SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

F21 LIGHTING

Note(s)

Attention is drawn to Note III of Section H, and in particular that subclass H05B covers electrical aspects of the same technical subjects that are covered by class F21.

F21H INCANDESCENT MANTLES; OTHER INCANDESCENT BODIES HEATED BY COMBUSTION

1/00 Incandescent mantles; Selection of imbibition liquids therefor [1, 2006.01]

1/02 • characterised by the material thereof **[1, 2006.01]**

3/00 Manufacturing incandescent mantles; Treatment prior to use, e.g. burning-off; Machines for manufacturing [1, 2006.01]

5/00 Solid incandescent bodies (incandescent mantles F21H 1/00) **[1, 2006.01]**

7/00 Other incandescent bodies [2009.01]

F21K NON-ELECTRIC LIGHT SOURCES USING LUMINESCENCE; LIGHT SOURCES USING ELECTROCHEMILUMINESCENCE; LIGHT SOURCES USING CHARGES OF COMBUSTIBLE MATERIAL; LIGHT SOURCES USING SEMICONDUCTOR DEVICES AS LIGHT-GENERATING ELEMENTS; LIGHT SOURCES NOT OTHERWISE PROVIDED FOR

Note(s) [2016.01]

In this subclass, it is desirable to add the indexing codes of subclasses F21W and F21Y.

2/00 Non-electric light sources using luminescence (using excitation by radioactivity G21H 3/02, H01J 65/06, H01J 65/08; using excitation by an external electromagnetic field or by external corpuscular radiation H01J 65/04)**; Light sources using electrochemiluminescence [1, 2, 7, 2006.01]**

2/04 • using triboluminescence; using thermoluminescence **[1, 2006.01]**

2/06 • using chemiluminescence **[3, 2006.01]**

2/08 • • activated by an electric field, i.e. electrochemiluminescence **[3, 2006.01]**

5/00 Light sources using charges of combustible material, e.g. illuminating flash devices [1, 3, 5, 2006.01]

5/04 • Plural charges, e.g. associated for sequential ignition (F21K 5/06, F21K 5/12 take precedence) **[5, 2006.01]**

5/06 • Charge containment **[5, 2006.01]**

5/08 • • Charge held in non-disrupting container, e.g. photo-flash bulb **[5, 2006.01]**

5/10 • • • bearing a coating **[5, 2006.01]**

5/12 • Charge ignition **[5, 2006.01]**

5/14 • • percussive **[5, 2006.01]**

5/16 • • electrical (circuit arrangements H05B 46/00) **[5, 2006.01]**

5/18 • • • Electrically-ignited primers **[5, 2006.01]**

5/20 • Charge feeding means **[5, 2006.01]**

5/22 • Protective light shields **[5, 2006.01]**

9/00 Light sources using semiconductor devices as light-generating elements, e.g. using light-emitting diodes [LED] or lasers [2016.01]

Note(s) [2016.01]

1. In this group, the following expressions are used with the meaning indicated:
   - "light source" means a light-generating component intended for installation in a fitting or holder incorporated in a lighting device;
   - "retrofit light source" means a light source comprising substantially the same attachment means as those of incandescent lamps or fluorescent lamps. "Retrofit light sources" are specially adapted for replacing or substituting such lamps.
2. Semiconductor devices per se, or assemblies thereof, specially adapted for light emission, e.g. for use in light sources (in the sense of Note (1)) are covered by subclass H01L, e.g. H01L 33/00 or H01L 51/50, or by subclass H01S.
3. Lighting devices or systems in which light sources are used are covered by subclasses F21L or F21S.
4. When classifying in this group, classification is also made in subclass F21V if detail aspects covered by that subclass are of interest.

9/20 • Light sources comprising attachment means **[2016.01]**

9/23 • • Retrofit light sources for lighting devices with a single fitting for each light source, e.g. for substitution of incandescent lamps with bayonet or threaded fittings **[2016.01]**

9/232 • • • specially adapted for generating an essentially omnidirectional light distribution, e.g. with a glass bulb **[2016.01]**

9/233 • • • specially adapted for generating a spot light distribution, e.g. for substitution of reflector lamps **[2016.01]**

9/235 • • • Details of bases or caps, i.e. the parts that connect the light source to a fitting; Arrangement of components within bases or caps (F21K 9/238 takes precedence) **[2016.01]**

9/237 • • • Details of housings or cases, i.e. the parts between the light-generating element and the bases; Arrangement of components within housings or cases (F21K 9/238 takes precedence) **[2016.01]**

9/238 • • • Arrangement or mounting of circuit elements integrated in the light source **[2016.01]**

9/27 • • Retrofit light sources for lighting devices with two fittings for each light source, e.g. for substitution of fluorescent tubes **[2016.01]**

9/272 • • • Details of end parts, i.e. the parts that connect the light source to a fitting; Arrangement of components within end parts (F21K 9/278 takes precedence) **[2016.01]**

9/275 • • • Details of bases or housings, i.e. the parts between the light-generating element and the end caps; Arrangement of components within bases or housings (F21K 9/278 takes precedence) **[2016.01]**

9/278 • • • Arrangement or mounting of circuit elements integrated in the light source **[2016.01]**

9/60 • Optical arrangements integrated in the light source, e.g. for improving the colour rendering index or the light extraction **[2016.01]**

9/61 • • using light guides **[2016.01]**

9/62 • • using mixing chambers, e.g. housings with reflective walls **[2016.01]**

9/64 • • using wavelength conversion means distinct or spaced from the light-generating element, e.g. a remote phosphor layer **[2016.01]**

9/65 • • specially adapted for changing the characteristics or the distribution of the light, e.g. by adjustment of parts **[2016.01]**

9/66 • • Details of globes or covers forming part of the light source **[2016.01]**

9/68 • • Details of reflectors forming part of the light source **[2016.01]**

9/69 • • Details of refractors forming part of the light source **[2016.01]**

9/90 • Methods of manufacture **[2016.01]**

99/00 Subject matter not provided for in other groups of this subclass [2010.01, 2016.01]

F21L LIGHTING DEVICES OR SYSTEMS THEREOF, BEING PORTABLE OR SPECIALLY ADAPTED FOR TRANSPORTATION [1, 7]

Note(s) [7, 2009.01]

1. This subclass covers devices or systems designed or specially adapted to be carried, e.g. by hand, or otherwise transported from place to place, e.g. on wheeled supports, in order to provide illumination as and where required.
2. This subclass does not cover devices or systems intended for fixed installation, e.g. vehicle lighting, or for use essentially at a permanent location, which are covered by subclass F21S.
3. Non-electric lighting devices are classified in groups F21L 17/00-F21L 26/00 only if a special adaptation related to the use of a non-electric light source is of interest.
4. In this subclass, it is desirable to add the indexing codes of subclasses F21W and F21Y.

