

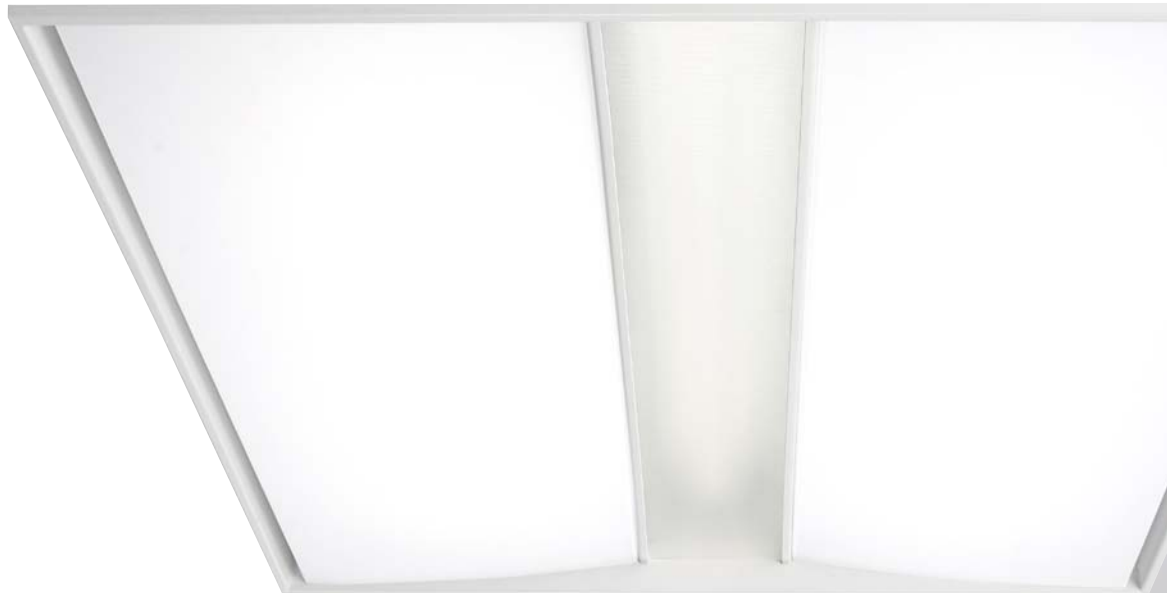
DUO² - the evolution of performance

Introducing duo²

The most advanced recessed luminaire available today

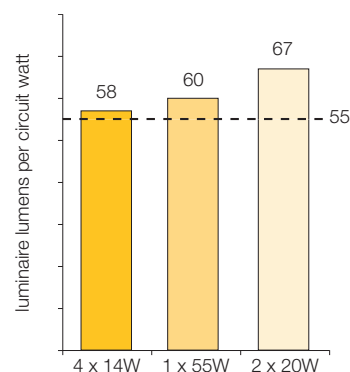
At its launch in 2009, DUO set the standard for high quality recessed fluorescent luminaires. Since then, it has had many imitators. To keep ahead of this trend, Whitecroft have now developed DUO² which sets new standards in both visual comfort and lighting performance.

DUO² boasts all of the features that made its predecessor so successful, whilst the range has been broadened with the addition of a new fixed micro prism optic. This optic uses the same conical refraction technology as the flagship dual position micro prism variant but with a recessed central optic arrangement similar to the louvred variants in the DUO² range.



Compliance Guaranteed

An uplift in performance across the range has been achieved with the development of new high output reflector technology, resulting in a 10% increase in light output. This means that the entire DUO² range achieves efficacy in excess of 55 luminaire lumens per circuit watt, resulting in guaranteed compliance with Part L of UK Building Regulations. This energy efficiency makes DUO² the ideal lighting solution for low carbon lighting schemes. Indeed its high performance means that DUO² has Light Output Ratios of up to 84%, whilst its unique Intermediate Brightness Zones allow this performance without the high degrees of glare normally associated with high LOR luminaires.





duo² the range

Centre Optic



Dual Optic Technology

The DUO² luminaire range has two distinct optical elements which are common throughout the range. DUO² employs Intermediate Brightness Zones (IBZ), which deliver diffuse light and inject brightness directly into the ceiling plane. These work in conjunction with optical cells which deliver controlled light, maximising efficiency and reducing glare.

