



RETINO2000

SUSTAINABILITY BY DESIGN



Introduction

The market for office lighting is ever changing. Today, the effect on the environment is at the forefront of everything we do and there is an increased emphasis on improving products.

Based on the latest legislation, good practice guides and government initiatives, we have designed a functional yet aesthetically pleasing luminaire that exceeds the requirements for today's office lighting.

"Nearly 50% of the UK's emissions are generated through the way we heat, light and use our buildings. The Government's Climate Change agenda recognises that comparatively minor changes to the ways in which we construct and use buildings can have a large cumulative effect."

Yvette Cooper, Minister for Housing and Planning, 14 June 2006



ECA

Enhanced Capital Allowances
A taxing subject

Government Initiative



The **Enhanced Capital Allowance (ECA)** scheme is a **Government programme** to help manage climate change by providing businesses with **enhanced tax relief** for investments in equipment that meets the **energy-saving** criteria.

The **RET2000 exceeds the requirement to receive enhanced tax relief.** ✓

Accelerated tax relief is available under the ECA scheme, however this is a specialist area and as such special advice is required. We can offer full independent technical backup on this product so as to assist your professional tax adviser in making this assessment. This product exceeds the requirements of Enhanced Capital Allowances and as such claims can be made via the appropriate specialist.

Part L2

Legislation



From October 2010, the average efficacy of interior lighting for offices rises from 45 to **55 luminaire lumens per circuit watt (ll/cw)**.

The **RET2000 exceeds** the revised 2010 requirement **by 45%** with an **efficacy of 80 ll/cw**. Ensuring **no reliance on control factors**. ✓

The control can only be applied on existing buildings.

BREEAM

Good practice guide



A good BREEAM score enables office buildings to achieve good **recognition** for having a **low environmental impact**.

With the **RET2000 accreditations** can be awarded for glare control (Hea 3), HF lighting (Hea 4), internal lighting levels (Hea 5) and lighting zones and controls (Hea 6). Our in house design team will ensure schemes are accredited to BREEAM standards where possible. ✓

RETINO2000

SUSTAINABILITY BY DESIGN



The Story

The RET2000 range has been designed to meet the requirements set out by new legislation, good practice guides and government initiatives.

These are all focused around maximising efficiency.

Meeting the requirements

In order to meet and exceed the requirements we have:

- **Re-engineered the louvre** for better glare control whilst maximising the LOR by using highly reflective MIRO SILVER® Aluminium.
- **Reshaped, tested and refined the reflector** to direct 86% of the lamp's light in a uniform distribution, thus ensuring an excellent space to height ratio.
- **Increased the aesthetic appeal** of a reflector based luminaire by giving an enhanced perception of depth in any room.
- **Based the product around the Phillips T5 Eco lamp**, offering energy savings of over 10% on an already efficient product.

Results

As a result, the RET2000 far exceeds the requirements set out in the right hand column along with additional achievements listed below:

- **Industry leading efficiency** and reduced energy consumption.
- **Managed glare** yet walls above 50 degrees are illuminated.
- **Shallow luminaire** yet with a backlit effect creating a sense of depth and ceiling brightness in any room.
- **A unique compromise** to the ever present LG7 versus recessed luminaire debate.

Enhanced Capital Allowances

Requirement:

60lm/cw.

RET2000:

80lm/cw

The RET2000 exceeds the ECA requirement by **33%**.

Part L2

Requirement:

55lm/cw.

RET2000:

80lm/cw

The RET2000 exceeds the L2 requirement by **45%**.

BREEAM

With the RET2000 **accreditations** can be awarded for glare control (Hea 3), HF lighting (Hea 4), internal lighting levels (Hea 5) and lighting zones and controls (Hea 6). Our in house design team will ensure schemes are accredited to BREEAM standards where possible.



Technical Details



RET2000/413/HF/W2R/COL830



RET2000/313/HF/W2R/COL840

Facts

80 LL/CW

The luminaire achieves **80 light lumens per circuit watt** which exceeds the requirement for L2 by 45%*.

