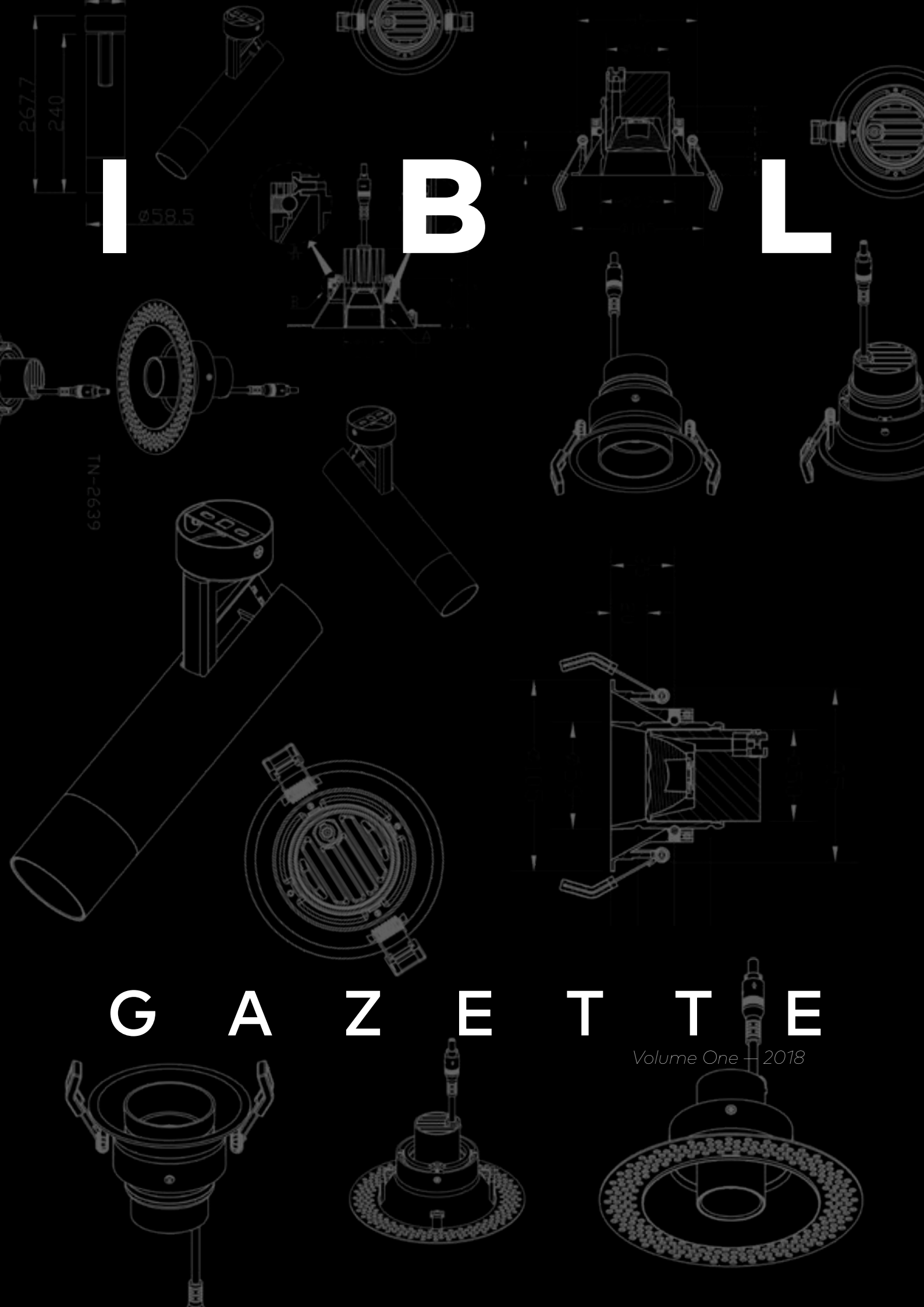

GAZETTE

Volume One — 2018

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WELCOME

Andrew Penfold, Founder and CEO

Welcome to the first edition of the IBL gazette. This new initiative is designed to keep clients, distributors and partners informed on IBL plans for new products, projects and information on the company and our global markets. 2017 was a milestone year of achievement for IBL. Responding to international markets, IBL released over 100 new products and after 30 years, we successfully rebranded the IBL logo and launched our new IBL website.

The new IBL logo reflects our commitment to continually develop and reinvent both the company, our methods and the technology used in product development and design. 2017 also saw IBL supply some of the largest and most prestigious projects in the UK, UAE, Australia and Asia. Some of these are featured on the new IBL website at www.ibl.co.uk.

