DIFFUSER EFFO-LBRQ-00-080-3-DIFFUSER EFFO-LBRQ-00-040-3-DIFFUSER
EFFI-LBRQ 6		EFFO-LBRQ-00-200-6-DIFFUSER EFFO-LBRQ-00-160-6-DIFFUSER EFFO-LBRQ-00-120-6-DIFFUSER EFFO-LBRQ-00-080-6-DIFFUSER EFFO-LBRQ-00-040-6-DIFFUSER

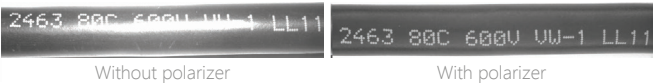
# ACCESSORIES optical accessories

## Polarizers



The polarizer eliminates glare caused by the lighting on parts to control. The camera can then analyze the part, without being disturbed by the glow effects.

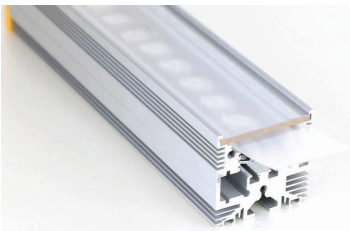
The polarizer can be useful to perform quality control on parts packed in transparent plastic bags.



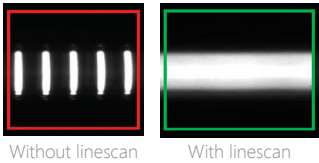
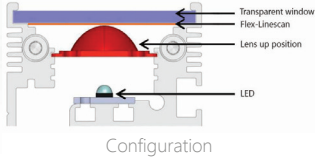
	EFFI-Flex	EFFI-Ring	EFFI-Smart	Camera	Custom
Picture					
Part Number	EFFO-FLEX-POL-XX*	EFFO-RING-POL	EFFO-SMART-POL-XX	Ø25.5 : EFFO-FLR-POL-M25.5 Ø27 : EFFO-FLR-POL-M27 ØXX : EFFO-FLR-POL-MXX	To put a polarizer in another product, please contact us.

\* XX : Number of LED

## Linescan



Thanks to its optical accessory Flex-Linescan, the led bar EFFI-Flex is transformed into a linear lighting or a darkfield lighting : EFFI-Flex-Linescan and EFFI-Smart-Linescan



	Linescan accessory integrated in the product	Linescan accessory alone
EFFI-Flex	EFFI-FLEX-WW-XXX-TR-P3-LS*	EFFO-FLEX-LS-WW*
EFFI-Smart	EFFI-SMART-WW-XXX-TR-P3-LS*	EFFO-SMART-LS-WW*

\* WW : number of LED

XXX : wavelength (nm)

TR : transparent window

P3 : P3 lens position

\*-LS" means that the Flex-Linescan accessory is mounted in the product.

## Filters

EFFILUX offers several color filters : high-pass, low-pass and band-pass, which have the property of passing only certain wavelengths determined.

Apply directly to the cameras, they suppress the disturbances generated by the ambient light.



# ACCESSORIES optical accessories

	<b>STEP UP and STEP DOWN adapters</b> In stock : SU27-30.5, SD27-25.5, SU25.5-27, SD30.5-27.		
	<b>Adapter</b>	<b>Part number</b>	<b>Description</b>
	SU27-30.5	EFFO-FLR-SU27-30.5	To adapt a M30.5 filter on a M27 camera
	SD27-25.5	EFFO-FLR-SD27-25.5	To adapt a M25.5 filter on a M27 camera
	SU25.5-27	EFFO-FLR-SU25.5-27	To adapt a M27 filter on a M25.5 camera
	SD30.5-27	EFFO-FLR-SD30.5-27	To adapt a M27 filter on a M30.5 camera