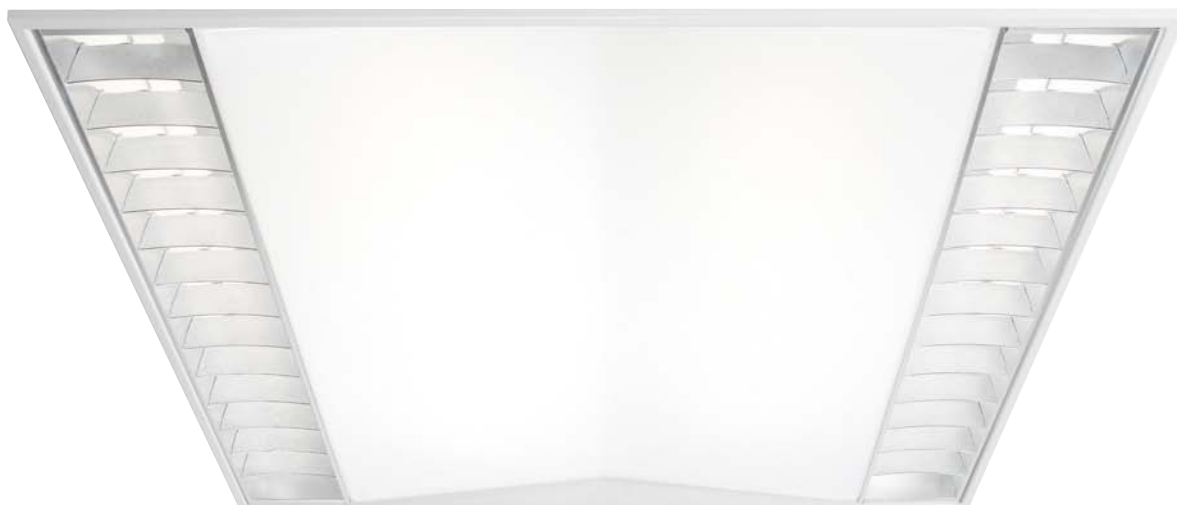
These optical cells are available with a choice of four controllers. The Micro Prism optic delivers exceptional controlled contrast with higher luminance and is available in either fixed or moveable versions. The latter has the unique ability to be used in either its recessed position for maximum ceiling integration or dropped to allow its linear refractor optics to further enhance the lighting of the ceiling plane.

If lower luminance levels are required a choice of two louvres are available: a 'living' louvre which builds on our unique Vivant louvre technology to create visual interest and a conventional semi-specular louvre. Both offer excellent glare control.



DUO²'s Micro Prism optic can be dropped from its recessed position to enhance the lighting of the ceiling plane

Side Optic



Luminaire Aesthetics

As well as offering a choice of optical arrangements, DUO² allows for two distinct aesthetic options. The DUO² centre optic range combines a familiar design style with high performance, whilst the DUO² side optic range maximises performance and has been designed to offer the ultimate aesthetic integration.

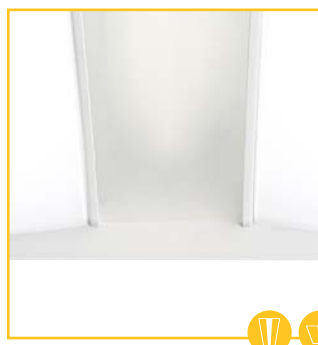
Two sizes of luminaire are available to integrate into both 600mm² and 1200mm x 300mm suspended ceiling systems.