During 2017, IBL developed and released the first of the 'warm dim' LED engine range in its 50mm footprint to suit all M50 downlights. Add to this the M50 Tuneable White and RGBW engines, which was soon followed by the M75 LED engines in both Warm Dim and Tuneable White. IBL then released a Tuneable White lineal LED system, designed for hospitality and residential applications.

The lineal LED boards and tape suit a variety of lineal LED profile in the IBL range. This was immediately adopted in the UK and Middle East providing designers a complete range of options to suit all applications. IBL continue to take influence by listening to our clients and lighting designers from around the globe and have big plans for 2018. A snap shot of our forthcoming product development program is featured in the following pages.

All of us at IBL are excited about our plans for 2018. We look forward to keeping you informed on progress, both on our website and with the regular IBL Gazette publication.

Founder and CEO IBL Lighting.

EVERYTHING OLD IS NEW AGAIN

IBL has always been a company that has responded to the demands and trends of the international market and our clients. This is evident in everything IBL do. Recently, IBL were asked to develop a range of high-powered recessed LED downlights to replace old metal halide technology in shopping centres. The downlights used the new 5000 – 8000lm IBL engines, with a softening film in front of the reflector. The housing sizes varied from 150mm up to 320mm in diameter. They had to fit an existing cut out – a true 'one for one' retro-fit. The result was huge savings on energy costs, a massive reduction in maintenance costs and no more colour shift from old metal halide lamps that slowly die and shift colour.

"IBL has enabled Westfield shopping centres to take full advantage of a lighting retro-fit program for existing shopping centres that gives us everything we need in terms of lighting, colour and energy savings, along with low impact and cost during installation. The fittings are installed in existing positions, so there is no need to cut or alter the ceiling," says Leo Trimboli, senior lighting designer at Scentre Group.

"We also like the fact that we can use the same engine and run this at different drive currents, depending on the output needed for specific applications. This ensures visual continuity, something important in all Westfield shopping centres"

The first Westfield retro-fit was supplied via Australian partners Light Project in May 2017. Since then, there has been a further three centres supplied and another two planned for in the first half of 2018. Lend Lease has also taken advantage of the retro-fit IBL fixture, using IBL down-lights in the existing centre refurbishment at Macarthur Shopping Centre in Sydney's western suburbs. They plan to use the same IBL fixtures in the refurbishment of Sunshine Plaza in Queensland.

Joondulup Shopping Centre, Perth, Australia – Lighting Design by Mike Sparrow of Lend Lease

2018

IBL hit the ground running with plans for over 200 new products to be developed and released in 2018.

Taking advantage of developments in LED technology, IBL has plans to add high powered Tuneable White LED engines and lineal boards to the already comprehensive range on offer. Not only does this give designers and clients over 200 additional options, it underpins the commitment IBL has made to be industry leaders in the architectural lighting market.

"When designing new products or extensions to existing products, we have always worked closely with CREE. They have supported us and share the same ethos as IBL in terms of quality and product development," says IBL Chief Executive Officer Andrew Penfold.

IBL have now purchased in excess of 5 million LED chips from CREE. They expect this number to continue growing in 2018, along with utilising some of the latest generation of CREE LED chips in creating a host of new high-performance engines. This provides the lighting designers and end user much improved benefits both in terms of energy efficiency and optical performance.

IBL's continual driver development program will be also expanded this year with Bluetooth control on its Constant Voltage and Current drivers.

Other additions to the expanding IBL range include a new 'architectural' range of fittings. This range is designed to complement the existing lineal, spot and downlight ranges that IBL has been traditionally known for. The range will include low profile surface mounted, semi-recessed and recessed fittings. Fixtures are designed to be discrete with soft, even and controllable light. The first of the architectural range is already on the IBL website with more being added throughout the year.

IT'S ALL ABOUT FAMILY

Over the past few years, there has been an overwhelming requirement from our clients to create families of light fixtures. Fittings with the same footprint that have the same optical options, the same accessories and the same engines. With this in mind, IBL has developed fittings that can use interchangeable LED engines, have the same hole cut-out sizes and interchangeable optics. Each group of IBL's LED engines can be used in a multitude of downlight housing options. In some cases, the same LED engine can be used with different driver currents to determine the output, allowing use of the same fitting in varied ceiling heights across a project.

Below is a snap shot of what clients can expect from IBL's family of LED engines and housings in 2018.

- **High Power Tuneable white LED engines 3000-4000lms**
  - o Based on the M118 engine footprint, fully compatible with IBL's Round 150+ trims.
  - o Tuneable CCT range 2200K – 6000K, High CRI
  - o Controlled using DALI & DMX dimming protocols
  - o This development will add over 60 additional engine/fitting options.

