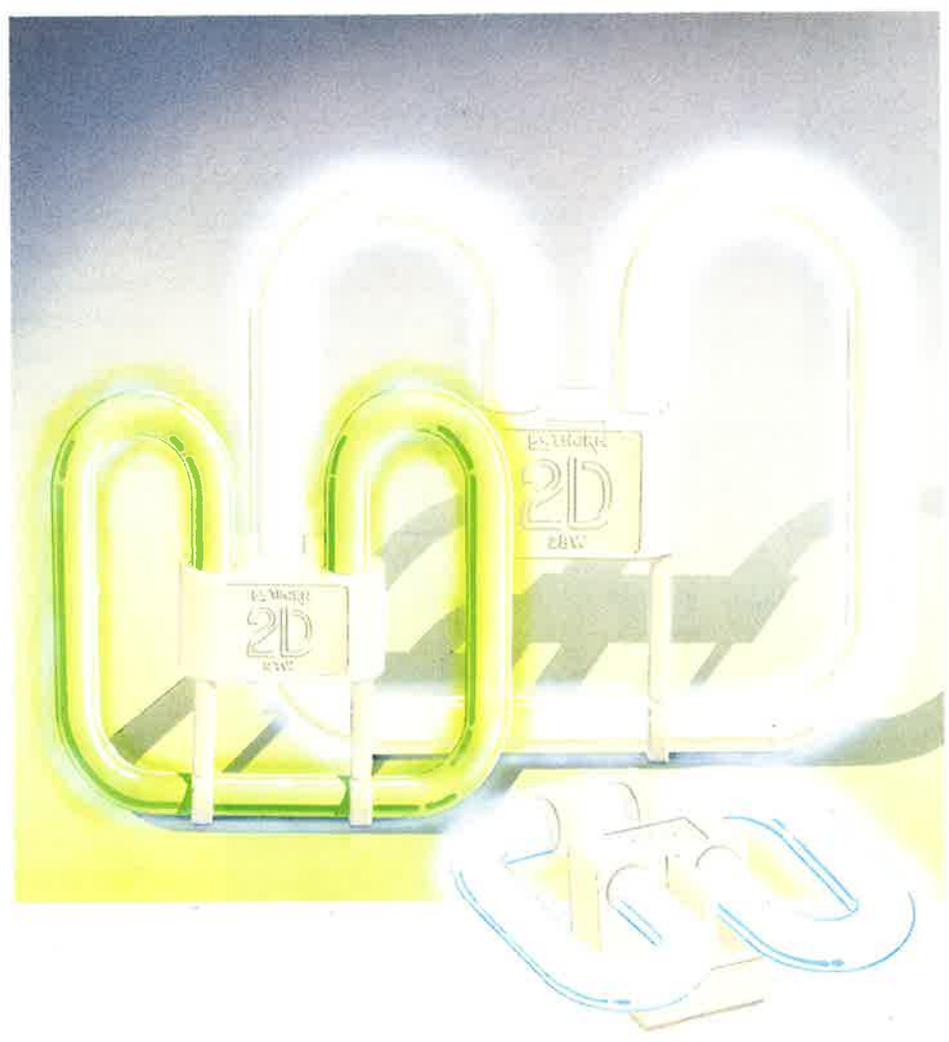


2D



COMPACT FLUORESCENT LAMPS



'SAS Headquarters, Stockholm'

2D

THE THORN 2D FAMILY GROWS FROM STRENGTH TO STRENGTH

When THORN first introduced the 16, 28 and 38W 2D Fluorescent lamps, these uniquely shaped, ultra-slim Compacts immediately became the logical successor to the GLS filament lamps.

Now, with the addition of the smaller 10W and the brighter 21W, this extended range will undoubtedly enjoy even greater popularity – and for several good reasons:

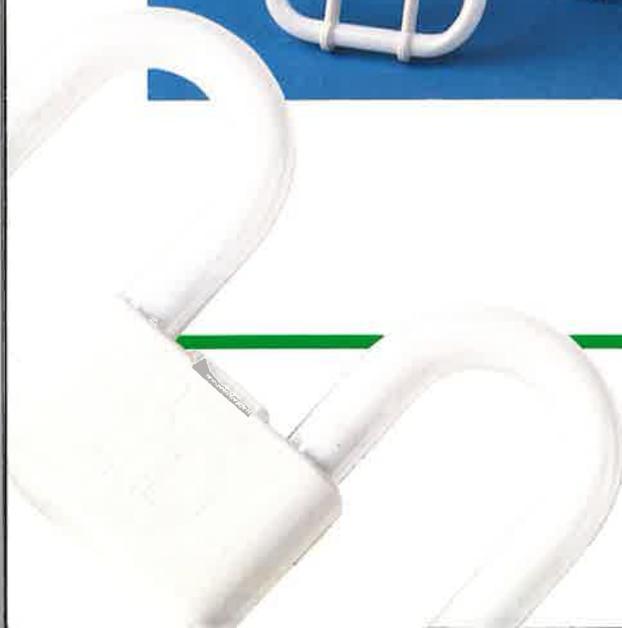


'16W 2D, Seven colours'