## - Band-pass

### > Large (Broad BandPass)

	BP365	BP500	BP505	BP525	BP550	BP590	BP735
<b>Part number</b>	EFFO-FLR-BP365-80-XXX*	EFFO-FLR-BP500-248-XXX*	EFFO-FLR-BP505-90-XXX*	EFFO-FLR-BP525-80-XXX*	EFFO-FLR-BP550-300-XXX*	EFFO-FLR-BP590-70-XXX*	EFFO-FLR-BP735-65-XXX*
<b>Chart (transmission % / wavelength)</b>							
<b>Wavelength (nm)</b>	365	500	505	525	550	590	735
<b>FWHM (nm)</b>	80	248	90	80	300	70	65

### > Narrow (Narrow BandPass)

	BN470	BN630	BN850
<b>Part number</b>	EFFO-FLR-BN470-50-XXX	EFFO-FLR-BN630-45-XXX	EFFO-FLR-BN850-45-XXX
<b>Chart (transmission % / wavelength)</b>			
<b>Wavelength (nm)</b>	470	630	850
<b>FWHM (nm)</b>	50	45	45

### > High-pass (LongPass)

	LP415	LP470	LP500	LP530	LP580	LP610	LP645	LP695	LP800
<b>Part number</b>	EFFO-FLR-LP415-XXX	EFFO-FLR-LP470-XXX	EFFO-FLR-LP500-XXX	EFFO-FLR-LP530-XXX	EFFO-FLR-LP580-XXX	EFFO-FLR-LP610-XXX	EFFO-FLR-LP645-XXX	EFFO-FLR-LP695-XXX	EFFO-FLR-LP800-XXX
<b>Chart (transmission % / wavelength)</b>									
<b>Wavelength (nm)</b>	415	470	500	530	580	610	645	695	800

### > Low-pass (ShortPass)

	SP700
<b>Part number</b>	EFFO-FLR-SP700-XXX
<b>Chart (transmission % / wavelength)</b>	
<b>Wavelength (nm)</b>	700

\* XXX : filter size (ex : M25.5)

Filter holders for camera

EFFILUX also offers filter holders for any camera that does not have a "C" mount. Thanks to this accessory, whose diameter is 25.5, you can adapt a multitude of filters (see above) on your camera.

In order to adapt larger diameter filters, EFFILUX offers different adapters

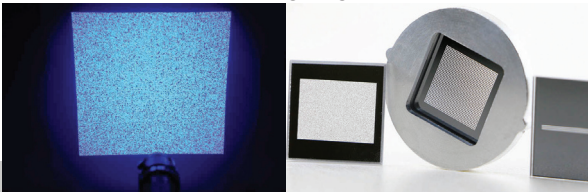


**Part number :** EFFO-XXX-FLR-M25.5  
**XXX :** part number of camera  
Example of part number for IN-SIGHT 2000 camera (COGNEX) : EFFO-IS2000-FLR-M25.5

Masks

EFFILUX provides a full range of masks compatible with the structured LED lighting EFFI-Lase. Custom masks can be made on request.

- 3D profilometry
- Stereovision
- Alignement

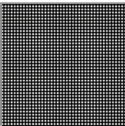
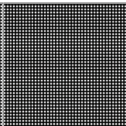
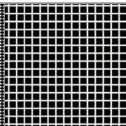
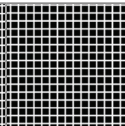
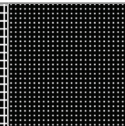
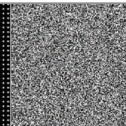
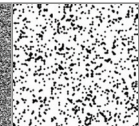


**Part number :** EFFO-MSK-XXX

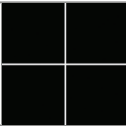
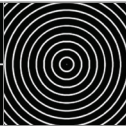
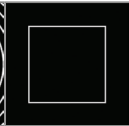
- 3D profilometry

Mask												
XXX : part number mask	L01	L02	L03	L04	L05	L06	L07	L08	L09	L12	L13	L41
Designation	1 line 50µm	1 line 20µm	1 line 10µm	3 lines 50µm	3 lines 50µm	5 lines 50µm	100 lines 45µm	22 lines 50µm	1 line 5µm	2 lines 50µm	1 line 50µm 1 line 250µm	1 line 75µm 40 lines 45µm
Line length (mm)	13	13	13	13	13	13	13	13	13	13	13	13
Step between each line (µm)	-	-	-	500	200	750	67,5		-	500	500	