*Part L2 2010 requires 55ll/cw

86% LOR

86% of the lamp's output is directed out of the fitting in a uniform distribution with good glare control.

52 Circuit Watts

The total circuit watts based on the 4 lamp T5 Eco version is **52W**, which means energy savings can be found at spacings from 2.4m x 2.4m increasing to 3.0m x 3.0m*.

*Not Tridonic ballasts

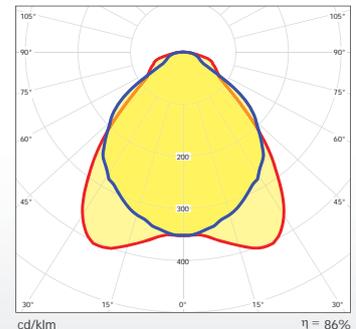
Glare, Lamp Shielding

We have engineered the louvre to minimise glare. The cross blade height allows for optimization of the LOR whilst allowing the louvre to have a lit effect. The 3x13W does not exceed a brightness of 1500cd/m².

Lumen Output

4 x 13W T5 Eco = 4800 lumens.

3 x 13W T5 Eco = 3600 lumens.



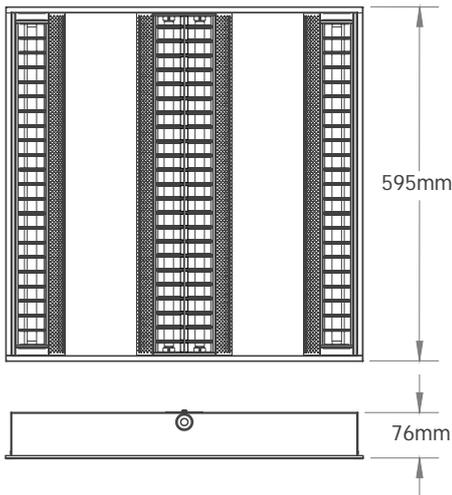
cd/klm
C0 - C180 C90 - C270
Polar curve - 4 x 13W T5 Eco.

The RET2000 offers many advantages over its competitors with better aesthetic appeal and efficiency helping to reduce running costs and greenhouse gasses. It has a very modern appearance built to last in any office environment.

When used in conjunction with the Phillips Masterline T5 Eco lamps this fitting is a must to consider.

Details

Dimensions



MIRO SILVER® Louvre

MIRO SILVER® has a **total reflectivity of 98%** with **no colour spectrum shift** which ensures the fitting is highly efficient with good colour rendering.

Aesthetics

The fitting creates a sense of depth in any room by virtue of its vaulted reflector panels.

Materials

The luminaire body is manufactured from **high grade steel**, tabbed and welded to ensure rigid construction.

Installation

Easy lift and tilt installation so fitting rests on the back of 15mm/25mm exposed T ceiling systems or brackets can be provided which requires access from adjacent tile. (For brackets add suffix */BKTS*).

Options

Lamps

Phillips T5 Eco lamps provide a **10% energy saving** over traditional T5 lamps. T5 Eco lamps are available in colour 830 or 840.

Ballasts

Various Dimming and Daylight linking options are available which are excellent ways of **reducing energy consumption**.

Integrated Controls

We can incorporate stand alone presence sensors into the RET2000. Please see page 10 for the Phillips Actilume.

Ceiling Integration

We can customise the edge detail of the RET2000 to suit almost **any type of ceiling system**. Please see page 8 for further details.

Finish

Post painted to RAL9016 20% gloss as standard. If specified can be painted to any RAL colour*.

*Technical parameters shown here are using RAL9016.

Air Handling

See page 8.

Emergency

Conversion of 1 lamp to operate on mains failure with 5 pole total isolation. Integral to luminaire with green LED charge indicator. (*/3M*).

Also available, self test or contained self test, which is as above but with bi-colour LED. In addition we can supply DALI EM Pro.

Specification Information

To specify the standard RET2000 luminaire using 4x13W T5 Eco lamps colour 840 with High Frequency ballast, finished RAL9016 20% gloss, the product reference is:

RET2000/413/HF/9016/COL840

Options Include:

Lamps	Reference
- 4 x 13W T5 Eco	<i>/413</i>
- 3 x 13W T5 Eco*	<i>/313</i>

*Single cell central louvre.