'5 different Wattages, 3 Physical sizes'

- There are now *three* different sizes giving *five* output choices (covering the 60 to 200W GLS equivalent)
 - The 2D offers an approximate 75% reduction in power costs compared with GLS lamps
 - 2D lamps achieve an 8 to 10 times longer life than conventional tungsten filament lamps
 - Smaller, slimmer, compact luminaires can be designed to give more flexibility and greater elegance in both interior and exterior applications
 - Reduced installation and component costs can result from using 2D lamps in most popular and widely used fittings
 - Less tooling costs and component stockholding reductions are a reality
 - Single lamps with a central cap give uniform illumination all-round, with no end shadowing
 - Polylux phosphors give extra light output and superior colour rendering
 - A 'Warm White' and a 'White' colour are available across the whole 2D range. A 'Tropical Cool' White plus *seven* 'Vibrant' colours are included for the 16W lamps.
- All in all, the 2D concept offers a revolutionary dimension in lighting design with a dramatic saving in energy costs.





'Hotel reception and function area'

MAXIMUM OPERATIONAL ECONOMY WITH OPTIMUM DESIGN EFFICIENCY

Efficacy: For a similar light output, 2D lamps consume only 25% of the power needed for GLS lamps. The resultant 75% saving gives a rapid pay-back on initial investment and worthwhile on-going operational savings throughout the lamp's lifetime.

Life: The 2D lives a remarkably extended life compared with conventional GLS '1,000 hour' tungsten filament lamps. *10 times* the life from the 28 and 38W units. *8 times* in the case of the 10, 16 and 21W. Naturally, this longer life-span means great savings on lamp replacement, but also reduces maintenance and labour costs.

Colour: All 2D lamps are coated with Polyflux phosphors to produce an extraordinarily high efficacy together with excellent colour rendering (Ra 82). And there are several colour choices.

A 'Warm White' (2700K) corresponds to the tungsten lamp colour used extensively in many social applications. The 'White' (3500K) matches conventional fluorescent tubes found in abundance in commercial use. These two popular whites go right across the 2D range. Additionally, a 'Tropical Cool' white is available in the 16W version – as are seven 'vibrant' colours of red, blue, green, lemon, peach, lilac and magenta.

This colour choice enables designers to cater for almost every eventuality

from standard lighting requirements to the spectacularly decorative!

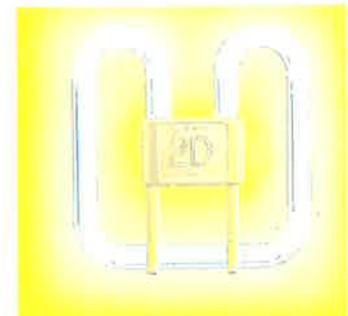
Luminaires: The unique, slender, two-dimensional shape of the 2D lamp is ideal for many of today's round and square luminaires. More importantly, perhaps, is that the new shape allows designers to create even smaller and more compact fittings where required.

Playing it cool! The cooler-running characteristics of the 2D also lend themselves to much smaller, slimmer, shallower, unobtrusive designs using a much wider range of materials.

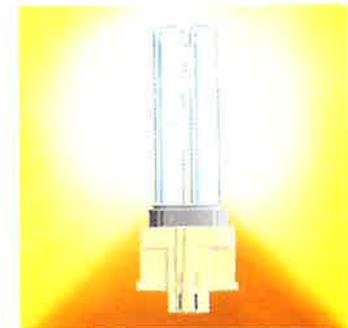
A new design dimension. The size and shape of the 28 and 38W tubes are ideal for the universal 300mm x 300mm ceiling modules, whereas the new tiny 10W tube (less than 94mm square) offers the freedom to create smaller luminaires than previously ever thought possible!

The tools to finish the job! Only 3 physical sizes cover the whole output range (10, 16, 21, 28 and 38W), which means lower tooling costs, and reduced stockholding of components and finished goods for luminaire designers and manufacturers.

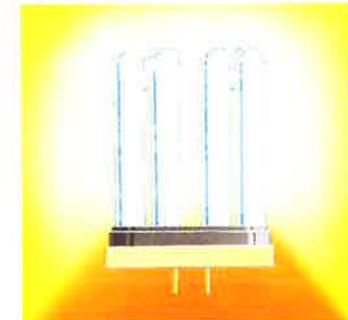
A final design advantage is a central cap, allowing uniform, all-round illumination, so avoiding end shadowing experienced when using single ended lamps when operated in single or double mode.