- **Narrow beam (12°) lens-based COB LED engines**
  - o Will be developed for use with the M50 & M75 engine footprints.
  - o Utilising CREE's CXB1310 & CXB1520 High Density LED array, the next generation of high lumen density LED arrays delivering the most lumens in the industry for their light emitting surface (LES) size, enabling radically new and differentiated LED lighting form factors for applications like tracks, lamps and downlights.
  - o Highly efficient optical lens providing >80% lumens in the specified beam
  - o 8W-25W power options
  - o Adding over 200 additional engine/fitting options

- **Ultra-narrow (7°) beam lens-based XHP35 LED engines**
  - o Developed for IBL's most popular M50 engine footprint
  - o Utilising CREE's XHP35, an extremely High-Power LEDs based on the XP footprint, this LED is now setting a new standard for performance delivered by a 3.45 x 3.45 mm LED.
  - o Highly efficient optical lens providing >80% lumens in the specified beam
  - o Power 8W
  - o Adding a further 200 additional engine/fitting options

•Mini LED Engine and fittings re-designed to improve performance and engineering aspects

- o The new Mini engines will follow on from IBL's successful MXX threaded & modular approach to engine/fitting versatility providing a precision engineered solution.
- o Utilising CREE's latest generation of the XPG3
- o Supplied as standard CRI>90

• Multi-Mini X Linear profiles

- o Will combine IBL's highly successful Mini engines with a Linear profile to offer maximum flexibility and possible integration of discreet and linear LED light sources.
- o Will add in over 500 fitting, engine and optical combinations

• Bluetooth Drivers for Constant Current COB & Multichip LED engines

- o IBL's continual driver development program will be expanded this year with Bluetooth control on its Constant Voltage and Current drivers

• New architectural adjustable wall wash fixtures for lens-based engines

- o Providing precise 2 axis aiming mechanism
- o Utilising the latest Ultra and Narrow beam high density engines
- o Full range of add on optical accessories
- o Plaster in mounting accessories

IBL IN INTERNATIONAL WATERS

Last year, IBL worked with Point of View lighting designers to finalise lighting options using various IBL fittings that met the criteria for the multi-million dollar refurbishment of Carnival Corporation's Pacific Dawn Ocean Cruiser. Operated by P&O, the refurbishment was completed in Singapore during the second half of 2017. All areas of the ship were refurbished ahead of its maiden voyage from Singapore under the new name Pacific Dawn (previously named Regal Princess). Originally built in Italy in 1991, the refurbishment, renaming and maiden voyage were all timed around the 75th anniversary of P&O.

"It was a tough deadline with no room for error. The fit out in Singapore had to be timed perfectly, as the dates for sailing were set and there were very specific times where the builders could work while in dock. Everything had to be right, supplied to spec and on time. It was challenging, but a great result for all involved," said Peter Schott, IBL regional manager in South East Asia with exclusive partners CLA.

Products used included IBL PIN90 and SLOT90 along with the quadrant lineal profile and the new super-small NANO lineal LED profile.

Lighting design by Point of View
www.pov.com.au

THE ENGINE ROOM

At the heart of all IBL fittings are our IBL LED engines. These LED engines allow the broadest range of optics, performance and design options available in the commercial lighting market. Working with long-time partner CREE, IBL has designed and patented a range of LED engines that give designers complete flexibility.

Each LED engine family offers a wide choice of lens-based optics for our discrete chip engines and high performance reflectors and optics for our COB (Chip On Board) engines. This starts with our mini 20mmø engine, and continues with the incredibly diverse 50mm footprint through to the 75mm and 118mm sizes.

Recently, IBL launched its super narrow beam with 7°, 10° and 15° optics using the latest CREE LEDs. These use specifically designed, efficient lenses.

At the other end of the scale are the IBL E, F and H arrays, producing up to 8490 lumens. These larger engines are designed for high ceilings in areas such as building lobbies, shopping centres and hotel atriums and ballrooms.

All IBL engines use strict 2-step MacAdam binning to ensure constant colour temperatures. They are also all available in high CRI and colour temperatures from 2700k – 5000k/6000k. Using our wide range of LED drivers, outputs can be tuned to meet any requirement.

This full range of engines not only suit a wide variety of standard IBL downlights and spots, but all give designers the opportunity to develop bespoke fittings to suit virtually any application.

In February this year, IBL released warm dim and tuneable white engines for all sizes in the range, along with RGBW LED engines in the 50mm footprint. "Having such a comprehensive range of LED engine options allows us, as designers, to explore so many options with both standard and custom made fixtures. We know that we'll be able to meet the expectations of the design and our client," says Raffaele De Vita, Design Director at DJ Coalition.

