

## SECTION G — PHYSICS

**G03 PHOTOGRAPHY; CINEMATOGRAPHY; ANALOGOUS TECHNIQUES USING WAVES OTHER THAN OPTICAL WAVES; ELECTROGRAPHY; HOLOGRAPHY****Note(s)**

1. This class does not cover reproduction of pictures or patterns by scanning and converting into electrical signals, which is covered by subclass H04N.
2. In this class, the following terms are used with the meaning indicated:
  - "records" means photographs or any other kind of latent, directly-visible or permanent storage of pictorial information, which consist of an imagewise distribution of a quantity, e.g. an electric charge pattern, recorded on a carrier member;
  - "optical" applies not only to visible light but also to ultra-violet or infra-red radiations.

**G03B APPARATUS OR ARRANGEMENTS FOR TAKING PHOTOGRAPHS OR FOR PROJECTING OR VIEWING THEM; APPARATUS OR ARRANGEMENTS EMPLOYING ANALOGOUS TECHNIQUES USING WAVES OTHER THAN OPTICAL WAVES; ACCESSORIES THEREFOR** (optical parts of such apparatus G02B; photosensitive materials or processes for photographic purposes G03C; apparatus for processing exposed photographic materials G03D) [4]**Note(s)**

This subclass covers, as far as processes are concerned, only processes characterised by the use or manipulation of apparatus classifiable per se in this subclass.

**Subclass index**

## DETAILS

Common to at least two of cameras, projectors and printers.....	1/00-5/00
Common to cameras only	
exposure, control thereof.....	7/00, 9/00
viewfinders, focusing aids.....	13/00
filters; constructional details, accessories.....	11/00, 17/00
special procedures for taking photographs.....	15/00
Common to projectors only.....	21/00, 23/00
Common to printers only.....	27/00

## APPARATUS

Cameras.....	19/00
Projectors, viewers; devices for changing pictures.....	21/00, 25/00, 23/00
Printing apparatus.....	27/00
Combinations with other apparatus.....	29/00

## SPECIAL TECHNIQUES

Associated working with sound apparatus.....	31/00
Colour photography; stereoscopic photography; panoramic photography; high-speed photography.....	33/00, 35/00, 37/00, 39/00
Other techniques.....	41/00
Using waves other than optical waves, visualisation.....	42/00

TESTING.....	43/00
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**Details common to at least two of the following types of apparatus: cameras, projectors, printers****1/00 Film-strip handling of general interest for cameras, projectors or printers**

- 1/02 • Moving film strip by pull on end thereof
- 1/04 • • Pull exerted by take-up spool
- 1/06 • • • rotated by lever-operated ratchet and pawl
- 1/08 • • • rotated by band, chain, rack, or other linear reciprocating operation

- 1/10 • • • rotated by knob through gearing
- 1/12 • • • rotated by motor, e.g. spring
- 1/14 • • Special arrangements to ensure constant length of movement of film
- 1/16 • • • by film-arresting pins
- 1/18 • Moving film strip by means which act on the film between the ends thereof
- 1/20 • • Acting means
- 1/22 • • • Claws or pins engaging holes in the film
- 1/24 • • • Sprockets engaging holes in the film