'All-round illumination with central cap'



'End-shadowing and protruding cap area'



'End-shadowing and protruding cap area'

2D

TWO BRIGHT NEW LAMPS TURN A TRIUMPHANT TRIO INTO THE FABULOUS FIVE!

The THORN 2D range consisted originally of just three lamps – the 16, 28 and 38W. They were designed to replace conventional filament lamps between 75 and 200W, and to provide a space-saving alternative to standard straight fluorescent lamps. Now, a 10W version has been added to the lower end of the range to replace the popular 60W GLS lamp,

and so allow the design of *even smaller fittings and luminaires*. To extend the range even further, a 21W model is also introduced. This retains the same neat dimensions of the existing 16W lamp, but offers nearly *25% more light output*. It makes the 2D range the most formidable of 'Compacts'.

2D 10W. SMALL IS BEAUTIFUL



'IBIS desk lamp. SIVI Illuminazione SpA'

Measuring just 94mm square, the 10W represents probably the smallest lamp producing usable fluorescent light for commercial purposes!

Not only is the 2D 10W a natural design alternative to the bulky 60 watt GLS lamp, it also operates economically on *25% of the energy* to produce the same light output. This exciting new development takes fluorescent lighting into an entirely new area, enabling the fittings designer to create units which are smaller, neater, more aesthetic – as well as being energy saving. The flexibility offered by this new THORN lamp suggests numerous fittings design opportunities and many interior and exterior applications:

Fittings: ■ small, shallow downlights
■ bulkheads ■ desk lamps

Applications: ■ hotels, pubs, clubs
■ toilets and corridors ■ emergency and security
■ walkways, access and pedestrian areas ■ hospitals ■ transport

Even at low temperatures the 10W 2D has a high light output, making it an attractive light source for *exterior* fittings.

Optimum Operational Notes:

- Runs off standard 13W T5 ballast – common throughout the world.
- Uses standard PGSU or 155/500 starter switch
- Fits standard GB1685 or GB1690 lampholder
- Utilises 4-pin cap exclusively to facilitate all control options.

2D 21W. Simply a brighter idea

The 21W lamp retains all the benefits of size, shape, convenience, efficiency and design flair of the existing 2D 16W lamp – but offers nearly *25% more light output*.

This higher output – 1350 lumens at 100 hours – is similar to that of a 100 watt GLS lamp. Furthermore, with *eight times the life*, it is the obvious alternative.

The new 21W now offers designers, specifiers and users the choice of either the 16 or 21W rating for the same size fitting or luminaire. The result is the ability to satisfy a much wider range of applications with differing lighting requirements. In addition to these general benefits, all the fast growing areas of fluorescent control are embodied in the new 21W concept: namely, the ability to use electronic starting, electronic ballasting, dimming and emergency and transport inverters. Utilising a 4-pin cap, the 2D 21W will fast become the standard lamp in its class – causing no confusion with 2-pin 16W fittings. There is little likelihood of an interchange and the use of the wrong control gear. Like the new 10W, the 21W takes the THORN 2D range into a new and exciting fluorescent lighting era.

Applications:

- Too numerous to list but, in particular, those needing a bright light over a long period, e.g. internal and external security lighting.

Optimum Operational Notes:

- Standard 4-pin cap and external starter for conventional or electronic instant starting
- Special 2D 21W ballast – Code No. 69653
- Standard starter PGSU or 155/500
- Standard lampholder GB1685 or GB1690
- 21W lamp should not be used in 16W fittings (or vice versa)



'CLUB. Weatherproof'



■ seven
 'Dun Laoghaire Shopping Centre, Dublin'



■ one



■ two



■ three



■ four



■ five



■ six

'CURRENT INSTALLATIONS'

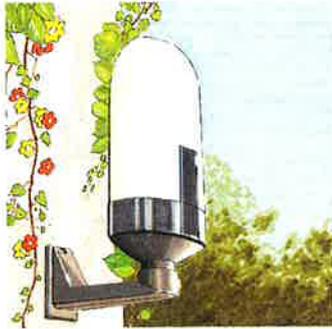
- one – 'task lighting'
- two – 'recessed lighting'
- three – 'interior amenity lighting'
- four – 'exterior amenity lighting'
- five – 'commercial interior lighting'
- six – 'surface lighting'
- seven – 'functional lighting'
- eight – 'social functional lighting'



■ eight
 'Maxims Restaurant, Hong Kong'



'Domestic; interiors'



'Gardens; porches; exteriors'



'Hospitals; social services'



'Warehouses; factories'

2D APPLICATIONS

As wide as your imagination...