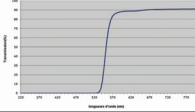
- Stereovision

Mask							
XXX : part number mask	G01	G02	G03	G04	G05	C02	C03
Designation	Round Ø50µm	Round Ø50µm	Grid 40*40 lines 50µm	Grid 50*50 lines 50µm	Square 50*50µm²	Cloud of dots : density 50%	Cloud of dots : density 17%
Pattern surface (mm²)	10x10	13x13	10x10	13x13	10x10	12,8x9,6	12,8x9,6
Step between each pattern (µm)	50	50	50	50	100	-	-

- Alignment

Mask			
XXX : part number mask	A01	A02	A03
Designation	Cross 50µm	Concentric circles 50µm	Square 50µm
Line length (mm)	13	-	10

Protection glasses

Model	Part number	Transmission curve	Compatibility
	EFFO-GLA-UV-BLUE-PROTECT		All products EFFILUX emitting blue light and UV. 100% protection against Ultra-Violet and blue light up to 525 nm.



# ELECTRONICAL

## Pulse controller

EFFILUX pulse controllers are designed for high throughput vision applications. They can control the power light to create bright flashes of high intensity that will be synchronized with the camera.

The principle is to feed the high power LED lighting for very short times so as to provide a large amount of light for the time of acquisition.

It is important to respect the cycle time to avoid overheating the lighting system.

It can control multiple lightings with a single controller (up to 4 channels). The output current can reach up to 1A @ 30V in continuous and 10A @ 200V in strobe mode. In addition, Ethernet and RS232 connectors are available across the range.

EFFILUX also provides cables for these controllers. Do not hesitate to contact us for more information.



Pulse controller	Characteristics
EFFI-IPSC4	4 channels, Ethernet RS232, max. current per channel 10A@200V in pulse mode and 1A@30V in continuous, LxWxH 130x142x56 mm.

## ACCESSORIES Electronical accessories

### - EFFI-IPSC4 cables

Connectivity	Orientation	Length	Part number	Compatibility
M8 - Female Male - 3 pins	Straight Straight	2 m	EFFC-CAB-M8-SUBD-FM-3-DD-L2	EFFI-Sharp, EFFI-Lase, EFFI-Tele
		5 m	EFFC-CAB-M8-SUBD-FM-3-DD-L5	EFFI-Sharp, EFFI-Lase, EFFI-Tele
		10 m	EFFC-CAB-M8-SUBD-FM-3-DD-L10	EFFI-Sharp, EFFI-Lase, EFFI-Tele
M8 - Female Male- 4 pins	Straight Straight	2 m	EFFC-CAB-M8-SUBD-FM-4-DD-L2	EFFI-Sharp V2, EFFI-Lase V2, EFFI-Ring
		5 m	EFFC-CAB-M8-SUBD-FM-4-DD-L5	EFFI-Sharp V2, EFFI-Lase V2, EFFI-Ring
		10 m	EFFC-CAB-M8-SUBD-FM-4-DD-L10	EFFI-Sharp V2, EFFI-Lase V2, EFFI-Ring
naked cable (order with screw connector)	Straight	2 m	EFFC-CAB-SUBD-M-5-D-L2	Custom
		5 m	EFFC-CAB-SUBD-M-5-D-L5	Custom
		10 m	EFFC-CAB-SUBD-M-5-D-L10	Custom

Other on request.

### Potentiometer

EFFI-Dimmer is the dimmer proposed by EFFILUX. It adjusts the light intensity (via control of DIM) of the following products : EFFI-Flex «ELS» version, EFFI-Flex-BL, EFFI-BL, EFFI-FD, EFFI-Lase, EFFI-Sharp, EFFI-Telecentric, EFFI-Smart, EFFI-Lase V2...

