Roblon

MAIN CATALOGUE The LED series

Protection rating

Weight

Tilt angle

Fixture rotation

Head rotation

Fixture power at max. constant current

European Union conformity seal

Suitable for installation on normally inflammable surfaces

Suitable for mounting in normally inflammable surfaces where thermal insulating material may cover the luminaire

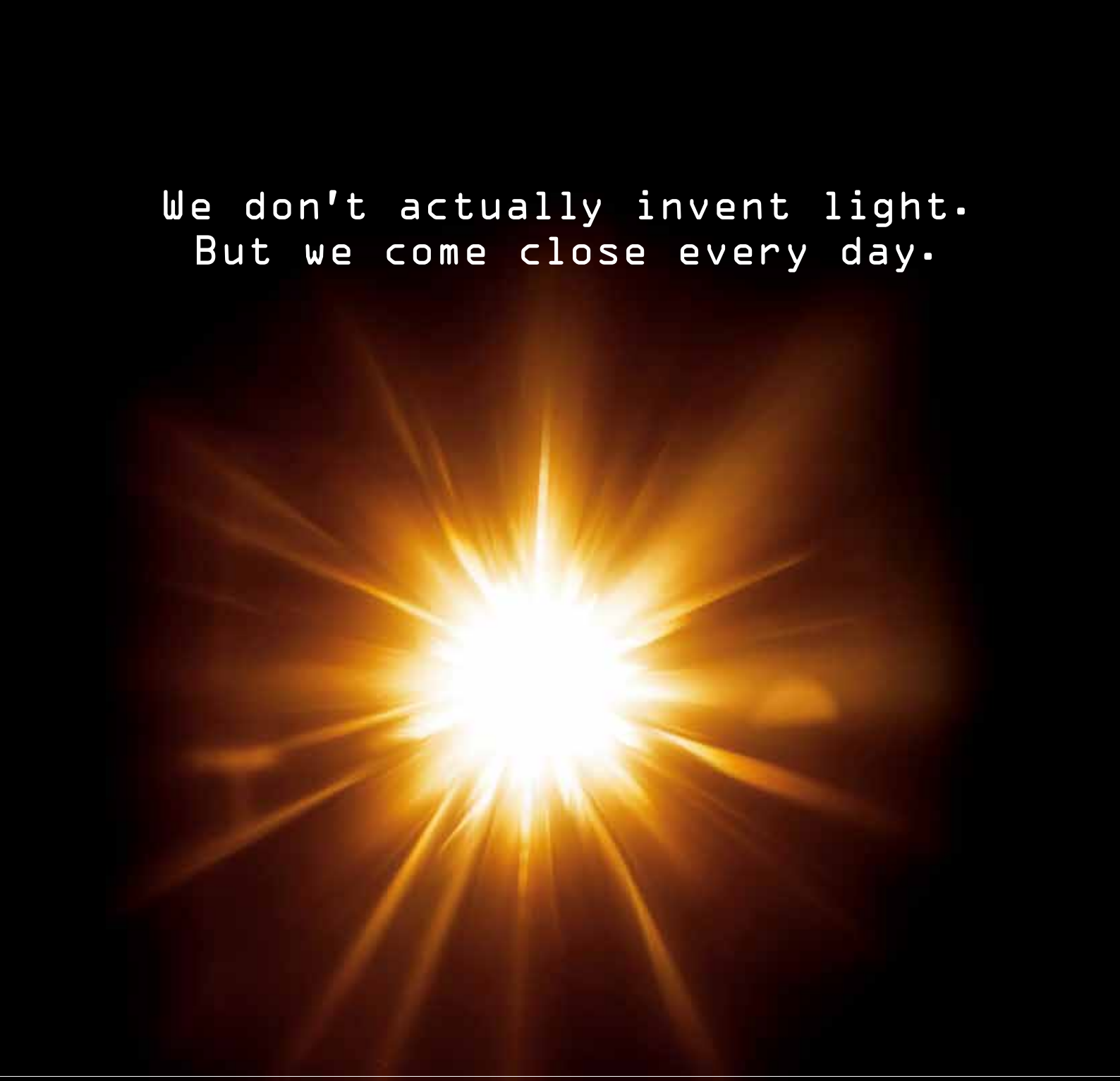
UL conformity seal

Certified according to the CB Scheme

Symbols

Roblon main catalogue, the LED series: 1st edition, 1st issue, 2011.

We don't actually invent light. But we come close every day.



We expect you to expect a lot from Roblon, and we expect even more from ourselves. Which is why we have years of experience in meeting the highest expectations. And then raising them.

North Room librarian's office
16 Surface-mounted XPO-led conduits (1117 0610)

East Room library bookshelves
91 Surface-mounted XPO-led conduits (1117 0610),
customised with louvres

East Room library showcases
8 Roblon FL 2002-2 B light generators (0121 0100) with colour filter,
customised with 42-watt lamps
10 VLT Light Channels

The Rotunda showcases
8 Rolon FL 2002-2 B light generators (0121 0100) with colour filter,
customised with 42-watt lamps
4 VLT Light Channels

ILLUMINATING WORKS

'These objects have to be lit appropriately and they have to be lit so people can really see them. I'm from Jamaica but I grew up here in America. I love America. You feel pride with a job of this importance. These are truly special exhibits.'

Naeem Pinto,
Design, Visual Lighting Technologies

Notes by Napoleon, Galileo and Voltaire. Letters by Lincoln, Jefferson and Einstein. Gutenberg Bibles and rare editions of Austen, Dickens and Twain.

At the restored Morgan Library & Museum, these illuminating works have been lit for accessibility today and availability tomorrow.

For the Renfro Design Group, Visual Lighting Technologies created a fibre optic solution for showcases and an LED conduit solution for the East Room library bookshelves.

The light had to accentuate precisely the details of the books so that visitors can actually see them, and it had to be safe.

'Renfro needed to contain the light so we designed louvres for the conduits near the edges,' says Naeem Pinto of VLT. 'Roblon just made them to order. Being flexible was important.'

'Documentation was also a huge factor, especially with lighting experts like Renfro because they are very detailed.'

'The LED light quality was key. So was the information you get with Roblon XPO-led. Its light performance and light quality are very well-documented, so you know in advance that it will work well.'

'XPO-LED has very little UV and very little heat. It helps with longevity. You just couldn't stick a conventional light in there. The value of these objects to posterity is so important.'

The Morgan Library & Museum
New York, USA
www.themorgan.org

Photos courtesy of the Morgan Library & Museum
More photos at www.roblonlighting.com

'I went to see it while in NYC on vacation and the effect is every bit as beautiful in reality as it appears in photos. Given all of Photoshop's tricks, you never know these days if a real thing will look like it does in pictures. But at the Morgan, it is like literally stepping into the photo. It is absolutely gorgeous.'

Susan de Vilmorin,
Marketing, Visual Lighting Technologies

Of course it's possible

Roblon staff are as imaginative as they are experienced. They insist on quality and innovation from the drawing board to development, from production to installation, from sales to support. They also insist that there is only one type of lighting solution. The right one.

Showcase
26 Corvus 1r fittings (1151 3320)
6 Lightech 10 W CC drivers (1100 0101)

Houthoff Buruma Law Firm
Amsterdam, the Netherlands
www.houthoff.com

Architect OTH
Lighting design Hans Wolff & Partners
Art by Vika Mitrichenka
Lighting distributor Q-CAT Lighting
Photos by Mike Bink
More photos at www.roblonlighting.com

What the best-dressed jewellery is wearing

'The day somebody comes in and asks for a Libra fitting with 13 heads, I have no doubt they'll get it. We'll just design a slightly different technical solution that makes it possible. That's what we're here for. And actually, for us, the highly customised solutions are the fun ones.'

René Larsen,
Technical Sales Support, Roblon

Showcases
8 Libra 3 Custom fittings (1123 2320),
customised with 9 heads

Mirror
XPO conduit system (0600 1100)
1 150-watt FL 150-3 B light generator (0161 0000)
Roblon PMMA Ø3 mm endlight fibres (5200 0551)

Ceiling, window and picture displays
34 Classic Downlight Max Ø50 Focus fittings (0310 2100)
6 150-watt FL 150-3 B lighting generators (0161 0000)
Roblon PMMA Ø10 mm endlight fibres (5200 0595)

'Wearing a single piece of simple, beautiful jewellery can achieve a much greater effect than wearing lots of jewellery at once,' says goldsmith Birgitte Munch.

'Effective simplicity' is also her requirement for lighting. To complement fibre optic room and window lighting at her jewellery store in Frederikshavn, Denmark, she chose nine-headed Libra LED luminaires for the showcases.

'The fitting is slightly hidden, yet at the same time it is very beautiful to look at. Its form is simple, and yet it can really do a lot. It can be twirled and twisted around in every direction. That's important, because it is not enough that it looks good. It has to be functional.'

The functional worth of the light it emits was affirmed by customer response.

'There were some pieces of jewellery that had been on display for a long time. When the new lighting was installed, customers came in, noticed them immediately and went straight to them. I have no doubt at all that this was entirely due to the new way the jewellery was lit.'

Birgitte Munch Jewellers
Frederikshavn, Denmark
www.birgitte-munch.dk

More photos at www.roblonlighting.com

'A lot of customers thought we had redesigned the store. We hadn't. It was only the lighting that was new. One regular customer said: 'That's a lovely new workbench you've got.' The workbench had been standing there in that same place for 15 years.'

Birgitte Munch,
goldsmith and jeweller

The interesting part is what you don't see.

Cutting-edge technology, modestly hidden away in solutions that are easy to install, uncomplicated to handle, and which never over-shadow the light they create. Roblon: our technical know-how is unrivalled. And invisible.

The merchandise is stationery
The lighting is not

Classic luxury never goes out of style, but it does change. At Lo Scrittoio in Verona, the world's finest stationery, gifts and leather goods are elegantly displayed. And then redisplayed to suit new products, new needs, new moods.

The merchandise ranges from single sheets of paper to desk sets, from business cards to leather briefcases. New products arrive. Shelf height is adjusted. Displays are changed.

So when proprietor Matteo Caffarelli and store designer Pietro Sartori selected new lighting with Arkilux, they needed the freedom to design the right light, right now, and to redesign it any time in the future.

The ability to adjust both lighting angles and the fittings themselves was a top requirement. The solution was versatile Pyxis, Libra and Corvus fittings.

'The fact that the reflector system can be changed was key,' says Sara Olivieri of Arkilux. 'You know from the start that it's always possible to redesign the light.'

High light quality and colour rendering were crucial, given the many precision nuances in the colour and finish of displayed goods.

The colour and finish of the fittings themselves were crucial too. 'The visual quality of the lighting has a fundamental role to play in a luxury store,' says Matteo Caffarelli.

'The fact that the LEDs can be individually replaced is very important. It provides a great sense of security and it underlines Roblon's attention to detail and to after-sales service.'

Sara Olivieri
Lighting designer, Arkilux

Display lighting
108 Corvus 3r fittings (1152 3671)
6 Pyxis 1n fittings (1133 3471)
8 Libra 2 fittings (1127 2271)
48 Lightech 10 W CC drivers (1100 0101)
4 Serial Splitter, 2 x RCY (1108 0012)
43 Serial Splitter, 4 x RCY (1108 0014)

Lo Scrittoio Fine Stationery and Luxury Gifts
Verona, Italy
www.loscrittoio.com

Photos by Andrea Cristini, Arkilux
More photos at www.roblonlighting.com

'We wanted to improve the store image and to improve the versatility of the layout and displays. For that, we required improved lighting that was technologically advanced.'

Matteo Caffarelli
Proprietor, Lo Scrittoio

Lo Scrittoio di Porta Borsari

Intelligent design.
It does exist.

Truly great design shines through both in form and in function. Roblon: exceptional lighting, all the way through.

Table showcase
1 Framing Spot LED fitting (1161 3120)
1 Framing/Gobo shield (0313 0815)

Wall showcase
2 XPO fibre optic conduit systems (0600 1100)
176 XPO Light Points (0600 1200)
Roblon PMMA Ø1.5 mm endlight fibre (5200 0548)
4 FL 2002-2B 75W light generators (0121 0101) with dimmer and extra UV filter

Free-standing showcase
4 Ball & Socket Focus fibre optic fittings (0302 6203)
Roblon Glass Ø3 mm endlight fibre (5200 0130) with fitting termination
1 75-watt FL 75 Ø9 light generator (0150 0178) with dimmer

Anne Frank House
Amsterdam, the Netherlands
www.annefrank.org

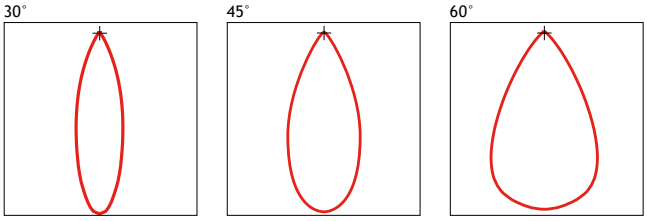
Lighting distributor Q-CAT Lighting
Photos by Mike Bink
More photos at www.roblonlighting.com

Pyxis

Classy, cooperative recessed downlights that discreetly cast well-defined light exactly as you need it, where you need it. For ambient and accent lighting, for wall-washing, for decorative effects. In showcases, in niches, in ceilings. For room lighting, for surface lighting, for object illumination. High colour rendering in all colour spectra ensures superior white light and true colour reproduction. Recessed LEDs strictly limit glare. Choose narrow, medium or wide lighting angles. Combine wattage and beam angles to design precisely the light you want. Pyxis downlights: you define exactly how they define exactly.

Pyxis

For indoor use
Recessed with fixed beam angle
Surface, shallow and deep-mounted models
Mounted with screws, springs or threaded heat sink
Anodised aluminium, POM, ABS
Beam angle 30˚, 45˚ or 60˚
Individual reflectors can be changed
LEDs can be replaced
CRI typical value 90
Luminous flux typical values 30 and 35 lm
Fixture efficacy typical value 45 lm/W

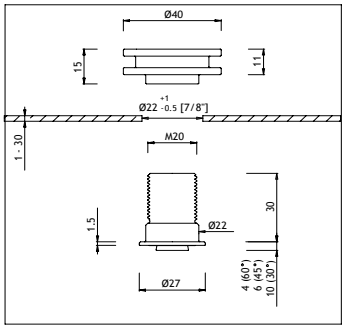


Units: mm

Pyxis 1n

1 watt
Recessed with flange
Fastened from behind with threaded heat sink

1 W @ 350mA | IP 40 | 0.1 kg

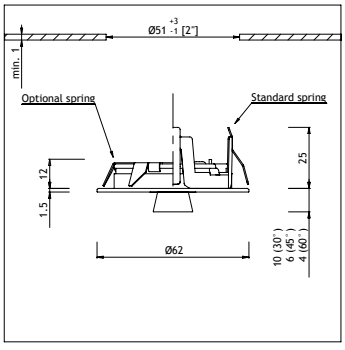


		Item no. 3,000 K	4,500 K
Black	30˚	1133 3310	1133 4310
	45˚	1133 3410	1133 4410
	60˚	1133 3610	1133 4610
Grey	30˚	1133 3320	1133 4320
	45˚	1133 3420	1133 4420
	60˚	1133 3620	1133 4620
Bronze	30˚	1133 3371	1133 4371
	45˚	1133 3471	1133 4471
	60˚	1133 3671	1133 4671
White	30˚	1133 3330	1133 4330
	45˚	1133 3430	1133 4430
	60˚	1133 3630	1133 4630

Pyxis 1r

1 watt
Recessed
Mounted with spring
Shallow-mounting spring also available

1 W @ 350mA | IP 40 | 0.1 kg



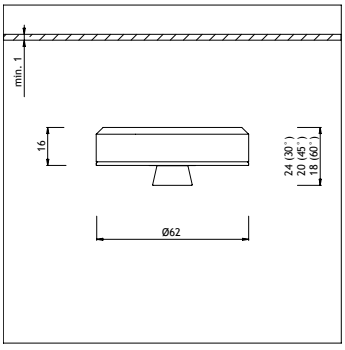
		Item no. 3,000 K	4,500 K
Black	30˚	1131 3310	1131 4310
	45˚	1131 3410	1131 4410
	60˚	1131 3610	1131 4610
Grey	30˚	1131 3320	1131 4320
	45˚	1131 3420	1131 4420
	60˚	1131 3620	1131 4620
Bronze	30˚	1131 3371	1131 4371
	45˚	1131 3471	1131 4471
	60˚	1131 3671	1131 4671
White	30˚	1131 3330	1131 4330
	45˚	1131 3430	1131 4430
	60˚	1131 3630	1131 4630

Pyxis

Pyxis 1s

1 watt
Surface-mounted
Mounted with screws

1 W @ 350mA | IP 40 | 0.1 kg

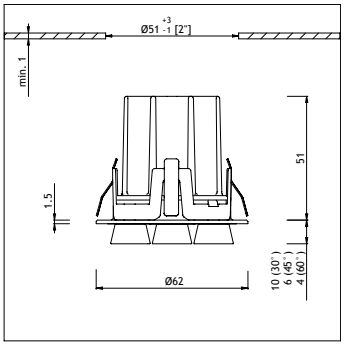


		Item no. 3,000 K	4,500 K
Black	30°	1134 3310	1134 4310
	45°	1134 3410	1134 4410
	60°	1134 3610	1134 4610
Grey	30°	1134 3320	1134 4320
	45°	1134 3420	1134 4420
	60°	1134 3620	1134 4620
Bronze	30°	1134 3371	1134 4371
	45°	1134 3471	1134 4471
	60°	1134 3671	1134 4671
White	30°	1134 3330	1134 4330
	45°	1134 3430	1134 4430
	60°	1134 3630	1134 4630

Pyxis 3r

3 watt
Recessed
Mounted with spring

3 W @ 350mA | IP 40 | 0.1 kg



		Item no. 3,000 K	4,500 K
Black	30°	1132 3310	1132 4310
	45°	1132 3410	1132 4410
	60°	1132 3610	1132 4610
Grey	30°	1132 3320	1132 4320
	45°	1132 3420	1132 4420
	60°	1132 3620	1132 4620
Bronze	30°	1132 3371	1132 4371
	45°	1132 3471	1132 4471
	60°	1132 3671	1132 4671
White	30°	1132 3330	1132 4330
	45°	1132 3430	1132 4430
	60°	1132 3630	1132 4630

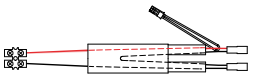
Pyxis accessories & spare parts

	Item no.	
For 1r, 1s	3,000 K	4,500 K
1-LED spare module 1a	1129 5130	1129 5145
For 1n		
1-LED spare module 1b	1139 5130	1139 5145
For 3r		
3-LED spare module 3a	1139 5330	1139 5345

Serial no. on wire label identifies flux and colour bin.
Quote when ordering.