Subclass index

2/00 Systems of electric lighting devices (systems employing both electric and non-electric light sources or exchangeable light sources F21L 27/00) **[7, 2006.01]**

4/00 Electric lighting devices with self-contained electric batteries or cells [7, 2006.01]

4/02 • characterised by provision of two or more light sources **[7, 2006.01]**

4/04 • characterised by provision of a light source housing portion adjustably fixed to the remainder of the device **[7, 2006.01]**

4/06 • with light source coupled to the remainder of the device solely by cable **[7, 2006.01]**

4/08 • characterised by means for in situ recharging of the batteries or cells **[7, 2006.01]**

13/00 Electric lighting devices with built-in electric generators (with solar cells F21L 4/00) **[1, 7, 2006.01]**

13/02 • with fluid drive **[1, 2006.01]**

13/04 • • actuated by hand **[1, 2006.01]**

13/06 • with mechanical drive, e.g. spring **[1, 2006.01]**

13/08 • • by reciprocating pusher actuated by hand **[1, 2006.01]**

14/00 Electric lighting devices without a self-contained power source, e.g. for mains connection [7, 2006.01]

14/02 • capable of hand-held use, e.g. inspection lamps **[7, 2006.01]**

14/04 • carried on wheeled supports **[7, 2006.01]**

17/00 Non-electric torches; Non-electric flares [1, 2006.01]

19/00 Lanterns, e.g. hurricane lamps or candle lamps [1, 2006.01]

21/00 Non-electric pocket-lamps, e.g. lamps producing sparks [1, 2006.01]

23/00 Non-electric hand-lamps for miners [1, 2006.01]

26/00 Non-electric portable lighting devices, or systems thereof, not provided for in groups F21L 17/00-F21L 23/00 [2006.01]

27/00 Lighting devices or systems, employing combinations of electric and non-electric light sources; Replacing or exchanging electric light sources with non-electric light sources or vice versa in lighting devices or systems [1, 2006.01]

F21S NON-PORTABLE LIGHTING DEVICES; SYSTEMS THEREOF; VEHICLE LIGHTING DEVICES SPECIALLY ADAPTED FOR VEHICLE EXTERIORS [1, 7]

Note(s) [7, 2009.01]

1. This subclass covers:
   - devices or systems intended for fixed installation or for use at a permanent location, e.g. free-standing floor- or table-lamps;
   - aspects related to the optical, mechanical, thermal or electrical arrangement of elements in vehicle illuminating devices specially adapted for vehicle exterior, e.g. headlamps;
   - aspects related to the optical, mechanical, thermal or electrical arrangement of elements in vehicle light signalling devices specially adapted for vehicle exterior, e.g. brake lamps or direction indicator lights.
2. This subclass does not cover:
   - devices or systems specially adapted for transportation, which are covered by subclass F21L;
   - aspects related to the vehicles in which lighting devices are arranged, e.g. the arrangement or operation of lighting devices on vehicles, which are covered by subclass B60Q;
   - control of vehicle lighting devices in relation to the vehicle as a whole, e.g. for levelling, swivelling or aiming. Such arrangements are covered by group B60Q 1/06, even if the movement of the lighting device occurs inside the lamp housing.
3. Non-electric lighting devices or systems are classified in groups F21S 11/00-F21S 15/00 only if a special adaptation related to the use of a non-electric light source is of interest.
4. In this subclass, it is desirable to add the indexing codes of subclasses F21W and F21Y.

Subclass index

2/00 Systems of lighting devices, not provided for in main groups F21S 4/00-F21S 10/00 or F21S 19/00, e.g. of modular construction [7, 2006.01, 2016.01]

4/00 Lighting devices or systems using a string or strip of light sources [7, 2006.01, 2016.01]

4/10 • with light sources attached to loose electric cables, e.g. Christmas tree lights **[2016.01]**

4/15 • • the cables forming a grid, net or web structure **[2016.01]**

4/20 • with light sources held by or within elongate supports **[2016.01]**

4/22 • • flexible or deformable, e.g. into a curved shape **[2016.01]**

4/24 • • • of ribbon or tape form, e.g. LED tapes **[2016.01]**

4/26 • • • of rope form, e.g. LED lighting ropes, or of tubular form **[2016.01]**

4/28 • • rigid, e.g. LED bars **[2016.01]**

6/00 Lighting devices intended to be free-standing (F21S 9/00, F21S 10/00 take precedence) **[7, 2006.01]**

8/00 **Lighting devices intended for fixed installation** (F21S 9/00, F21S 10/00 take precedence; using a string or strip of light sources F21S 4/00) **[7, 2006.01]**

8/02 • of recess-mounted type, e.g. downlighters (specially adapted for vehicle exteriors F21S 41/00-F21S 45/00) **[7, 2006.01]**

8/04 • intended only for mounting on a ceiling or like overhead structure (F21S 8/02 takes precedence) **[7, 2006.01]**

8/06 • • by suspension **[7, 2006.01]**

8/08 • with a standard **[7, 2006.01]**

9/00 **Lighting devices with a built-in power supply; Systems employing lighting devices with a built-in power supply [1, 2006.01]**

9/02 • the power supply being a battery or accumulator **[1, 2006.01]**

9/03 • • rechargeable by exposure to light **[7, 2006.01]**

9/04 • the power supply being a generator **[1, 2006.01]**

10/00 **Lighting devices or systems producing a varying lighting effect [7, 2006.01]**

10/02 • changing colours (F21S 10/04 takes precedence) **[7, 2006.01]**

10/04 • simulating flames **[7, 2006.01]**

10/06 • flashing, e.g. with rotating reflector or light source **[7, 2006.01]**

11/00 **Non-electric lighting devices or systems using daylight [1, 2006.01]**

13/00 **Non-electric lighting devices or systems employing a point-like light source; Non-electric lighting devices or systems employing a light source of unspecified shape [1, 2006.01]**