The many new features and unique benefits inherent in the 2D Compact Fluorescent lamp enable a much wider range of fittings and luminaires to be produced – so meeting a multitude of interior and exterior lighting requirements. Economy, comfort, amenity, security are just a few of the lighting objectives admirably achieved by the use of the THORN 2D range.

For example:

Commercial – Offices, shops, stores, supermarkets, showrooms, shopping centres.

Social – Residential homes, hotels, restaurants, clubs, pubs.

Industrial – Factories, warehouses, wholesalers, car parks.

Exterior – Amenity, security, decorative, access.



'Hotels, pubs, clubs'



'Emergency'

Special Applications

- Signs for information, guidance, warnings
- Emergency and transport lighting
- Colours – for displays and signs – in 16W size
- Insect Control – with ultra violet – in 28W size.

NEW PACKAGING Informative and protective as well as stylish

THORN 2D lamps are blister packed for maximum protection during transit.

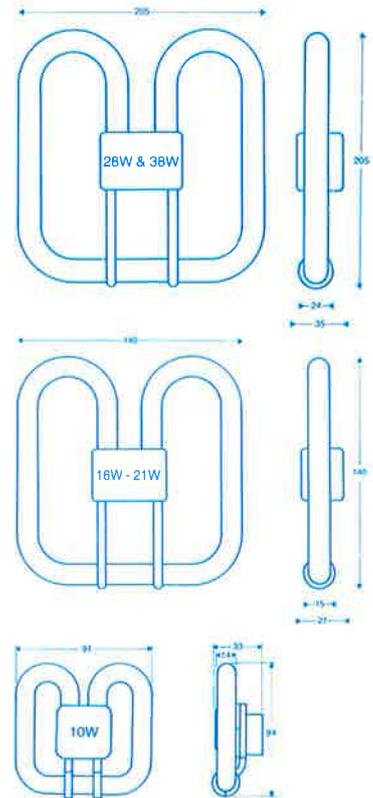
Each lamp is packed in such a way as to allow testing prior to purchasing or opening.

The distinctive backing card carries a clear colour coding to identify the lamp's wattage rating and lamp cap arrangement.

The reverse of the card carries relevant and useful information to make the selection of the correct lamp much easier.



'2D Range Distinctive individual packaging'



Dimensions in mm



2D PERFORMANCE AND PHYSICAL CHARACTERISTICS

LAMP TYPE	10W 2D	16W 2D	21W 2D	28W 2D	38W 2D	BENEFITS
RATED LAMP POWER	10W	16W	21W	28W	38W	Complete Range
COLOUR RENDERING INDEX (Ra)	82	82	82	82	82	Accurate Colour Representation
LIGHT OUTPUT (lumens) - 100 Hrs - 2000 Hrs	650 570	1050 925	1350 1170	2050 1800	2950 2600	Superior Lumen Maintenance High light Output
LIFE OF LAMP (Hours)	8000	8000	8000	10000	10000	Low Maintenance Costs
DIMENSIONS A (mm) B (mm) C (mm) D (mm) MAX.	91 94 33 14	140 140 27 15	140 140 27 15	205 205 35 24	205 205 35 24	Space Saving 2-Dimensional Greater Variety of Applications Fittings Design Flexibility
WEIGHT (g)	65	65	65	130	130	Allows Diversity of Fittings

LAMP	2700 WARM WHITE		3500 INTERMEDIATE WHITE		6000 TROPICAL COOL 2PIN	COLOURS - ALL 2PIN						4PIN	
	2PIN	4PIN	2PIN	4PIN		RED	BLUE	GREEN	LEMON	PEACH	LILAC	MAGENTA	UV
10W		•		•									
16W	•	•	•	•	•	•	•	•	•	•	•	•	
21W		•		•									
28W	•	•		•									•
38W		•		•									
	Warm Colour - Ideal domestic installations		White - Ideal for commercial interiors		Very cool. Ideal for a hot climate	2D colour lamps are ideal for decorative, functional or display purposes <i>Please Note: for special colours please approach your local Sales Office</i>						For use in fly killing equipment	

2D RANGE AVAILABILITY

ORDERING PROCEDURE

Should you require further information before purchase, please contact your local Sales Office.

When ordering, please use the following format:

"16W 2D 2-PIN 2700K"

THORN Lighting Limited

For more detailed information on THORN products please consult your nearest sales office.

Brochure Hotline

0800 289869

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Romford, Essex RM7 7PP
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Telex 897759 THLITE G
Fax 0708 41827

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