## G03B

- 1/26 • • • Spiked wheels or pins not penetrating the film
  - 1/28 • • • Shuttle feed
  - 1/30 • • • Belt feed
  - 1/32 • • • Friction grippers or rollers
  - 1/34 • • • Beaters
  - 1/36 • • • Pneumatic acting means
  - 1/38 • • embodying Geneva motion, e.g. Maltese-cross gearing
  - 1/40 • embodying frictional coupling or clutches
  - 1/42 • Guiding, framing, or constraining film in desired position relative to lens system
  - 1/44 • • Guides engaging edge of film (gates G03B 1/48)
  - 1/46 • • Rollers engaging face of film, e.g. barrel, waisted, conical (gates G03B 1/48)
  - 1/48 • • Gates or pressure devices, e.g. plate
  - 1/50 • • • adjustable or interchangeable, e.g. for different film widths
  - 1/52 • • • Pneumatic pressure devices
  - 1/54 • • Tensioning or loop-maintaining devices
  - 1/56 • Threading; Loop forming
  - 1/58 • • automatic
  - 1/60 • Measuring or indicating length of the used or unused film; Counting number of exposures (measuring length in general G01B)
  - 1/62 • • involving locking or stop-motion devices
  - 1/64 • • by means which ascertain the radius of the film coiled on a spool
  - 1/66 • • Counting number of exposures (counting mechanisms per se G06M)
  - 3/00 Focusing arrangements of general interest for cameras, projectors or printers** (focusing means, autofocus systems for cameras G03B 13/00; means for automatic focusing of projectors G03B 21/53; means for automatic focusing of projection-printing apparatus or copying cameras G03B 27/34, G03F)
    - 3/02 • moving lens along baseboard
    - 3/04 • adjusting position of image plane without moving lens
    - 3/06 • • using movable reflectors to alter length of light-path
    - 3/10 • Power-operated focusing
    - 3/12 • • adapted for remote control (control systems in general G05)
  - 5/00 Adjustment of optical system relative to image or object surface other than for focusing of general interest for cameras, projectors or printers**
    - 5/02 • Lateral adjustment of lens
    - 5/04 • Vertical adjustment of lens; Rising fronts
    - 5/06 • Swinging lens about normal to the optical axis
    - 5/08 • Swing backs
- Details common to cameras**
- 7/00 Control of exposure by setting shutters, diaphragms or filters, separately or conjointly** (control of exposure in television cameras by means of circuitry for compensating for variation in the brightness of the object H04N 5/235) [1, 2014.01]
    - 7/01 • with selection of either manual or automatic mode [2014.01]
    - 7/02 • Control effected by setting a graduated member on the camera in accordance with indication or reading afforded by a light meter, which may be either separate from, or built into, camera body
    - 7/04 • Control effected by hand adjustment of a member that senses indication of a pointer of a built-in light-sensitive device, e.g. by restoring pointer to a fixed associated reference mark
    - 7/06 • • by a follow-up movement of an associated reference mark to the pointer
    - 7/08 • *Control effected solely on the basis of the response, to the intensity of the light received by the camera, of a built-in light-sensitive device* [1, 2014.01]
      - 7/0805 • • *Setting of priority modes* [2014.01]
      - 7/081 • • Analogue circuits [3]
      - 7/083 • • • for control of exposure time [3]
      - 7/085 • • • for control of aperture [3]
      - 7/087 • • • for control of both exposure time and aperture [3]
      - 7/089 • • • for storage of exposure value in mirror reflex cameras [3]
      - 7/091 • • Digital circuits [3]
      - 7/093 • • • for control of exposure time [3]
      - 7/095 • • • for control of aperture [3]
      - 7/097 • • • for control of both exposure time and aperture [3]
      - 7/099 • • *Arrangement of photoelectric elements in or on the camera* [3, 2014.01]
        - 7/0993 • • • *in the camera* [2014.01]
        - 7/0997 • • • • *Through the lens [TTL] measuring* [2014.01]
        - 7/10 • • a servo-motor providing energy to move the setting member
        - 7/12 • • a hand-actuated member moved from one position to another providing the energy to move the setting member, e.g. depression of shutter release button causes a stepped feeler to co-operate with the pointer of the light-sensitive device to set the diaphragm and thereafter release the shutter
      - 7/14 • • • setting of both shutter and diaphragm aperture being effected so as to give the optimum compromise between depth of field and shortness of exposure
      - 7/16 • *in accordance with both the intensity of the flash source and the distance of the flash source from the object, e.g. in accordance with the "guide number" of the flash bulb and the focusing of the camera* [1, 2014.01]
      - 7/17 • • *Selection of modes in flash units by exposure control arrangements* [2014.01]
      - 7/18 • in accordance with light-reducing "factor" of filter or other obturator used with or on the lens of the camera
      - 7/20 • in accordance with change of lens
      - 7/22 • in accordance with temperature or height, e.g. in aircraft
      - 7/24 • automatically in accordance with markings or other means indicating film speed or kind of film on the magazine to be inserted in the camera [3]
      - 7/26 • Power supplies; Circuitry or arrangement to switch on the power source; Circuitry to check the power source voltage [3]
      - 7/28 • Circuitry to measure or to take account of the object contrast [3]
      - 7/30 • *Safety arrangements for control of exposure* [2014.01]
    - 9/00 Exposure-making shutters; Diaphragms**
      - 9/02 • Diaphragms [2]
      - 9/04 • • Single movable plate with two or more apertures of graded size, e.g. sliding plate, pivoting plate