All DUO² luminaires have air handling capability as standard - a carefully considered design feature which eliminates the need for unsightly extraction vents in the ceiling plane. DUO² has an air handling capacity of between 20 and 40 litres per second depending on its optical configuration.

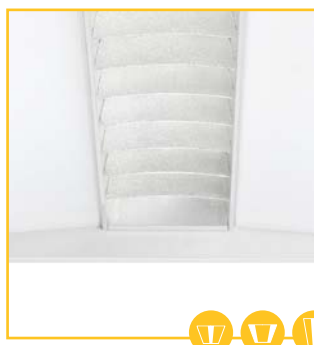
Moveable Micro Prism



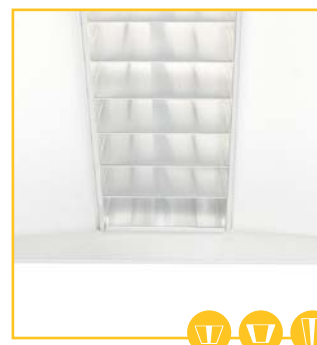
Fixed Micro Prism



Living Louvre



Semi-Specular Louvre



Duo² 600mm² centre optic



Duo² 600mm² side optic



Duo² 1200mm x 300mm



Optics

- 3 optical options:
 - Micro Prism – combines micro optical cones in a fixed recessed format or alternatively a flexible pod which can be fully recessed or lowered to deliver further enhanced room surface ratios
 - Living Louvre – vacuum metalised injection moulded and textured louvre
 - Semi-Specular Louvre – high quality zero iridescence aluminium louvre
- 600 x 600mm lamp options:
 - 3 x 14W T5
 - 4 x 14W T5
 - 3 x 20W T5
 - 1 x 55W TC-L (Amalgam)
- 1200 x 300mm lamp options:
 - 1 or 2 x 28/54W T5
 - 1 or 2 x 25/50W T5
- Side or centre optic positions
- Intermediate Brightness Zone technology using TP(a) rated polycarbonate material (fixed centre pod micro prism product TP(b) rated PMMA)

Body

- Steel body finished white
- For 600 x 600mm or 1200 x 300mm grid ceilings
- Compatible with the following ceiling types:
 - Exposed T 15mm and 25mm flat
 - Exposed T 15mm tegular
 - Spring T
 - Plasterboard prepared aperture
- Air handling as standard 20 to 40 litres per second depending on the luminaire type (refer to Whitecroft Technical Desk)



duo² centre optic

Order Codes

Duo Micro Prism Optic

T5 3 x 14W

T5 3 x 20W ECO

HF Gear

D2CH314PXT

D2CH320PXT

3 hr Emergency

D2CH314PXTEM

D2CH320PXTEM

Duo Living Louvre

T5 3 x 14W

T5 3 x 20W ECO

T5 4 x 14W

HF Gear

D2CH314VXT

D2CH320VXT

D2CH414VXT

3 hr Emergency

D2CH314VXTEM

D2CH320VXTEM

D2CH414VXTEM

Duo Semi-Specular Louvre

T5 3 x 14W

T5 3 x 20W ECO

T5 4 x 14W

HF Gear

D2CH314WXT

D2CH320WXT

D2CH414WXT

3 hr Emergency

D2CH314WXTEM

D2CH320WXTEM

D2CH414WXTEM

Duo Micro Prism Optic (Fixed)

T5 3 x 14W

T5 3 x 20W ECO

T5 2 x 20W ECO

TC-L 1 x 55W (Amalgam)