Ballast	Reference
- HF Fixed Output	<i>/HF</i>
- DALI dimming	<i>/HFDAL</i>
- Digital dimming	<i>/HFDIG</i>
- 1-10V dimming	<i>/HFDIM</i>

Air Handling	Reference
- 20ltrs/sec	<i>/AH20</i>
- 40ltrs/sec	<i>/AH40</i>

Visual aspects alter slightly, see page 8 for details.

750mm Square	Reference
- 750mm Square bezel	<i>/750</i>

Visual aspects alter slightly, see page 8 for details.

RAL Colour	Reference
- 9016 20% Gloss	<i>/9016</i>
- 9010 20% Gloss	<i>/9010</i>

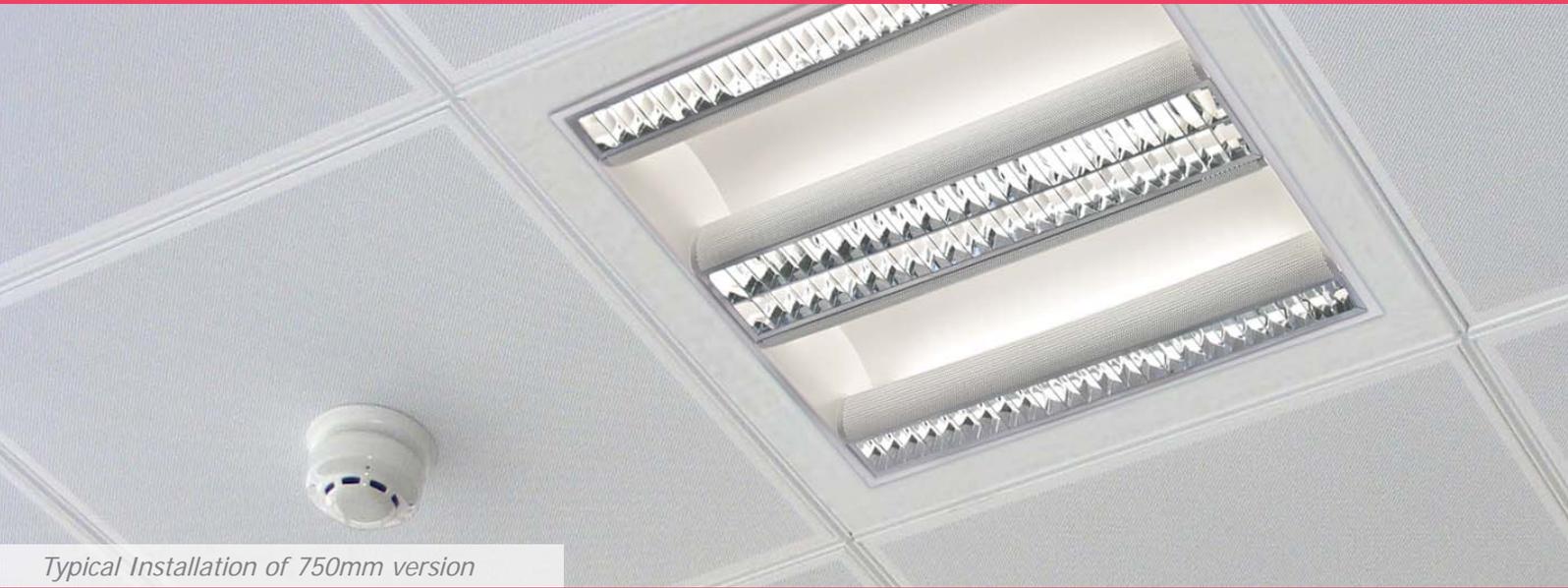
Emergency	Reference
- 3hr Maintained	<i>/3M</i>
- 3hr Self Test	<i>/3MST</i>

Reference Example:

RET2000/313/HFDAL/AH40/9010/COL830

Would denote a RET2000 with 3x13W T5 Eco lamps colour 830, HF DALI dimming ballast with 40ltrs/sec return air handling finished in RAL9010 20% gloss.