- 9/06 • • Two or more co-operating pivoted blades e.g. iris type (shutters functioning as diaphragms by limiting extent of opening movement G03B 9/08)
- 9/07 • • with means for presetting the diaphragm
- 9/08 • Shutters (electro-, magneto-, or acousto-optical shutters G02F 1/00) [2]
- 9/10 • • Blade or disc rotating or pivoting about axis normal to its plane
- 9/12 • • • Two relatively-adjustable aperture-defining members moving as a unit
- 9/14 • • • Two separate members moving in opposite directions
- 9/16 • • • Two separate members moving in the same direction
- 9/18 • • • More than two members
- 9/20 • • • • each moving in a single direction first to open and then to reclose
- 9/22 • • • • each moving in one direction to open and then in opposite direction to close, e.g. iris type
- 9/24 • • • Adjusting size of aperture formed by members when fully open so as to constitute a virtual diaphragm that is adjustable
- 9/26 • • • incorporating cover blade or blades
- 9/28 • • Roller blind or flexible plate
- 9/30 • • • Single blind with multiple slots or other aperture
- 9/32 • • • Double blind
- 9/34 • • • • with adjustable slot; with mechanism controlling relative movement of blinds to form slot
- 9/36 • • Sliding rigid plate
- 9/38 • • • Single rigid plate with multiple slots or other apertures
- 9/40 • • • Double plate
- 9/42 • • • • with adjustable slot; with mechanism controlling relative movement of plates to form slot
- 9/44 • • • Curved track and plate
- 9/46 • • Flap shutters pivoting about axis in plane of flap
- 9/48 • • • Double flap
- 9/50 • • • Louvre type
- 9/52 • • Barrel shutters
- 9/54 • • Conical shutters; Rotating plate with axis of rotation inclined to optical axis of shutter
- 9/58 • Means for varying duration of "open" period of shutter
- 9/60 • • by varying speed of movement of obturating members
- 9/62 • • by varying interval of time between end of opening movement and beginning of closing movement
- 9/64 • Mechanism for delaying opening of shutter (separate from shutter G03B 17/38)
- 9/66 • Means for cocking shutter separate from means for releasing shutter
- 9/68 • • Cocking effected by movement of film
- 9/70 • with flash-synchronising contacts
- 11/00 Filters or other obturators specially adapted for photographic purposes** (filters *per se* G02B)
- 11/02 • Sky masks
- 11/04 • Hoods or caps for eliminating unwanted light from lenses, viewfinders, or focusing aids
- 11/06 • • Lens caps for exposure making
- 13/00 Viewfinders; Focusing aids for cameras; Means for focusing for cameras; Autofocus systems for cameras** (hoods, caps G03B 11/04; reflex camera arrangements G03B 19/12, G03B 19/14; rangefinders *per se* G01C 3/00; automatic focusing in general G02B 7/09; systems for automatic generation of focusing signals G02B 7/28) [5]
- 13/02 • Viewfinders
- 13/04 • • of direct-vision type, e.g. frame, sighting mark
- 13/06 • • with lenses with or without reflectors
- 13/08 • • • with reflected image of frame
- 13/10 • • adjusting viewfinder field
- 13/12 • • • to compensate for change of camera lens or size of picture
- 13/14 • • • to compensate for parallax due to short range
- 13/16 • • combined with focusing aids
- 13/18 • Focusing aids
- 13/20 • • Rangefinders coupled with focusing arrangements, e.g. adjustment of rangefinder automatically focusing camera
- 13/22 • • • coupling providing for compensation upon change of camera lens
- 13/24 • • Focusing screens
- 13/26 • • • with magnifiers for inspecting image formed on screen
- 13/28 • • • Image-splitting devices
- 13/30 • • indicating depth of field [5]
- 13/32 • Means for focusing [5]
- 13/34 • • Power focusing [5]
- 13/36 • • • Autofocus systems [5]
- 15/00 Special procedures for taking photographs; Apparatus therefor**
- 15/02 • Illuminating scene
- 15/03 • • Combinations of cameras with lighting apparatus; Flash units
- 15/035 • • • Combinations of cameras with incandescent lamps
- 15/04 • • • Combinations of cameras with non-electronic flash apparatus; Non-electronic flash units (light sources using a charge of combustible material F21K 5/00; ignition circuits H05B 43/02)
- 15/05 • • • Combinations of cameras with electronic flash apparatus; Electronic flash units (discharge lamps *per se* H01J; circuit arrangements H05B 41/00)
- 15/06 • • Special arrangements of screening, diffusing, or reflecting devices, e.g. in studio
- 15/07 • • • Arrangements of lamps in studios
- 15/08 • Trick photography
- 15/10 • • using back-projection, i.e. blending artificial background with real foreground
- 15/12 • • using mirrors
- 15/14 • for taking photographs during medical operations
- 15/16 • for photographing the track of moving objects (high-speed photography G03B 39/00; recording tracks of nuclear particles G01T 5/00)
- 17/00 Details of cameras or camera bodies; Accessories therefor** (lens hoods or caps G03B 11/04)
- 17/02 • Bodies
- 17/04 • • collapsible, foldable, or extensible, e.g. book type (bellows for instruments in general G12B)
- 17/06 • • with exposure meters or other indicators built into body but not connected to other camera members
- 17/08 • • Waterproof bodies or housings