HF Gear

D2FH314PXT

D2FH320PXT

D2FH220PXT

D2FH155PXT

3 hr Emergency

D2FH314PXTEM

D2FH320PXTEM

D2FH220PXTEM

D2FH155PXTEM

Options

DALI/SWITCH DIMMING

Replace H with **C**

i.e. D2CC414PXT

EASYTEST

Add suffix **/ET**

i.e. D2CH414PXT/ET

COMEPS

Add suffix **/EP**

i.e. D2CH414PXT/EP

COMMAND 4*

Replace H with **Q4Y**

i.e. D2FQ4Y314PXT

COMET

Add suffix **/CT**

i.e. D2CH414PXT/CT

PREPARED APERTURE/
SPRING T INTEGRATION

Replace XT with **ST**

i.e. D2CH414PST

PREPARED APERTURE

DUO2 Fixed Micro Prism only

D2FPA

TEGULAR T15

CEILING INTEGRATION**

Bracket kit for pull up

DUO600BKTKIT

* Only available with DUO2 Micro Prism Optic (Fixed)

** Not required with DUO2 Micro Prism Optic (Fixed)



Micro Prism Optic (Lowered)



Living Louvre



Semi-Specular Louvre



Micro Prism Optic (Fixed)

Ceiling Integration

Refer to common ceiling
compatibility matrix –
See page 404

Exposed T Grids

T25 Lay in

T15 Lay in

T15 Tegular (Bracket kit required)

Alugrids (Fixed Micro Prism Only)

SAS AL 15/16

SAS AL 15/08

Spring T Grids (Add ST)

SAS – 150

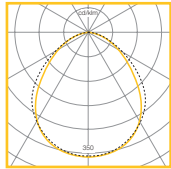
Armstrong – Orcal 1800/3000

Burgess – Clip in/A bar

Plasterboard (Add ST)

Prepared aperture

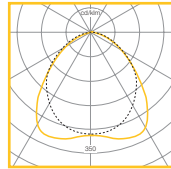
Photometric Performance



2 x 20W ECO T5
Micro Prism (Fixed)
• LOR = 84.0%
• SHR MAX = 1.55

Utilisation Factors UF(F)

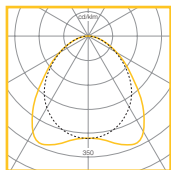
Room Reflectance Room Index
C W F 1.00 3.00 5.00
0.70 0.50 0.20 0.63 0.83 0.89



3 x 20W ECO T5
Living Louvre
• LOR = 79.2%
• SHR MAX = 1.71

Utilisation Factors UF(F)

Room Reflectance Room Index
C W F 1.00 3.00 5.00
0.70 0.50 0.20 0.59 0.79 0.84



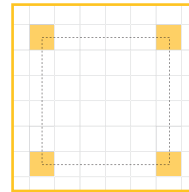
3 x 20W ECO T5
Semi-Specular
• LOR = 78.9%
• SHR MAX = 1.72

Utilisation Factors UF(F)

Room Reflectance Room Index
C W F 1.00 3.00 5.00
0.70 0.50 0.20 0.54 0.77 0.82

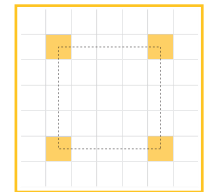
Performance Guide

Lamps Illuminance Spacing
1 x 55W T5 340 lux 3.0m x 3.0m
Micro Prism



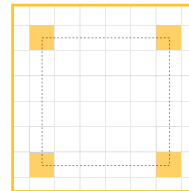
Maintenance:
0.8
Reflectance:
70/50/20
Ceiling Height:
2.7m
Working Plane:
0.8m

Lamps Illuminance Spacing
1 x 55W T5 520 lux 2.4m x 2.4m
Micro Prism



Maintenance:
0.8
Reflectance:
70/50/20
Ceiling Height:
2.7m
Working Plane:
0.8m

Lamps Illuminance Spacing
3 x 20W T5 400 lux 3.0m x 3.0m
Micro Prism

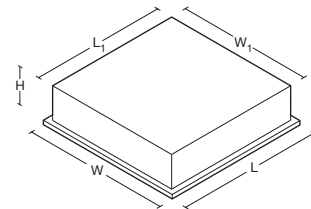


Maintenance:
0.8
Reflectance:
70/50/20
Ceiling Height:
2.7m
Working Plane:
0.8m

Lamp Performance

Wattage	IL@25°C	Lamp Life
1 x 14W T5	1250	24,000hrs
1 x 20W T5 ECO	1650	21,000hrs
1 x 55W TC-L	4800	20,000hrs