13/02 • Devices intended to be fixed, e.g. ceiling lamp, wall lamp **[1, 2006.01]**

13/04 • • with a pendant **[1, 2006.01]**

13/06 • • • multi-branched, e.g. chandelier **[1, 2006.01]**

13/08 • • with suspension from a stretched wire **[1, 2006.01]**

13/10 • • with a standard, e.g. street lamp **[1, 2006.01]**

13/12 • Devices intended to be free-standing, e.g. table lamp, floor lamp **[1, 2006.01]**

13/14 • Lighting systems **[1, 2006.01]**

15/00 **Non-electric lighting devices or systems employing light sources not covered by main groups F21S 11/00, F21S 13/00 or F21S 19/00 [1, 2006.01]**

19/00 **Lighting devices or systems employing combinations of electric and non-electric light sources; Replacing or exchanging electric light sources with non-electric light sources or vice versa [1, 2006.01]**

Vehicle lighting devices specially adapted for vehicle exteriors [2018.01]

41/00 **Illuminating devices specially adapted for vehicle exteriors, e.g. headlamps** (reversing lights F21S 43/00) **[2018.01]**

41/10 • characterised by the light source **[2018.01]**

41/12 • • characterised by the type of emitted light **[2018.01]**

41/125 • • • Coloured light **[2018.01]**

41/13 • • • Ultraviolet light; Infrared light **[2018.01]**

41/135 • • • polarised **[2018.01]**

41/14 • • characterised by the type of light source **[2018.01]**

41/141 • • • Light emitting diodes [LED] **[2018.01]**

41/143 • • • • the main emission direction of the LED being parallel to the optical axis of the illuminating device **[2018.01]**

41/145 • • • • • the main emission direction of the LED being opposite to the main emission direction of the illuminating device **[2018.01]**

41/147 • • • • the main emission direction of the LED being angled to the optical axis of the illuminating device **[2018.01]**

41/148 • • • • • the main emission direction of the LED being perpendicular to the optical axis **[2018.01]**

41/151 • • • • arranged in one or more lines **[2018.01]**

41/153 • • • • • arranged in a matrix **[2018.01]**

41/155 • • • • Surface emitters, e.g. organic light emitting diodes [OLED] **[2018.01]**

41/16 • • • Laser light sources **[2018.01]**

41/162 • • • Incandescent light sources, e.g. filament or halogen lamps **[2018.01]**

41/164 • • • • having two or more filaments **[2018.01]**

41/166 • • • • characterised by the shape of the filament **[2018.01]**

41/168 • • • • having a filament arranged transversally to the optical axis of the illuminating device **[2018.01]**

41/17 • • • Discharge light sources **[2018.01]**

41/172 • • • • High-intensity discharge light sources **[2018.01]**

41/173 • • • • Fluorescent light sources **[2018.01]**

41/176 • • • Light sources where the light is generated by photoluminescent material spaced from a primary light generating element **[2018.01]**

41/19 • • Attachment of light sources or lamp holders (achieving variable light distribution by movable light sources F21S 41/657) **[2018.01]**

41/20 • characterised by refractors, transparent cover plates, light guides or filters **[2018.01]**

41/24 • • Light guides **[2018.01]**

41/25 • • Projection lenses **[2018.01]**

41/255 • • • Lenses with a front view of circular or truncated circular outline **[2018.01]**

41/26 • • • Elongate lenses **[2018.01]**

41/265 • • • Composite lenses; Lenses with a patch-like shape **[2018.01]**

41/27 • • • Thick lenses **[2018.01]**

41/275 • • • Lens surfaces, e.g. coatings or surface structures **[2018.01]**

41/29 • • Attachment thereof (for achieving variable light distribution F21S 41/63) **[2018.01]**

41/30 • characterised by reflectors **[2018.01]**

41/32 • • Optical layout thereof **[2018.01]**

41/33 • • • Multi-surface reflectors, e.g. reflectors with facets or reflectors with portions of different curvature **[2018.01]**

41/36 • • • Combinations of two or more separate reflectors **[2018.01]**

41/365 • • • • successively reflecting the light **[2018.01]**

41/37 • • characterised by their material, surface treatment or coatings **[2018.01]**

41/39 • • Attachment thereof (achieving variable light distribution by movable reflectors F21S 41/675) **[2018.01]**

41/40 • characterised by screens, non-reflecting members, light-shielding members or fixed shades **[2018.01]**

41/43 • • characterised by the shape thereof **[2018.01]**
41/47 • • Attachment thereof (achieving variable light distribution by movable screens F21S 41/683) **[2018.01]**
41/50 • characterised by aesthetic components not otherwise provided for, e.g. decorative trim, partition walls or covers **[2018.01]**
41/55 • • Attachment thereof **[2018.01]**
41/60 • characterised by a variable light distribution **[2018.01]**
41/62 • • for adaptation between right-hand and left-hand traffic **[2018.01]**
41/63 • • by acting on refractors, filters or transparent cover plates **[2018.01]**
41/64 • • • by changing their light transmissivity, e.g. by liquid crystal or electrochromic devices **[2018.01]**
41/65 • • by acting on light sources **[2018.01]**
41/657 • • • by moving light sources **[2018.01]**
41/663 • • • by switching light sources (by switching incandescent light sources F21S 41/162) **[2018.01]**
41/67 • • by acting on reflectors **[2018.01]**
41/675 • • • by moving reflectors **[2018.01]**
41/68 • • by acting on screens **[2018.01]**
41/683 • • • by moving screens **[2018.01]**
41/686 • • • • Blades, i.e. screens moving in a vertical plane **[2018.01]**
41/689 • • • • Flaps, i.e. screens pivoting around one of their edges **[2018.01]**
41/692 • • • • Shields, i.e. screens not creating an image meant to be projected **[2018.01]**
41/695 • • • • Screens rotating around a vertical axis (rotating flaps F21S 41/689) **[2018.01]**
41/698 • • • • Shaft-shaped screens rotating along their longitudinal axes **[2018.01]**

43/00 Signalling devices specially adapted for vehicle exteriors, e.g. brake lamps, direction indicator lights or reversing lights [2018.01]