Input : a M12 connector plugged to a 24V DC power supply

Output : choice between the two M12 connectors (depending on the DIM voltage range: 0-5V or 0V-24V) allowing to manage all EFFILUX products.



Potentiometer	Characteristics
EFFI-DIMMER	Electrical power < 96W / 24V@4A
EFFI-DIMMER-PWR	Electrical power < 288W / 24V@12A

### Power Supplies

EFFILUX offers power supplies compatible with all LED lighting systems. These boxes can power and control the light intensity of the products by varying the voltage. Up to four lights can be powered with a single supply system.

EFFILUX may also offer you a customized supply according to certain needs. Do not hesitate to contact us for more information.



Part number	Characteristics
EFFI-PWR-050W-24V-102-XX	1 channel - M12, 50W / 24V - 2A
EFFI-PWR-050W-24V-302-XX	3 channels - M12, 50W / 24V - 2A
EFFI-PWR-200W-24V-102-XX	1 channel - M12, 200W / 24V - 8A
EFFI-PWR-200W-24V-112-XX	1 channel - M12 PWR, 200W / 24V - 8A
EFFI-PWR-200W-24V-302-XX	3 channels - M12, 200W / 24V - 8A

XX (type of outlet) : UK, CH, EU. Other connectivities on request.

### - Custom

On request

Number of connectors, power range, built-in timer...



## Cables

Connectivity	Orientation	Length	New part number	Compatibility
M8 - Female - 3 pins	Straight	2 m	EFFC-CAB-M8-F-3-D-L2	EFFI-Sharp, EFFI-Lase in strobe mode
		5 m	EFFC-CAB-M8-F-3-D-L5	EFFI-Sharp, EFFI-Lase in strobe mode
		10 m	EFFC-CAB-M8-F-3-D-L10	EFFI-Sharp, EFFI-Lase in strobe mode
M8 - Female - 4 pins	Straight	2 m	EFFC-CAB-M8-F-4-D-L2	EFFI-Ring in strobe mode
		5 m	EFFC-CAB-M8-F-4-D-L5	EFFI-Ring in strobe mode
		10 m	EFFC-CAB-M8-F-4-D-L10	EFFI-Ring in strobe mode
M12 - Female - 4 pins	Straight	2 m	EFFC-CAB-M12-F-4-D-L2	All products except EFFI-Ring, new products*
		5 m	EFFC-CAB-M12-F-4-D-L5	All products except EFFI-Ring, new products*
		10 m	EFFC-CAB-M12-F-4-D-L10	All products except EFFI-Ring, new products*
M12 Power - Female - 4 pins	Straight	2 m	EFFC-CAB-M12P-F-4-D-L2	All products except EFFI-Ring, new products*
		5 m	EFFC-CAB-M12P-F-4-D-L5	All products except EFFI-Ring, new products*
		10 m	EFFC-CAB-M12P-F-4-D-L10	All products except EFFI-Ring, new products*
M12 - Female - 5 pins	Straight	2 m	EFFC-CAB-M12-F-5-D-L2	EFFI-Ring, new products*
		5 m	EFFC-CAB-M12-F-5-D-L5	EFFI-Ring, new products*
		10 m	EFFC-CAB-M12-F-5-D-L10	EFFI-Ring, new products*
M12 - Female Male - 5 pins	Straight Straight	2 m	EFFC-CAB-M12-FM-5-DD-L2	EFFI-Ring, new products*
		5 m	EFFC-CAB-M12-FM-5-DD-L5	EFFI-Ring, new products*
		10 m	EFFC-CAB-M12-FM-5-DD-L10	EFFI-Ring, new products*
RD24 - Female - 4 pins	Straight	2 m	EFFC-CAB-RD24-F-4-D-L2	EFFI-Line
		10 m	EFFC-CAB-RD24-F-4-D-L10	EFFI-Line
RD24 - Male - 4 pins	Angled	2 m	EFFC-CAB-RD24-F-4-C-L2	EFFI-Line
	Straight	2 m	EFFC-CAB-RD24-M-4-D-L2	EFFI-Line

\* EFFI-Smart, EFFI-Lase V2, EFFI-Sharp V2

## Custom cables

On request

Connectivity, number of pins, length ...