Contact IBL for additional information or ideas for bespoke fittings using IBL LED engines or visit www.ibl.co.uk

I B L

Technical Data Sheet

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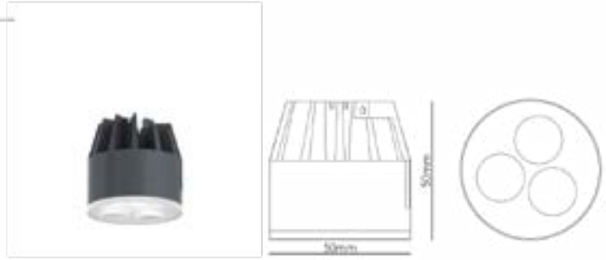
Discrete LED Engines

Mini

LED Type	Cree XP-G3
CRI/CCT	90Ra : 2700°K, 3000°K
	85Ra : 4000°K, 6000°K
Power	2W
Optics	Spot 15°, Narrow 20°, Medium 30°
Output	240lm (120lm/W)
Drive current	700mA

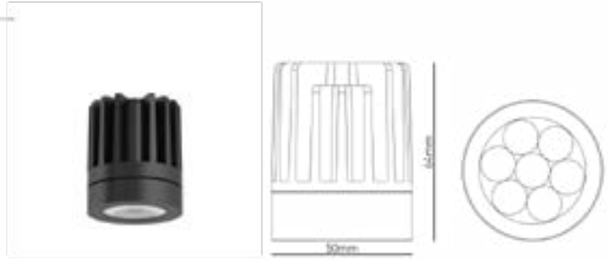
3 Chip

LED Type	Cree XP-G3
CRI/CCT	90Ra : 2700°K, 3000°K
	85Ra : 4000°K, 6000°K
Power	6W
Optics	Spot 10°, Narrow 20°, Medium 35°, Wide 50°
Output	644lm (107lm/W)
Drive current	700mA



XHP

LED Type	Cree XHP35
CRI/CCT	>80Ra : 2700°K, 3000°K, 4000°K, 6000°K
Power	8W
Optics	Spot 7°, Spot 10°, Narrow 15°, Narrow 23°
Output	7° optics : 500lm (62.5lm/W)
	10°, 15°, 23° optics : 600lm (75lm/W)
Drive current	700mA

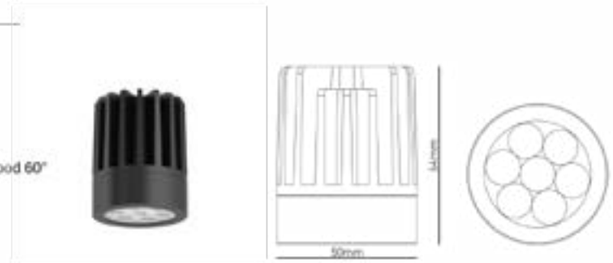


4 Chip

LED Type	Cree XP-G3
CRI/CCT	90Ra : 2700°K, 3000°K
	85Ra : 4000°K, 6000°K
Power	8W
Optics	Spot 15°, Narrow 20°, Medium 30°, Wide 40°, Flood 60°
Output	844lm (105lm/W)
Drive current	700mA

7 Chip

LED Type	Cree XP-G3
CRI/CCT	90Ra : 2700°K, 3000°K
	85Ra : 4000°K, 6000°K
Power	14W
Optics	Spot 15°, Narrow 20°, Medium 30°, Wide 40°, Flood 60°
Output	1419lm (101lm/W)
Drive current	700mA