43/10 • characterised by the light source **[2018.01]**
43/13 • • characterised by the type of light source **[2018.01]**
43/14 • • • Light emitting diodes [LED] **[2018.01]**
43/145 • • • • Surface emitters, e.g. organic light emitting diodes [OLED] **[2018.01]**
43/15 • • • Strips of light sources **[2018.01]**
43/16 • • • Light sources where the light is generated by photoluminescent material spaced from a primary light generating element **[2018.01]**
43/19 • • Attachment of light sources or lamp holders **[2018.01]**
43/20 • characterised by refractors, transparent cover plates, light guides or filters **[2018.01]**
43/235 • • Light guides **[2018.01]**
43/236 • • • characterised by the shape of the light guide **[2018.01]**
43/237 • • • • rod-shaped **[2018.01]**
43/239 • • • • plate-shaped **[2018.01]**
43/241 • • • • of complex shape **[2018.01]**
43/242 • • • characterised by the emission area **[2018.01]**
43/243 • • • • emitting light from one or more of its extremities **[2018.01]**
43/245 • • • • emitting light from one or more of its major surfaces **[2018.01]**
43/247 • • • with a single light source being coupled into the light guide **[2018.01]**
43/249 • • • with two or more light sources being coupled into the light guide **[2018.01]**
43/251 • • • the light guides being used to transmit light from remote light sources **[2018.01]**
43/27 • • Attachment thereof **[2018.01]**
43/30 • characterised by reflectors **[2018.01]**
43/31 • • Optical layout thereof **[2018.01]**
43/33 • • characterised by their material, surface treatment or coatings **[2018.01]**
43/37 • • Attachment thereof **[2018.01]**
43/40 • characterised by the combination of reflectors and refractors **[2018.01]**
43/50 • characterised by aesthetic components not otherwise provided for, e.g. decorative trim, partition walls or covers **[2018.01]**

45/00 Arrangements within vehicle lighting devices specially adapted for vehicle exteriors, for purposes other than emission or distribution of light [2018.01]

45/10 • Protection of lighting devices (cooling of lighting devices F21S 45/40, waterproofing of lighting devices F21S 45/50) **[2018.01]**
45/20 • Promoting gas flow in lighting devices, e.g. directing flow toward the cover glass for demisting (ventilation F21S 45/30; forced cooling F21S 45/42) **[2018.01]**
45/30 • Ventilation or drainage of lighting devices **[2018.01]**
45/33 • • specially adapted for headlamps **[2018.01]**
45/37 • • specially adapted for signal lamps **[2018.01]**
45/40 • Cooling of lighting devices **[2018.01]**
45/42 • • Forced cooling **[2018.01]**
45/43 • • • using gas **[2018.01]**
45/435 • • • • circulating the gas within a closed system **[2018.01]**
45/46 • • • using liquid **[2018.01]**
45/465 • • • • from other vehicle cooling systems, e.g. from air-conditioning or engine cooling systems **[2018.01]**
45/47 • • Passive cooling, e.g. using fins, thermal conductive elements or openings **[2018.01]**
45/48 • • • with means for conducting heat from the inside to the outside of the lighting devices, e.g. with fins on the outer surface of the lighting device **[2018.01]**
45/49 • • Attachment of the cooling means **[2018.01]**
45/50 • Waterproofing **[2018.01]**
45/60 • Heating of lighting devices, e.g. for demisting **[2018.01]**
45/70 • Prevention of harmful light leakage **[2018.01]**

F21V FUNCTIONAL FEATURES OR DETAILS OF LIGHTING DEVICES OR SYSTEMS THEREOF; STRUCTURAL COMBINATIONS OF LIGHTING DEVICES WITH OTHER ARTICLES, NOT OTHERWISE PROVIDED FOR [1, 7]

Note(s) [7, 2009.01]

1. Groups F21V 1/00-F21V 14/00 cover aspects related to light emission or distribution. Groups F21V 15/00-F21V 31/00 cover aspects not related to light emission or distribution.
2. Details of non-electric lighting devices or systems are classified in groups F21V 35/00-F21V 37/00 only if a special adaptation related to the use of a non-electric light source is of interest.
3. In this subclass, it is desirable to add the indexing codes of subclasses F21W and F21Y.

Subclass index

1/00 Shades for light sources [1, 2006.01]

1/02 • Frames **[1, 2006.01]**
1/04 • • rigid (F21V 1/08 takes precedence) **[1, 2006.01]**
1/06 • • foldable or collapsible **[1, 2006.01]**
1/08 • • adjustable **[1, 2006.01]**
1/10 • Rotating shades **[1, 2006.01]**
1/12 • Composite shades **[1, 2006.01]**
1/14 • Covers for frames; Frameless shades **[1, 2006.01]**
1/16 • • characterised by the material **[1, 2006.01, 2018.01]**
1/17 • • • the material comprising photoluminescent substances **[2018.01]**
1/18 • • • the material being paper **[1, 2006.01]**
1/20 • • • the material being glass **[1, 2006.01]**
1/22 • • • the material being plastics **[1, 2006.01]**
1/24 • • • the material being metal **[1, 2006.01]**
1/26 • Manufacturing shades **[1, 2006.01]**

3/00 Globes; Bowls; Cover glasses (with refracting properties F21V 5/00; with reflecting properties F21V 7/00; characterised by cooling arrangements F21V 29/506) **[1, 2006.01, 2015.01]**

3/02 • characterised by the shape **[1, 2006.01]**
3/04 • characterised by materials, surface treatments or coatings **[1, 2006.01, 2018.01]**
3/06 • • characterised by the material **[2018.01]**
3/08 • • • the material comprising photoluminescent substances **[2018.01]**
3/10 • • characterised by coatings **[2018.01]**
3/12 • • • the coatings comprising photoluminescent substances **[2018.01]**

5/00 Refractors for light sources (characterised by cooling arrangements F21V 29/504) **[1, 2006.01, 2015.01, 2018.01]**

5/02 • of prismatic shape (F21V 5/04 takes precedence) **[1, 2006.01]**
5/04 • of lens shape **[1, 2006.01]**
5/06 • Hanging lustres for chandeliers **[1, 2006.01]**
5/08 • producing an asymmetric light distribution **[1, 7, 2006.01]**
5/10 • comprising photoluminescent material **[2018.01]**

7/00 Reflectors for light sources (characterised by cooling arrangements F21V 29/505) **[1, 2006.01]**