**G03B**

- 17/10 • • Soundproof bodies
- 17/12 • • with means for supporting objectives, supplementary lenses, filters, masks, or turrets
- 17/14 • • • interchangeably
- 17/16 • • for containing both motion-picture camera and still-picture camera
- 17/17 • • with reflectors arranged in beam forming the photographic image, e.g. for reducing dimensions of camera
- 17/18 • Signals indicating condition of a camera member or suitability of light (indicating depth of field G03B 13/30)
- 17/20 • • visible in viewfinder
- 17/22 • with means for cutting-off film
- 17/24 • with means for separately producing marks on the film, e.g. title, time of exposure
- 17/26 • Holders for containing light-sensitive material and adapted to be inserted within the camera (holders for X-ray films G03B 42/04) [2]
- 17/28 • Locating light-sensitive material within camera
- 17/30 • • Locating spools or other rotatable holders of coiled film
- 17/32 • • Locating plates or cut films
- 17/34 • • • Changing plates or cut films
- 17/36 • Counting number of exposures (of film strips G03B 1/66; counting mechanisms in general G06M)
- 17/38 • Releasing-devices separate from shutter (integral with shutter G03B 9/08)
- 17/40 • • with delayed or timed action
- 17/42 • Interlocking between shutter operation and advance of film or change of plate or cut-film
- 17/44 • Means for exchanging focusing screen and light-sensitive material
- 17/46 • Means for exposing single frames in motion-picture camera
- 17/48 • adapted for combination with other photographic or optical apparatus (with microscopes, with telescopes G02B)
- 17/50 • • with both developing and finishing apparatus (processing apparatus G03D)
- 17/52 • • • of the Land type
- 17/53 • • • for automatically delivering a finished picture after a signal causing exposure has been given, e.g. by pushing a button, by inserting a coin
- 17/54 • • with projector
- 17/55 • with provision for heating or cooling, e.g. in aircraft
- 17/56 • Accessories (carrying-cases A45C)
- 17/58 • • Attachments for converting cameras into reflex cameras

**19/00 Cameras** (details G03B 17/00)

- 19/02 • Still-picture cameras
- 19/04 • • Roll-film cameras
- 19/06 • • • adapted to be loaded with more than one film, e.g. with exposure of one or the other at will (G03B 19/07 takes precedence)
- 19/07 • • • having more than one objective
- 19/08 • • • with provision for alternative use with plates or cut-films
- 19/10 • • Plate or cut-film cameras (with provision for alternative use with roll film G03B 19/08)
- 19/12 • • Reflex cameras with single objective and a movable reflector or a partly-transmitting mirror