Non Standard Options

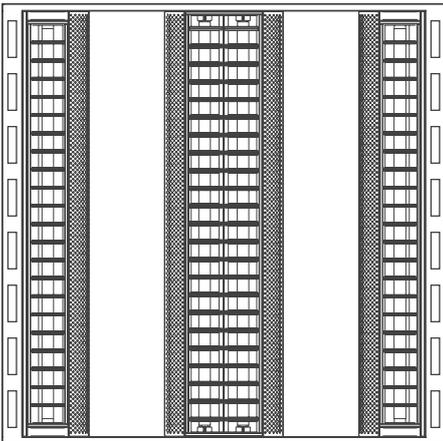


Typical Installation of 750mm version

Air Handling

Return air handling side slots provide an effective way of combining the luminaire with air control requirements.

The slots are placed along two sides of the fitting as illustrated below and can manage up to 40ltrs/sec of return air passing at a velocity of 1.9 m/sec:



750mm Square

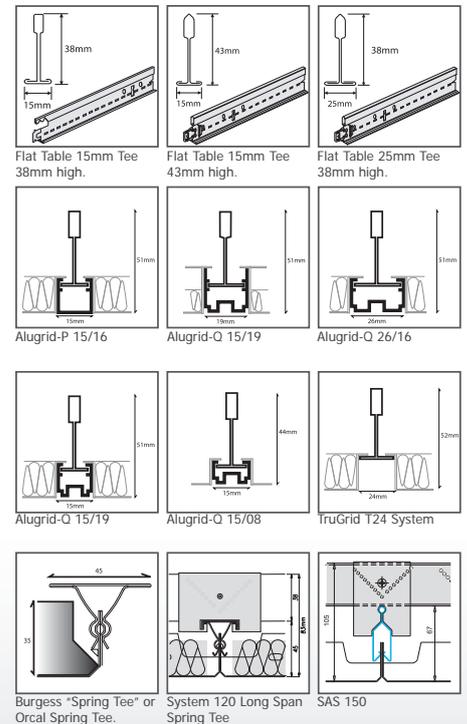
For 750mm sq ceiling systems the RET2000 is available with a steel bezel which allows for a full tile replacement.

This removes the need to cut 600mm square holes out of ceiling tiles.



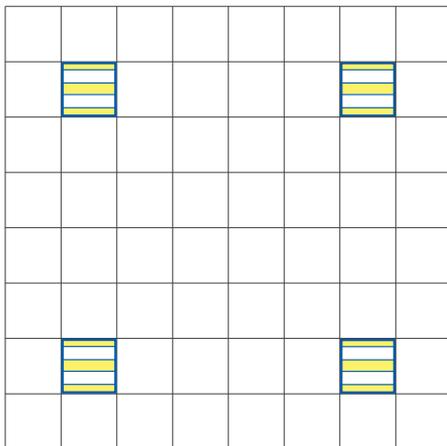
Ceiling Systems

The RET2000 is compatible with:



If the ceiling being used is not shown above, please contact our technical department.

Ready Reckoner

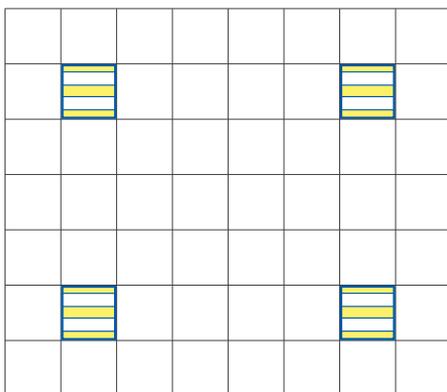


3.0m x 3.0m Centres

Ceiling Height: 2.7m
Room Dimensions: 29m x 14m
Area: 406m²
Fitting Quantity: 50

Reflectances:	Furniture	Lux:	Uniformity		LG7		Energy	
			0.5m x 0.5m	2m x 2m	Walls	Ceiling	W/m2	W/m2/100
70/50/20	With desks*	448	0.985	0.887	52.9%	29.8%	6.16	1.37
	Empty	416	0.983	0.875	52.4%	20.3%	6.16	1.48
80/60/20	With desks*	475	0.986	0.893	54.2%	31.3%	6.16	1.30
	Empty	434	0.984	0.877	53.8%	21.9%	6.16	1.42