7/04 • Optical design **[1, 7, 2006.01]**
7/05 • • plane **[1, 7, 2006.01]**
7/06 • • with parabolic curvature **[1, 7, 2006.01]**
7/07 • • with hyperbolic curvature **[1, 7, 2006.01]**
7/08 • • with elliptical curvature **[1, 7, 2006.01]**
7/09 • • with a combination of different curvatures **[1, 7, 2006.01]**
7/10 • Construction **[1, 7, 2006.01]**
7/16 • • with provision for adjusting the curvature **[1, 7, 2006.01]**
7/18 • • with provision for folding or collapsing **[1, 7, 2006.01]**
7/22 • characterised by materials, surface treatments or coatings, e.g. dichroic reflectors **[1, 2006.01, 2018.01]**
7/24 • • characterised by the material **[2018.01]**
7/26 • • • the material comprising photoluminescent substances **[2018.01]**
7/28 • • characterised by coatings **[2018.01]**

7/30 • • • the coatings comprising photoluminescent substances **[2018.01]**

8/00 Use of light guides, e.g. fibre optic devices, in lighting devices or systems [4, 2006.01]

9/00 Elements for modifying spectral properties, polarisation or intensity of the light emitted, e.g. filters (coloured shades F21V 1/00; elements characterised by cooling arrangements F21V 29/502) **[1, 2006.01, 2015.01, 2018.01]**

9/02 • for simulating daylight (F21V 9/04, F21V 9/06 take precedence) **[1, 2006.01, 2018.01]**

9/04 • for filtering out infrared radiation (dichroic reflectors F21V 7/22; using liquid-filled chambers F21V 9/12) **[1, 2006.01, 2018.01]**

9/06 • for filtering out ultraviolet radiation **[1, 2006.01, 2018.01]**

9/08 • for producing coloured light, e.g. monochromatic; for reducing intensity of light (with provision for controlling the colour F21V 9/40) **[1, 2006.01, 2018.01]**

9/12 • • with liquid-filled chambers **[1, 2006.01]**

9/14 • for producing polarised light **[1, 2006.01]**

9/20 • Dichroic filters, i.e. devices operating on the principle of wave interference to pass specific ranges of wavelengths while cancelling others **[2018.01]**

9/30 • Elements containing photoluminescent material distinct from or spaced from the light source (shades F21V 1/17; globes, bowls or cover glasses F21V 3/08, F21V 3/12; refractors F21V 5/10; reflectors F21V 7/26, F21V 7/30; elements with provision for controlling spectral properties or intensity F21V 9/40) **[2018.01]**

9/32 • • characterised by the arrangement of the photoluminescent material **[2018.01]**

9/35 • • • at focal points, e.g. of refractors, lenses, reflectors or arrays of light sources **[2018.01]**

9/38 • • Combination of two or more photoluminescent elements of different materials **[2018.01]**

9/40 • with provision for controlling spectral properties, e.g. colour, or intensity **[2018.01]**

9/45 • • by adjustment of photoluminescent elements **[2018.01]**

11/00 Screens not covered by groups F21V 1/00, F21V 3/00, F21V 7/00 or F21V 9/00 (characterised by cooling arrangements F21V 29/502) **[1, 2006.01, 2015.01]**

11/02 • using parallel laminae or strips, e.g. of Venetian-blind type (F21V 11/06 takes precedence) **[1, 2006.01]**

11/04 • • adjustable **[1, 2006.01]**

11/06 • using crossed laminae or strips; using lattices or honeycombs **[1, 2006.01]**

11/08 • using diaphragms containing one or more apertures **[1, 2006.01]**

11/10 • • of iris type **[1, 2006.01]**

11/12 • • of slot type **[1, 2006.01]**

11/14 • • with many small apertures **[1, 2006.01]**

11/16 • using sheets without apertures, e.g. fixed **[1, 2006.01]**

11/18 • • movable, e.g. flaps, slides **[1, 2006.01]**

13/00 Producing particular characteristics or distribution of the light emitted by means of a combination of elements specified in two or more of main groups F21V 1/00-F21V 11/00 (controlling the distribution of the light emitted by adjustment of elements F21V 14/00) **[1, 7, 2006.01]**

13/02 • Combinations of only two kinds of elements **[1, 2006.01]**

13/04 • • the elements being reflectors and refractors **[1, 2006.01]**

13/06 • • • a reflector being rotatable **[1, 2006.01]**

13/08 • • the elements being filters or photoluminescent elements and reflectors **[1, 2006.01]**

13/10 • • the elements being reflectors and screens **[1, 2006.01]**

13/12 • Combinations of only three kinds of elements **[1, 2006.01]**

13/14 • • the elements being filters or photoluminescent elements, reflectors and refractors **[1, 2006.01]**

14/00 Controlling the distribution of the light emitted by adjustment of elements (reflectors with provision for adjusting the curvature F21V 7/16; light filters or the like with provision for controlling the colour or intensity F21V 9/40; screens using adjustable parallel laminae or strips F21V 11/04; screens using iris-type diaphragms F21V 11/10; screens using movable sheets without apertures F21V 11/18; adjustable mountings for lighting devices F21V 21/14) **[7, 2006.01, 2018.01]**

14/02 • by movement of light sources **[7, 2006.01]**

14/04 • by movement of reflectors **[7, 2006.01]**

14/06 • by movement of refractors **[7, 2006.01]**

14/08 • by movement of screens **[7, 2006.01]**

15/00 Protecting lighting devices from damage (protection from thermal damage F21V 29/00; gas-tight or water-tight arrangements F21V 31/00) **[1, 2006.01, 2015.01]**

15/01 • Housings, e.g. material or assembling of housing parts (F21V 15/02 takes precedence) **[7, 2006.01]**

15/015 • • Devices for covering joints between adjacent lighting devices; End coverings **[7, 2006.01]**

15/02 • Cages **[1, 2006.01]**

15/04 • Resilient mountings, e.g. shock-absorbers **[1, 2006.01]**

17/00 Fastening of component parts of lighting devices, e.g. shades, globes, refractors, reflectors, filters, screens, grids or protective cages (of light sources or light holders F21V 19/00) **[1, 2006.01]**

17/02 • with provision for adjustment (F21V 17/04-F21V 17/08 take precedence) **[1, 7, 2006.01]**

17/04 • onto or by the light source **[1, 2006.01]**

17/06 • onto or by the lamp holder **[1, 2006.01]**

17/08 • onto the supporting or suspending arrangements of the lighting device, e.g. power cords, standards **[7, 2006.01]**