- 19/14 • • with paired lenses, one of which forms image on photographic material and the other forms a corresponding image on a focusing screen
- 19/16 • • Pin-hole cameras
- 19/18 • Motion-picture cameras (with non-intermittently running film G03B 41/02)
- 19/20 • • Reflex cameras
- 19/22 • • Double cameras
- 19/24 • • adapted to be loaded with more than one film, e.g. with exposure of one or the other at will
- 19/26 • • with fade-in and fade-out effects [4]
- 21/00 Projectors or projection-type viewers; Accessories therefor** (devices for changing pictures G03B 23/00; zoetropes G03B 25/00; photographic printing apparatus G03B 27/00; devices or systems producing a varying lighting effect F21S 10/00; optical projection comparators G01B 9/08; projection microscopes G02B 21/36)
- 21/02 • Multiple-film apparatus
- 21/04 • • Picture "juke-boxes"
- 21/06 • affording only episcopic projection
- 21/08 • affording epidiascopic projection
- 21/10 • Projectors with built-in or built-on screen (projection screens in general G03B 21/56)
- 21/11 • • for microfilm reading
- 21/12 • adapted for projection of either still pictures or motion pictures (prolonged exhibition of single frame G03B 21/38)
- 21/13 • Projectors for producing special effects at the edges of picture, e.g. blurring
- 21/132 • Overhead projectors, i.e. capable of projecting handwriting or drawing during action (epidiascopic projectors G03B 21/08)
- 21/134 • Projectors combined with typing apparatus or with printing apparatus
- 21/14 • Details
- 21/16 • • Cooling; Preventing overheating
- 21/18 • • Fire preventing or extinguishing
- 21/20 • • Lamp housings (condensers *per se* G02B)
- 21/22 • • Soundproof bodies
- 21/26 • • Projecting separately subsidiary matter simultaneously with main image (light pointers G02B 27/20)
- 21/28 • • Reflectors in projection beam
- 21/30 • • adapted to collapse or fold, e.g. for portability
- 21/32 • • Details specially adapted for motion-picture projection (with film moving continuously through the gate G03B 41/02)
- 21/34 • • • Change-over arrangements
- 21/36 • • • • Fades, dissolves, or wipes
- 21/38 • • • Prolonged exhibition of single frame
- 21/40 • • • Eliminating or reducing effect of flicker
- 21/42 • • • Preventing damage to film due to abnormal operation of projector
- 21/43 • • • Driving mechanisms
- 21/44 • • • • Mechanisms transmitting motion to film-strip feed; Mechanical linking of shutter and intermittent feed (film-strip feed *per se* G03B 1/00)
- 21/46 • • • • • affording adjustment for framing
- 21/48 • • • • • for altering frame speed; for regulating constancy of film speed
- 21/50 • • • Control devices operated by the film strip during the run (controlling or regulating speed G03B 21/48)