Dimensions



MP/LL/SSL*	L	W	H	L ₁	W ₁	Prepared Aperture	KG	KG
Exposed T	593	593	103	575	575	—	4.9	5.9
Plasterboard/Spring T	599	599	103	575	575	587 x 587 ^{-0/+3}	4.9	5.9

Micro Prism Fixed	L	W	H	L ₁	W ₁	Prepared Aperture	KG	KG
Exposed T	584	584	103	570	570	—	6.4	7.4
Plasterboard/Spring T	599	599	103	570	570	587 x 587 ^{-0/+3}	6.4	7.4

* Micro Prism Optic (MP), Living Louvre (LL), Semi-Specular Louvre (SSL)

To Specify

Recessed T5 600 x 600mm luminaire with dual optic configuration and air return facility. Incorporating Intermediate Brightness Zone element to diffuse light and graduate brightness across the ceiling, manufactured in a TP(a) rated polycarbonate (TP(b) rated PMMA for fixed Micro Prism), and 1 optical cell with Micro Prisms / Living Louvre / Semi Spec Louvre to control light and reduce glare – as Whitecroft Lighting DUO²

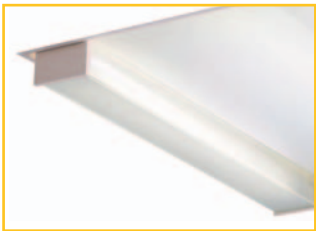
duo² side optic

Order Codes

Duo Micro Prism Optic T5 4 x 14W	HF Gear D2SH414PXT	3 hr Emergency D2SH414PXTEM
Duo Living Louvre T5 4 x 14W	HF Gear D2SH414VXT	3 hr Emergency D2SH414VXTEM
Duo Semi-Specular Louvre T5 4 x 14W	HF Gear D2SH414WXT	3 hr Emergency D2SH414WXTEM

Options

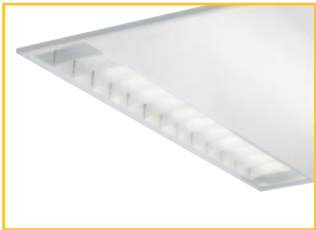
DALI/SWITCH DIMMING	Replace H with C	i.e. D2SC414PXT
EASYTEST	Add suffix /ET	i.e. D2SH414PXT/ET
COMEPS	Add suffix /EP	i.e. D2SH414PXT/EP
COMET	Add suffix /CT	i.e. D2SH414PXT/CT
PREPARED APERTURE/ SPRING T INTEGRATION	Replace XT with ST	i.e. D2SH414PST
REGULAR T15 CEILING INTEGRATION	Bracket kit for pull up	DUO600BKTKIT



Micro Prism Optic (Lowered)



Semi-Specular Louvre



Living Louvre

Ceiling Integration

Refer to common ceiling compatibility matrix – See page 404

Exposed T Grids

T25 Lay in
T15 Lay in
T15 Tegral (Bracket kit required)

Spring T Grids (Add ST)

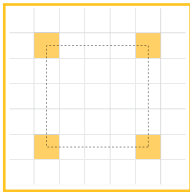
SAS – 150
Armstrong – Orcal 1800/3000
Burgess – Clip in/A bar

Plasterboard (Add ST)