17/10 • characterised by specific fastening means or way of fastening (F21V 17/02-F21V 17/08 take precedence) **[7, 2006.01]**

17/12 • • by screwing **[7, 2006.01]**

17/14 • • Bayonet-type fastening **[7, 2006.01]**

17/16 • • by deformation of parts of the lighting device; Snap action mounting **[7, 2006.01]**

17/18 • • Latch-type fastening, e.g. with rotary action **[7, 2006.01]**

17/20 • • by toggle-action levers **[7, 2006.01]**

19/00 Fastening of light sources or lamp holders (fastening electric light source solely by the coupling device H01R 33/00) **[1, 2006.01]**

19/02 • with provision for adjustment, e.g. for focusing **[1, 7, 2006.01]**

19/04 • with provision for changing light source, e.g. turret **[1, 2006.01]**

19/06 • Fastening incandescent mantles or other incandescent bodies to lamp parts; Suspension devices for incandescent mantles or other incandescent bodies (arrangements of mantles or other incandescent bodies on burners F21V 36/00) **[1, 7, 2006.01]**

21/00 Supporting, suspending, or attaching arrangements for lighting devices (F21V 17/00, F21V 19/00 take precedence)**; Hand grips [1, 7, 2006.01]**

21/002 • making direct electrical contact, e.g. by piercing (F21V 21/35 takes precedence) **[7, 2006.01]**

21/005 • for several lighting devices in an end-to-end arrangement, i.e. light tracks **[7, 2006.01]**

21/008 • Suspending from a cable or suspension line **[7, 2006.01]**

21/02 • Wall, ceiling, or floor bases; Fixing pendants or arms to the bases (F21V 21/08 takes precedence; bases for movable standing lamps F21V 21/06) **[1, 2006.01]**

21/03 • • Ceiling bases, e.g. ceiling roses (F21V 21/04 takes precedence) **[7, 2006.01]**

21/04 • • Recessed bases **[1, 2006.01]**

21/06 • Bases for movable standing lamps; Fixing standards to the bases (F21V 21/08 takes precedence) **[1, 2006.01]**

21/08 • Devices for easy attachment to a desired place **[1, 2006.01]**

21/084 • • Head fittings **[7, 2006.01]**

21/088 • • Clips; Clamps **[7, 2006.01]**

21/092 • • Suction devices **[7, 2006.01]**

21/096 • • Magnetic devices **[7, 2006.01]**

21/10 • Pendants, arms or standards; Fixing lighting devices to pendants, arms or standards (adjustable mounting F21V 21/14) **[1, 2006.01]**

21/104 • • Pendants **[7, 2006.01]**

21/108 • • Arms **[7, 2006.01]**

21/112 • • Fixing lighting devices to pendants (F21V 21/002 takes precedence) **[7, 2006.01]**

21/116 • • Fixing lighting devices to arms or standards (F21V 21/002 takes precedence) **[7, 2006.01]**

21/12 • • capable of being elongated or shortened by the insertion or removal of intermediate pieces **[1, 2006.01]**

21/13 • Spring-loaded poles fixed at both ends **[7, 2006.01]**

21/14 • Adjustable mountings **[1, 2006.01]**

21/15 • • specially adapted for power operation, e.g. by remote control **[7, 2006.01]**

21/16 • • using wires or cords **[1, 2006.01]**

21/18 • • • operated by springs **[1, 2006.01]**

21/20 • • • operated by weights **[1, 2006.01]**

21/22 • • telescopic **[1, 2006.01]**

21/24 • • Lazy-tongs **[1, 2006.01]**

21/26 • • Pivoted arms **[1, 2006.01]**

21/28 • • • adjustable in more than one plane **[1, 2006.01]**

21/29 • • • • employing universal joints **[1, 2006.01]**

21/30 • • Pivoted housings or frames **[1, 2006.01]**

21/32 • • Flexible tubes **[1, 2006.01]**

21/34 • Supporting elements displaceable along a guiding element **[1, 2006.01]**

21/35 • • with direct electrical contact between the supporting element and electric conductors running along the guiding element **[7, 2006.01]**

21/36 • Hoisting or lowering devices, e.g. for maintenance **[1, 2006.01]**

21/38 • • with a cable **[1, 2006.01]**

21/40 • Hand grips **[7, 2006.01]**

23/00 Arrangement of electric circuit elements in or on lighting devices (protecting lighting devices from thermal damage F21V 29/00) **[1, 2006.01, 2015.01]**

23/02 • the elements being transformers or impedances **[1, 2006.01]**

23/04 • the elements being switches (safety devices F21V 25/00) **[1, 2006.01]**

23/06 • the elements being coupling devices **[1, 2006.01]**

25/00 Safety devices structurally associated with lighting devices (gas-tight or water-tight arrangements F21V 31/00) **[1, 2006.01]**

25/02 • coming into action when lighting device is disturbed, dismounted, or broken **[1, 2006.01]**

25/04 • • breaking the electric circuit **[1, 2006.01]**

25/06 • • feeding a quenching fluid to the light source **[1, 2006.01]**

25/08 • • cutting the incandescent filament **[1, 2006.01]**

25/10 • coming into action when lighting device is over-loaded, e.g. thermal switch **[1, 2006.01]**

25/12 • Flameproof or explosion-proof arrangements **[1, 2006.01]**

27/00 Cable-stowing arrangements structurally associated with lighting devices, e.g. reels [1, 2006.01]

27/02 • Cable inlets **[7, 2006.01]**

29/00 Protecting lighting devices from thermal damage; Cooling or heating arrangements specially adapted for lighting devices or systems (lighting fixtures combined with outlets for air-treatment systems F24F 13/078) **[1, 7, 2006.01, 2015.01]**

29/10 • Arrangement of heat-generating components to reduce thermal damage, e.g. by distancing heat-generating components from other components to be protected **[2015.01]**

29/15 • Thermal insulation **[2015.01]**

29/50 • Cooling arrangements (air-treatment systems dissipating or using the heat of lighting fixtures F24F 3/056) **[2015.01]**

29/502 • • characterised by the adaptation for cooling of specific components **[2015.01]**

29/503 • • • of light sources (cooling arrangements structurally associated with gas-discharge or vapour-discharge lamps H01J 61/52; cooling arrangements structurally associated with electric incandescent lamps H01K 1/58; cooling arrangements structurally associated with light-emitting diodes H01L 33/64) **[2015.01]**