- 21/52 • • • • by prepared film
- 21/53 • • Means for automatic focusing, e.g. to compensate thermal effects (automatic focusing in general G02B 7/09; systems for automatic generation of focusing signals G02B 7/28) [5]
- 21/54 • Accessories
- 21/56 • • Projection screens
- 21/58 • • • collapsible, e.g. foldable; of variable area [1, 2014.01]
- 21/585 • • • • Inflatable screens [2014.01]
- 21/60 • • • characterised by the nature of the surface [1, 2014.01]
- 21/602 • • • • Lenticular screens (G03B 21/625 takes precedence) [2014.01]
- 21/604 • • • • Polarised screens [2014.01]
- 21/606 • • • • for relief projection [2014.01]
- 21/608 • • • • Fluid screens [2014.01]
- 21/62 • • • • Translucent screens [1, 2014.01]
- 21/625 • • • • • Lenticular translucent screens [2014.01]
- 21/64 • • Means for mounting individual pictures to be projected, e.g. frame for transparency
- 23/00 Devices for changing pictures in viewing apparatus or projectors** (film-strip handling G03B 1/00; direct viewers G02B)
- Note(s)**
- In this group, the following term is used with the meaning indicated:
- "picture" means any flat representation, whether transparent or not, e.g. produced by photography, writing, or printing.
- 23/02 • in which a picture is removed from a stock and returned to the same stock or another one; Magazines therefor
- 23/04 • • with linear movement
- 23/06 • • with rotary movement
- 23/08 • in which pictures are attached to a movable carrier
- 23/10 • • drum or disc carrier
- 23/12 • • linear strip carrier
- 23/14 • Carriers operable to move pictures into, and out of, the projection or viewing position and carrying one or two pictures only in a removable manner (G03B 23/18 takes precedence) [4]
- 23/18 • with fade-in and fade-out effects [4]
- 25/00 Viewers, other than projection viewers, giving motion-picture effects by persistence of vision, e.g. zoetrope** (high-speed photography G03B 39/00)
- 25/02 • with interposed lenticular or line screen
- 27/00 Photographic printing apparatus** (film-strip handling G03B 1/00)
- 27/02 • Exposure apparatus for contact printing
- 27/04 • • Copying apparatus without a relative movement between the original and the light source during exposure, e.g. printing frame, printing box
- 27/06 • • • for automatic repeated copying of the same original
- 27/08 • • • for automatic copying of several originals one after the other, e.g. for copying cinematograph film
- 27/10 • • Copying apparatus with a relative movement between the original and the light source during exposure
- 27/12 • • • for automatic repeated copying of the same original
- 27/14 • • Details
- 27/16 • • • Illumination arrangements, e.g. positioning of lamps, positioning of reflectors (controlling the exposure G03B 27/72)
- 27/18 • • • Maintaining or producing contact pressure between original and light-sensitive material
- 27/20 • • • • by using a vacuum or fluid pressure
- 27/22 • • • • by stretching over a curved surface
- 27/24 • • • Separating the original from the print
- 27/26 • • • Cooling
- 27/28 • • • Edge-masking devices
- 27/30 • • • adapted to be combined with processing apparatus (processing apparatus *per se* G03D)
- 27/32 • Projection printing apparatus, e.g. enlarger, copying camera
- 27/34 • • Means for automatic focusing therefor (systems for automatic generation of focusing signals G02B 7/28; means for automatic focusing for photomechanical production G03F 7/207) [4]
- 27/36 • • • by mechanical connections, e.g. by cam, by linkage
- 27/38 • • • • embodying screws with non-uniform pitch
- 27/40 • • • • adapted for use with lenses of different focal length
- 27/42 • • for automatic sequential copying of the same original (G03B 27/34, G03B 27/53 take precedence) [4]
- 27/44 • • for multiple copying of the same original at the same time (G03B 27/34, G03B 27/53 take precedence) [4]
- 27/46 • • for automatic sequential copying of different originals, e.g. enlargers, roll film printers (G03B 27/34, G03B 27/50, G03B 27/53 take precedence) [4]
- 27/465 • • • at different positions of the same strip, e.g. microfilm [4]
- 27/47 • • • at different positions of the same sheet, e.g. microfiche [4]
- 27/475 • • • copying cinematographic film (G03B 27/48 takes precedence) [4]
- 27/48 • • • with original in the form of a film strip moving continuously and compensation for consequent image movement
- 27/50 • • with slit or like diaphragm moving over original for progressive exposure (G03B 27/34 takes precedence) [4]
- 27/52 • • Details
- 27/53 • • • Automatic registration or positioning of originals with respect to each other or the photosensitive layer (within photo-mechanical production of textured or patterned surfaces, e.g. of integrated circuits, G03F 9/00) [4]
- 27/54 • • • Lamp housings; Illuminating means (controlling the exposure G03B 27/72)
- 27/56 • • • Mounting enlarger head on column
- 27/58 • • • Baseboards, masking frames, or other holders for the sensitive material (G03B 27/53 takes precedence) [4]
- 27/60 • • • • using a vacuum or fluid pressure
- 27/62 • • • Holders for the original (G03B 27/53 takes precedence) [4]
- 27/64 • • • • using a vacuum or fluid pressure
- 27/66 • • • specially adapted for holding half-tone screens
- 27/68 • • • Introducing or correcting distortion, e.g. in connection with oblique projection
- 27/70 • • • Reflectors in printing beam

