



cascade TSI

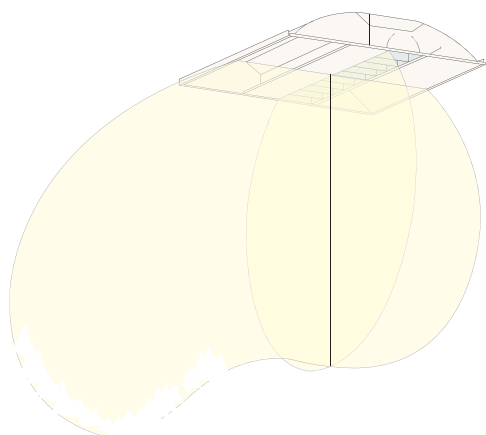
The importance of the role that lighting has to play in the health and welfare of our children cannot be underestimated. Nowhere is this more apparent than in the school environment, where lighting can have a direct and dramatic effect on educational achievement. Lighting can stimulate and energise the learning process by providing not just an attractive environment, but also by actively motivating the student.

The principle of TSI – teaching surface illumination

It is important to understand the way in which teacher and pupils interact when designing lighting schemes for classrooms. Education is not a 2-dimensional activity and even illumination must be given to all teaching surfaces, namely walls, white boards and desk surfaces alike.

Traditional office luminaires deliver desk level illumination but are not designed to illuminate a vertical surface as well as the TSI does.

As classroom walls are working task areas, both the quantity and quality of light are important and add to both the functionality and ambience of the space.



Whitecroft developed Cascade TSI (Teaching Surface Illuminance) specifically to address the problem of lighting the teaching surfaces of a classroom without the need for supplementary wall washers. Cascade TSI combines high optical performance with innovative design and not only delivers the best lit environment but also reduces energy consumption and installation costs. Cascade TSI used in conjunction with a standard Cascade luminaire provides the best possible recessed lighting solution for the classroom.

Cascade TSI has an asymmetric distribution in one quadrant to maximise wall illuminance, whilst the other 3 quadrants control glare and direct light onto the horizontal working plane.

Classroom comparative lighting levels

	Typical 3 x 14W T5	Cascade TSI 4 x 14W T5
Average Horizontal Illuminance	327 lux	341 lux
Average Side Wall Illuminance	27%	59%
Average End Wall Illuminance	30%	48%

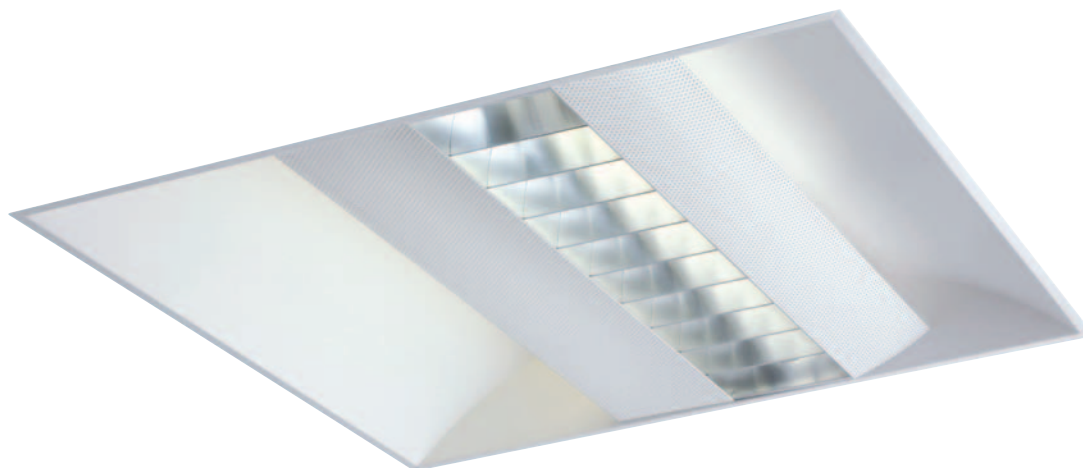
Cascade TSI puts almost twice as much light onto the walls of a classroom with a superior degree of uniformity than that of a typical symmetrical distribution luminaire.