	Item no.
Reflector a medium 30	1136 0320
Reflector a medium 45	1136 0420
Reflector a wide 60	1136 0620

	Item no.
Roblon Dual Tool a	1136 1001



	Connections	Jumpers	Item no.
Serial splitter	2	1	1108 0012
	4	2	1108 0014
	8	4	1108 0018

Jumper wires included

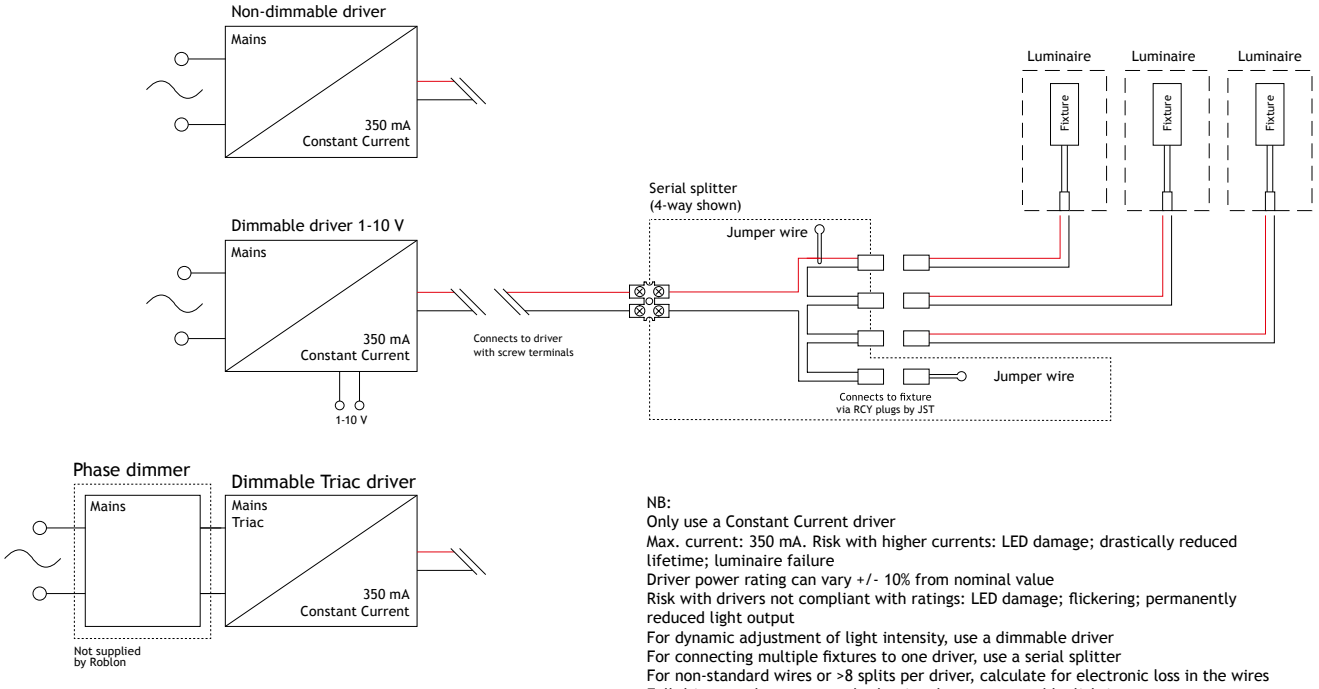
Drivers

Full, current driver product range, data and selection guidelines available at www.roblonlighting.com

Driver types

Dimming	No. of LEDs	Power rating	Voltage	Item no.
None	1-8	10	120-240 AC	1100 0101
1-10 V	1-7	9	200-240 AC	1103 2104
Phase control	4-12	18	120 AC	1103 1181

Driver wiring guide



NB:
Only use a Constant Current driver
Max. current: 350 mA. Risk with higher currents: LED damage; drastically reduced lifetime; luminaire failure
Driver power rating can vary +/- 10% from nominal value
Risk with drivers not compliant with ratings: LED damage; flickering; permanently reduced light output
For dynamic adjustment of light intensity, use a dimmable driver
For connecting multiple fixtures to one driver, use a serial splitter
For non-standard wires or >8 splits per driver, calculate for electronic loss in the wires
Full driver product range and selection data at www.roblonlighting.com

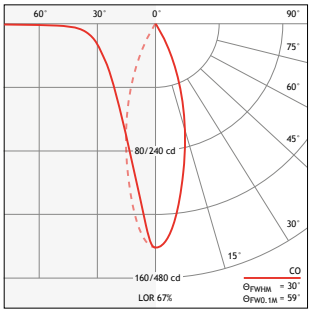
Pyxis fundamentals

Full, current photometric data and product documentation available at www.roblonlighting.com

		Pyxis 1n, 1r, 1s			Pyxis 3r		
CCT (nominal)		3,000	4,500	K	3,000	4,500	K
CRI_8 (Ra)		90	95		90	95	
UV-A, 320-400 nm		< 1	< 1	µW/lm	< 1	< 1	µW/lm
UV-B, 280-320 nm		< 1	< 1	µW/lm	< 1	< 1	µW/lm
Medium 30	Beam angle	30	30	°	30	30	°
	Luminous flux	45	50	lm	135	150	lm
Medium 45	Beam angle	44	44	°	47	47	°
	Luminous flux	46	50	lm	135	150	lm
Wide 60	Beam angle	59	59	°	62	62	°
	Luminous flux	48	53	lm	145	160	lm
LED efficacy		63	71	lm/W	63	71	lm/W
Fixture efficacy		42 - 45	48 - 51	lm/W	42 - 45	48 - 51	lm/W
Luminaire efficacy*		19 - 38	21 - 41	lm/W	29 - 38	32 - 41	lm/W

* Luminaire includes external driver. Luminaire efficacy depends greatly on system configuration. See www.roblonlighting.com

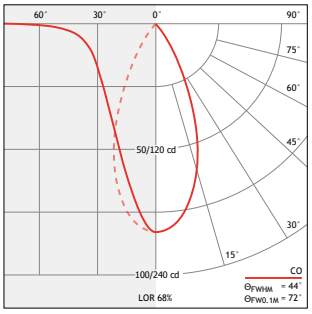
Medium 30



Pyxis 1/3

h [m]	Avg. E [lux]	Max. E [lux]	D_{FWHM} [m]	$D_{FW0.1M}$ [m]
0.25	1,700	2,200	0.14	0.30
0.5	420	550	0.28	0.59
1.0	110	140	0.53	1.1
1.5	48	62	0.79	1.7
h	109/h^2	139/h^2	0.53·h	1.1·h

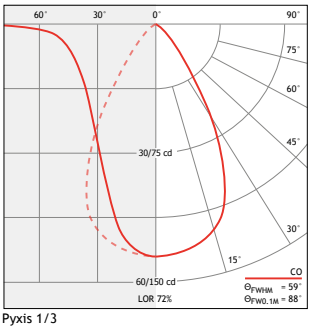
Medium 45



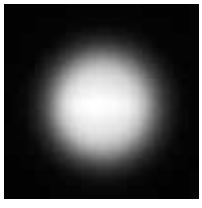
Pyxis 1/3

h [m]	Avg. E [lux]	Max. E [lux]	D_{FWHM} [m]	$D_{FW0.1M}$ [m]
0.25	1,110	1,420	0.19	0.35
0.5	269	340	0.39	0.70
1.0	64	80	0.80	1.4
1.5	28	36	1.2	2.2
h	64/h^2	80/h^2	0.80·h	1.4·h

Wide 60



Pyxis 1/3



h [m]	Avg. E [lux]	Max. E [lux]	D_{FWHM} [m]	$D_{FW0.1M}$ [m]
0.25	700	870	0.29	0.49
0.5	170	210	0.58	0.97
1.0	45	55	1.1	1.9
1.5	19	25	1.7	2.9
h	45/h^2	55/h^2	1.1·h	1.9·h

Θ_{FWHM} is the full-width beam angle where intensity is half the maximum level.
$\Theta_{FW0.1M}$ is the full-width beam angle where intensity is a tenth of the maximum level. This is a non-standard measurement that is close to the perceived beam angle.

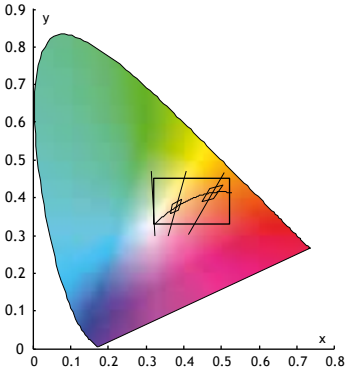
Illuminance values account for distances (h) greater than 100 mm. The photometric performance was measured at thermal steady state in 22°C ambient temperature using 4,500 K LEDs driven at 350 mA. Multiply results by 0.93 to get according values for 3,000 K. If the luminaire is dimmed, scale the results in accordance with dimming performance. Values given for Pyxis 1 models. For Pyxis 3r, multiply by 2.9.

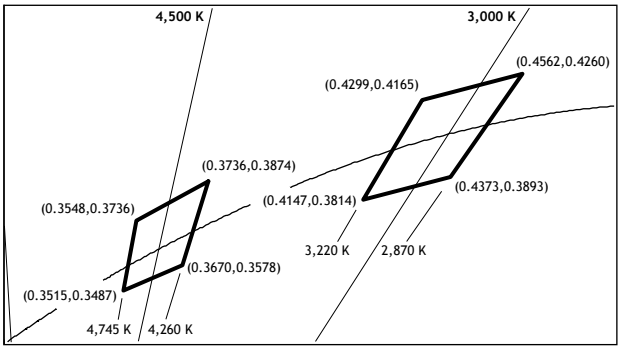
CRI details

		3,000 K		4,500 K	
		Luminaire[1]	LED	Luminaire[1]	LED
CRI 01	Light greyish red	90	91	96	97
CRI 02	Dark greyish yellow	92	92	97	97
CRI 03	Strong yellow green	93	93	95	95
CRI 04	Moderate yellowish green	91	92	96	96
CRI 05	Light bluish green	89	89	95	95
CRI 06	Light blue	89	89	93	93
CRI 07	Light violet	94	94	97	97
CRI 08	Light reddish purple	83	84	94	94
CRI 09	Strong red	59	61	84	85
CRI 10	Strong yellow	81	81	91	92
CRI 11	Strong green	90	91	95	96
CRI 12	Strong blue	72	72	69	70
CRI 13	Light yellowish pink (skin)	90	91	97	98
CRI 14	Moderate olive green (leaf)	96	95	97	97
CRI_8 (Ra)	**Average level of CRI 01-08[2]**	**90**	**91**	**95**	**96**
CRI_{14}	**Average level of CRI 01-14**	**86**	**87**	**93**	**93**

1) All 3 reflector types perform consistently 2) In accordance with CIE 13.3:1995

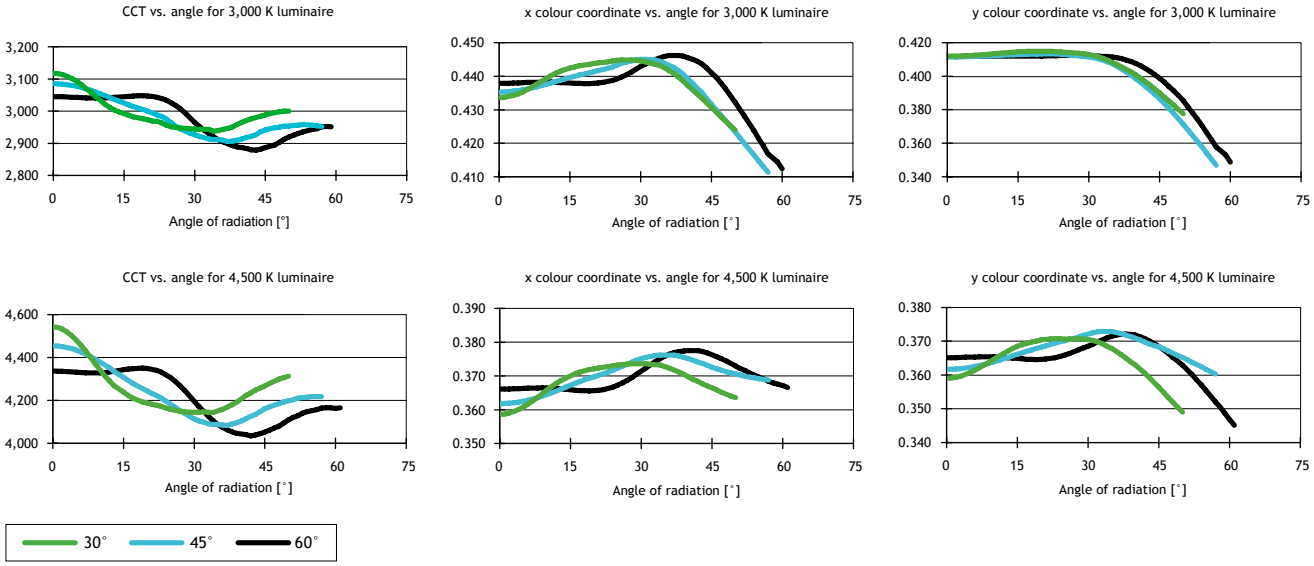
LED chromaticity and CCT chart



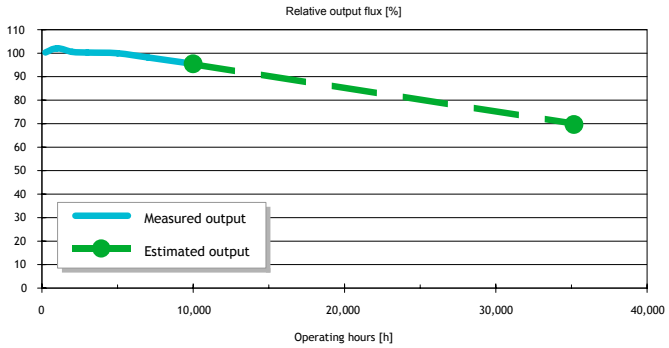


In accordance with ANSI C78.377

Luminaire chromaticity and CCT uniformity



Expected lifetime



Expected output depreciation at 45°C ambient. Plots are based on the LED manufacturer's ongoing end-of-life tests after 10,000 hours. The 35,000-hour lifetime (L70) is accepted in accordance with IESNA LM 80-08 if the lumen maintenance is minimum 94.1% after 6,000 hours of operation. The LED manufacturer's measurements show that the actual level is minimum 98.5%.

Lifetime is defined as the number of operating hours when lumen output reaches 70% of the initial level. The LEDs are designed to last minimum 35,000 hours with ambient temperature at 45°C.

	Pyxis 1n, 1r, 1s		Pyxis 3r	
Electrical driver mode	Constant Current		Constant Current	
Fixture input current	Max. 350	mA	Max. 350	mA
Applied LED	Nichia NS6x083y-H1		Nichia NS6x083y-H1	
Fixture power consumption @ 350 mA	1.1	W	3.2	W
Luminaire* power consumption @ 350 mA	Max. 3	W	Max. 5	W
Plug type	RCY by JST		RCY by JST	

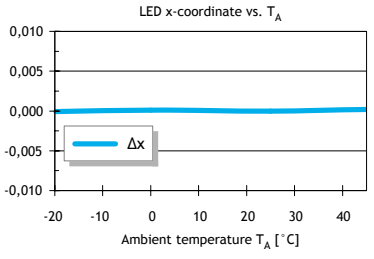
*Luminaire includes external driver. Luminaire efficacy depends greatly on system configuration.

