Classification of lamps

The ZVEI, the German Electrical Engineering and Industrial Federation, has developed a system of abbreviations for electric lamps used for general lighting purposes. Some lamp do manufacturers use different abbreviations, however.

The ZVEI system of designation consists of up to three characters. These are supplemented by further abbreviations for special models or versions, which are hyphenated.

The first letter indicates the light production.

I	Incandescent lamp
H	High-pressure discharge lamp
L	Low-pressure discharge lamp

The second letter indicates the material of the outer envelope for incandescent lamps, or the gas contained in discharge lamps.

G	Glass
Q	Quartz glass
M	Mercury
I	Metal halide
S	Sodium vapour

The third letter or combination of letters indicates the form of the outer envelope.

A	General
E	Ellipsoidal
PAR	Parabolic reflector
R	Reflector
T	Tubular
TC	Compact tubes

To complete the classification of a lamp data regarding diameter of lamp or reflector, power, colour of outer envelope, beam spread, type of cap and voltage can be added to the above identification.

Standard abbreviations for lamps in this book. The letters in brackets are not used in practice. The resulting abbreviations are given in the right-hand column.

General service lamp	(I) (G) A	A
Parabolic reflector lamp	(I) (G) PAR	PAR
Reflector lamp	(I) (G) R	PAR
Halogen reflector lamp	(I) Q R	QR
Halogen lamp (tubular form)	(I) Q T	QT
Mercury lamp (ellipsoidal form)	H M E	HME
Mercury lamp (reflector form)	H M R	HMR
Metal halide lamp (ellipsoidal form)	H I E	HIE
Metal halide lamp (reflector form)	H I R	HIR
Metal halide lamp (tubular form)	H I T	HIT
High-pressure sodium lamp (ellipsoidal form)	H S E	HSE
High-pressure sodium lamp (tubular form)	H S T	HST
Fluorescent lamp	(L) (M) T	T
Compact fluorescent lamp	(L) (M) TC	TC
Low-pressure sodium lamp	L S T	LST

Abbreviations for special models or versions are separated from the main abbreviation by a hyphen.

Halogen lamp, double-ended	QT-DE
Halogen reflector lamp, coolbeam, without cover	QR-CB
Halogen reflector lamp, coolbeam, with cover	QR-CBC
Metal halide lamp, double-ended	HIT-DE
Compact fluorescent lamp	TC
– without starter for EB	TC-EL
– with 4 discharge tubes	TC-D
– with 4 discharge tubes, with integral EB	TC-DSE
– with 4 discharge tubes, without starter for EB	TC-DEL
– linear form	TC-L

Glossary

Aberration
Defective image in the eye. A distinction is made between spherical aberration, which is a result of the different focal lengths of central and peripheral areas of the lens, and chromatic aberration, which occurs when the refraction of light of different wavelengths is changed

Absorption
The ability of materials and substances to transform light into other forms of energy (primarily heat) without reflecting or transmitting it. The degree of absorption is defined as the ratio of absorbed luminous flux to the incident flux

Accent lighting
Accenting of individual areas of a space by means of lighting that is significantly higher than the level of → the ambient lighting. → Focal glow

Accommodation
The physiological adjustment of the eye to be able to identify objects at different distances. Effected by deformation of the lens. Accommodation deteriorates with age

Adaptation
The ability of the eye to adjust to → luminances in the field of vision. Effected primarily through the enlarging or reducing of the size of the pupil, most significantly effected by changes in the sensitivity of the receptors on the retina and the change between → photopic vision and → scotopic vision

Ambient light
Ambient light provides general lighting of the visual environment. Architecture, objects and people in the environment are visible, which allows orientation, work and communication

Angle of view
Angle at which an object under view is perceived, measure for the size of the image of the object on the → retina

Anodizing
Electro-chemical oxidation of metal surfaces, mostly of aluminium. Anodized surfaces that are subsequently polished or treated chemically to produce a glossy finish are extremely durable and have high → (luminous) reflectance

Ballast
Current limiting → control gear for → discharge lamps. Current limitation is effected either inductively, using a choke, or electronically. Inductive ballasts are available as conventional ballasts (CB) or low-loss ballasts (LLB). They may require an additional ignitor or starting device. Electronic ballasts (EB) do not require additional ignitors. They do not produce disturbing humming noises or → strobscopic effects

Barndoors
Term used to describe rectangular anti-dazzle screens used predominantly with stage projectors

Batwing characteristics
→ Light intensity distribution curve of a luminaire with especially wide-angled light intensity distribution characteristics. The name is derived from the batwing shape of the light intensity distribution curve

Beam spread
The angle between the limits from which the axial value of a → light intensity distribution curve decreases to 50%. The beam spread is the basis for calculating the diameter of light beams emitted by symmetrical luminaires

Biological needs
The biological needs a lighting concept is expected to meet depend largely on the specific activities to be performed. They are the result of basic human needs for information regarding the time of day, the weather and things that are happening. This fulfils the need for safety, spatial orientation and a clearly structured, legible environment together with the need for a balanced ratio of possible contact with other persons and a private domain

Black body
→ Planckian radiator

Brilliance
Describes the effect of light on glossy surfaces or transparent materials. Brilliance is produced by the reflection of the light source or the light being refracted; it is produced by compact, point light sources