Build the reference of your cable following these steps.

Part number : **EFFC-CAB-VVVV-WW-X-YY-ZZZ**

Protocol	Reference attribute		
1) Choice of connectivity	M8	<span style="color: red;">-VVVV</span>	<span style="color: red;">-M8</span>
	M12		<span style="color: red;">-M12</span>
	M12 Power		<span style="color: red;">-M12P</span>
	M16		<span style="color: red;">-M16</span>
	RD24		<span style="color: red;">-RD24</span>
2) Choice of type(s)	Female	<span style="color: red;">-WW</span>	<span style="color: red;">-F</span>
	Male		<span style="color: red;">-M</span>
	Female Male		<span style="color: red;">-FM</span>
	Female Female		<span style="color: red;">-FF</span>
	Male Male		<span style="color: red;">-MM</span>
3) Choice of number of pins	3 pins	<span style="color: blue;">-X</span>	<span style="color: blue;">-3</span>
	4 pins		<span style="color: blue;">-4</span>
	5 pins		<span style="color: blue;">-5</span>
4) Choice of orientation	Angled	<span style="color: red;">-YY</span>	<span style="color: red;">-C</span>
	Straight		<span style="color: red;">-D</span>
	Straight Straight		<span style="color: red;">-DD</span>
	Straight Angled		<span style="color: red;">-DC</span>
	Angled Straight		<span style="color: red;">-CD</span>
	Angled Angled		<span style="color: red;">-CC</span>
5) Choix of length	2 m	<span style="color: blue;">-ZZZ</span>	<span style="color: blue;">-L2</span>
	5 m		<span style="color: blue;">-L5</span>
	10 m		<span style="color: blue;">-L10</span>
6) Other request ?	Shielded cable	Contact us	
	Specific sheath		
	...		



# MECHANICAL

## Cameras fasteners













EFFILUX offers camera mounting brackets for combining EFFI-FD light or EFFI-Ring with a camera

> Compatible camera models :

- Basler : Ace Series, Pilot Series, Scout Series
- Cognex : Insight 5000 Serie, Insight 7000 Series, Insight Micro
- Datalogic : A30 Series, T4x Series, M1xx Series, M2xx Series, M3xx Series
- IDS : UI-5220 CP, UI-1120 SE, UI-1220 RE, UI-3220 CP, UI-5120 SE, UI-5120 RE
- Matrox : Gator EYE, Iris GT
- Another camera ? Contact us .




## ACCESSORIES Mechanical accessories

	Part 1	Part 2	Part 1 + Part 2
<b>STEEL FASTENERS* FOR HEAVY CAMERAS</b>			
<b>EFFM-1-VERT-STEEL</b>	 <p>Part number : EFFM-1-0024-STEEL</p>	 <p>Part number : EFFM-1-0026-STEEL</p>	
<b>EFFM-1-HORI-STEEL</b>	 <p>Part number : EFFM-1-0024-STEEL</p>	 <p>Part number : EFFM-1-0025-STEEL</p>	
<b>ALUMINUM FASTENERS** FOR LIGHT CAMERAS</b>			
<b>EFFM-1-VERT</b>	 <p>Part number : EFFM-1-0024</p>	 <p>Part number : EFFM-1-0026</p>	
<b>EFFM-1-HORI</b>	 <p>Part number : EFFM-1-0024</p>	 <p>Part number : EFFM-1-0025</p>	






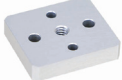

\* very resistant steel intended for use with mechanical constraints: not recommended for corrosive environment.

\*\* aluminium, less resistant than steel, intended for use with little mechanical constraints (cameras < 1kg ) : recommended for corrosive environment.