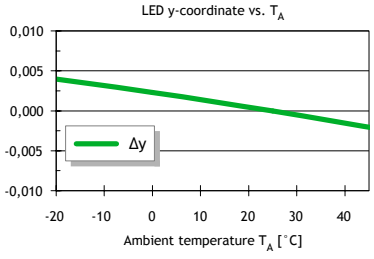
Operating ambient temperature (T_A)	-20 to +45°C
Surface temperature increment (ΔT_{CA})	Max. 30°C
Surface temperature (T_C)	Max. 75°C
Temperature Measurement Point reading (TMP)	Max. 75°C
LED junction temperature increment (ΔT_{JA})	Max. 45°C
LED junction temperature (T_J)	Max. 90°C
Max. permitted operating LED junction temperature (LED manufacturer data)	Max. 120°C
Internal temperature protection type	None
Internal temperature protection threshold	-
Luminous intensity level when temperature protection is activated	-

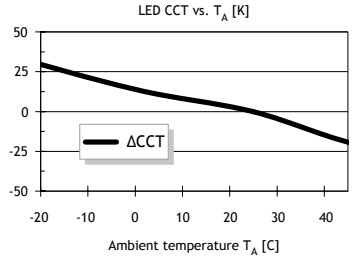
The TMP is on the front, half-way between the reflector and the fitting's edge. Temperature readings are for installations where the distance from the fixture to any object or surface is minimum 25 mm.

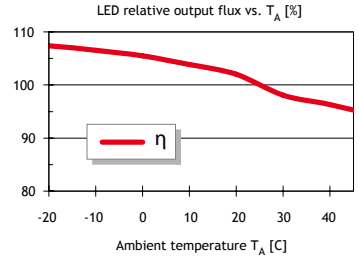
Example: A luminaire is driven at 350 mA (100% light output). If ambient temperature is 25°C, the surface temperature at TMP is max. 25 + 30 = 55°C and the LED junction temperature is max. 25 + 45 = 70°C at thermal steady state.

Temperature vs. light output









Protection circuits

The LED modules are designed to be immune to inverted polarity from the low-voltage driver. The modules are not protected against high voltage, e.g. mains power.

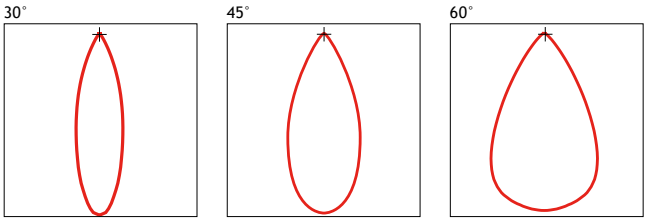
The LED modules comply with radio interference suppression and electromagnetic compatibility regulations (EMC) EN 55.015, EN 61.000-3-2, EN 61.547 and FCC part 15.

Pyxis at Lo Scrittoio

Cleverly created to let you freely set the lighting scene, then freely change your design, your display, your mind. Changes swiftly from recessed to raised. Highly directive in either position. Tilt and twirl the illuminating head to cast well-defined light with millimetre-precision. For ambient and accent lighting, for wall-washing, for decorative effects. In showcases, in niches, in ceilings. For room lighting, for surface lighting, for object illumination. High colour rendering in all colour spectra ensures superior white light and true colour reproduction. Recessed LEDs strictly limit glare. Choose narrow, medium or wide lighting angles. Combine wattage and beam angles to design exactly the light you want. Corvus: audaciously collaborative light.

Corvus

For indoor use
Retracts & protrudes
Stepless rotation & tilt
Mounted recessed with springs
Anodised aluminium, POM, ABS
Beam angle 30°, 45° or 60°
Individual reflectors can be changed
LEDs can be replaced
CRI typical value 90
Luminous flux typical values 50 and 150 lm
Fixture efficacy typical value 50 lm/W

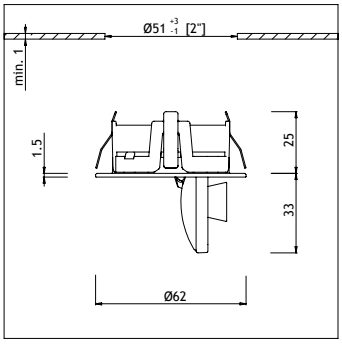


Units: mm

Corvus 1r

1 watt

1 W @ 350mA | IP 40 | 0.1 kg | 90° | 345° | 50° 70°

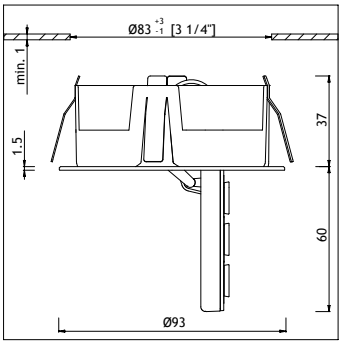


		Item no. 3,000 K	4,500 K
Black	30°	1151 3310	1151 4310
	45°	1151 3410	1151 4410
	60°	1151 3610	1151 4610
Grey	30°	1151 3320	1151 4320
	45°	1151 3420	1151 4420
	60°	1151 3620	1151 4620
Bronze	30°	1151 3371	1151 4371
	45°	1151 3471	1151 4471
	60°	1151 3671	1151 4671
White	30°	1151 3330	1151 4330
	45°	1151 3430	1151 4430
	60°	1151 3630	1151 4630

Corvus 3r

3 watt

3 W @ 350mA | IP 40 | 0.2 kg | 90° | 360° | 50° 70°



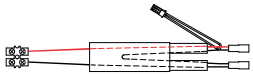
		Item no. 3,000 K	4,500 K
Black	30°	1152 3310	1152 4310
	45°	1152 3410	1152 4410
	60°	1152 3610	1152 4610
Grey	30°	1152 3320	1152 4320
	45°	1152 3420	1152 4420
	60°	1152 3620	1152 4620
Bronze	30°	1152 3371	1152 4371
	45°	1152 3471	1152 4471
	60°	1152 3671	1152 4671
White	30°	1152 3330	1152 4330
	45°	1152 3430	1152 4430
	60°	1152 3630	1152 4630

For 1r		Item no.
Reflector b medium 30	Black	1126 0310
	Grey	1126 0320
	Bronze	1126 0371
	White	1126 0330
Reflector b medium 45	Black	1126 0410
	Grey	1126 0420
	Bronze	1126 0471
	White	1126 0430
Reflector b wide 60	Black	1126 0610
	Grey	1126 0620
	Bronze	1126 0671
	White	1126 0630

For 3r	Item no.
Reflector a medium 30	1136 0320
Reflector a medium 45	1136 0420
Reflector a wide 60	1136 0620

		Item no.
For 1r	3,000 K	4,500 K
1-LED spare module 1a	1129 5130	1129 5145
For 3r		
3-LED spare module 3a	1139 5330	1139 5345

Serial no. on wire label identifies flux and colour bin. Quote when ordering.



	Connections	Jumpers	Item no.
Serial splitter	2	1	1108 0012
	4	2	1108 0014
	8	4	1108 0018

Jumper wires included

For 3r	Item no.
Roblon Dual Tool a	1136 1001

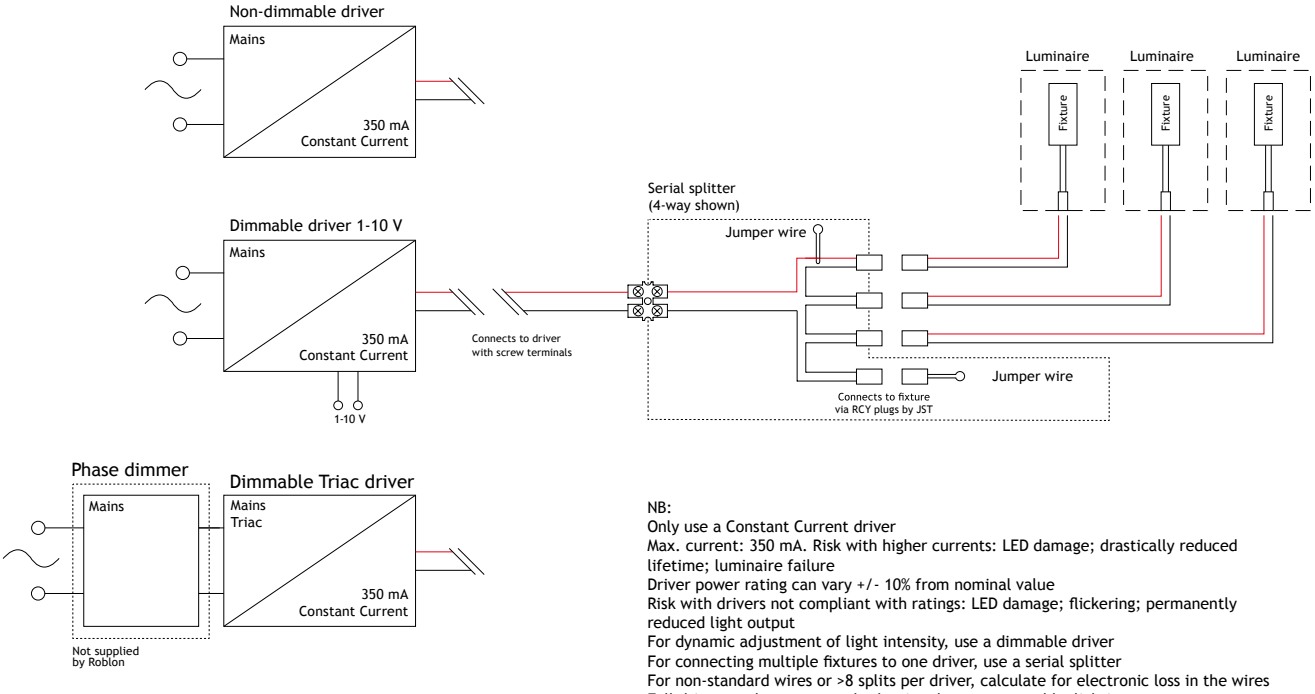
Corvus drivers

Full, current driver product range, data and selection guidelines available at www.roblonlighting.com

Driver types

Dimming	No. of LEDs	Power rating	Voltage	Item no.
None	1-8	10	120-240 AC	1100 0101
1-10 V	1-7	9	200-240 AC	1103 2104
Phase control	4-12	18	120 AC	1103 1181

Driver wiring guide



NB:
Only use a Constant Current driver
Max. current: 350 mA. Risk with higher currents: LED damage; drastically reduced lifetime; luminaire failure
Driver power rating can vary +/- 10% from nominal value
Risk with drivers not compliant with ratings: LED damage; flickering; permanently reduced light output
For dynamic adjustment of light intensity, use a dimmable driver
For connecting multiple fixtures to one driver, use a serial splitter
For non-standard wires or >8 splits per driver, calculate for electronic loss in the wires
Full driver product range and selection data at www.roblonlighting.com

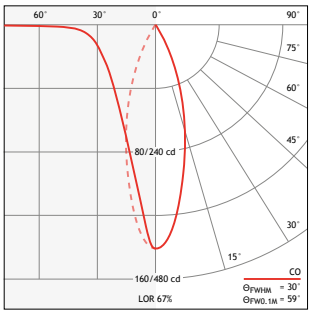
Corvus fundamentals

Full, current photometric data and product documentation available at www.roblonlighting.com

		Corvus 1r			Corvus 3r		
CCT (nominal)		3,000	4,500	K	3,000	4,500	K
CRI_8 (Ra)		90	95		90	95	
UV-A, 320-400 nm		< 1	< 1	µW/lm	< 1	< 1	µW/lm
UV-B, 280-320 nm		< 1	< 1	µW/lm	< 1	< 1	µW/lm
Medium 30	Beam angle	30	30	°	30	30	°
	Luminous flux	45	50	lm	135	150	lm
Medium 45	Beam angle	44	44	°	47	47	°
	Luminous flux	46	50	lm	135	150	lm
Wide 60	Beam angle	59	59	°	62	62	°
	Luminous flux	48	53	lm	145	160	lm
LED efficacy		63	71	lm/W	63	71	lm/W
Fixture efficacy		42 - 45	48 - 51	lm/W	42 - 45	48 - 51	lm/W
Luminaire efficacy*		19 - 38	21 - 41	lm/W	29 - 38	32 - 41	lm/W

* Luminaire includes external driver. Luminaire efficacy depends greatly on system configuration. See www.roblonlighting.com

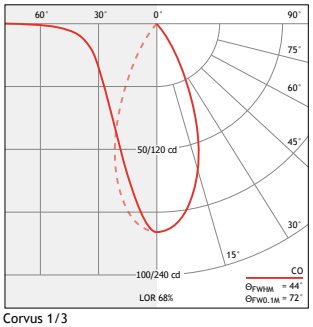
Medium 30



Corvus 1/3

h [m]	Avg. E [lux]	Max. E [lux]	D_{FWHM} [m]	$D_{FW0.1M}$ [m]
0.25	1,700	2,200	0.14	0.30
0.5	420	550	0.28	0.59
1.0	110	140	0.53	1.1
1.5	48	62	0.79	1.7
h	109/h^2	139/h^2	0.53·h	1.1·h

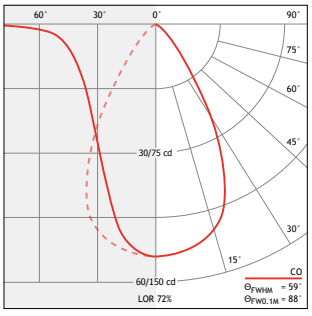
Medium 45



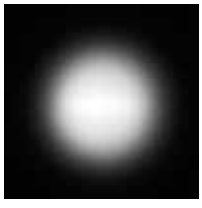
Corvus 1/3

h [m]	Avg. E [lux]	Max. E [lux]	D_{FWHM} [m]	$D_{FW0.1M}$ [m]
0.25	1,110	1,420	0.19	0.35
0.5	269	340	0.39	0.70
1.0	64	80	0.80	1.4
1.5	28	36	1.2	2.2
h	64/h^2	80/h^2	0.80·h	1.4·h

Wide 60



Corvus 1/3



h [m]	Avg. E [lux]	Max. E [lux]	D_{FWHM} [m]	$D_{FW0.1M}$ [m]
0.25	700	870	0.29	0.49
0.5	170	210	0.58	0.97
1.0	45	55	1.1	1.9
1.5	19	25	1.7	2.9
h	45/h^2	55/h^2	1.1·h	1.9·h

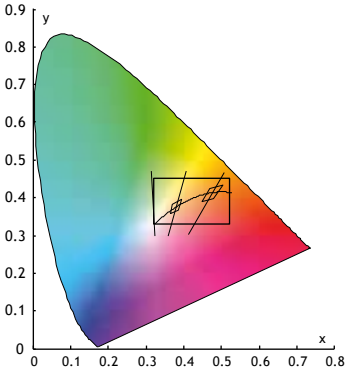
Θ_{FWHM} is the full-width beam angle where intensity is half the maximum level.
$\Theta_{FW0.1M}$ is the full-width beam angle where intensity is a tenth of the maximum level. This is a non-standard measurement that is close to the perceived beam angle.

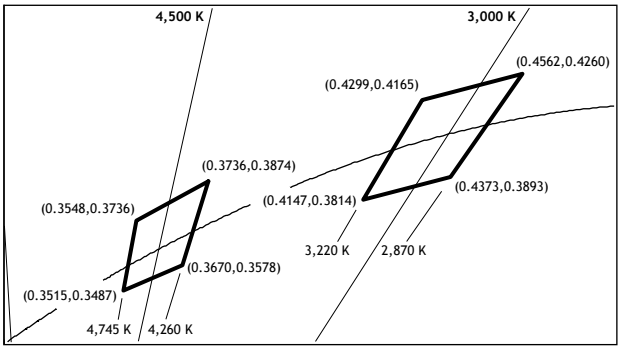
Illuminance values account for distances (h) greater than 100 mm. The photometric performance was measured at thermal steady state in 22°C ambient temperature using 4,500 K LEDs driven at 350 mA. Multiply results by 0.93 to get according values for 3,000 K. If the luminaire is dimmed, scale the results in accordance with dimming performance. Values given for Corvus 1r. For Corvus 3r, multiply by 2.9.