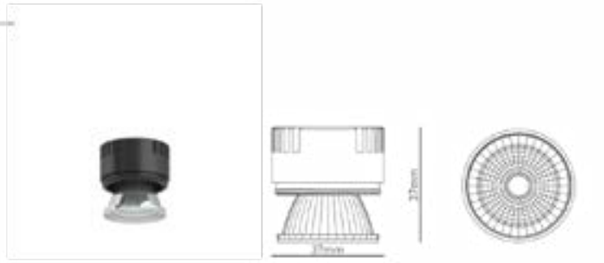


(1) Typical lumen output subject to selected CCT & optic combinations

COB LED Engines

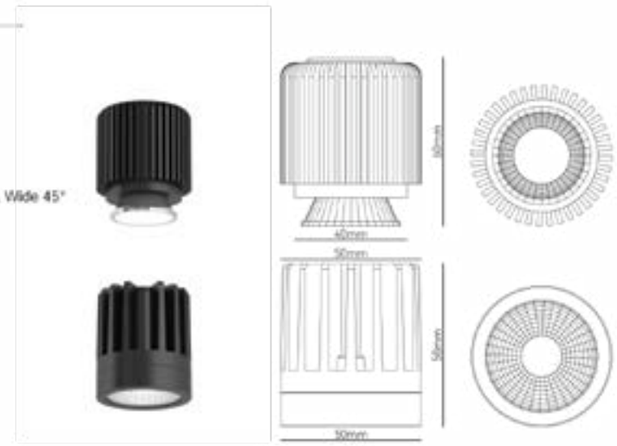
A Array

LED Type	Cree CXB1304
CRI/CCT	90Ra : 2700°K, 3000°K
	85Ra : 4000°K, 5000K
	95+ on request
Power	4.5W
Optics	Narrow 20°, Medium 40°, Flood 60°
Output	435lm (96lm/W)
Drive current	250mA (18V)



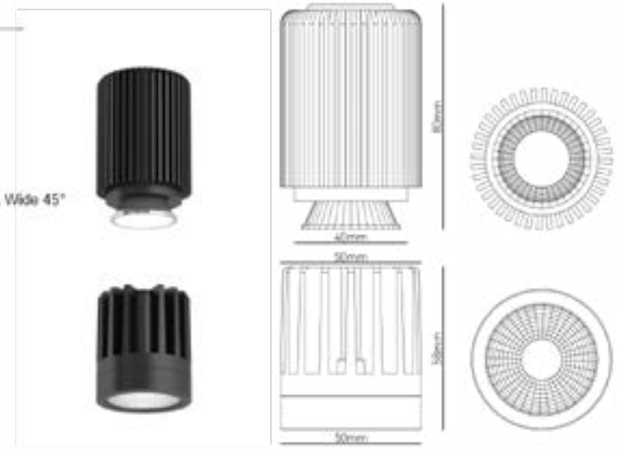
B Array

LED Type	Cree CXB1507
CRI/CCT	90Ra : 2700°K, 3000°K
	85Ra : 4000°K, 5000K
	95+ on request
Power	8.6W
Lens Optics	Narrow 20°, Narrow 26°, Medium 34°, Wide 41°, Wide 45°
Reflectors	Narrow 20°, Medium 30°, Wide 40°, Flood 60°
Output	1038lm (120lm/W)
Drive current	250mA (36V)



C Array

LED Type	Cree CXB1512
CRI/CCT	90Ra : 2700°K, 3000°K
	85Ra : 4000°K, 5000K
	95+ on request
Power	12W
Lens Optics	Narrow 20°, Narrow 26°, Medium 34°, Wide 41°, Wide 45°
Reflectors	Narrow 20°, Medium 30°, Wide 40°, Flood 60°
Output	1600lm (134lm/W)
Drive current	350mA (36V)

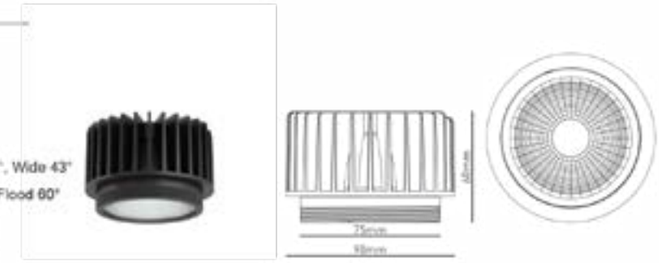


(1) Typical lumen output subject to selected CCT & optic combinations

COB LED Engines

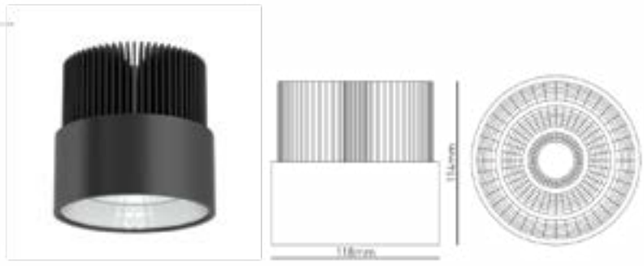
D Array

LED Type	Cree CXB2530
CRI/CCT	80Ra : 2700°K, 3000°K
	75Ra : 4000°K, 5000K
	95+ on request
Lens Optics	Spot 12°, Narrow 20°, Medium 34°, Medium 38°, Wide 43°
Reflectors	Narrow 20°, Medium 30°, Wide 40°, Wide 50°, Flood 60°
Output	D35 (12W) / 1570lm (130lm/W) / 350mA (36V)
	D55 (19W) / 2292lm (120lm/W) / 550mA (36V)
	D70 (25W) / 2777lm (111lm/W) / 700mA (36V)



