

THORN

Cruz 160 LED

Downlights with a wider vision



Cruz 160 LED Engineered to match expectations with reality

The range

2 downlights 3000K and 4000K colour appearance producing 2000 lumens with 94% efficient light output, operating at 37W and 34W with an efficacy of 51 lm/W and 55 lm/W.

The light source

White light is generated by the light engine of multiple royal blue LEDs with a remote yellow phosphor lens housed at the top of the mixing chamber producing a stable and consistent colour performance.

The light

The concentration of light from a minimal diameter outlet combined with a high lumen package delivers glare free light (UGR <19). An equivalent substitute for common 2x26W CFL downlights

The engineering

Active Cooling technology has been used to dissipate the heat generated by the high lumen output LED module. The unique patented vibrating membrane circulates air, provides quiet operation

The whole spectrum of interior applications, prestigious business facilities, offices, schools, banks, supermarkets, hospitals are now exposed to a viable alternative to the compact fluorescent downlight. High powered, long lasting, energy efficient LED light sources combined with the unique active cooling system is at the centre of this development from Thorn.



The control

The luminaire is DALI dimmable with instant 100% light over a rated lifetime of 50,000 hours with 70% lumen maintenance.

The installation

Supplied as a ready to go package and made easy to install the Cruz 160 LED downlight is secured in position by Thorn's patented 'sec-lock' system.

The options

The luminaire bezels - white, chrome or grey. The light distribution attachments - frosted glass ring, clear IP54 glass or Anti harm* cover. Emergency lighting is provided by Thorn Voyager LED modules.

The applications

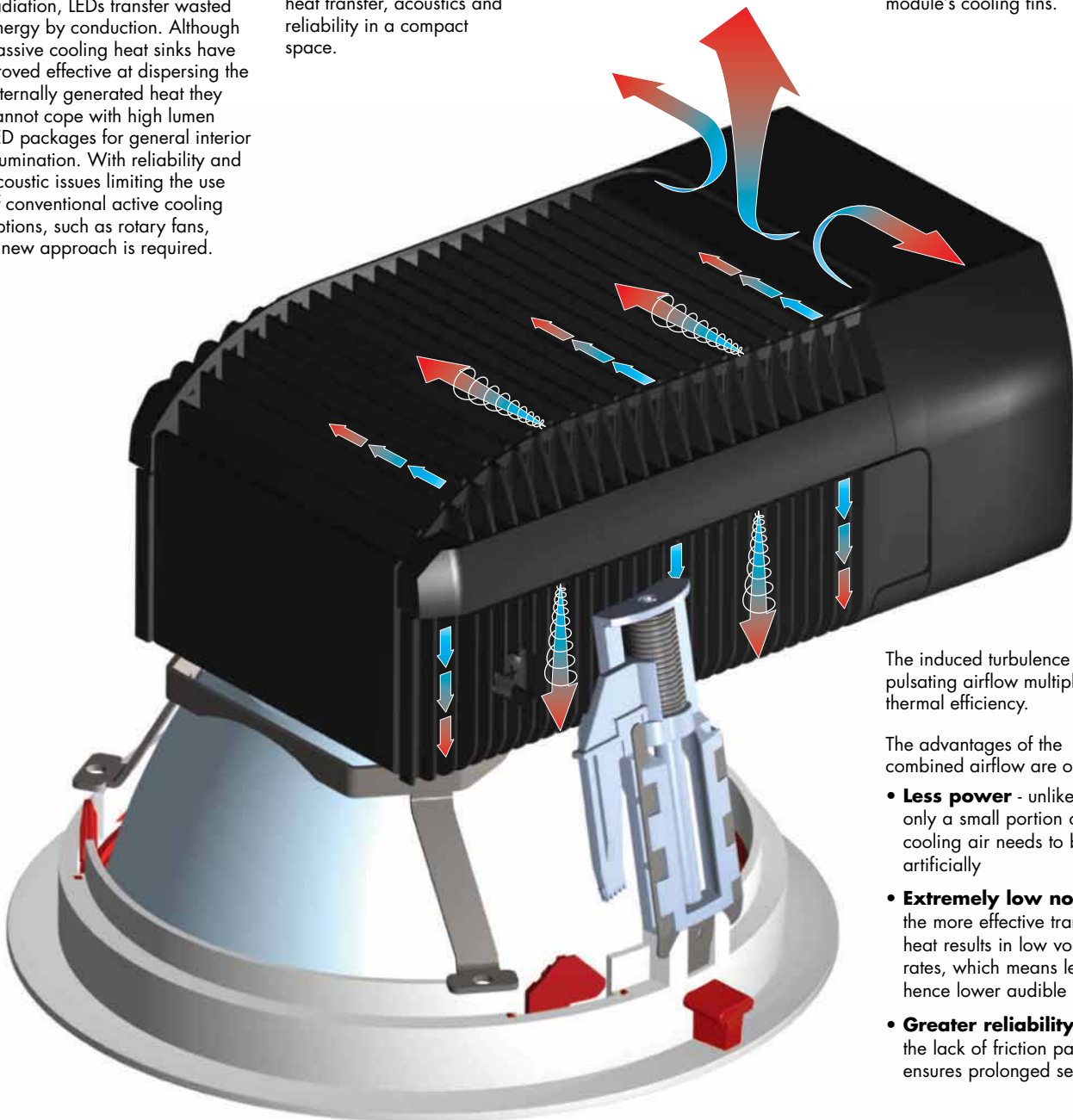
The advantages of the LED light source, the life, the intensity, the energy savings, combined with Thorn's engineering skill to master the technology makes Cruz 160 LED a powerful option for any interior lighting project.