		3,000 K		4,500 K	
		Luminaire[1]	LED	Luminaire[1]	LED
CRI 01	Light greyish red	90	91	96	97
CRI 02	Dark greyish yellow	92	92	97	97
CRI 03	Strong yellow green	93	93	95	95
CRI 04	Moderate yellowish green	91	92	96	96
CRI 05	Light bluish green	89	89	95	95
CRI 06	Light blue	89	89	93	93
CRI 07	Light violet	94	94	97	97
CRI 08	Light reddish purple	83	84	94	94
CRI 09	Strong red	59	61	84	85
CRI 10	Strong yellow	81	81	91	92
CRI 11	Strong green	90	91	95	96
CRI 12	Strong blue	72	72	69	70
CRI 13	Light yellowish pink (skin)	90	91	97	98
CRI 14	Moderate olive green (leaf)	96	95	97	97
CRI_8 (Ra)	**Average level of CRI 01-08[2]**	**90**	**91**	**95**	**96**
CRI_{14}	**Average level of CRI 01-14**	**86**	**87**	**93**	**93**

1) All 3 reflector types perform consistently 2) In accordance with CIE 13.3:1995

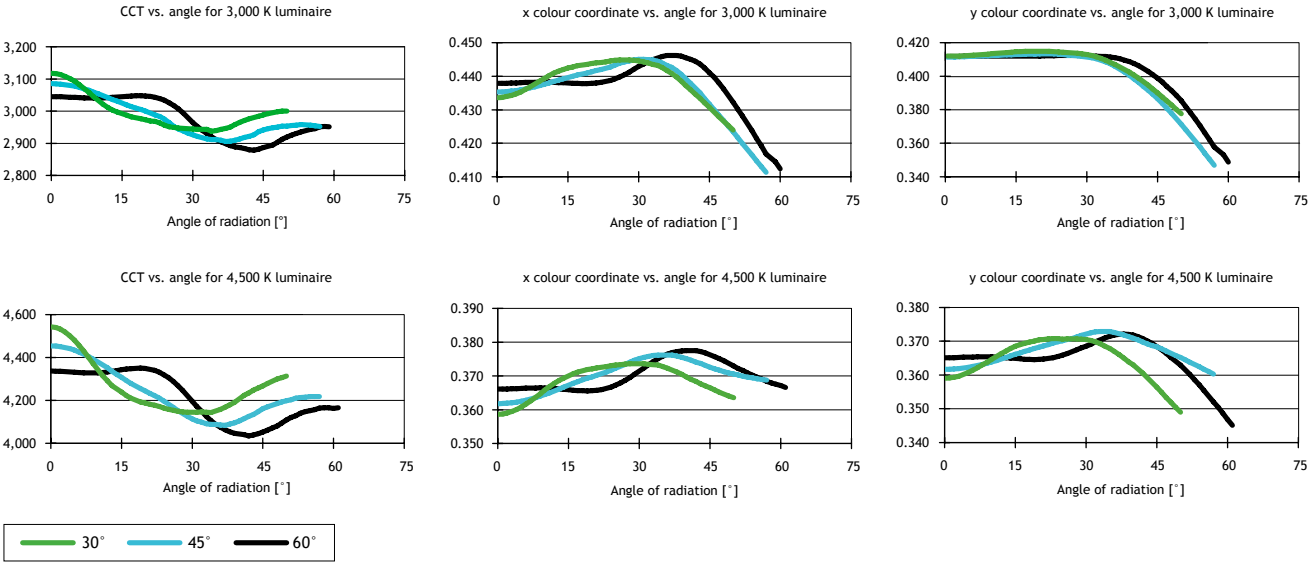
LED chromaticity and CCT



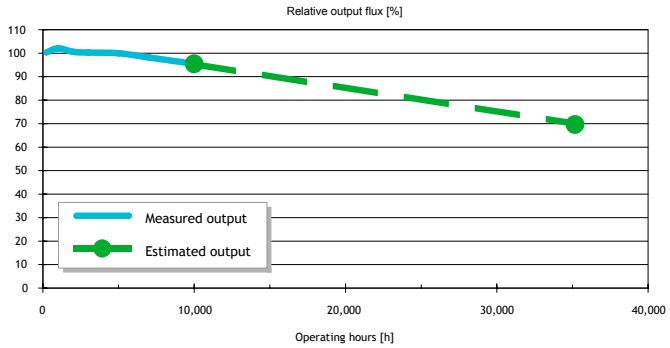


In accordance with ANSI C78.377

Luminaire chromaticity and CCT uniformity



Expected lifetime



Expected output depreciation at 45˚C ambient. Plots are based on the LED manufacturer's ongoing end-of-life tests after 10,000 hours. The 35,000-hour lifetime (L70) is accepted in accordance with IESNA LM 80-08 if the lumen maintenance is minimum 94.1% after 6,000 hours of operation. The LED manufacturer's measurements show that the actual level is minimum 98.5%.

Lifetime is defined as the number of operating hours when lumen output reaches 70% of the initial level. The LEDs are designed to last minimum 35,000 hours with ambient temperature at 45˚C.

	Corvus 1r		Corvus 3r	
Electrical driver mode	Constant Current		Constant Current	
Fixture input current	Max. 350	mA	Max. 350	mA
Applied LED	Nichia NS6x083y-H1		Nichia NS6x083y-H1	
Fixture power consumption @ 350 mA	1.1	W	3.2	W
Luminaire* power consumption @ 350 mA	Max. 3	W	Max. 5	W
Plug type	RCY by JST		RCY by JST	

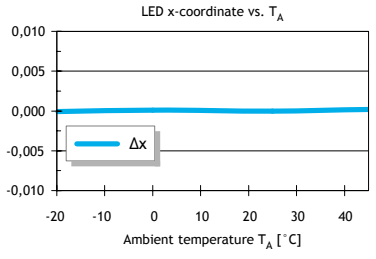
*Luminaire includes external driver. Luminaire efficacy depends greatly on system configuration.

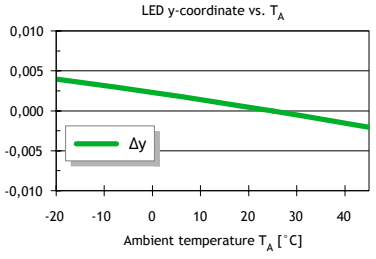
Operating ambient temperature (T_A)	-20 to +45˚C
Surface temperature increment (ΔT_{CA})	Max. 30˚C
Surface temperature (T_C)	Max. 75˚C
Temperature Measurement Point reading (TMP)	Max. 75˚C
LED junction temperature increment (ΔT_{JA})	Max. 45˚C
LED junction temperature (T_J)	Max. 90˚C
Max. permitted operating LED junction temperature (LED manufacturer data)	Max. 120˚C
Internal temperature protection type	None
Internal temperature protection threshold	-
Luminous intensity level when temperature protection is activated	-

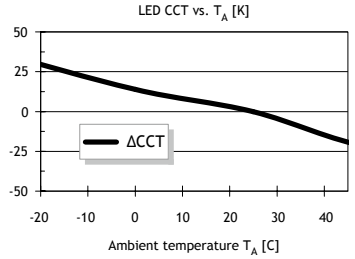
The TMP is at the centre of the back of the head. Temperature readings are for installations where the distance from the fixture to any object or surface is minimum 25 mm.

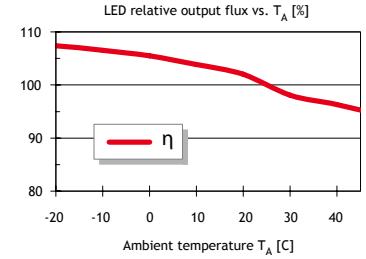
Example: A luminaire is driven at 350 mA (100% light output). If ambient temperature is 25˚C, the surface temperature at TMP is max. 25 + 30 = 55˚C and the LED junction temperature is max. 25 + 45 = 70˚C at thermal steady state.

Temperature vs. light output









Protection circuits

The LED modules are designed to be immune to inverted polarity from the low-voltage driver. The modules are not protected against high voltage, e.g. mains power.

The LED modules comply with radio interference suppression and electromagnetic compatibility regulations (EMC) EN 55.015, EN 61.000-3-2, EN 61.547 and FCC part 15.

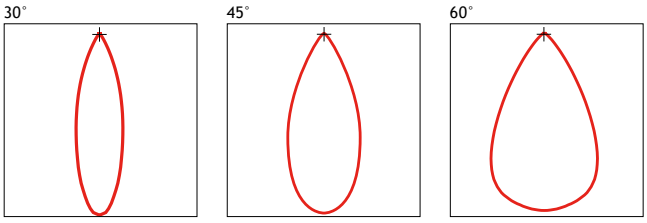
Corvus at Houthoff Buruma Law Firm

Libra

Highly directive light from a smart, shapely luminaire. Stage the lighting any way you want, exactly the way you want it. Twirl the heads up, down and all around, then fix in place with millimetre precision. Choose one, two or three illuminating heads as standard. Choose to customise with more. Choose uniform or combined beam angles. Choose the height. Combine illuminating heads, beam angles and dimming to get precisely the light intensity you need. High colour rendering in all colour spectra ensures superior white light and true colour reproduction. Recessed LEDs strictly limit glare. Ideal for object illumination in showcases, in niches, free-standing and surface-mounted. Libra: flexible illumination that really turns heads.

Libra

For indoor use
Free-standing or surface-mounted vertically or horizontally
Individually directive heads
Surface-mounted with nut or screws
Anodised aluminium, POM, ABS
Beam angle 30˚, 45˚ or 60˚
Beam angles can be combined
Individual reflectors can be changed
LEDs can be replaced
CRI typical value 90
Luminous flux typical values 50 and 150 lm
Fixture efficacy typical value 50 lm/W

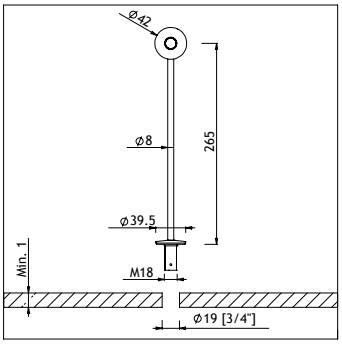


Units: mm

Libra 1

1 watt
Beam angle 30˚or 60˚

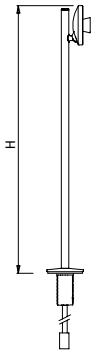
1 W @ 350mA | IP 20 | 0.12 kg | 90˚ | 300˚ 40˚



		Item no. 3,000 K	4,500 K
Black	30˚	1127 1010	1127 4010
	60˚	1127 1210	1127 4210
Grey	30˚	1127 1020	1127 4020
	60˚	1127 1220	1127 4220
Bronze	30˚	1127 1071	1127 4071
	60˚	1127 1271	1127 4271

Libra 1 Custom

1 watt
Centre of head 21 mm from top
Height min. 75 mm, max. 700 mm



1 W @ 350mA | IP 20 | 0.12 kg | 90˚ | 300˚ 40˚

	Item no.
Black	1123 2110
Grey	1123 2120
Bronze	1123 2171

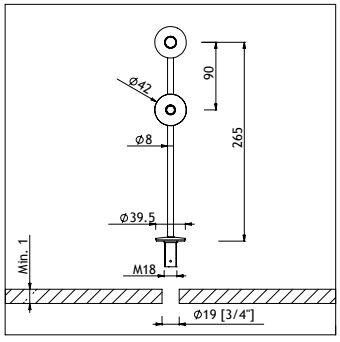
Specify when ordering
3,000 or 4,500 K
Head 30˚, 45˚ or 60˚
Height (H)

Libra

Libra 2

2 watt
Top head beam angle 30°
Bottom head beam angle 60°

2 W @ 350mA | IP 20 | 0.13 kg | 90° | 300° 40°

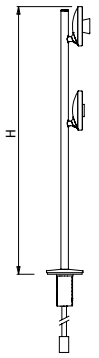


Item no.

	3,000 K	4,500 K
Black	1127 2210	1127 5210
Grey	1127 2220	1127 5220
Bronze	1127 2271	1127 5271

Libra 2 Custom

2 watt
Centre of head 21 mm from top
Centre of head min. 54 mm from surface
Height min. 75 mm, max. 700 mm



2 W @ 350mA | IP 20 | 0.13 kg | 90° | 300° 40°

Item no.

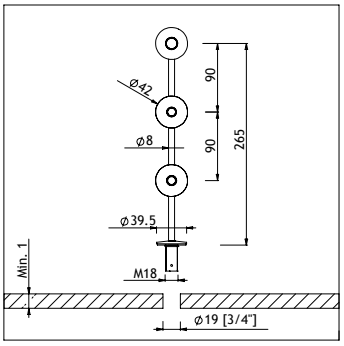
Black	1123 2210
Grey	1123 2220
Bronze	1123 2271

Specify when ordering
3,000 or 4,500 K
Top head 30°, 45° or 60°
Bottom head 30°, 45° or 60°
Height (H)

Libra

Libra 3

3 watt
Top head beam angle 30°
Middle head beam angle 45°
Bottom head beam angle 60°

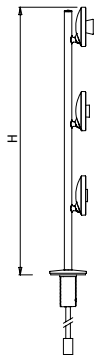


3 W @ 350mA | IP 20 | 0.15 kg | 90° | 300° 40°

	Item no. 3,000 K	4,500 K
Black	1127 3410	1127 6410
Grey	1127 3420	1127 6420
Bronze	1127 3471	1127 6471

Libra 3 Custom

3 watt
Centre of head 21 mm from top
Centre of head to centre of next head min. 90 mm.
Centre of head min. 54 mm from surface
Height min. 75 mm, max. 700 mm



3 W @ 350mA | IP 20 | 0.15 kg | 90° | 300° 40°

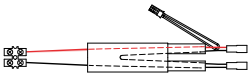
	Item no.
Black	1123 2310
Grey	1123 2320
Bronze	1123 2371

Specify when ordering
3,000 or 4,500 K
Top head 30°, 45° or 60°
Middle head 30°, 45° or 60°
Bottom head 30°, 45° or 60°
Height (H)

		Item no.
Reflector b medium 30	Black	1126 0310
	Grey	1126 0320
	Bronze	1126 0371
Reflector b medium 45	Black	1126 0410
	Grey	1126 0420
	Bronze	1126 0471
Reflector b wide 60	Black	1126 0610
	Grey	1126 0620
	Bronze	1126 0671

	Item no.	
	3,000 K	4,500 K
1-LED spare module 1a	1129 5130	1129 5145

Serial no. on wire label identifies flux and colour bin. Quote when ordering.



	Connections	Jumpers	Item no.
Serial splitter	2	1	1108 0012
	4	2	1108 0014
	8	4	1108 0018

Jumper wires included

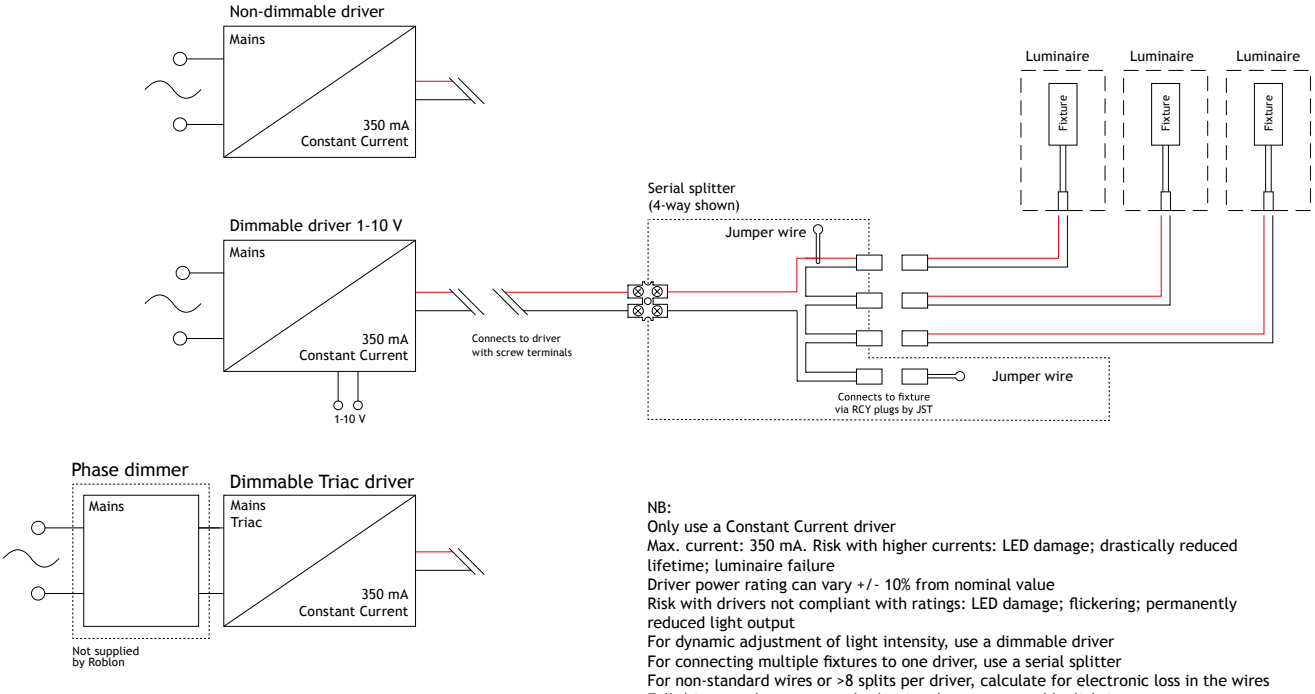
Libra drivers

Full, current driver product range, data and selection guidelines available at www.roblonlighting.com

Driver types

Dimming	No. of LEDs	Power rating	Voltage	Item no.
None	1-8	10	120-240 AC	1100 0101
1-10 V	1-7	9	200-240 AC	1103 2104
Phase control	4-12	18	120 AC	1103 1181