Typical 3 x 14W T5



Cascade TSI 4 x 14W T5



Optics

- Asymmetric light output with one half of the luminaire providing ambient direct/indirect lighting and the other half providing wall illumination
- MIRO 5 semi-specular louvre on ambient half with perforated wings. On the wall wash side the lamp is covered by a flat perforated foil
- Lamp options:
 - 4 x 14W T5
 - 2 x 40/55W TC-L

Body

- Steel body with tightly jointed end plates finished white
- Designed to rest above 600 x 600mm exposed T (15mm and 25mm) ceilings. Installation in plasterboard ceilings possible using optional frame

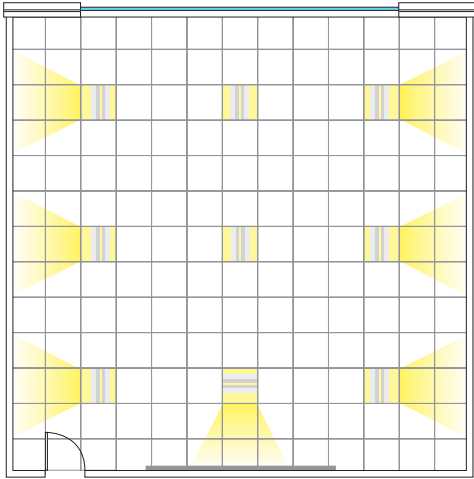
cascade TSI

Order Codes

Cascade TSI	HF Gear	3 hr Emergency
T5 4 x 14W	CTSH414	CTSH414EMIN
TC-L 2 x 40W	CTSH240	CTSH240EMIN
TC-L 2 x 55W	CTSH255	CTSH255EMIN

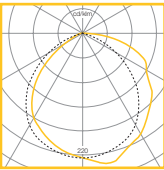
Options

DALI DIMMING	Replace H with Y	i.e. CTS Y 414
SWITCH DIMMING	Replace H with X	i.e. CTS X 414
COMMAND 4	Replace H with Q4Y	i.e. CTS Q4Y 414
COMMAND 3	Replace H with Q3Y	i.e. CTS Q3Y 414
EASYTEST	Add suffix /ET	i.e. CTSH414/ ET
COMEPS	Add suffix /EP	i.e. CTSH414/ EP
COMET	Add suffix /CT	i.e. CTSH414/ CT
PLASTERBOARD INSTALLATION FRAME		CSDPBF

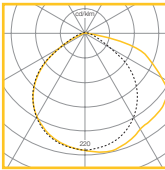


Cascade TSI used in conjunction with standard Cascade in a 9 luminaire typical classroom arrangement

Photometric Performance



2 x 40W TC-L
• LOR = 59.2%
• SHR MAX = 1.60



4 x 14W T5
• LOR = 59.1%
• SHR MAX = 1.66

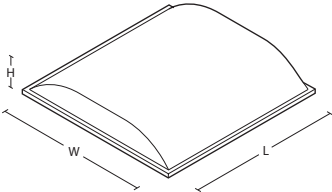
Utilisation Factors UF(F)

Room Reflectance			Room Index		
C	W	F	1.00	3.00	5.00
0.70	0.50	0.20	0.42	0.58	0.62

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Room Reflectance			Room Index		
C	W	F	1.00	3.00	5.00
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Dimensions



Version	L	W	H	Prepared Aperture	KG	KG
Exposed T	593	591	95	—	6.0	7.0
Plasterboard frame	660	660	100	625 x 625	8.0	9.0

Lamp Performance

Wattage	IL@25°C	Lamp Life
1 x 14W T5	1250	24,000hrs
1 x 40W TC-L	3500	20,000hrs
1 x 55W TC-L	4800	20,000hrs

Ceiling Integration

Refer to common ceiling compatibility matrix – See page 404

Exposed T Grids

T25 Lay in
T15 Lay in

Plasterboard (Installation frame required)

Prepared aperture

To Specify

Recessed direct/indirect fluorescent T5 module for classroom lighting. Rolled steel body finished white, with MIRO 5 louvre and perforated side panels. Asymmetric light distribution with half of the luminaire providing ‘Teaching Surface Illumination’ – as Whitecroft CASCADE TSI