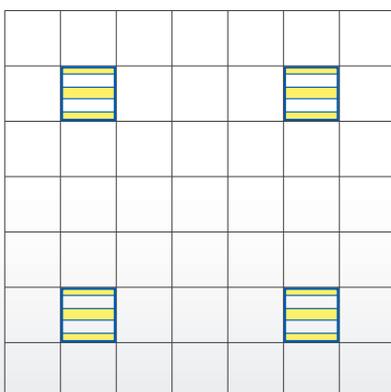
Consideration should be given to spacing arrangements on schemes where there may be half height partitions or tall cupboards, as these can effect light levels and uniformity.



3.0m x 2.4m Centres

Ceiling Height: 2.7m
Room Dimensions: 28.2m x 14m
Area: 395m²
Fitting Quantity: 60

Reflectances:	Furniture	Lux:	Uniformity		LG7		Energy	
			0.5m x 0.5m	2m x 2m	Walls	Ceiling	W/m2	W/m2/100
70/50/20	With desks*	555	0.996	0.894	52.6%	29.6%	7.60	1.37
	Empty	515	0.996	0.883	52.1%	20.2%	7.60	1.47
80/60/20	With desks*	588	0.997	0.900	53.8%	31.1%	7.60	1.29
	Empty	538	0.996	0.886	53.5%	21.8%	7.60	1.41
70/50/20	With desks*	417	0.996	0.895	52.7%	29.6%	5.70	1.37
	Empty	387	0.996	0.884	52.2%	20.2%	5.70	1.47
80/60/20	With desks*	442	0.997	0.900	54.0%	31.2%	5.70	1.29
	Empty	403	0.996	0.887	53.5%	21.8%	5.70	1.41



2.4m x 2.4m Centres

Ceiling Height: 2.7m
Room Dimensions: 28.2m x 14m
Area: 395m²
Fitting Quantity: 72

Reflectances:	Furniture	Lux:	Uniformity		LG7		Energy	
			0.5m x 0.5m	2m x 2m	Walls	Ceiling	W/m2	W/m2/100
70/50/20	With desks*	515	0.996	0.923	49.6%	30.7%	6.84	1.33
	Empty	472	0.995	0.912	48.7%	19.8%	6.84	1.45
80/60/20	With desks*	546	0.996	0.926	51.1%	32.2%	6.84	1.25
	Empty	491	0.995	0.915	50.0%	21.3%	6.84	1.39

*Desks have a reflectance value of 55%

The matter of LG7 has been widely debated, however the requirement for LG7 compliance is 50% of the average work plane illumination on the walls and 30% of the average work plane illumination on the ceiling. The RET2000 is a high efficiency lighting unit (HELU) which emits light at high angles to help assist in the illumination of the walls (but light is limited to manage glare). As the RET2000 is fully recessed it doesn't directly contribute to the illumination of the ceiling, however LG7 compliance is still achievable (as demonstrated above) when furniture (ie desks) are placed into an office with the correct reflectance values. Therefore it is conceivable to achieve an LG7 scheme in offices whilst using the fully recessed RET2000 as long as light coloured desks are present (and lets face it, where are desks not present in offices).

Additional Details

MIRO SILVER® Louvre

MIRO SILVER® has a **total reflectivity of 98%** delivering high efficiency with little transmission loss, but also stays completely white with **no colour spectrum shift**, even after numerous reflections. It is also extremely durable and **will not fade or lose reflectivity**.

Our MIRO SILVER® louvres ensure **high quality and durability**.

MIRO - SILVER®

Integrated controls

The louvre of the RET2000 can incorporate the Phillips Actilume sensor.