Driver wiring guide



NB:
Only use a Constant Current driver
Max. current: 350 mA. Risk with higher currents: LED damage; drastically reduced lifetime; luminaire failure
Driver power rating can vary +/- 10% from nominal value
Risk with drivers not compliant with ratings: LED damage; flickering; permanently reduced light output
For dynamic adjustment of light intensity, use a dimmable driver
For connecting multiple fixtures to one driver, use a serial splitter
For non-standard wires or >8 splits per driver, calculate for electronic loss in the wires
Full driver product range and selection data at www.roblonlighting.com

Libra fundamentals

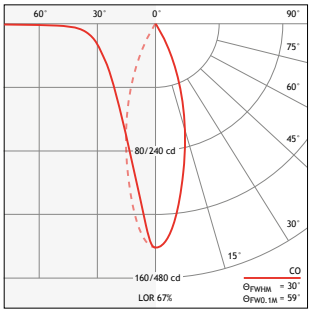
Full, current photometric data and product documentation available at www.roblonlighting.com

CCT (nominal)		3,000	4,500	K
CRI_8 (Ra)		90	95	
UV-A, 320-400 nm		< 1	< 1	µW/lm
UV-B, 280-320 nm		< 1	< 1	µW/lm
Medium 30	Beam angle	30	30	°
	Luminous flux	45	50	lm/head
Medium 45	Beam angle	44	44	°
	Luminous flux	46	50	lm/head
Wide 60	Beam angle	59	59	°
	Luminous flux	48	53	lm/head

LED efficacy	63	71	lm/W
Fixture efficacy	42 - 45	48 - 51	lm/W
Luminaire efficacy*	18 - 38	20 - 41	lm/W

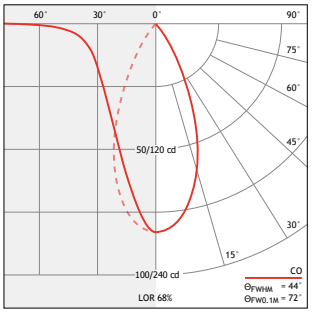
*Luminaire includes external driver. Luminaire efficacy depends greatly on system configuration. See www.roblonlighting.com

Medium 30



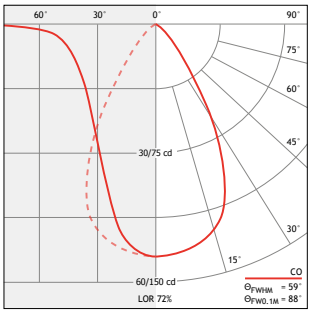
h [m]	Avg. E [lux]	Max. E [lux]	D_{FWHM} [m]	$D_{FW0.1M}$ [m]
0.25	1,700	2,200	0.14	0.30
0.5	420	550	0.28	0.59
1.0	110	140	0.53	1.1
1.5	48	62	0.79	1.7
h	109/h^2	139/h^2	0.53·h	1.1·h

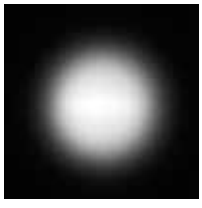
Medium 45



h [m]	Avg. E [lux]	Max. E [lux]	D_{FWHM} [m]	$D_{FW0.1M}$ [m]
0.25	1,110	1,420	0.19	0.35
0.5	269	340	0.39	0.70
1.0	64	80	0.80	1.4
1.5	28	36	1.2	2.2
h	64/h^2	80/h^2	0.80·h	1.4·h

Wide 60





h [m]	Avg. E [lux]	Max. E [lux]	D_{FWHM} [m]	$D_{FW0.1M}$ [m]
0.25	700	870	0.29	0.49
0.5	170	210	0.58	0.97
1.0	45	55	1.1	1.9
1.5	19	25	1.7	2.9
h	45/h^2	55/h^2	1.1·h	1.9·h

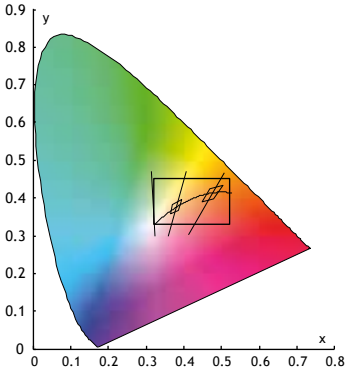
Θ_{FWHM} is the full-width beam angle where intensity is half the maximum level.
$\Theta_{FW0.1M}$ is the full-width beam angle where intensity is a tenth of the maximum level. This is a non-standard measurement that is close to the perceived beam angle.

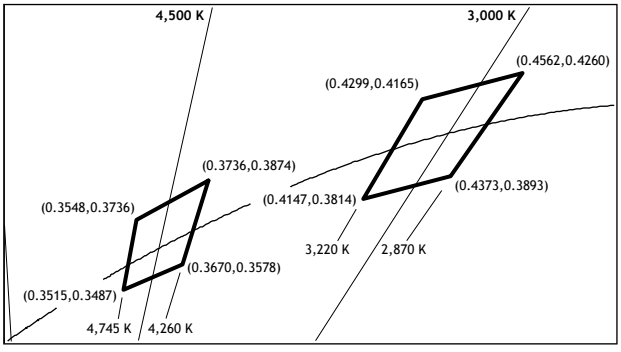
Illuminance values account for distances (h) greater than 100 mm. The photometric performance was measured at thermal steady state in 22°C ambient temperature using 4,500 K LEDs driven at 350 mA. Multiply results by 0.93 to get according values for 3,000 K. If the luminaire is dimmed, scale the results in accordance with dimming performance.

		3,000 K		4,500 K	
		Luminaire[1]	LED	Luminaire[1]	LED
CRI 01	Light greyish red	90	91	96	97
CRI 02	Dark greyish yellow	92	92	97	97
CRI 03	Strong yellow green	93	93	95	95
CRI 04	Moderate yellowish green	91	92	96	96
CRI 05	Light bluish green	89	89	95	95
CRI 06	Light blue	89	89	93	93
CRI 07	Light violet	94	94	97	97
CRI 08	Light reddish purple	83	84	94	94
CRI 09	Strong red	59	61	84	85
CRI 10	Strong yellow	81	81	91	92
CRI 11	Strong green	90	91	95	96
CRI 12	Strong blue	72	72	69	70
CRI 13	Light yellowish pink (skin)	90	91	97	98
CRI 14	Moderate olive green (leaf)	96	95	97	97
CRI_8 (Ra)	**Average level of CRI 01-08[2]**	**90**	**91**	**95**	**96**
CRI_{14}	**Average level of CRI 01-14**	**86**	**87**	**93**	**93**

1) All 3 reflector types perform consistently 2) In accordance with CIE 13.3:1995

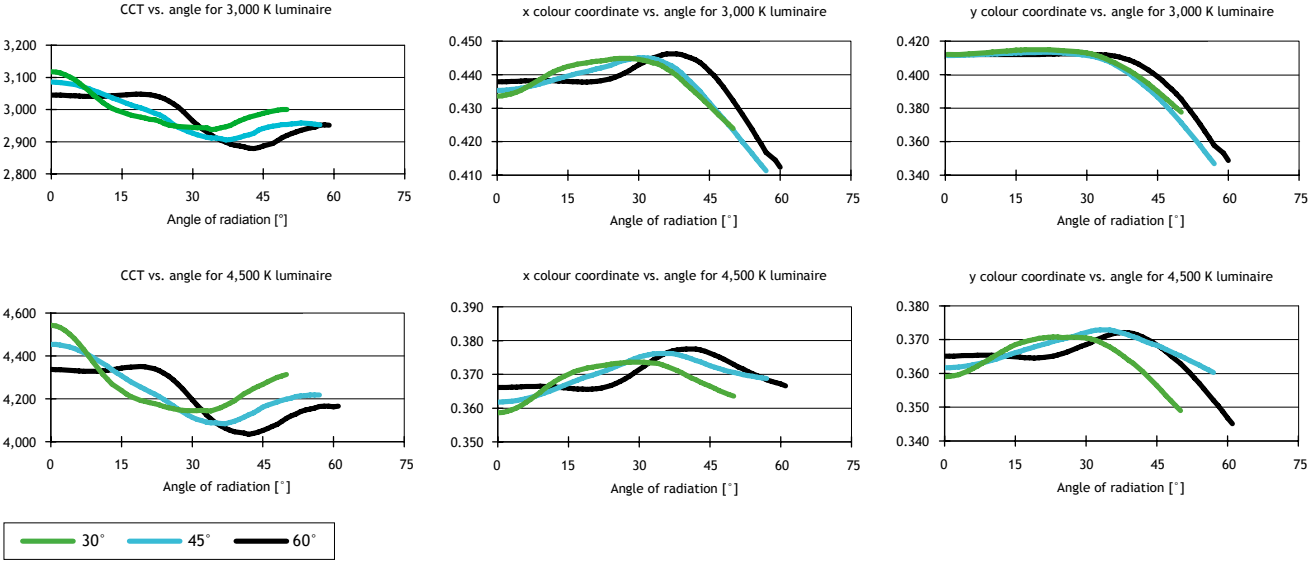
LED chromaticity and CCT



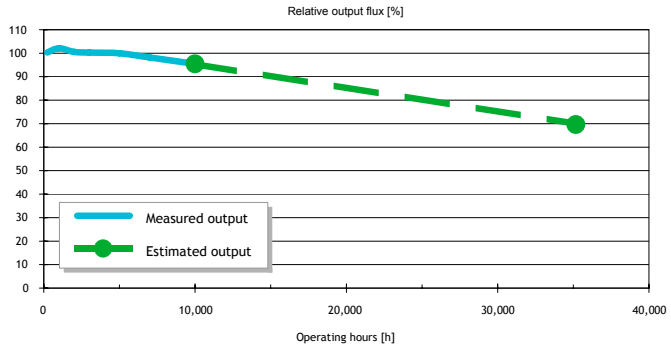


In accordance with ANSI C78.377

Luminaire chromaticity and CCT uniformity



Expected lifetime



Expected output depreciation at 45°C ambient. Plots are based on the LED manufacturer's ongoing end-of-life tests after 10,000 hours. The 35,000-hour lifetime (L70) is accepted in accordance with IESNA LM 80-08 if the lumen maintenance is minimum 94.1% after 6,000 hours of operation. The LED manufacturer's measurements show that the actual level is minimum 98.5%.

Lifetime is defined as the number of operating hours when lumen output reaches 70% of the initial level. The LEDs are designed to last minimum 35,000 hours with ambient temperature at 45°C.

Electrical driver mode	Constant Current	
Fixture input current	Max. 350	mA
Applied LED	Nichia NS6x083y-H1	
Power per head @ 350 mA	1.1	W
Luminaire* power consumption @ 350 mA	3 - 5	W
Plug type	RCY by JST	

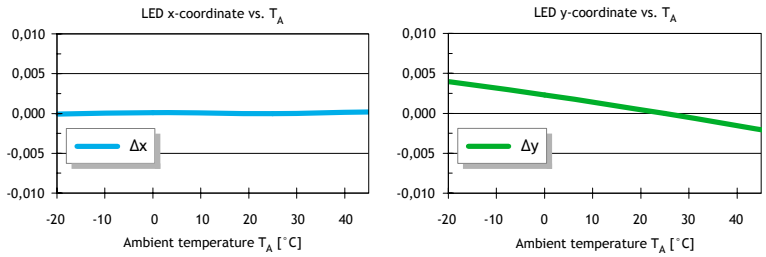
*Luminaire includes external driver. Luminaire efficacy depends greatly on system configuration.

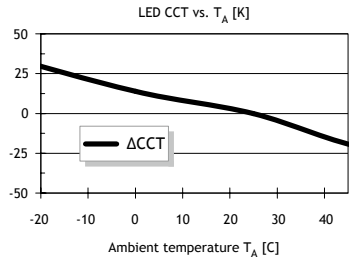
Operating ambient temperature (T_A)	-20 to +45°C
Surface temperature increment (ΔT_{CA})	Max. 30°C
Surface temperature (T_C)	Max. 75°C
Temperature Measurement Point reading (TMP)	Max. 75°C
LED junction temperature increment (ΔT_{JA})	Max. 45°C
LED junction temperature (T_J)	Max. 90°C
Max. permitted operating LED junction temperature (LED manufacturer data)	Max. 120°C
Internal temperature protection type	None
Internal temperature protection threshold	-
Luminous intensity level when temperature protection is activated	-

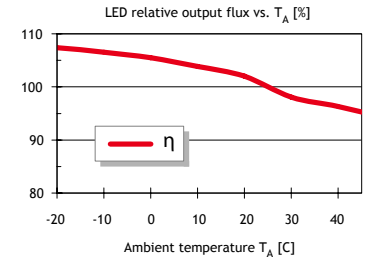
The TMP is at the centre of the back of the head. Temperature readings are for installations where the distance from the heads to any object or surface is minimum 25 mm.

Example: A luminaire is driven at 350 mA (100% light output). If ambient temperature is 25°C, the surface temperature at TMP is max. 25 + 30 = 55°C and the LED junction temperature is max. 25 + 45 = 70°C at thermal steady state.

Temperature vs. light output







Protection circuits

The LED modules are designed to be immune to inverted polarity from the low-voltage driver. The modules are not protected against high voltage, e.g. mains power.

The LED modules comply with radio interference suppression and electromagnetic compatibility regulations (EMC) EN 55.015, EN 61.000-3-2, EN 61.547 and FCC part 15.

Libra at Roblon

Framing Spot

Paint a space with light, then frame it. Fix a square or triangle of light on one space: on a sculpture, a reception desk, a painting, a furniture display. High colour rendering in all colour spectra ensures superior white light and true colour reproduction. Available with special lenses for long distance, high intensity and extra tight focus. Framing Spot: good-looking functionality that offers unlimited opportunities for limiting light.

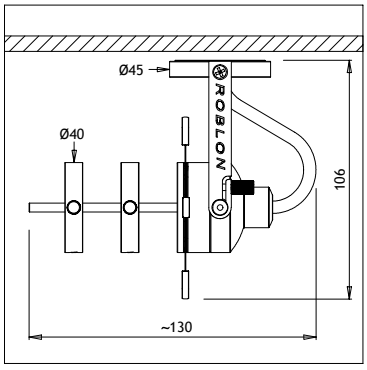
Framing Spot

For indoor use
Surface-mounted with screws
Position lock
Anodised aluminium
POM, ABS, stainless steel
Fibre optic series also available
LEDs can be replaced
CRI typical value 90

Units: mm

Framing Spot

2 watt
3,000 K

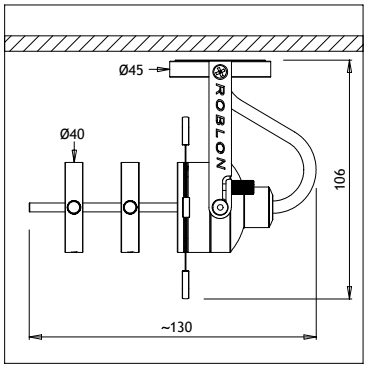


2 W @ 700mA | IP 20 | 0.2 kg | 140° | 360°

	Item no.
Black	1161 3110
Grey	1161 3120

Framing Spot Custom

2 watt



2 W @ 700mA | IP 20 | 0.2 kg | 140° | 360°

	Item no.
Black	1161 9110
Grey	1161 9120

Specify when ordering
Colour temperature [ANSI C78.377]

Framing Spot accessories & spare parts

		Item no.
Framing/Gobo Adj. Focus Lens	Black	0313 0862
	Grey	0313 0812

		Item no.
Framing/Gobo Shield	Black	0313 0865
	Grey	0313 0815

		Item no.	
		3,000 K	Custom K
1-LED spare part	Black	1169 3010	1169 9010
	Grey	1169 3020	1169 9020

Custom K in accordance with ANSI C78.377

	Item no.
Roblon Dual Tool a	1136 1001

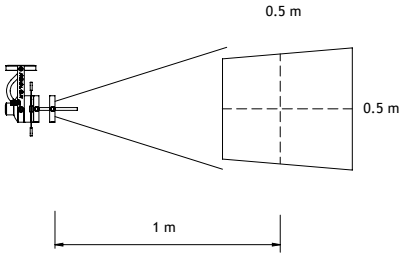
Driver sets

	No. of LEDs	Power rating	Voltage	Item no.
Non-dimmable	1	10-12	200-240 AC	1166 0002
Dimmable	1	15-25	200-240 AC	1166 0001

Framing Spot fundamentals

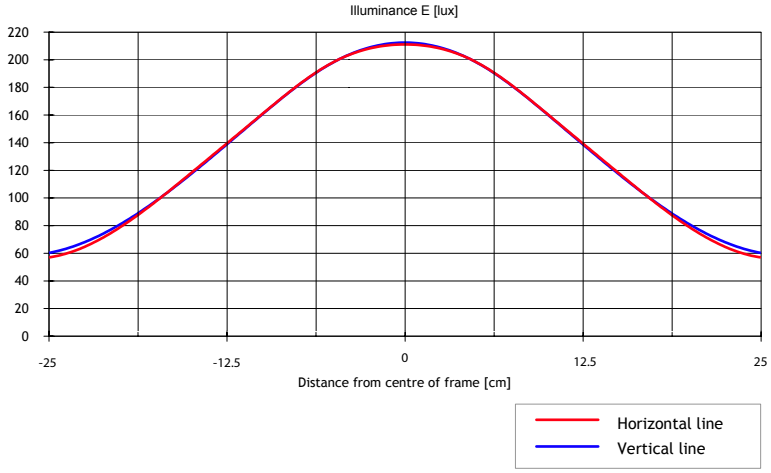
Full, current photometric data and product documentation available at www.roblonlighting.com

