NTFLED41 series

A range of troffer fittings for recessed or surface installation that deliver low UGR in most installations

Lay-in

Surface mounted

90° 220-240V IP20 30000h

APPLICATIONS

- Schools
- Hospitals
- Offices

TECHNICAL DETAILS

- SMD LEDs
- Rated life: 30,000 hours
- SDCM<2

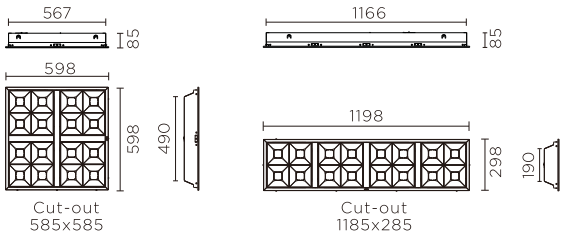
CONSTRUCTION

- Steel body with white powder coated finish
- Clusters of SMD LEDs covered with a PC diffuser, deep recessed in steel reflector cells for low-glare performance
- Integral low-flicker driver included

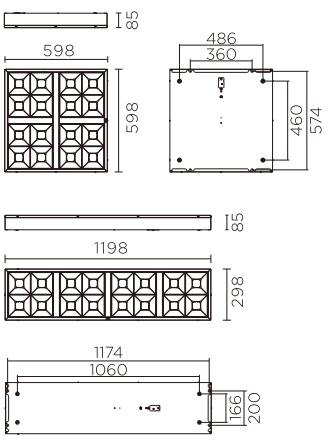
OPTIONS

- **Available to be mounted in two different ways:**
- Lay-in: On 15-24mm exposed T ceiling grids. Two sizes available (598 x 598 or 1198 x 298). No attachments required
- Surface mounted: use suffix M. Two sizes available (598 x 598 or 1198 x 298). No attachments required. Folded mounting lugs on rear for surface mounting included

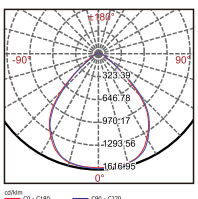
• **Lay-in**



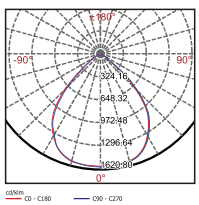
• **Surface mounted**



Model	Watts	Colour temp.	Lumens	CRI	PF
Lay-in					
NTFLED412/36W/66	36W	3500K/4000K/5000K	3,200 lm	>90	>0.95
NTFLED417/36W/123	36W	3500K/4000K/5000K	3,200 lm	>90	>0.95
Surface mounted					
NTFLED412M/36W/66	36W	3500K/4000K/5000K	3,200 lm	>90	>0.95
NTFLED417M/36W/123	36W	3500K/4000K/5000K	3,200 lm	>90	>0.95



NTFLED412 36W 95°



NTFLED417 36W 95°

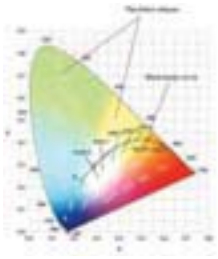
Low glare for maximum comfort

Flexible Installation
Flexible Installation (lay-in and surface mounted), meeting various installation requirements.

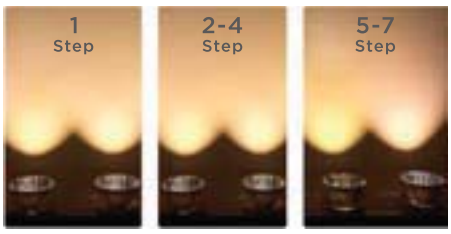
Low Flicker (Ripple <5% at 50/60HZ)

Deep Anti-glare Design (UGR<16)
A low UGR creates a comfortable learning environment (See opposite page for details of UGR).

Excellent Color Consistency (SDCM<2)
In LED lighting, SDCM (Standard Deviation Colour Matching) uses deviations relative to MacAdam ellipses to describe color precision of a light source. Each MacAdam ellipse can be divided into seven Steps, the smaller SDCM value, the more consistent color you will get.