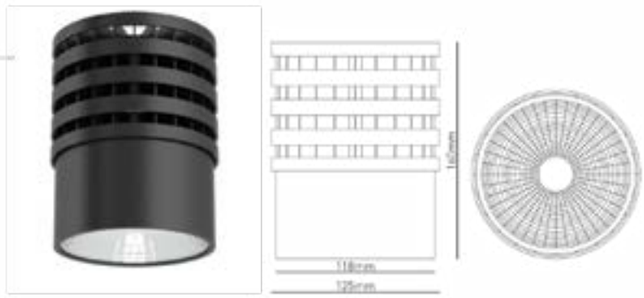
E/F Array

LED Type	Cree CXB2540
CRI/CCT	80Ra : 2700°K, 3000°K
	75Ra : 4000°K, 5000K
	95+ on request
Optics	Narrow 24°, Wide 40°, Flood 60°
Output	E85 (30W) / 3123lm (104lm/W) / 850mA (36V)
	E120 (42W) / 4330lm (103lmW) / 1.2A (36V)
	F150 (53W) / 5554lm (104lm/W) / 1.5A (36V)



H Array

LED Type	Cree CXB3070
CRI/CCT	80Ra : 2700°K, 3000°K
	75Ra : 4000°K, 5000K
	95+ on request
Power	70W
Optics	Narrow 24°, Wide 40°, Flood 60°
Output	8490lm (1117lm/W)
Drive current	2.0A (36V)



(1) Typical lumen output subject to selected CCT & optic combinations

CUSTOM PRODUCT DESIGN

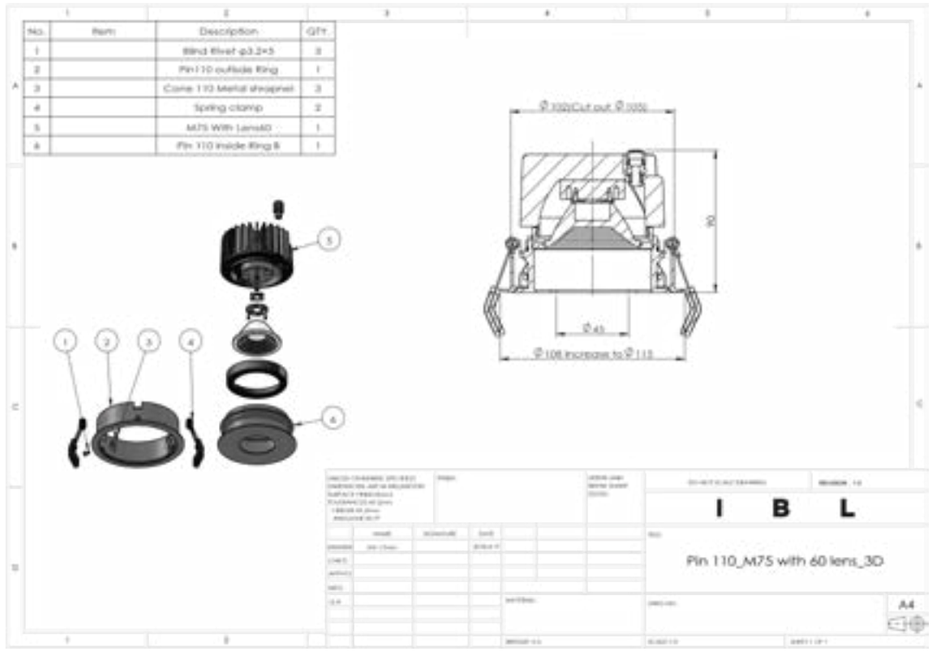
The range of standard IBL products is vast. However, many of our clients still require bespoke fittings to suit their specific design requirements. IBL has both the technology and the experience to realise the many custom requirements of our clients.

Custom product design has become a standard feature offered by IBL. Using existing IBL technology, we are able to produce special housings and fixtures that utilise our range of IBL LED engines.

Clients come to us with their ideas, from which we produce detailed drawings, listing all components and dimensions. Once approved, the product is manufactured. The following schematics represent examples of this process with past clients.