CCT (nominal)	3,000	K
CRI_8 (Ra)	> 85	
UV-A, 320-400 nm	< 1	µW/lm
UV-B, 280-320 nm	< 1	µW/lm

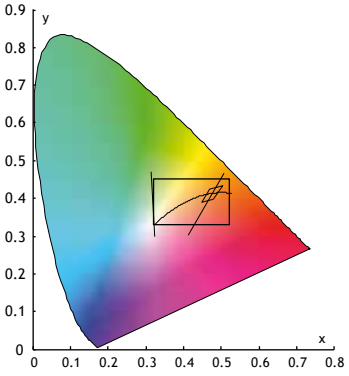


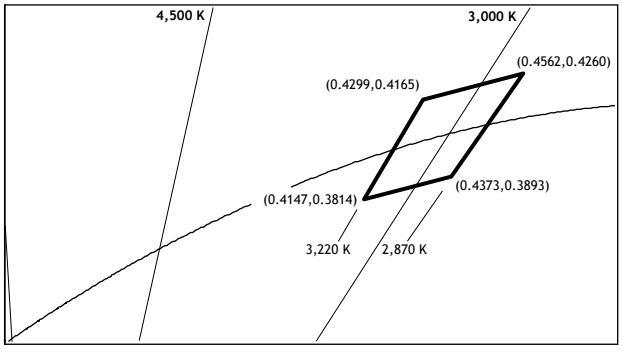
		Luminaire[1]	LED
CRI 01	Light greyish red	91	91
CRI 02	Dark greyish yellow	92	93
CRI 03	Strong yellow green	92	93
CRI 04	Moderate yellowish green	93	92
CRI 05	Light bluish green	90	90
CRI 06	Light blue	90	90
CRI 07	Light violet	95	94
CRI 08	Light reddish purple	85	84
CRI 09	Strong red	63	62
CRI 10	Strong yellow	81	82
CRI 11	Strong green	93	92
CRI 12	Strong blue	77	78
CRI 13	Light yellowish pink (skin)	91	91
CRI 14	Moderate olive green (leaf)	95	95
CRI_8 (Ra)	Average level of CRI 01-08[2]	91	91
CRI_{14}	Average level of CRI 01-14	88	88

1) All types perform consistently 2) In accordance with CIE 13.3:1995



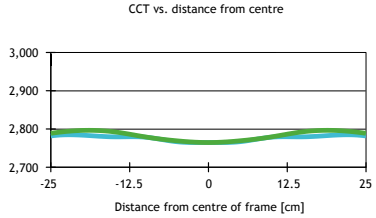
LED chromaticity and CCT

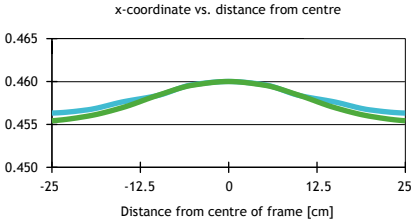


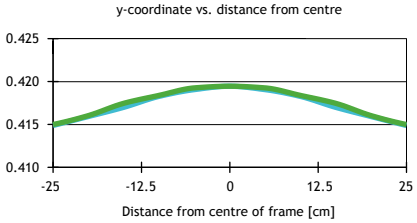


In accordance with ANSI C78.377

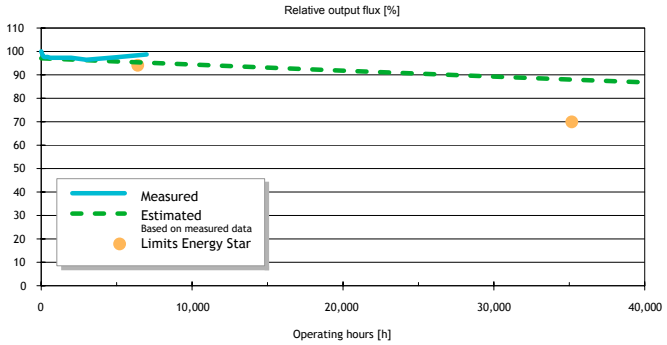
Luminaire chromaticity and CCT uniformity







Expected lifetime



Expected output depreciation at 60°C ambient/145°C junction at 600mA If. Measurements are based on the LED manufacturer's IESNA LM80-08 tests. The 6,000 and 35,000-hour lifetime (L70) limits are accepted in accordance with IESNA LM 80-08. The estimated data is calculated using the same methodology. The LED manufacturer's measurements show that the actual level after 7,000 hours is 98.7%.

Lifetime is defined as the number of operating hours when lumen output reaches 70% of the initial level.

Electrical driver mode	Constant Current	
Fixture input current	Max. 700	mA
Applied LED	NCSL-119	
Fixture power consumption @ 700 mA	Max. 3	W
Luminaire* power consumption @ 700 mA	Max. 7	W

*Luminaire includes external driver. Luminaire efficacy depends greatly on system configuration.

Operating ambient temperature (T_A)	-20 to +45°
Surface temperature increment (ΔT_{CA})	Max. 25°
Surface temperature (T_C)	Max. 70°
Temperature Measurement Point reading (TMP)	Max. 70°
LED junction temperature increment (ΔT_{JA})	Max. 85°
LED junction temperature (T_J)	Max. 130°
Max. permitted operating LED junction temperature (LED manufacturer data)	Max. 150°
Internal temperature protection type	None
Internal temperature protection threshold	–
Luminous intensity level when temperature protection is activated	–

The TMP is at the centre of the back of the fixture. Temperature readings are for installations where the distance from the fixture to any object or surface is minimum 25 mm.

Example: A luminaire is driven at 700 mA (100% light output). If the ambient temperature is 25°C, the surface temperature at TMP is max. 25 + 25 = 50° and the LED junction temperature is max. 25 + 85 = 110°

Protection circuits

The LED modules are designed to be immune to inverted polarity from the low-voltage driver. The modules are not protected against high voltage, e.g. mains power.

The LED modules comply with radio interference suppression and electromagnetic compatibility regulations (EMC) EN 55.015, EN 61.000-3-2, EN 61.547 and FCC part 15.

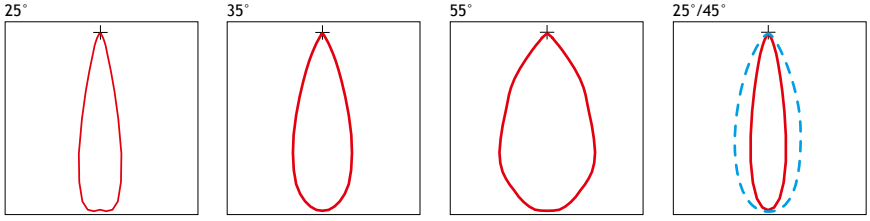
Framing Spot at Anne Frank House

Beespot

Ideal for use indoors, outdoors or submerged. Beautiful to look at, also when unlit. Fully adjustable in all directions. For accent lighting, for wall-washing, for decorative effects. For facades, for surfaces large and small, for objects large and small. Choose standard colour rendering for high flux. Choose high colour rendering for even better colour reproduction. Recessed LEDs strictly limit glare. Beespot: unobtrusive, unpretentious, unashamedly functional light.

Beespot

For indoor, outdoor or submerged use
Grey
Surface-mounted with screws
Position lock
Glass-blasted stainless steel
3,000 K or 4,500 K
Beam angle 25°, 35°, 55° or 25°/45°
Fibre optic series also available
Lenses can be replaced
LEDs can be replaced
CRI min. 85 and typical value 70
Luminous flux typical values 100 and 150 lm
Fixture efficacy typical value 50 and 75 lm/W

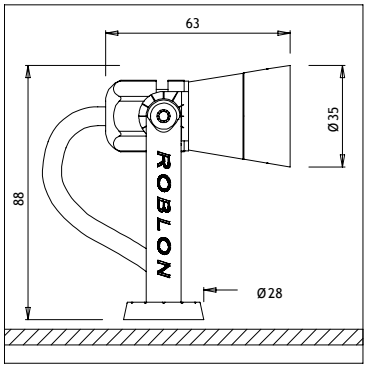


Units: mm

Beespot

2 watt
Indoor
Beam angle 25°, 35°, 55° or 25°/45°
Stainless steel AISI 303

2 W @ 700mA | IP 68 down to 1m | 0.2 kg | 360° | 360°



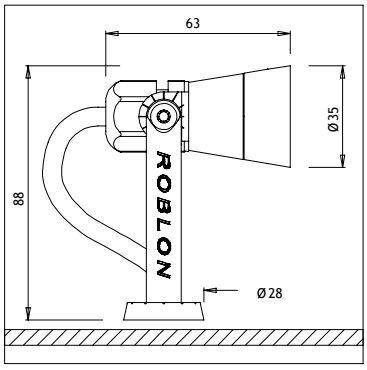
Item no.
1172 3401

Specify when ordering
3,000 or 4,500 K
Beam angle

Beespot XT

2 watt
Outdoor or submerged
Beam angle 25°, 35°, 55° or 25°/45°
Stainless steel AISI 316

2 W @ 700mA | IP 68 down to 1m | 0.2 kg | 360° | 360°



Item no.
1172 6820

Specify when ordering
3,000 or 4,500 K
Beam angle

Beespot accessories & spare parts

	Item no.
Beespot Arm 500 mm	0313 0010

	Item no.
Lens 25°	1179 0250
Lens 35°	1179 0350
Lens 55°	1179 0550
Lens 25°/45°	1179 0450

	Item no.	
	3,000 K	4,500 K
1-LED spare module 1c	1179 3000	1179 4000

Serial no. on wire label identifies flux and colour bin. Quote when ordering.

	Item no.
Roblon Dual Tool b	1176 0010

Driver sets

Dimming	No. of LEDs	Power rating	Voltage	Item no.
Non-dimmable	1	10-12	100-240 AC	1166 0002
Dimmable 1-10 V	1	15-25	100-240 AC	1166 0001
Non-dimmable IP 67	1	4	230-240 AC	1176 0003

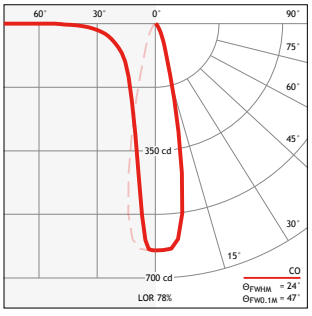
Beespot fundamentals

Full, current photometric data and product documentation available at www.roblonlighting.com

CCT (nominal)		3,000	4,500	K
CRI_8 (Ra)		> 85	70	
UV-A, 320-400 nm		< 1	< 1	µW/lm
UV-B, 280-320 nm		< 1	< 1	µW/lm
25°	Beam angle	24	24	°
	Luminous flux	105	147	lm
35°	Beam angle	36	38	°
	Luminous flux	118	165	lm
55°	Beam angle	55	53	°
	Luminous flux	109	152	lm
25/45 °	Beam angle	23/44	23/45	°
	Luminous flux	90	125	lm
LED efficacy		63	85	lm/W
Fixture efficacy		42 - 45	56 - 74	lm/W
Luminaire efficacy*		19 - 38	19 - 25	lm/W

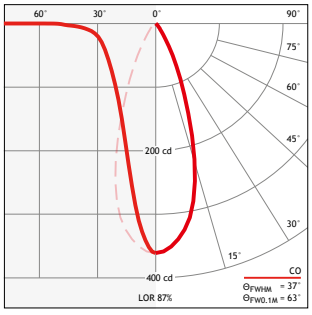
*Measured using driver set no. 1176 0003. Luminaire efficacy depends greatly on system configuration. See www.roblonlighting.com

25°



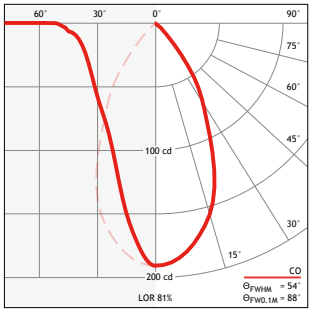
h [m]	Avg. E [lux]	Max. E [lux]	D_{FWHM} [m]	$D_{FW0.1M}$ [m]
0.5	2,824	3,130	0.29	0.58
1.0	677	765	0.59	1.20
2	170	189	1.15	2.34
h	677/h^2	765/h^2	0.59·h	1.20·h

35°



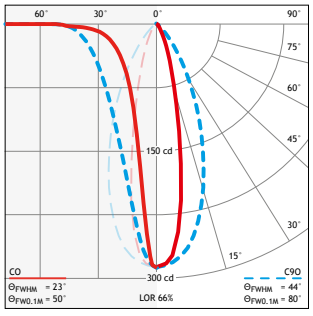
h [m]	Avg. E [lux]	Max. E [lux]	D_{FWHM} [m]	$D_{FW0.1M}$ [m]
0.5	1,468	1,764	0.44	0.82
1.0	374	421	0.88	1.65
2	87	104	1.77	3.33
h	374/h^2	421/h^2	0.88·h	1.65·h

55°



h [m]	Avg. E [lux]	Max. E [lux]	D_{FWHM} [m]	$D_{FW0.1M}$ [m]
0.5	770	938	0.65	1.27
1.0	193	224	1.30	2.60
2	45	55	2.63	5.3
h	193/h^2	224/h^2	1.30·h	2.60·h

25°/45°



Θ_{FWHM} is the full-width beam angle where intensity is half the maximum level.
$\Theta_{FW0.1M}$ is the full-width beam angle where intensity is a tenth of the maximum level. This is a non-standard measurement that is close to the perceived beam angle.

Illuminance values account for distances (h) greater than 100 mm. The photometric performance was measured at thermal steady state in 22°C ambient temperature using 4,500 K LEDs driven at 700 mA. Multiply results by 0.71 to get according values for 3,000 K. If the luminaire is dimmed, scale the results in accordance with dimming performance.

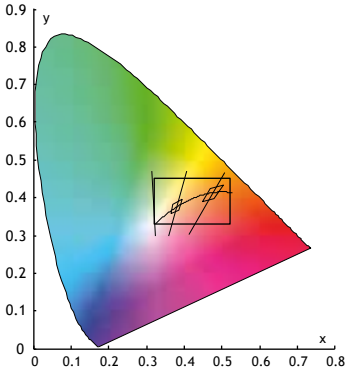
Beespot fundamentals

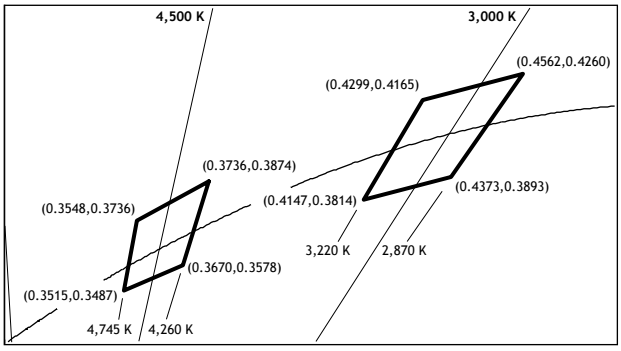
Full, current photometric data and product documentation available at www.roblonlighting.com

		3,000 K		4,500 K	
		Luminaire[1]	LED	Luminaire[1]	LED
CRI 01	Light greyish red	87	88	72	72
CRI 02	Dark greyish yellow	92	94	80	78
CRI 03	Strong yellow green	95	96	85	82
CRI 04	Moderate yellowish green	86	86	73	74
CRI 05	Light bluish green	86	87	70	71
CRI 06	Light blue	88	91	71	69
CRI 07	Light violet	89	89	85	83
CRI 08	Light reddish purple	74	75	60	61
CRI 09	Strong red	40	44	-11	-9
CRI 10	Strong yellow	79	83	50	46
CRI 11	Strong green	84	84	68	69
CRI 12	Strong blue	72	75	43	44
CRI 13	Light yellowish pink (skin)	88	90	73	72
CRI 14	Moderate olive green (leaf)	96	97	91	89
CRI_8 (Ra)	**Average level of CRI 01-08[2]**	**87**	**88**	**75**	**74**
CRI_{14}	**Average level of CRI 01-14**	**83**	**84**	**65**	**64**

1) All types perform consistently 2) In accordance with CIE 13.3:1995

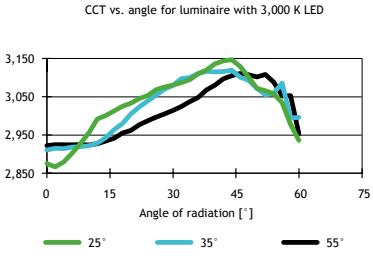
LED chromaticity and CCT

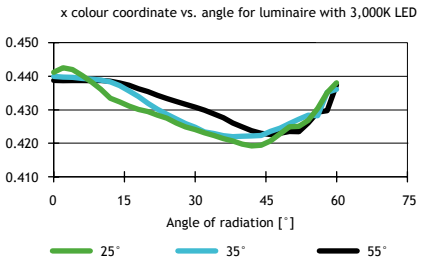


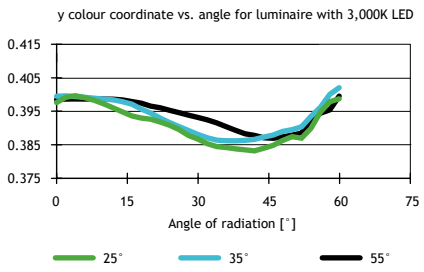


In accordance with ANSI C78.377

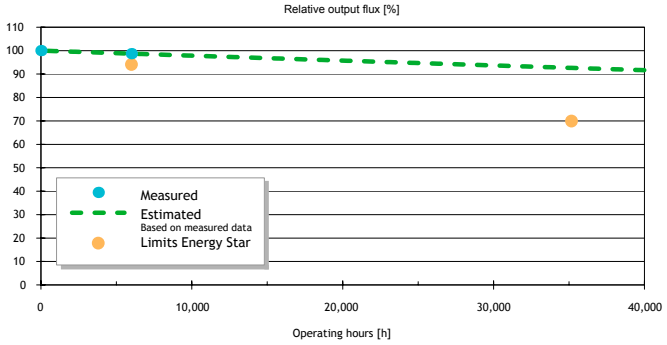
Luminaire chromaticity and CCT uniformity







Expected lifetime



Expected output depreciation at 45°C ambient/105°C junction at 1000mA If. Measurements are based on the LED manufacturer's IESNA LM80-08 tests. The 6,000 and 35,000-hour lifetime (L70) limits are accepted in accordance with IESNA LM 80-08. The estimated data is calculated using the same methodology. The LED manufacturer's measurements show that the actual level after 6,000 hours is 98.7%.