29/504 • • • of refractors **[2015.01]**

29/505 • • • of reflectors **[2015.01]**

29/506 • • • of globes, bowls or cover glasses **[2015.01]**

29/507 • • • of means for protecting lighting devices from damage, e.g. housings **[2015.01]**

29/508 • • • of electrical circuits **[2015.01]**

29/51 • • using condensation or evaporation of a fluid, e.g. heat pipes **[2015.01]**

29/52 • • • electrically powered, e.g. refrigeration systems **[2015.01]**

29/54 • • using thermoelectric means, e.g. Peltier elements **[2015.01]**

29/56 • • using liquid coolants (F21V 29/51 takes precedence) **[2015.01]**

29/57 • • • characterised by control arrangements **[2015.01]**

29/58 • • • characterised by the coolants **[2015.01]**

29/60 • • characterised by the use of a forced flow of gas, e.g. air **[2015.01]**

29/61 • • • characterised by control arrangements **[2015.01]**
29/63 • • • using electrically-powered vibrating means; using ionic wind **[2015.01]**
29/65 • • • the gas flowing in a closed circuit **[2015.01]**
29/67 • • • characterised by the arrangement of fans **[2015.01]**
29/70 • • characterised by passive heat-dissipating elements, e.g. heat-sinks **[2015.01]**
29/71 • • • using a combination of separate elements interconnected by heat-conducting means, e.g. with heat pipes or thermally conductive bars between separate heat-sink elements **[2015.01]**
29/73 • • • the elements being adjustable with respect to each other, e.g. hinged **[2015.01]**
29/74 • • • with fins or blades **[2015.01]**
29/75 • • • • with fins or blades having different shapes, thicknesses or spacing **[2015.01]**
29/76 • • • • with essentially identical parallel planar fins or blades, e.g. with comb-like cross-section **[2015.01]**
29/77 • • • • with essentially identical diverging planar fins or blades, e.g. with fan-like or star-like cross-section **[2015.01]**
29/78 • • • • with helically or spirally arranged fins or blades **[2015.01]**
29/80 • • • with pins or wires **[2015.01]**
29/81 • • • • with pins or wires having different shapes, lengths or spacing **[2015.01]**
29/83 • • • the elements having apertures, ducts or channels, e.g. heat radiation holes **[2015.01]**
29/85 • characterised by the material (liquid coolants F21V 29/56) **[2015.01]**
29/87 • • Organic material, e.g. filled polymer composites; Thermo-conductive additives or coatings therefor **[2015.01]**
29/89 • • Metals **[2015.01]**
29/90 • Heating arrangements **[2015.01]**

31/00 Gas-tight or water-tight arrangements [1, 2006.01]
31/03 • with provision for venting **[7, 2006.01]**
31/04 • Provision of filling media **[1, 2006.01]**

33/00 Structural combinations of lighting devices with other articles, not otherwise provided for [1, 7, 2006.01]

35/00 Candle holders [1, 2006.01]

36/00 Arrangements of mantles or other incandescent bodies on burners [1, 2006.01]
36/02 • in ceiling lamps **[1, 2006.01]**

37/00 Details of lighting devices employing combustion as light source, not otherwise provided for [1, 7, 2006.01]
37/02 • Special adaptation for protection against draughts **[7, 2006.01]**

99/00 Subject matter not provided for in other groups of this subclass [2006.01]

F21W INDEXING SCHEME ASSOCIATED WITH SUBCLASSES F21K, F21L, F21S and F21V, RELATING TO USES OR APPLICATIONS OF LIGHTING DEVICES OR SYSTEMS [7]

Note(s) [7]

This subclass constitutes an indexing scheme associated with subclasses F21K, F21L, F21S and F21V, relating to uses or applications of lighting devices or systems.

102/00 Exterior vehicle lighting devices for illuminating purposes [2018.01]
102/10 • Arrangement or contour of the emitted light **[2018.01]**
102/13 • • for high-beam region or low-beam region **[2018.01]**
102/135 • • • the light having cut-off lines, i.e. clear borderlines between emitted regions and dark regions **[2018.01]**
102/14 • • • • having vertical cut-off lines; specially adapted for adaptive high beams, i.e. the beam is broader but avoids glaring other road users **[2018.01]**
102/145 • • • • • wherein the light is emitted between two parallel vertical cut-off lines, e.g. selectively emitted rectangular-shaped high beam **[2018.01]**
102/15 • • • • • wherein the light is emitted under L-shaped cut-off lines, i.e. vertical and horizontal cut-off lines **[2018.01]**
102/155 • • • • having inclined and horizontal cut-off lines **[2018.01]**
102/16 • • • • having blurred cut-off lines **[2018.01]**
102/165 • • • the borderlines between emitted regions and dark regions other than cut-off lines being variable **[2018.01]**
102/17 • • for regions other than high beam or low beam **[2018.01]**
102/18 • • • for overhead signs **[2018.01]**
102/19 • • • for curves **[2018.01]**
102/20 • Illuminance distribution within the emitted light **[2018.01]**
102/30 • Fog lights **[2018.01]**
102/40 • the light being emitted to facilitate access to the vehicle **[2018.01]**

103/00 Exterior vehicle lighting devices for signalling purposes [2018.01]
103/10 • Position lights **[2018.01]**
103/15 • Side marker lights **[2018.01]**
103/20 • Direction indicator lights **[2018.01]**
103/25 • • for rear-view mirrors **[2018.01]**
103/30 • Hazard lights **[2018.01]**
103/35 • Brake lights **[2018.01]**
103/40 • Rear fog lights **[2018.01]**
103/45 • Reversing lights **[2018.01]**
103/50 • Registration plate lights **[2018.01]**
103/55 • Daytime running lights [DRL] **[2018.01]**
103/60 • Projection of signs from lighting devices, e.g. symbols or information being projected onto the road **[2018.01]**

104/00 Exterior vehicle lighting devices for decorative purposes [2018.01]

105/00 Combinations of lighting devices covered by groups F21W 102/00-F21W 104/00 [2018.01]

106/00 Interior vehicle lighting devices [2018.01]

107/00 Use or application of lighting devices on or in particular types of vehicles [2018.01]

107/10 • for land vehicles **[2018.01]**
107/13 • • for cycles **[2018.01]**
107/17 • • • for motorcycles **[2018.01]**
107/20 • for water vehicles **[2018.01]**
107/30 • for aircraft **[2018.01]**