T5 Eco lamps

The Masterline TL5 Eco range is the **latest in efficient lamp technology** from Philips. A unique coating and composition filling gas allows an **energy saving of up to 10%**, with no compromise on light levels.

Service lifetime (90% operating lamps): 24,000 hours. Average lifetime: 30,000 hours.

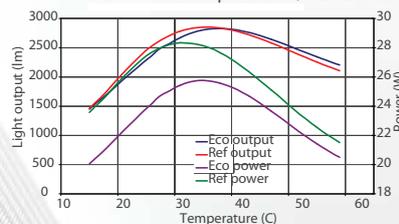
Equal to normal Masterline T5 range:

- Mercury content of only 1.4mg.
- Lumen maintenance of 90%.
- Same dimmable behaviour.

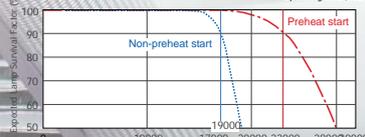
PHILIPS



Behaviour at Different Temperatures, TL5 Eco 25W



Lumen Maintenance Diagram



Life Expectancy 12h cycle

ECA

The **Enhanced Capital Allowance (ECA)** scheme is a **Government programme** to help manage climate change by providing businesses with **enhanced tax relief** for investments in equipment that meets the **energy-saving** criteria.

"ECA's are claimed in the businesses income tax or corporation tax return the same way as other capital allowances."

"Although lighting is a non-listed technology, individual products can qualify for an Enhanced Capital Allowance (ECA) if they meet the criteria set out in the Energy Technology Criteria List."

<http://www.eca.gov.uk> (June, 2010)

The RET2000 meets the Enhanced Capital Allowance criteria under **Section 3A** for 'High efficiency Lighting units comprising T5 triphosphor linear fluorescent lamp(s), and lighting fitting with associated electronic control gear'.

Therefore meeting this criteria, the RET2000 can **achieve savings** in the form of **enhanced tax relief** whilst helping to reduce climate change under the government's ECA scheme.

Additional information can be found at:
<http://www.eca.gov.uk/>



Part L

From October 2010, the average efficacy of interior lighting for offices rises from 45 to **55 luminaire lumens per circuit watt (l/cw)**.

The calculation that is used to arrive at this is:

$$\frac{\text{Total lamp lumens} \times \text{LOR}}{\text{Circuit power drawn}} = \text{l/cw}$$

- l/cw = Luminaire lumens per circuit watt
- LOR = Light output ratio (%)

The inputs to the equation with regard to the RET2000/313 are as follows:

- Total lamp lumens = 3600
- LOR = 86%
- Circuit power drawn = 38.5W

The equation is therefore calculated as follows:

$$\frac{3600 \times 0.86}{38.5} = 80 \text{ l/cw}$$

Thus the **RET2000 exceeds** the revised 2010 requirement **by 45%** with an efficacy of **80 l/cw**.

Additional information can be found at:
<http://www.planningportal.gov.uk/>

BREEAM

A good BREEAM score enables office buildings to achieve good **recognition** for having a **low environmental impact**.

With the RET2000, **accreditations** can be awarded for glare control (Hea 3), HF lighting (Hea 4), internal lighting levels (Hea 5) and lighting zones and controls (Hea 6). Our in house design team will ensure schemes are accredited to BREEAM standards where possible.

This will help to ensure your building achieves the highest possible BREEAM score.

Additional information can be found at:
<http://www.breeam.org/>



With over 47 years of experience in the lighting industry we have successfully completed a diverse and challenging range of projects incorporating office lighting, commercial lighting, industrial lighting, retail lighting, health care and education.

We are passionate about producing cost effective luminaires that meet the requirements of the customer in an ever demanding market with tougher legislation.

Our value engineering services enable us to provide the highest level of energy efficiency in a cost effective manner, providing the best value for money.

Our expertise ranges from short lead time projects to full design and build encompassing bespoke or custom design luminaires.

We can guarantee you the best products along with great support throughout the design stage through to aftercare with our professionalism, quality and reliable approach.

Should you need any further information on anything contained within this catalogue please feel free to contact us and we will be more than happy to assist.