## Optomechanical tools

Tool	Part number	Characteristics	Compatibility
<b>Spanner wrench</b> 	EFFM-SPANNER-WRENCH	The spanner wrench EFFILUX is used to install and adjust the retaining ring for masks changing.	EFFI-Lase V2, EFFI-Sharp V2

## Lighting fasteners

Fastener	Part number	Characteristics	Compatibility
<b>T-Nut</b> 	<b>M6</b> : EFFV-BOLT-0011  <b>M4</b> : EFFV-BOLT-0012	<b>M6</b> : T-Nut to insert in the product slot. Delivered with a screw M6x14, a nut M6, a washer M6, a screw M4x12, flat washer M4 and a nut M4.  <b>M4</b> : T-Nut to insert in the product slot. Delivered with a screw M4x12, a nut M4, flat washer M4 and a screw M4x8.	EFFI-BL, EFFI-FD, EFFI-Flex, EFFI-Line V2
<b>Bracket</b> 	<b>Without groove</b> : EFFM-1-0017  <b>1 groove</b> : EFFM-1-0019  <b>2 grooves</b> : EFFM-1-0021	This fastener is fattached in the product profile with a T-Nut and the desired mechanical support via a second T-Nut. Delivered with two screws M6x14, two T-Nuts EFFV-BOLT-0011 and two washers.	-
<b>«Elcom» ball</b> 	<b>Drilled</b> : EFFM-1-0009  <b>NOT drilled</b> : EFFM-1-0002	<b>Drilled</b> : this ball can be attached to products using the two M4 holes. Supplied with two screws M4x12, two screws M5x12, a screw M6x14 and a T-Nut EFFV-BOLT-0011.  <b>NOT drilled</b> : this fastener can also be used to attach the following products by screwing into the section through the central hole. Delivered with a T-Nut EFFV-Bolt-0011 and two screws M6x14.	<b>Drilled</b> : EFFI-Sharp (on EFFI-Sharp Power, the ball joint is fixed on the rear of the heatsink), EFFI-Lase, EFFI-lase V2, EFFI-Tele, EFFI-Flex-CPT, EFFI-Smart, EFFI-Line V2, EFFI-Lase-CPT  <b>NOT drilled</b> : EFFI-BL, EFFI-FD, EFFI-Flex, EFFI-Flex-CPT, EFFI-Smart, EFFI-Line V2, EFFI-Lase-CPT
<b>Clamping flange on the body</b> 	EFFM-1-0001 (formerly EFFI-Clamp)	The clamp grips the round body of EFFI-Sharp. 2 fastener configurations are possible. Delivered with two screws M4x20.	EFFI-Sharp, EFFI-Lase, EFFI-Tele
<b>Fastener for dome</b> 	EFFI-IDS3-00-XX-BRACKET	-	EFFI-IDS
<b>Adapter «tripod»</b> 	EFFM-1-0027	Fastener used to simplify the projector integration (orientation). Delivered with EFFV-BOLT-0011 and 2 M6x14 screws. To securely lock into position, please remove internal washers.	Adapted to EFFILUX products: Bosch profile and M4 threaded holes  EFFI-Sharp, EFFI-Lase, EFFI-Tele, EFFI-Smart, EFFI-Spot, EFFI-Lase-CPT
<b>SMART Adapter</b> 	EFFM-ADAPT-SMART	Adapter for fastening your EFFI-Smart Delivered with 2 M3x8 screws. To securely lock the product, Please remove the inner washers.	Suitable for EFFILUX products : Bosch profile and M4 tapped holes EFFI-Smart

Before contacting us, please consult these technical issues.  
They will help you to define your needs.

### **OPTICAL**

- Wavelength ?
- Illumination requirements : how many "Lux" or "mW / cm<sup>2</sup> at a defined working distance ?
- Illuminated area ?
- Homogeneity requirement ?
- For structured lightings : depth of field ? Edge sharpness ?

### **MECHANICAL**

- Dimensions ?
- Min / max working distance ?
- Cooling system ?
- Fixings ?

### **ELECTRONICAL**

- Connectors ? (M8 - M12, number of pins, conventions...)
- Power supply ?
- Auto-strobe or continuous ? (if auto-strobe, 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, dust...

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