SDCM Step	Color Deviation
1	Undetectable
2-4	No Significant Differences
5-7	Obvious Distinction



High CRI (RA>90)
CRI (Colour Rendering Index) is an objective measure of the ability of a light source to reveal the colours of objects faithfully in comparison to a perfect light source. CRI plays a vital role in product display. The higher the CRI, the more accurately will the colours of an object be presented.

The Unified Glare Ratio (UGR) can be calculated for every installation. The important points to note are that:

- Actually, the UGR is calculated for an installation. UGR is not a feature of a single luminaire, but the design of the luminaire does influence what the UGR will be after installation.
- However, the features of a luminaire that help it to deliver low UGR values where it is installed also have drawbacks, and these can include reduced uniformity and increased shadowing along the tops of walls.
- Generally, the lower the UGR the better. International standards such as EN12464 recommend maximum UGR values for specific applications and the degree of discomfort glare as below:

MAXIMUM RECOMMENDED UGR FOR DIFFERENT APPLICATIONS

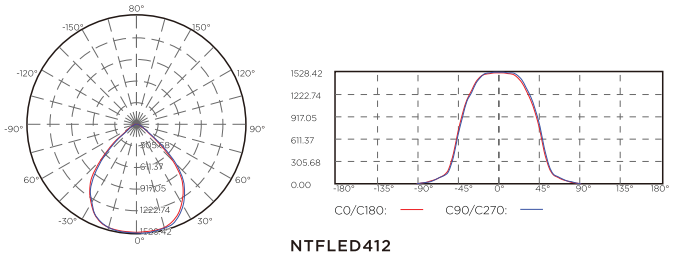
Applications	Working Area	Maximum allowed UGR	Discomfort Glare Criterion
Hospital	Operation Room	10	Imperceptible
	Ward room	13	Just perceptible
Office	Drawing office, Meeting room	16	Slight but negligible
	General office, Exhibition room	19	Just acceptable
School	Class room, Laboratory	16	Slight but negligible
	Library, Common room	19	Just acceptable
Commercial	Supermarket, Restaurant	22	Unacceptable
Public	Lobby, Corridor	25	Strong, uncomfortable
Industrial	Ultra precise processing	19	Just acceptable
	Precise processing	22	Unacceptable
	Normal processing	25	Strong, uncomfortable
	Group assembly	28	Too strong, unbearable

The NTFLED41* has been designed with a number of features to ensure that, compared with other fittings that might be used in the same application (such as flat LED panel NLED4504), the NTFLED41 will result in a lower UGR in almost any situation.

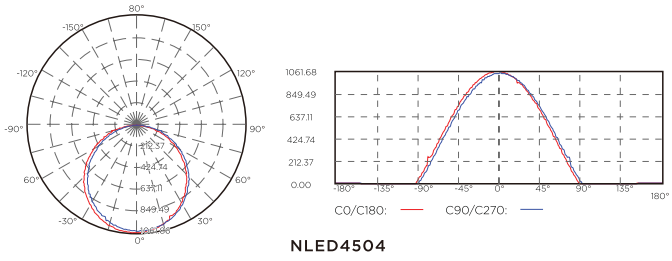
- The LEDs are mounted behind an opal diffuser.
- Each cluster of LEDs is mounted in a deeply recessed louvre.
- The sides of the louvre are coated in a highly reflective but non-specular coating.

Together, these features ensure the exceptionally low-glare performance of the NTFLED41* and can assist lighting designers achieve low UGR values (typically <19) in a wide range of installations.

Polar Curve Comparison of the NTFLED412 and NLED4504



NTFLED412



NLED4504

NTFLED412 (UGR<16):
The light is directed downwards. The risk of glare is greatly reduced, but less light is projected onto the walls, so a wall-wash fitting might be recommended. Careful attention also needs to be given to the luminaire spacing to avoid a loss of uniformity at the working plane or at floor level.

NLED4504 (UGR<19):
Compared with the NTFLED 412, more light is directed sideways. This increases the risk of glare, but there is a benefit that more light is projected onto the walls which is generally considered to give a pleasing effect. High levels of uniformity are also easier to achieve with a light distribution like this.