111/00 Use or application of lighting devices or systems for signalling, marking or indicating, not provided for in groups F21W 102/00-F21W 107/00 [7, 2006.01, 2018.01]

111/02 • for roads, paths or the like **[7, 2006.01]**
111/023 • • for pedestrian walkways **[7, 2006.01]**
111/027 • • for indicating kerbs, steps or stairs **[7, 2006.01]**
111/04 • for waterways **[7, 2006.01]**
111/043 • • for lighthouses or lightships **[7, 2006.01]**
111/047 • • for light-buoys **[7, 2006.01]**
111/06 • for aircraft runways or the like **[7, 2006.01]**
111/08 • for handles or handrails **[7, 2006.01]**
111/10 • for personal use, e.g. hand-held **[7, 2006.01]**

121/00 Use or application of lighting devices or systems for decorative purposes, not provided for in groups F21W 102/00-F21W 107/00 [7, 2006.01]

121/02 • for fountains **[7, 2006.01]**
121/04 • for Christmas trees **[7, 2006.01]**
121/06 • for personal wear **[7, 2006.01]**

131/00 Use or application of lighting devices or systems not provided for in groups F21W 102/00-F21W 121/00 [7, 2006.01]

131/10 • Outdoor lighting **[7, 2006.01]**
131/101 • • of tunnels or the like, e.g. under bridges **[7, 2006.01]**
131/103 • • of streets or roads **[7, 2006.01]**
131/105 • • of arenas or the like **[7, 2006.01]**
131/107 • • of the exterior of buildings **[7, 2006.01]**
131/109 • • of gardens **[7, 2006.01]**
131/20 • Lighting for medical use **[7, 2006.01]**
131/202 • • for dentistry **[7, 2006.01]**
131/205 • • for operating theatres **[7, 2006.01]**
131/208 • • for hospital wards **[7, 2006.01]**
131/30 • Lighting for domestic or personal use **[7, 2006.01]**
131/301 • • for furniture **[7, 2006.01]**
131/302 • • for mirrors **[7, 2006.01]**
131/304 • • for pictures **[7, 2006.01]**
131/305 • • for refrigerators **[7, 2006.01]**
131/307 • • for ovens **[7, 2006.01]**
131/308 • • for aquaria **[7, 2006.01]**
131/40 • Lighting for industrial, commercial, recreational or military use **[7, 2006.01]**
131/401 • • for swimming pools **[7, 2006.01]**
131/402 • • for working places **[7, 2006.01]**
131/403 • • for machines **[7, 2006.01]**
131/4035 • • • for sewing machines **[7, 2006.01]**
131/405 • • for shop-windows or displays **[7, 2006.01]**
131/406 • • for theatres, stages or film studios **[7, 2006.01]**
131/407 • • for indoor arenas **[7, 2006.01]**
131/409 • • for furnaces or kilns **[7, 2006.01]**
131/411 • • for inspection of the interior of hollow structures, e.g. vessels, tubes **[7, 2006.01]**

F21Y INDEXING SCHEME ASSOCIATED WITH SUBCLASSES F21K, F21L, F21S and F21V, RELATING TO THE FORM OR THE KIND OF THE LIGHT SOURCES OR OF THE COLOUR OF THE LIGHT EMITTED [7]

Note(s) [7]

This subclass constitutes an indexing scheme associated with subclasses F21K, F21L, F21S and F21V, relating to the form or the kind of the light sources, or of the colour of the light emitted.

101/00 Point-like light sources [7, 2006.01, 2016.01]

103/00 Elongate light sources, e.g. fluorescent tubes [7, 2006.01, 2016.01]

103/10 • comprising a linear array of point-like light-generating elements **[2016.01]**
103/20 • of polygonal shape, e.g. square or rectangular **[2016.01]**
103/30 • curved **[2016.01]**
103/33 • • annular **[2016.01]**
103/37 • • U-shaped **[2016.01]**

105/00 Planar light sources [7, 2006.01, 2016.01]

105/10 • comprising a two-dimensional array of point-like light-generating elements **[2016.01]**
105/12 • • characterised by the geometrical disposition of the light-generating elements, e.g. arranging light-generating elements in differing patterns or densities **[2016.01]**
105/14 • • characterised by the overall shape of the two-dimensional array **[2016.01]**
105/16 • • • square or rectangular, e.g. for light panels **[2016.01]**
105/18 • • • annular; polygonal other than square or rectangular, e.g. for spotlights or for generating an axially symmetrical light beam **[2016.01]**

107/00 Light sources with three-dimensionally disposed light-generating elements [2016.01]

107/10 • on concave supports or substrates, e.g. on the inner side of bowl-shaped supports **[2016.01]**
107/20 • on convex supports or substrates, e.g. on the outer surface of spheres **[2016.01]**
107/30 • on the outer surface of cylindrical surfaces, e.g. rod-shaped supports having a circular or a polygonal cross section **[2016.01]**
107/40 • on the sides of polyhedrons, e.g. cubes or pyramids **[2016.01]**
107/50 • on planar substrates or supports, but arranged in different planes or with differing orientation, e.g. on plate-shaped supports with steps on which light-generating elements are mounted **[2016.01]**

107/60 • on stacked substrates **[2016.01]**

107/70 • on flexible or deformable supports or substrates, e.g. for changing the light source into a desired form **[2016.01]**

107/80 • on articulated supports or substrates **[2016.01]**

107/90 • on two opposite sides of supports or substrates **[2016.01]**

109/00 Light sources with light-generating elements disposed on transparent or translucent supports or substrates [2016.01]

111/00 Light sources of a form not covered by groups F21Y 101/00-F21Y 107/00 [7, 2006.01, 2016.01]

113/00 Combination of light sources [7, 2006.01, 2016.01]

113/10 • of different colours **[2016.01]**

113/13 • • comprising an assembly of point-like light sources **[2016.01]**

113/17 • • • forming a single encapsulated light source **[2016.01]**

113/20 • of different form **[2016.01]**

115/00 Light-generating elements of semiconductor light sources [2016.01]

115/10 • Light-emitting diodes [LED] **[2016.01]**

115/15 • • Organic light-emitting diodes [OLED] **[2016.01]**

115/20 • Electroluminescent [EL] light sources **[2016.01]**

115/30 • Semiconductor lasers **[2016.01]**