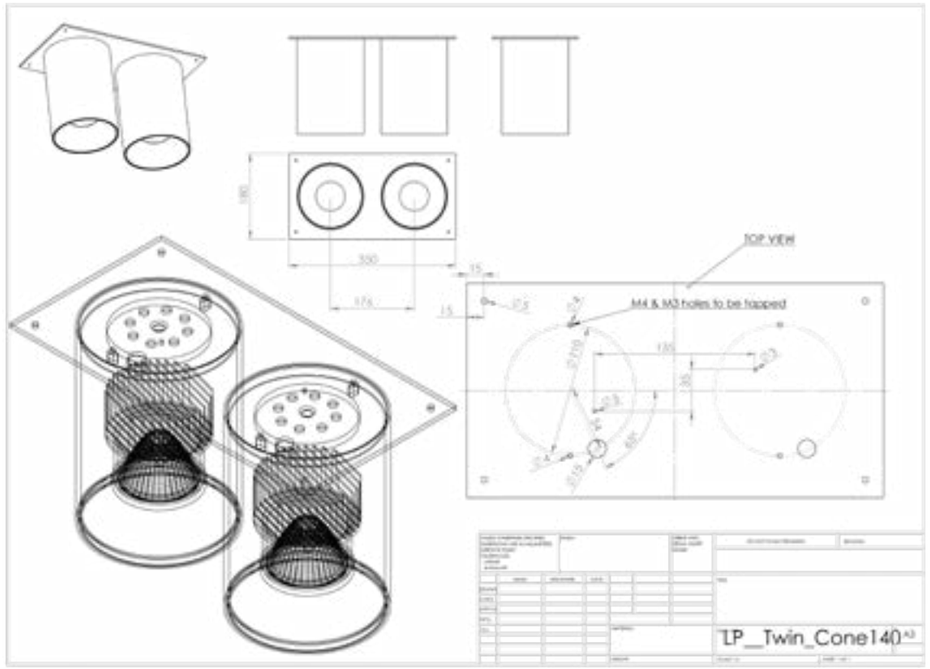
PIN 110

Special oversized version of our recessed PIN downlight using M75mm LED engine with 60° lens.



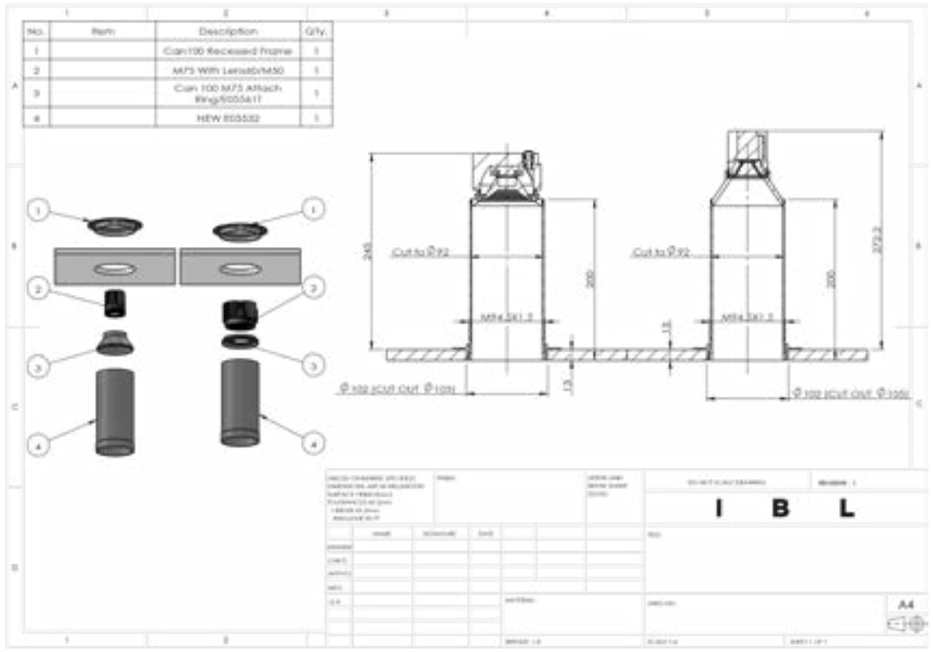
TWIN CAN 140

Designed with a special surface plate, custom housing and reflector colour. Uses M75mm LED engine.



CAN 100 RECESSED

A deep, recessed downlight with trimless fixing, using either M50 or M75mm LED engine options.



FEATURED PRODUCT GROUP:
DOWNLIGHTS
ROUND FITTINGS

The IBL downlight range features a variety of different sub-categories. In this edition of the gazette, we take a look at the round family. These fittings offer designers both lens-based optics and reflector-based optics, from small to large in both size and control.

For ease of understanding, the numeral in the model number represents the approximate diameter of the outer trim.

