

# LED challenges the 2D

Zeta Controls has developed an LED version of the 2D lamp – but how does it compare to its fluorescent equivalent? *Lux* benchtested a sample to find out...

**T**horn Lighting invented the 2D lamp in 1983 and since then it has become a workhorse of circulation area lighting. Drive past any local authority tower block at night and you'll see rows of wall-mounted bulkhead luminaires with the tell-tale cool white glare of 2D lamps.

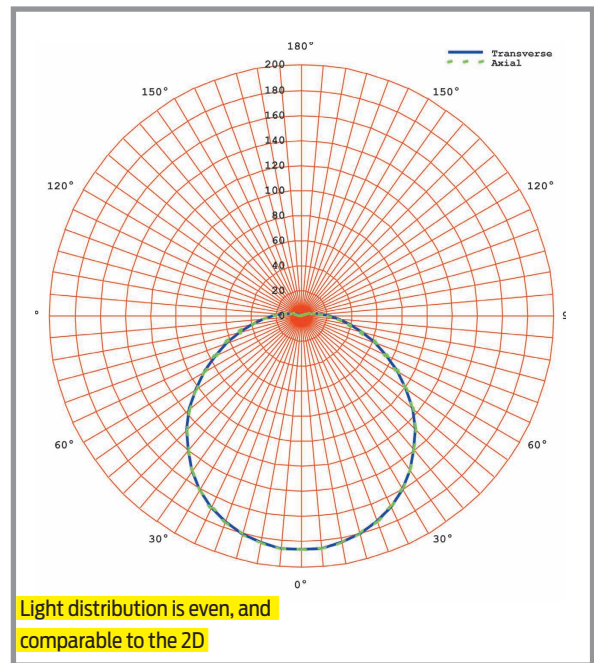
It's easy to see why the 2D bulkhead was successful: it's cheap, reliable and has a good distribution of fluorescent light in a pleasing circular package.

But its ubiquity means it was only a matter of time before a LED retrofit was developed. There have been a few, but the Zd from British company Zeta Controls is the first to be taken seriously. Zeta is the brainchild of Oxford engineering graduates Paul Tyrrell and Phil Shadbolt, who developed the Zd unit.

Using patented technology, the Zeta team says it has created a product that eliminates point source glare and solves the heating issues associated with LED lighting in an IP-rated housing. It's available both as a lamp and as a lamp-and-luminaire combination.

The main benefit of the Zd over the 2D is, of course, lower maintenance costs. But lower energy consumption is available too: a triac dimming option with microwave sensing allows, says the company, eight-fold efficiency gains by operating the unit only when it is needed.

Our tests reveal the 23W Zd delivers 1,300 lumens at an efficacy of 57 lumens per watt. But what is really



remarkable is that the Zd doesn't need a heatsink, so no need for a chunky die-cast body. It will happily sit in an adapted 2D luminaire.

Zd versus 2D						
ZD LAMP						
Power	Output	Colour temperature	Efficacy	LED Life	Cost	
23W	1,300 lumens	6500K	57 lumens/W	40,000 hours at 75%	£100	
2D LAMP EQUIVALENT						
Power	Output	Colour temperature	Efficacy	LED Life	Cost	
28W	2,050 lumens	3500K	73 lumens/W	10,000 hours	£4.50	

THE TEST RESULTS IN FULL							
Sample	Voltage	Current	Power	Power Factor	VA	Output	Efficacy
		(V)	(mA)		(W)	(lm)	(lm/W)
Luminaire	230.0	108.0	0.928	23.1	24.9	793	34.4
Lamp	230.0	107.7	0.926	22.9	24.8	1,300	56.7
Luminaire (no cover)	230.0	108.2	0.928	23.1	24.9	1,317	57.0

## HOW WE DID THE TESTS

The benchtest took place at Lux's official test house, the highly respected laboratories of 42 Partners in Wolverhampton. The tests were conducted in a 3.5 metre integrating sphere (one of the largest in the UK) in accordance with EN13032 at 25°C with the luminaire in a horizontal orientation after 100 hours burn-in.



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## **L** RECOMMENDS Zd lamp

**POWER:** 23W

**OUTPUT:** 1,300 lumens

**COLOUR TEMPERATURE:** 5000K

**EFFICACY:** 57 lumens/W

**LIFE:** 40,000 hours

**COST:** £100

### OUR VERDICT:



This is by far the most sophisticated and well-engineered LED replacement for 2D lamps that we have seen. For the right application, this lamp will be worth its weight in gold. Locations such as stairwells, underpasses and walkways – especially those requiring expensive eight-hour response times to lamp outages – are perfect for the long-lasting and robust Zd.