Lifetime is defined as the number of operating hours when lumen output reaches 70% of the initial level.

	Beespot		Beespot XT	
Electrical driver mode	Constant Current		Constant Current	
Fixture input current	Max. 700	mA	Max. 700	mA
Applied LED	Cree XP-G		Cree XP-G	
Fixture power consumption @ 700 mA	2.5	W	2.5	W
Luminaire* power consumption @ 700 mA	7	W	7	W

*Measured using driver set no. 1176 0003. Luminaire efficacy depends greatly on system configuration.

Operating ambient temperature (T_A)	-20 to +45°C
Surface temperature increment (ΔT_{CA})	Max. 25°C
Surface temperature (T_C)	Max. 70°C
Temperature Measurement Point reading (TMP)	Max. 70°C
LED junction temperature increment (ΔT_{JA})	Max. 70°C
LED junction temperature (T_J)	Max. 115°C
Max. permitted operating LED junction temperature (LED manufacturer data)	Max. 150°C
Internal temperature protection type	None
Internal temperature protection threshold	-
Luminous intensity level when temperature protection is activated	-

The TMP is on the ring in the middle of the fitting. Temperature readings are for installations where the distance from the fixture to any object or surface is minimum 25 mm.

Example: A luminaire is driven at 700 mA (100% light output). If ambient temperature is 25ºC, the surface temperature at TMP is max. 25 + 25 = 50ºC and the LED junction temperature is max. 25 + 70 = 95ºC at thermal steady state.

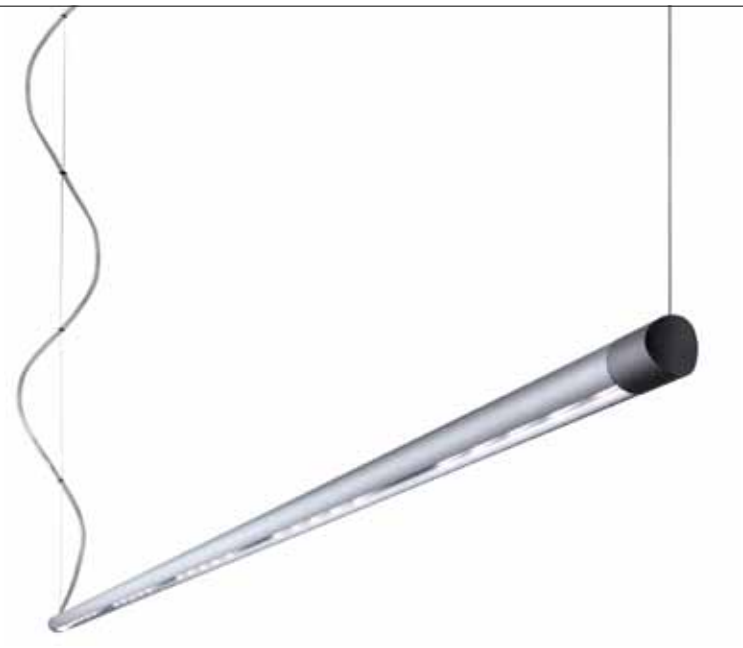
Protection circuits

The LED modules are designed to be immune to inverted polarity from the low-voltage driver. The modules are not protected against high voltage, e.g. mains power.

The LED modules comply with radio interference suppression and electromagnetic compatibility regulations (EMC) EN 55.015, EN 61.000-3-2, EN 61.547 and FCC part 15.

XPO-led at Roblon

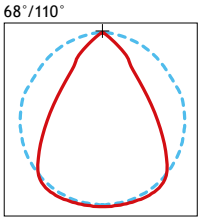
XPO-led



One lighting system. Multiple lighting solutions. Multiple configurations. Multiple applications. Create consistent light in showcases, in niches, in exhibition areas, in display areas, on surfaces. High colour rendering in all colour spectra ensures superior white light and true colour reproduction. Recessed LEDs strictly limit glare. Choose to mount suspended, on surfaces, wall-to-wall, vertically, horizontally, free-standing. Choose light beam angles. Choose light direction. Choose conduit finishes, shapes, lengths and heights. XPO-led: the surprisingly simple way to design precisely the right light.

XPO-led

For indoor use
Suspended
Wall-to-wall
Surface-mounted vertically or horizontally
Mounted with nut or screws
Adonised aluminium, POM, ABS
Fibre optic series also available
Beam angle 68°/110°
Individual reflectors can be changed
LEDs can be replaced
CRI typical value 92
Luminous flux typical values 30 and 35 lm
Fixture efficacy typical value 40 lm/W

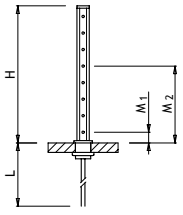


Units: mm

Vertical XPO-led

Height min. 185 mm, max. 2.11 m
Wire length min. 500 mm, max. 5 m (default 3 m)

0.8 kg per m conduit | IP 20 | 360°



	Item no.
Black	1117 0110
Grey	1117 0120

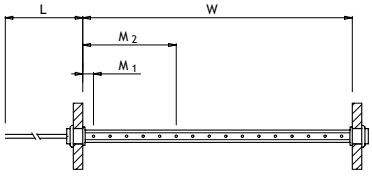
Specify when ordering
3,000 or 4,500 k
Height (H)
Wire length (L)

Specify an LED layout
Max. possible no. of LEDs for specified height
5-LED modules, evenly spaced
4-LED modules at specified positions (M_1, M_2, M_3 etc.)
5-LED modules at specified positions (M_1, M_2, M_3 etc.)

Wall-to-wall XPO-led

Width min. 200 mm, max. 2.15 m
Wire length min. 500 mm, max. 5 m (default 3 m)

0.8 kg per m conduit | IP 20 | 360°



	Item no.
Black	1117 0210
Grey	1117 0220

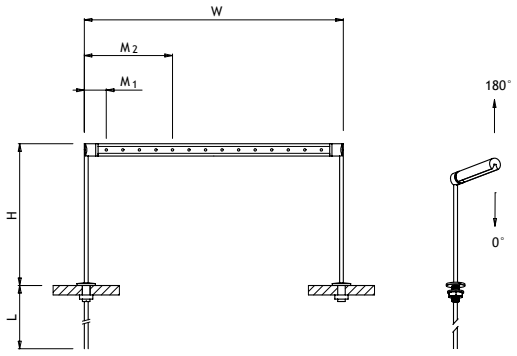
Specify when ordering
3,000 or 4,500 k
Width (W)
Wire length (L)

Specify an LED layout
Max. possible no. of LEDs for specified width
5-LED modules, evenly spaced
4-LED modules at specified positions (M_1, M_2, M_3 etc.)
5-LED modules at specified positions (M_1, M_2, M_3 etc.)

Horizontal XPO-led Ø8 mm legs

Width min. 200 mm, max. 2.15 m
Leg height min. 32 mm, max. 500 mm
Wire length min. 500 mm, max. 5 m (default 3 m)
Light direction 0° or 180°

0.8 kg per m conduit | IP 20 | 150°



	Item no.
Black	1117 0310
Grey	1117 0320

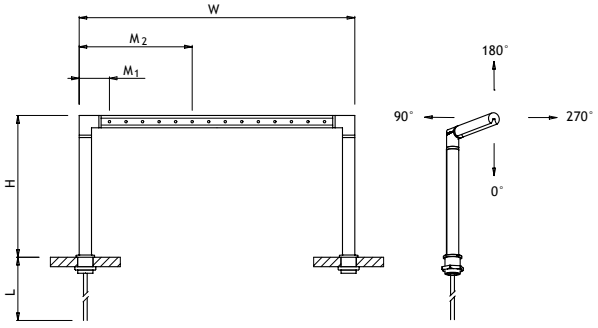
Specify when ordering
3,000 or 4,500 k
Light direction
Width (W)
Leg height (H)
Wire length (L)

Specify an LED layout
Max. possible no. of LEDs for specified width
5-LED modules, evenly spaced
4-LED modules at specified positions (M_1, M_2, M_3 etc.)
5-LED modules at specified positions (M_1, M_2, M_3 etc.)

Horizontal XPO-led Ø26 mm legs

Width min. 235 mm, max. 2.20 m
Leg height min. 32 mm, max. 2.15 mm
Wire length min. 500 mm, max. 5 m (default 3 m)
Light direction 0°, 90°, 180° or 270°

0.8 kg per m conduit | IP 20 | 80°



	Item no.
Black	1117 0410
Grey	1117 0420

Specify when ordering
3,000 or 4,500 k
Light direction
Width (W)
Leg height (H)
Wire length (L)

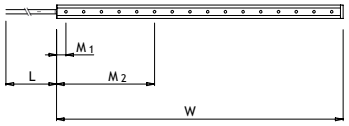
Specify an LED layout
Max. possible no. of LEDs for specified width
5-LED modules, evenly spaced
4-LED modules at specified positions (M_1, M_2, M_3 etc.)
5-LED modules at specified positions (M_1, M_2, M_3 etc.)

XPO-led

Free-mounted XPO-led

Width min. 150 mm, max. 3 m
Wire length min. 500 mm, max. 5 m (default 3 m)

0.8 kg per m conduit | IP 20 | 360°



	Item no.
Black	1117 0510
Grey	1117 0520

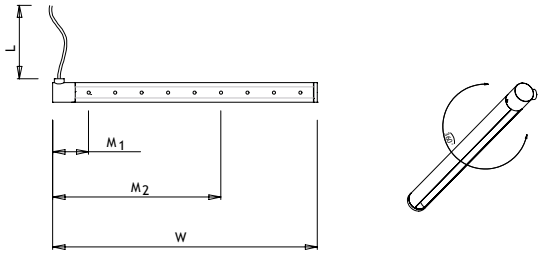
Specify when ordering
3,000 or 4,500 k
Width (W)
Wire length (L)

Specify an LED layout
Max. possible no. of LEDs for specified width
5-LED modules, evenly spaced
4-LED modules at specified positions (M_1, M_2, M_3 etc.)
5-LED modules at specified positions (M_1, M_2, M_3 etc.)

Surface-mounted XPO-led

Width min. 175 mm, max. 3 m
Wire length min. 500 mm, max. 5 m (default 3 m)

0.8 kg per m conduit | IP 20 | 360°



	Item no.
Black	1117 0610
Grey	1117 0620

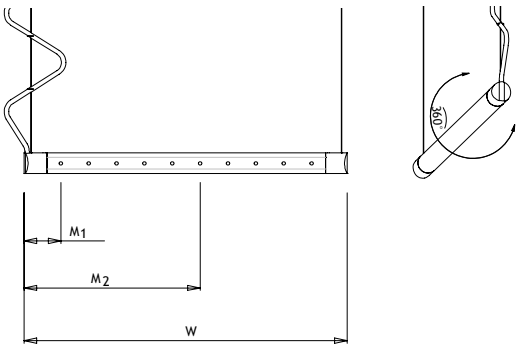
Specify when ordering
3,000 or 4,500 k
Width (W)
Wire length (L)

Specify an LED layout
Max. possible no. of LEDs for specified width
5-LED modules, evenly spaced
4-LED modules at specified positions (M_1, M_2, M_3 etc.)
5-LED modules at specified positions (M_1, M_2, M_3 etc.)

Suspended XPO-led

Distance from ceiling max. 2.4 m
Customised width min. 200 mm, max. 2.11 m
'1.2' models: 3,000 K and width 1.2 m

0.8 kg per m conduit | IP 20 | 150°

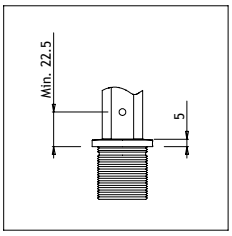


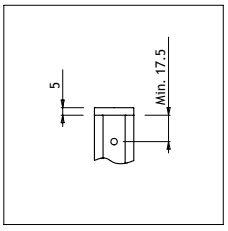
	Item no.	
	1.2 model	Custom model
Black	1117 5010	1117 0710
Grey	1117 5020	1117 0720

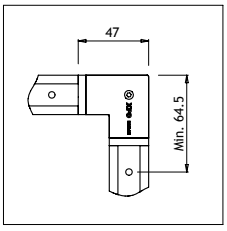
Specify when ordering [custom models]
3,000 or 4,500 k
Width (W)

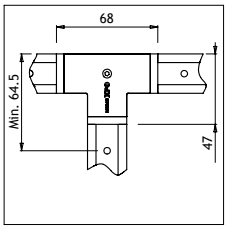
Specify an LED layout [all models]
Max. possible no. of LEDs for specified width
5-LED modules, evenly spaced
4-LED modules at specified positions (M_1, M_2, M_3 etc.)
5-LED modules at specified positions (M_1, M_2, M_3 etc.)