For more information on optics, specifications and other customisation options, visit the IBL website at www.ibl.co.uk

Round 80
SKU: 210X.X

Round 80 Flute
SKU: 261X.X

Round 80 Straight
SKU: 263X.X

Round Tilt 90 Straight
SKU: 265X.X

Round Tilt 90 Flute
SKU: 261TX.X

Round Tilt 90 Flat
SKU: 267X.X

Round 60
SKU: 270X.X

Round 40
SKU: 226X.X

Round Tilt 40
SKU: 225X.X

Glass Round 90
SKU: 233X.X

Round Tilt 60
SKU: 283X.X

Round Tilt 70
SKU: 273X.X

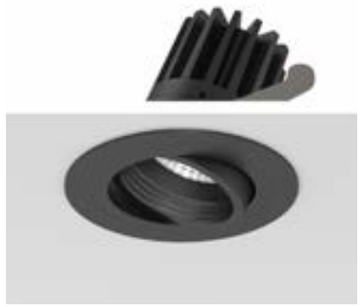
Round 110
SKU: 2163X.X

Round 150
SKU: 2263X.X

Round 180
SKU: 2263X.X

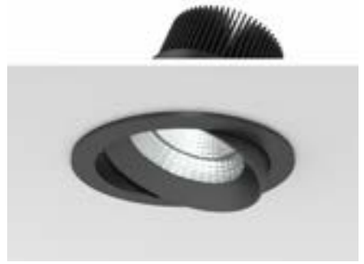
Round 200
SKU: 2263X.X

Round 240
SKU: 2263X.X



Round Tilt 90
SKU: 214X.X

Round Tilt 120
SKU: 2167X.X



Round Tilt 180
SKU: 2267X.X

NEW High Powered
Retro-Fit Fitting
SKU: 2267X.X

NEW High Powered
Retro-Fit Fitting
SKU: 2263X.X

NEW High Powered
Retro-Fit Fitting
SKU: 2263X.X

NEW High Powered
Retro-Fit Fitting
SKU: 2263X.X

NEW High Powered
Retro-Fit Fitting
SKU: 2263X.X

Round 300
SKU: 2263X.X

LIGHTS, CASINO... ACTION!

Bernie Tan-Hayes, Managing Director of Point of View, talks with IBL about the differences in lighting design in casinos across the globe

IBL: So Bernie, you've been a lighting designer and director for POV for many years now. How do you approach designing lighting for different casinos around the world, assuming they have similar budgets?
What would be the differences between the lighting design in a casino in Macau, for example, as opposed to a casino in Vegas or Australia?

Approach to lighting design in casinos will vary from property to property. The major variables are client aspirations, target market and the level of gaming customer i.e. mass gaming or VIP or ultra VIP.

In terms of the differences from country to country, these can be subtle and often trend-based. In Australia and the US for instance, mass gamming has a heavy entertainment focus so these areas are usually surrounded by food outlets with places for live music and bars.

In other countries, especially in Asia, these areas have traditionally been separated from gaming. Having said that though, we are trending towards more consistent product representation across the globe with more entertainment-focused gaming floors featuring heavily in new developments, wherever they are.

Are the demographics of casino patrons the same worldwide? Most high rollers do travel around the world, so why might a casino change the design from one location to the next?

It depends on the gaming tier we're talking about. Mass gaming is mostly designed to draw locals, so demographic depends on geography.

This generally holds true up to top tier VIP. Beyond this are the international VVIP's (although I've never met any!) where the demographic flattens out.

Regardless of other attractions in casinos, the focus always comes back to the gaming rooms. Is this an area where lighting design is essentially governed by light levels for security? Are there any specific requirements for lighting around gaming tables or is there any standard criteria in each region?

Specifics can't really be discussed. Criteria for lighting is set by each casino and is generally based on demographic and security. Generally, for cameras, the consistency, shadows and contrast are more important than levels.

Crown Casino Melbourne – Day Spa
Lighting Design – DJ Coalition

Crown Casino Melbourne – Western Gaming
Lighting Design – Point of View

A casino is probably one of the largest and most challenging projects and usually involves a 5 star hotel, themed bars and restaurants, retail areas and theatres. How do you manage the demands of each specific area and deal with the different designers and project managers that you need to keep happy?

Scale has never really bothered me. Each area and designer are treated with the attention in design and delivery that they deserve. Our associates and senior designers have the ability to focus in on detail and see the bigger picture at the same time. This is extremely important in delivering a quality outcome for the client, which meets their standards but also delivers maximum return on investment.

Finally, is it true that there are no clocks or windows anywhere in a casino, so patrons have no idea if it's day or night or what time it is outside? Or is this just an urban myth?

HA! For the most part, it's a myth. All states in Australia have legislation around this. Often you miss them because of the flashing lights etc. but the clocks are everywhere!

In terms of daylight, like all sectors at the moment, there is a movement towards exposure to daylight and views to improve patron wellbeing. There's also legislation in Australia around windows in gaming areas.

I B L
GAZETTE

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Harry Baker

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