Active Cooling

Unlike incandescent and discharge lamps, which lose most of their thermal energy by radiation, LEDs transfer wasted energy by conduction. Although passive cooling heat sinks have proved effective at dispersing the internally generated heat they cannot cope with high lumen LED packages for general interior illumination. With reliability and acoustic issues limiting the use of conventional active cooling options, such as rotary fans, a new approach is required.

Cruz LED uses an alternative active cooling technology - synthetic jet flow - to improve heat transfer, acoustics and reliability in a compact space.

An extremely fast oscillating membrane forces pulses of air across the heat sink, cooling the module's cooling fins.



The induced turbulence of the pulsating airflow multiplies the thermal efficiency.

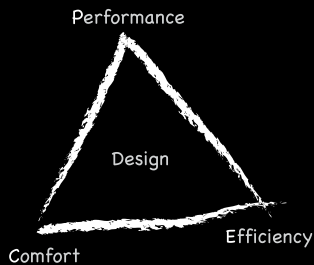
The advantages of the combined airflow are obvious:

- **Less power** - unlike fans only a small portion of the cooling air needs to be moved artificially
- **Extremely low noise** - the more effective transfer of heat results in low volume flow rates, which means less air hence lower audible noise.
- **Greater reliability** - the lack of friction parts ensures prolonged service

*Suitable for anti-harm areas which includes anti-ligature, vandal resistant and sealed luminaire applications

Performance, Efficiency and Comfort (PEC) – for a better lit environment

Cruz LED evokes the spirit of Thorn Lighting's dynamic, results-orientated PEC programme



The programme is based on the principle that Performance, Efficiency and Comfort determine the effectiveness of lighting, its impact on the people using it, and its impact on the natural environment. Cruz LED delivers the right light on the right place at the right time.



Performance: Providing the best visual effectiveness

- Precise optical control provides high quality glare free light, reducing visual fatigue
- High power LED technology ensures good visibility

Efficiency: Conserving energy and effort, reducing CO₂ emissions and waste, providing lighting that is practical and efficient to install, operate and maintain.

- A good efficacy combined with a high LOR helps reduce power demand through efficient conversion of electricity into useful light
- Long life components result in little or no maintenance, reducing operating costs
- A compact luminaire size results in less material use during manufacture, producing a more sustainable solution that saves resources
- The use of LED technology reduces power demand and conserves energy.

Comfort: giving people satisfaction and stimulation

- The small size and discreet appearance of the luminaire integrates smoothly and unobtrusively within a space
- Active cooling ensures no disturbing noise from the luminaire
- The light distribution produces pools of light, providing a calm and welcoming space



Cruz 160 LED sustainability facts

Comparison to a standard dimmable 2 X 26W TC-DEL downlight (@100% operation)

	Cruz 160 LED	2X26W downlight
Electric power per luminaire	0.034 kW	0.054 kW
Annual operating hours	3120 h	3120 h
Total annual power consumption	106.08 kWh	168.48 kWh
Savings		
Annual electric power savings	62.4 kWh	37.4%
Annual savings for air conditioning*	20.8 kWh	12.4%
Total annual power savings	83.2 kWh	49.4%
Total CO ₂ savings **	34.9 kg	49.4%
No. of light sources per 50.000h	1	8
Heavy metal content	no	yes

**CO₂ savings for an average electric power mix at 420g CO₂ emission per kWh electric power.

Additional operating facts

- *The low heat output of LEDs helps reduce air conditioning loads, which in turn reduces the size of the cooling equipment. The general advice is that saving three watts of lighting power brings an extra watt of saving in air conditioning power.
- No disposals of lamps containing mercury (special treatment necessary).
- Luminous efficacy eg. for colour temperature 4000K: 1880lm / 34W > 55lm/W
- Additional savings possible utilising DALI control features (eg. absence detectors, dimming, constant illuminance control, ...)
- Dimming will also extend the rated life time due to less thermal power stress of the LEDs.
- Active cooling is suitable for twice the rated life of the LED module (Mean Time Before Failure) and matches expected extended lifetime due to easy dimming.