Prepared aperture

Performance Guide

Lamps	Illuminance	Spacing
4 x 14W T5	550 lux	2.4m x 2.4m

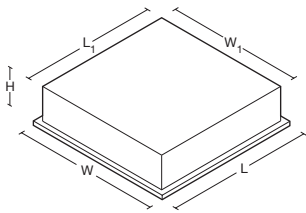


Maintenance: 0.8
Reflectance: 70/50/20
Ceiling Height: 2.7m
Working Plane: 0.8m

Lamp Performance

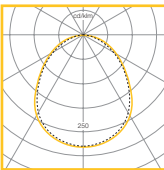
Wattage	IL@25°C	Lamp Life
1 x 14W T5	1250	24,000hrs

Dimensions



Version	L	W	H	L ₁	W ₁	Prepared Aperture	KG	KG
Exposed T	593	593	103	575	575	–	4.9	5.9
Plasterboard/Spring T	599	599	103	575	575	587 x 587 $\begin{smallmatrix} -0 \\ +5 \end{smallmatrix}$	4.9	5.9

Photometric Performance

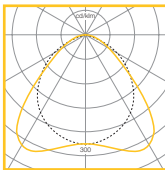


4 x 14W T5
Micro Prism
• LOR* = 70.1 (71.5)%
• SHR MAX = 1.56

Utilisation Factors UF(F)

Room Reflectance	Room Index
C W F	1.00 3.00 5.00
0.70 0.50 0.20	0.51 0.69 0.74

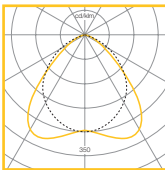
*Cell in recessed position – Figures in brackets cell in lowered position



4 x 14W T5
Living Louvre
• LOR = 72.8%
• SHR MAX = 1.77

Utilisation Factors UF(F)

Room Reflectance	Room Index
C W F	1.00 3.00 5.00
0.70 0.50 0.20	0.50 0.71 0.76



4 x 14W T5
Semi-Specular
• LOR = 72.2%
• SHR MAX = 1.74

Utilisation Factors UF(F)

Room Reflectance	Room Index
C W F	1.00 3.00 5.00
0.70 0.50 0.20	0.51 0.71 0.76

To Specify

Recessed T5 600 x 600mm luminaire with dual optic configuration and air return facility. Incorporating Intermediate Brightness Zone element to diffuse light and graduate brightness across the ceiling, manufactured in a Tp(a) rated polycarbonate, and 2 optical cells with (Micro Prisms / Living Louvre / Semi Spec Louvre) to control light and reduce glare – as Whitecroft Lighting DUO²

duo² 1200 x 300 linear

Order Codes

Duo Micro Prism Optic

T5 1 x 28W

T5 1 x 54W

HF Gear

D2CH128PST

D2CH154PST

3 hr Emergency

D2CH128PSTEM

D2CH154PSTEM

Duo Living Louvre

T5 1 x 28W

T5 2 x 28W

T5 1 x 54W

T5 2 x 54W

HF Gear

D2CH128VST

D2CH228VST

D2CH154VST

D2CH254VST

3 hr Emergency

D2CH128VSTEM

D2CH228VSTEM

D2CH154VSTEM

D2CH254VSTEM

Duo Semi-Specular Louvre

T5 1 x 28W

T5 2 x 28W

T5 1 x 54W

T5 2 x 54W

HF Gear

D2CH128WST

D2CH228WST

D2CH154WST

D2CH254WST

3 hr Emergency

D2CH128WSTEM

D2CH228WSTEM

D2CH154WSTEM

D2CH254WSTEM

Duo Micro Prism Optic (Fixed)

T5 1 x 25/28W

T5 ECO 1 x 50W

T5 2 x 25/28W

T5 ECO 2 x 50W

HF Gear

D2FH128PST

D2FH154PST

D2FH228PST

D2FH254PST

3 hr Emergency

D2FH128PSTEM

D2FH154PSTEM

D2FH228PSTEM

D2FH254PSTEM

Options

DALI / SWITCH DIMMING

Replace H with C

i.e. D2CC128PST

EASYTEST

Add suffix /ET

i.e. D2CH128PST/ET

COMEPS

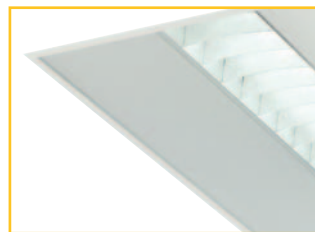
Add suffix /EP

i.e. D2CH128PST/EP

COMET

Add suffix /CT

i.e. D2CH128PST/CT



Living Louvre



Micro Prism Optic (Fixed)

