

TECHNICAL INFORMATION

Neutral Density Filters

Data Sheet 207

Neutral Density filters have many applications but are generally used in the attenuation of energy covering the NUV-VIS-NIR band. Because the attenuation is achieved by a combination of absorption and reflection, the filter can be used as beamsplitters in some applications.

TMF manufactures a range of N.D. filters covering ND 0.1. to ND 3. and can be optimised at any wavelength from 350 to 1100nm.

The relationship between neutral density ND and transmission T is $ND = \log \frac{1}{T}$

To achieve neutrality of attenuation with wavelength, nickel chrome alloy is used in their construction. This material is extremely durable when applied to quartz and glass, less so on plastic substrates.

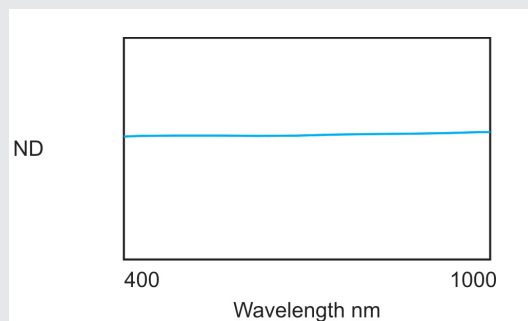
ND Configurations

TMF offer three configurations:

Plate

The required density applied uniformly to the entire surface.

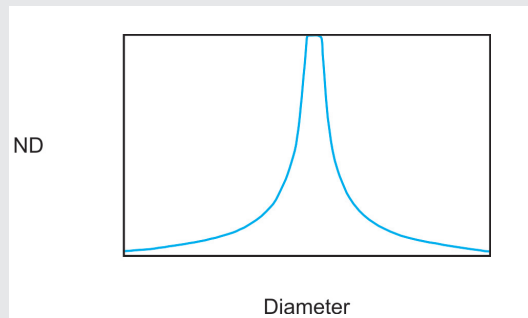
ND Range: 0.1 to 3
Wavelength: 400-1100 (Glass)
300-2000 (Quartz)
Tolerance on ND: +/- 5%



Zonal

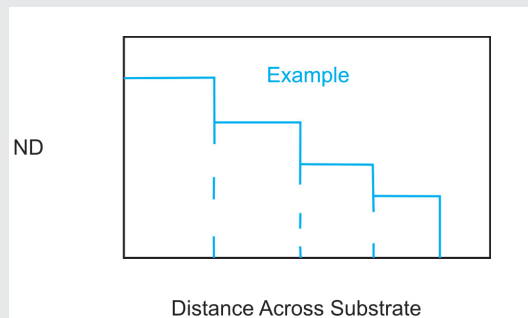
This is a graded circular 'spot' being most dense at the centre and normally decaying to zero at the outside of the substrate. This is a very valuable filter in CCT cameras to increase the dynamic operating range.

ND Range: 0.5-3



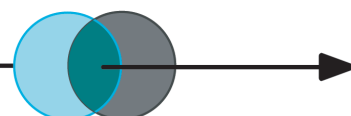
Step

ND Filters can be applied in discrete steps across the substrate in both linear or radial manner.



Please telephone to discuss any variations in standard coatings that you may require.

thinmetalfilms Ltd.
Precision Optical Coating Engineers



THIN METAL FILMS LTD. STROUDLEY ROAD, BASINGSTOKE, HANTS RG24 8UG
T 01256 840830 F 01256 840443 E sales@tmf.uk.com www.tmf.uk.com