Lighting Controls

By using DALI compatible ballasts, Cruz LED is able to control the hours of use for lighting. This brings additional energy savings and, equally important, comfort in the working environment. Such savings can be achieved by a number of methods including: presence detection, daylight linking, infra-red switching, scene setting and time scheduling. Frequently a combination is used. To simplify matters Thorn offers three interior lighting control portfolios:

1. SensaDigital enables daylight and presence linking of individual luminaire groups, plus optional infra-red control.
2. SensaModular is a modular range designed for single room applications. It allows a configuration of up to three luminaire groups to a room, regarding presence and daylight linking, scene setting and infra-red control.
3. SensaAdvanced is a lighting management system for larger-sized projects and those requiring greater levels of comfort with daylight and presence linking, integration of blinds and screens, scene setting, time management and much more.

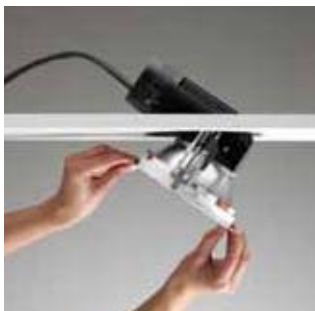
Installation



1



2



3



4

1. Start position (before installation)
2. End position (after installation)
3. Push the luminaire into the hole - gear box first
4. Now the clamping arms automatically move into position, holding the luminaire firmly in the ceiling. (suitable for ceilings 10-35mm thickness). Please use the red 'T' attachment for narrow ceiling thicknesses 1-10mm.

Twist-and-lock bayonet fitting of reflector and bezel provides easy maintenance.

Product features



Frosted glass ring



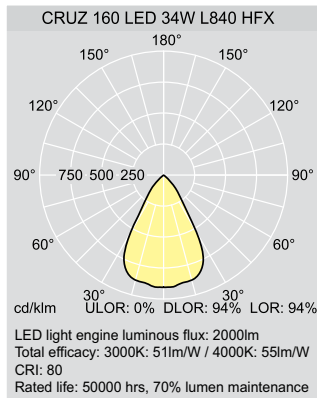
White bezel with clear IP54 glass



Grey bezel with clear IP54 glass



Chrome bezel with clear IP54 glass



Lamps

34W LEDs (4000K)

37W LEDs (3000K)

Materials/finish

Body: die-cast aluminium

Reflectors: specular anodised high purity aluminium

Anti Harm cover:

pressure die-cast aluminium bezel with a sealed 3mm clear polycarbonate diffuser

Installation/Mounting

Tool-free mounting. Secured by patented 'sec-lock' in Ø160mm cut-out. Suitable for ceiling thicknesses 1-35mm.

Standards

Designed and manufactured to comply with EN 60598

Class I electrical

IP20 CE

Specification

To specify state: A stylish, recessed High-Flux-LED downlight, luminaire body in die-cast aluminium with one-piece specular anodised high purity aluminium reflector - held in place via bayonet lock, LOR 0.94, UGR<19, rapid tool-free mounting, secured by patented 'sec-lock' in Ø160mm cut-out. Suitable for ceiling thicknesses 1-35mm. Integral 2000lm LED Light Engine with active cooling and remote DALI dimmable gear, choice of 2 light colours: 3000K and 4000K.

As Thorn Cruz 160 LED.

Ordering Guide (Supplied complete with LEDs)

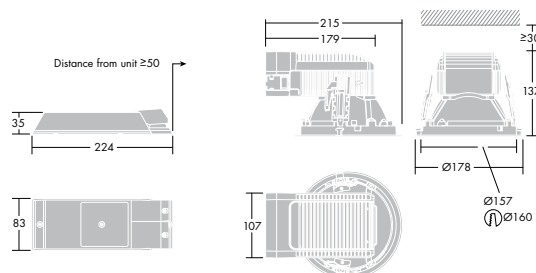
Description	Weight (Kg)	SAP Code
CRUZ 160 LED body		
CRUZ 160 LED 34W L840 HFX	1.8	96107638
CRUZ 160 LED 37W L830 HFX	1.8	96107639

Attachments

Description	Weight (Kg)	SAP Code
CRUZ 160 BEZEL WHI	0.1	96106926
CRUZ 160 BEZEL CHR	0.1	96106927
CRUZ 160 BEZEL GRY	0.1	96107041
CRUZ 160 GLASS RING FR *	0.7	96106928
CRUZ 160 GLASS IP54 CL WHI *	0.2	96107363
CRUZ 160 GLASS IP54 CL CHR *	0.2	96107364
CRUZ 160 GLASS IP54 CL GRY *	0.2	96107365
CRUZ 160 ANTI HARM IP54 WHI *	0.2	96106996
CRUZ 160G WEIGHT DISTRIBUTION RING	0.1	96106986

* including bezel

WHI - white, CHR - Chrome, GRY - grey, FR - frosted



Other products in our downlight range



THORN

Lighting people and places

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Publication No: 469 (INT) Publication Date: 09/09