Lamp Performance

Wattage	IL@25°C	Lamp Life	Wattage	IL@25°C	Lamp Life
1 x 28W T5	2625	24,000hrs	1 x 25W T5	1650	21,000hrs
1 x 54W T5	4450	24,000hrs	1 x 50W T5	4400	24,000hrs

Ceiling Integration

Refer to common ceiling compatibility matrix – See page 404

Spring T Grids

SAS – 150

Armstrong – Orcal 1800/3000

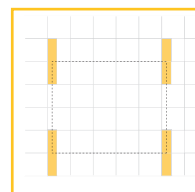
Burgess – Clip in/A bar

Plasterboard

Prepared aperture

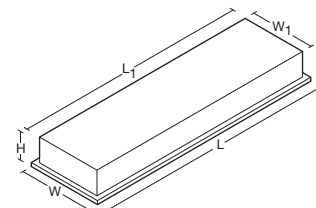
Performance Guide

Lamps	Illuminance	Spacing
2 x 28W T5	520 lux	2.4m x 3.0m



Maintenance: 0.8
Reflectance: 70/50/20
Ceiling Height: 2.7m
Working Plane: 0.8m

Dimensions

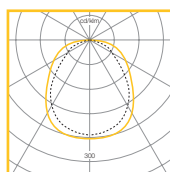


MP/LL/SSL*	L	W	H	L ₁	W ₁	Prepared Aperture	KG	KG
Plasterboard/Spring T	1199	299	123	1175	275	285 x 1187 $\pm 0_{-5}$	8.1	9.1

Micro Prism Fixed	L	W	H	L ₁	W ₁	Prepared Aperture	KG	KG
Plasterboard/Spring T	1199	299	103	1175	281	285 x 1187 $\pm 0_{-5}$	8.6	9.5

* Micro Prism Optic (MP), Living Louvre (LL), Semi-Specular Louvre (SSL)

Photometric Performance

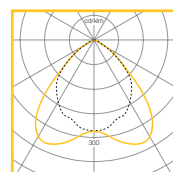


1 x 28W T5
Micro Prism
• LOR* = 67.1
(75.0)%
• SHR MAX = 1.53

Utilisation Factors UF(F)

Utilization Factors of (r)					
Room Reflectance			Room Index		
C	W	F	1.00	3.00	5.00
0.70	0.50	0.20	0.47	0.65	0.70

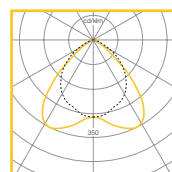
*Cell in recessed position – Figures in brackets cell in lowered position



1 x 28W T5
Living Louvre
• LOR = 72.4%
• SHR MAX = 1.81

Utilisation Factors UF(F)

Calculation Factors of (r)					
Room Reflectance			Room Index		
C	W	F	1.00	3.00	5.00
0.70	0.50	0.20	0.51	0.70	0.74



1 x 28W T5
Semi-Specular
• LOR = 69.6%
• SHR MAX = 1.81

Utilisation Factors UF(F)

Calculation Factors for ρ					
Room Reflectance			Room Index		
C	W	F	1.00	3.00	5.00
0.70	0.50	0.20	0.51	0.70	0.74

To Specify

Recessed T5 1200 x 300mm luminaire with dual optic configuration and air return facility. Incorporating Intermediate Brightness Zone element to diffuse light and graduate brightness across the ceiling and 1 optical cell with (Micro Prisms / Living Louvre / Semi Spec Louvre) to control light and reduce glare – as Whitecroft Lighting DUO²