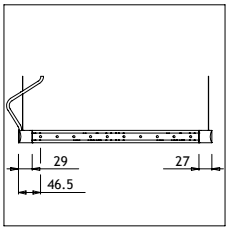
XPO-led design rules

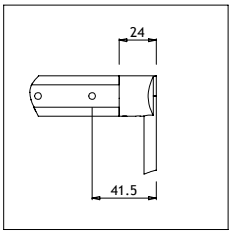


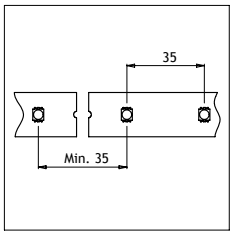


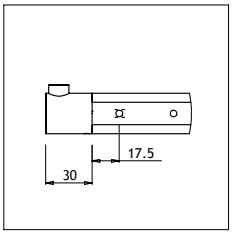


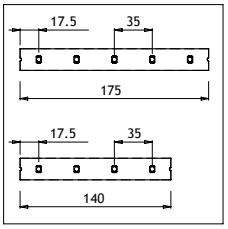


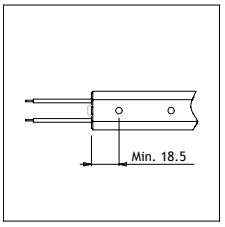












System parts

	Black	Grey	
XPO-led conduit	1110 0010	1110 0020	
End cap	1115 0010	1115 0020	
Perpendicular cap	1115 0110	1115 0120	
Open cap			1115 0200
Wire supply cap	1115 2010	1115 2020	
Wire cap	1115 1010	1115 1020	
XPO-led mounting bush, supply	1112 5010	1112 5020	
XPO-led mounting bush, Ø26 leg	1113 0010	1113 0020	
XPO-led Ø26 leg	1111 0010	1111 0020	
XPO-led Ø26 corner joint 90°	1114 5010	1114 5020	
XPO-led Ø26 T-joint	1115 7010	1115 7020	
XPO-led mounting bush, Ø8 leg	1112 0010	1112 0020	
XPO-led Ø8 leg	1113 5010	1113 5020	
XPO-led Ø8 corner joint 90°	1114 0010	1114 0020	
XPO-led ceiling mounting set			1116 2000
XPO-led supply wire. Specify length measured from mounting bush.			1116 9000
4-LED system module 4a, 3,000 K			1118 0430
4-LED system module 4a, 4,500 K			1118 0445
5-LED system module 5a, 3,000 K			1118 0530
5-LED system module 5a, 4,500 K			1118 0545

Calculate conduit size

Conduit size = the actual section in which LEDs can be installed
Min. 140 mm, max. 2.1 m
Calculate conduit size by subtracting fixed part dimensions

Vertical XPO-led:	Height	- 10 mm
Wall-to-wall XPO-led:	Width	- 10 mm
Horizontal XPO-led Ø8 mm legs:	Width	- 48 mm
Horizontal XPO-led Ø26 mm legs:	Width	- 94 mm
Free-mounted XPO-led:	Width	- 6 mm
Surface-mounted XPO-led:	Width	- 35 mm
Suspended XPO-led custom:	Width	- 56 mm

Calculate number of LEDs

Min. conduit length [mm]	Total LEDs	5-LED modules	4-LED modules
150	**4**	0	1
185	**5**	1	0
290	**8**	0	2
325	**9**	1	1
360	**10**	2	0
430	**12**	0	3
465	**13**	1	2
500	**14**	2	1
535	**15**	3	0
570	**16**	0	4
605	**17**	1	3
640	**18**	2	2
675	**19**	3	1
710	**20**	4	0
745	**21**	1	4
780	**22**	2	3
815	**23**	3	2
850	**24**	4	1
885	**25**	5	0
920	**26**	2	4
955	**27**	3	3
980	**28**	4	2
1,025	**29**	5	1
1,060	**30**	6	0
1,095	**31**	3	4
1,130	**32**	4	3
1,165	**33**	5	2

Min. conduit length [mm]	Total LEDs	5-LED modules	4-LED modules
1,200	**34**	6	1
1,235	**35**	7	0
1,270	**36**	4	4
1,305	**37**	5	3
1,340	**38**	6	2
1,375	**39**	7	1
1,410	**40**	8	0
1,445	**41**	5	4
1,480	**42**	6	3
1,515	**43**	7	2
1,550	**44**	8	1
1,585	**45**	9	0
1,620	**46**	6	4
1,655	**47**	7	3
1,690	**48**	8	2
1,725	**49**	9	1
1,760	**50**	10	0
1,795	**51**	7	4
1,830	**52**	8	3
1,865	**53**	9	2
1,900	**54**	10	1
1,935	**55**	11	0
1,970	**56**	8	4
2,005	**57**	9	3
2,040	**58**	10	2
2,075	**59**	11	1
2,110	**60**	12	0

XPO-led accessories & spare parts

1

2

3

4

5

6

7

			Black	Grey	
1	XPO-led cover flange	Ø65 / cut hole Ø33-Ø50	1116 0010	1116 0020	
2	XPO-led cover flange with screws	Ø65 / cut hole Ø33-Ø35	1116 0110	1116 0120	
3	XPO-led cover flange 2 parts	Ø65 / cut hole Ø42-Ø45	1116 0210	1116 0220	
4	XPO-led mounting clips, 10 pcs		1116 0310	1116 0320	
5	XPO-led mounting bracket, 10 pcs		1116 0410	1116 0420	
	Steel flex hose bush, open cap				1115 0300
	Steel flex hose insert, surface-mounted				4200 0096
	Suspension wire set	2 x 2.5 m			1116 2000
	Cover foil, clear				1116 1040
	Cover foil, diffuse				1116 1041
6	4-LED spare module 4a, 3,000 K*				1119 5430
6	4-LED spare module 4a, 4,500 K*				1119 5445
7	5-LED spare module 5a, 3,000 K*				1119 5530
7	5-LED spare module 5a, 4,500 K*				1119 5545
	Wooden Transportation Box, Size S				9600 2000
	Wooden Transportation Box, Size M				9600 2001
	Wooden Transportation Box, Size L				9600 2002
	Cardboard Transportation Box	Max. 2.5 m conduits			9600 2003

*Serial no. on wire label identifies flux and colour bin. Quote when ordering.

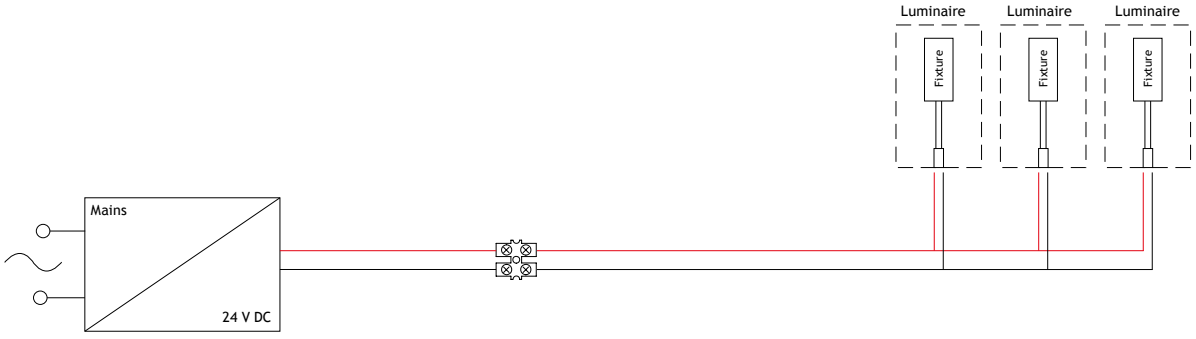
XPO-led drivers

Full, current driver product range, data and selection guidelines available at www.roblonlighting.com

Driver types

No. of LEDs	Power rating	Voltage	Item no.
10	10	230-240 AC	1101 2101
25	25	100-277 AC	1101 2251
60	60	100-277 AC	1101 2601
100	100	120-240 AC	1101 2951
10	10	120 AC	1101 1101
25	25	100-277 AC	1101 1251
60	60	100-277 AC	1101 1601
95	96	90-264 AC	1101 0963

Driver wiring guide



NB:
Only use a Constant Voltage driver
Total watt usage must not exceed driver power rating
Driver power rating can vary +/- 10% from nominal value
Risk with drivers not compliant with ratings: electronic damage; flickering
Full driver product range and selection data at www.roblonlighting.com

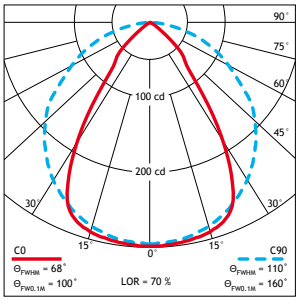
XPO-led fundamentals

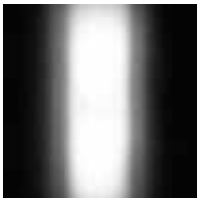
Full, current photometric data and product documentation always available at www.roblonlighting.com

CCT (nominal)	3,000	4,500	K
CRI_8 (Ra)	92	93	
UV-A, 320-400 nm	< 1	< 1	µW/lm
UV-B, 280-320 nm	< 1	< 1	µW/lm
Beam angle	68/110	68/110	°
Fixture luminous flux	44	50	lm/m
Max. fixture luminous flux	1,250	1,425	lm/m

LED efficacy	67	77	lm/W
Fixture efficacy	41 - 45	47 - 51	lm/W
Luminaire efficacy*	26 - 40	30 - 45	lm/W

*Luminaire includes external driver. Luminaire efficacy depends greatly on system configuration. See www.roblonlighting.com.





Throw [m]	Illuminance[1] [lux]	Width[2] $_{FWHM}$ [m]	Width[2] $_{FWO.1M}$ [m]
0.25	1980	0.34	0.60
0.5	710	0.67	1.2
1.0	210	1.4	2.4
1.5	95	2.0	3.6
2.0	55	2.7	4.8
2.5	36	3.4	6.0
3.0	25	4.1	7.2
Throw [m]		1.35 x throw	2.40 x throw

Θ_{FWHM} is the full-width beam angle where intensity is half the maximum level.
The plot shows Θ_{FWHM}.
$\Theta_{FWO.1M}$ is the full-width beam angle where intensity is a tenth of the maximum level.
This is a non-standard measurement that is close to the perceived beam angle.

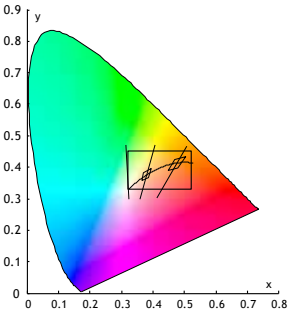
1) Illuminance with three 5-LED modules and 100% utilisation
2) Width refers to the spot width in the CO plane (across the fixtures)
Multiply results by 0.88 to get according values for 3,000 K.

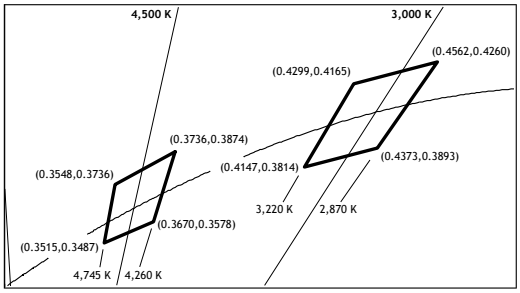
CRI details

		3,000 K		4,500 K	
		Luminaire	LED	Luminaire	LED
CRI 01	Light greyish red	93	94	92	93
CRI 02	Dark greyish yellow	94	94	94	94
CRI 03	Strong yellow green	93	92	95	95
CRI 04	Moderate yellowish green	93	93	93	93
CRI 05	Light bluish green	92	92	91	91
CRI 06	Light blue	91	91	91	91
CRI 07	Light violet	94	95	96	97
CRI 08	Light reddish purple	87	89	89	90
CRI 09	Strong red	70	72	69	70
CRI 10	Strong yellow	85	84	86	85
CRI 11	Strong green	92	93	92	93
CRI 12	Strong blue	75	74	69	68
CRI 13	Light yellowish pink (skin)	90	93	93	93
CRI 14	Moderate olive green (leaf)	95	95	97	97
CRI_8 (Ra)	**Average level of CRI 01-08[1]**	**92**	**93**	**93**	**93**
CRI_{14}	**Average level of CRI 01-14**	**89**	**89**	**89**	**89**

1) In accordance with CIE 13.3:1995

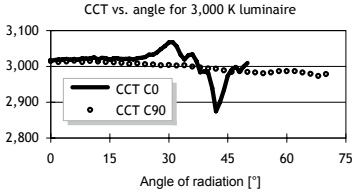
LED chromaticity and CCT

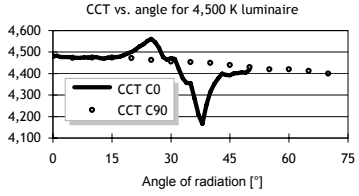


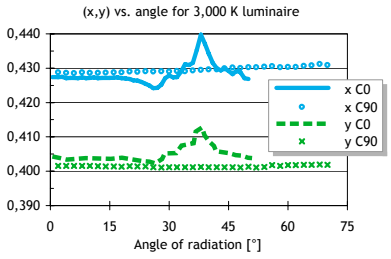


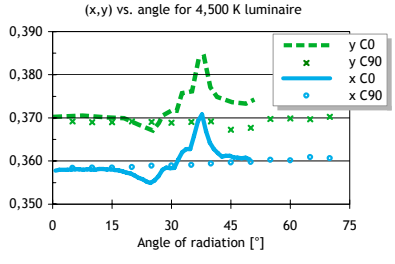
In accordance with ANSI C78.377

Luminaire chromaticity and CCT uniformity

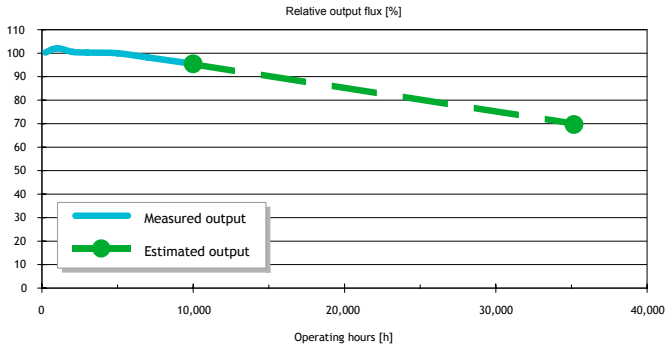








Expected lifetime



Expected output depreciation at 45˚C ambient. Plots are based on the LED manufacturer's ongoing end-of-life tests after 10,000 hours. The 35,000-hour lifetime (L70) is accepted in accordance with IESNA LM 80-08 if the lumen maintenance is minimum 94.1% after 6,000 hours of operation. The LED manufacturer's measurements show that the actual level is minimum 98.5%.

Lifetime is defined as the number of operating hours when lumen output reaches 70% of the initial level. The LEDs are designed to last minimum 35,000 hours with ambient temperature at 45˚C.

Electrical driver mode	Constant Voltage	
Fixture input current	24	V DC
Applied LED	Nichia NS6x083y-H1	
Power per5-LED module	5.5	W
Power per 4-LED module	4.4	W
Luminaire* power consumption	6 - 67	W

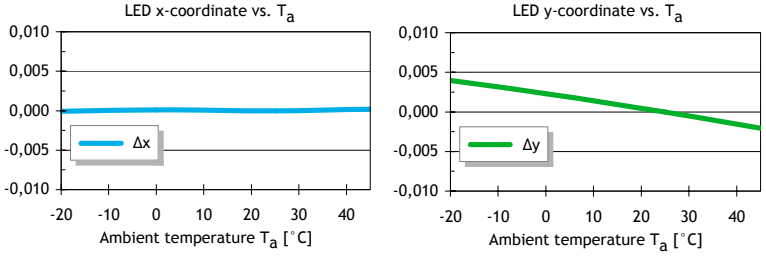
*Luminaire includes external driver. Luminaire efficacy depends greatly on system configuration.

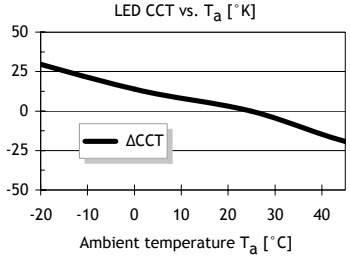
Operating ambient temperature (T_A)	-20 to +45˚C
Surface temperature increment (ΔT_{CA})	Max. 30˚C
Surface temperature (T_C)	Max. 75˚C
Temperature Measurement Point reading (TMP)	Max. 80˚C
LED junction temperature increment (ΔT_{JA})	Max. 55˚C
LED junction temperature (T_J)	Max. 100˚C
Max. operating LED junction temperature (LED manufacturer data)	Max. 120˚C
Internal temperature protection type	Auto reset
Internal temperature protection threshold	TMP = 80˚C
Luminous intensity level when temperature protection is activated	65 %

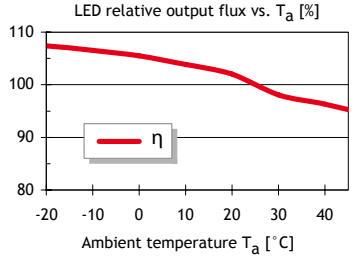
The TMP is at the centre of the back of the conduit. Temperature readings are for installations where the minimum distance from the fixture to any object is 25 mm.

Example: If ambient temperature is 25°, the surface temperature at TMP is max. 25 + 30 = 55°C and the LED junction temperature is max. 25 + 55 = 80°C at thermal steady state.

Temperature vs. light output







Protection circuits

The LED modules are designed to be immune to inverted polarity from the low-voltage driver. The modules are not protected against high voltage, e.g. mains power.

The LED modules comply with radio interference suppression and electromagnetic compatibility regulations (EMC) EN 55.015, EN 61.000-3-2, EN 61.547 and FCC part 15.

XPO-led at CamillaF Hair and Nail Salon

Lighting, led by the facts

New high for LED spot precision
New low for UV in LED lighting
Millimetre-precise high-intensity light
Millimetre-precise low-intensity light
Uncompromisingly high light quality
Uncompromisingly high colour rendering
Optimal thermal management
Recessed LEDs limit glare
LEDs changed easily & individually
Reflector systems changed easily & individually
Separate data for LED, fixture & luminaire efficacy

We'd rather you didn't just take our word for all this.
We'd rather let the facts speak for themselves.

That's why functionality, features, performance and photometry for every Roblon LED solution are meticulously documented. That's why you can be certain that the light you specify is the light you actually get.

yet not limited by them

And if you want to specify something special, you can get that too. Roblon has years of experience and expertise in customising fibre optic and LED solutions.

Every product is built on a solid technical and design foundation. That gives us the freedom to adapt, redesign and customise solutions to fulfil even the quirkiest of requirements.

Need a non-standard beam shape? Nine light heads on a three-headed fixture? Adjustment from the back instead of the front? Three watts from a 1-watt fitting? The fixed tip to rotate? The grey fixture in turquoise and hot pink?

Like those customers, always feel free to ask. Because we always feel free to make it possible.

Suspended XPO-led, customised in turquoise and hot pink

More photos at www.roblonlighting.com

CamillaF Hair and Nail Salon
Frederikshavn, Denmark
www.camillaf.dk

Roblon

Roblon Lighting
Nordhavnsvej 1
9900 Frederikshavn
Denmark

Tel: +45 9620 3300
Fax: +45 9620 3399
info@roblon.com
www.roblonlighting.com

Designed for Roblon
by Steffen Schmelling Design Studio:

- Beespot
- Corvus
- Framing Spot
- Libra
- Pyxis
- XP0-led