## G03B

- 27/72 • Controlling or varying light intensity, spectral composition, or exposure time in photographic printing apparatus (exposure meters *per se* G01J; control of light intensity in general G05D 25/00)
- 27/73 • • Controlling exposure by variation of spectral composition, e.g. multicolor printers [3]
- 27/74 • • Positioning exposure meters in the apparatus
- 27/80 • • in dependence upon automatic analysis of the original (G03B 27/73 takes precedence) [3]
- 29/00 Combinations of cameras, projectors, or photographic printing apparatus with non-photographic non-optical apparatus, e.g. clocks, weapons; Cameras having the shape of other objects** (combinations with flash apparatus G03B 15/03; combinations with instruments for medical examination of cavities or tubes of the body A61B 1/04; arrangements specially adapted for eye photography A61B 3/14; combinations with surveying instruments G01C; combinations with core or moderator structure of nuclear reactors G21C 17/08; structural combinations with electric discharge tubes H01J 5/16, H01J 29/89, H01J 37/22)
- Special techniques**
- 31/00 Associated working of cameras or projectors with sound-recording or -reproducing means** (record carriers characterised by the selection of the material and comprising cinematographic film and magnetic track G11B 5/633)
- 31/02 • in which sound track is on a moving-picture film
- 31/04 • in which sound track is not on, but is synchronised with, a moving-picture film
- 31/06 • in which sound track is associated with successively-shown still pictures
- 31/08 • with fade-in and fade-out effects [4]
- 33/00 Colour photography, other than mere exposure or projection of a colour film** (printing apparatus G03B 27/00; stereoscopic colour photography G03B 35/00)
- 33/02 • by two-colour separation records, e.g. red-aspect and white complete records; using Land effect
- 33/04 • by four or more separation records
- 33/06 • by additive-colour projection apparatus
- 33/08 • Sequential recording or projection (G03B 33/02, G03B 33/04, G03B 33/06 take precedence)
- 33/10 • Simultaneous recording or projection (G03B 33/02, G03B 33/04, G03B 33/06 take precedence)
- 33/12 • • using beam-splitting or beam-combining systems, e.g. dichroic mirrors
- 33/14 • • using lenticular screens (integral with film G03C)
- 33/16 • • using colour-pattern screens (integral with film G03C)
- 35/00 Stereoscopic photography** (panoramic or wide-screen systems G03B 37/00; photogrammetry G01C)
- 35/02 • by sequential recording
- 35/04 • • with movement of beam-selecting members in a system defining two or more viewpoints
- 35/06 • • with axial movement of lens or gate between exposures
- 35/08 • by simultaneous recording
- 35/10 • • having single camera with stereoscopic-base-defining system
- 35/12 • • involving recording of different viewpoint images in different colours on a colour film
- 35/14 • Printing apparatus specially adapted for conversion between different types of record (G03B 42/08 takes precedence) [4]
- 35/16 • by sequential viewing
- 35/18 • by simultaneous viewing
- 35/20 • • using two or more projectors
- 35/22 • • using single projector with stereoscopic-base-defining system
- 35/24 • • using apertured or refractive resolving means on screen or between screen and eye
- 35/26 • • using polarised or coloured light for separating different viewpoint images
- 37/00 Panoramic or wide-screen photography; Photographing extended surfaces, e.g. for surveying; Photographing internal surfaces, e.g. of pipe**
- 37/02 • with scanning movement of lens or camera
- 37/04 • with cameras or projectors providing touching or overlapping fields of view
- 37/06 • involving anamorphosis (G03B 37/02, G03B 37/04 take precedence)
- 39/00 High-speed photography**
- 39/02 • using stationary plate or film (G03B 39/06 takes precedence)
- 39/04 • using moving plate or film (G03B 39/06 takes precedence)
- 39/06 • using light-guides for transferring image frame or elements thereof into different array, e.g. into a line
- 41/00 Special photographic techniques not covered by groups G03B 31/00-G03B 39/00; Apparatus therefor [2]**
- 41/02 • using non-intermittently-running film
- 41/04 • • with optical compensator
- 41/06 • • • with rotating reflecting member
- 41/08 • • • with rotating transmitting member
- 41/10 • • • with oscillating reflecting member
- 41/12 • • • with oscillating transmitting member
- 41/14 • • Overcoming image movement by brief flashes of light
- 42/00 Obtaining records using waves other than optical waves; Visualisation of such records by using optical means** (investigating or analysing materials using electromagnetic or sonic waves G01N; using radar, sonar or analogous techniques G01S) [4]
- 42/02 • using X-rays (measurement of X-radiation G01T; X-ray apparatus, circuits therefor H05G 1/00) [4]
- 42/04 • • Holders for X-ray films [4]
- 42/06 • using ultrasonic, sonic or infrasonic waves (measurement of ultrasonic, sonic or infrasonic waves G01H) [4]
- 42/08 • Visualisation of records by optical means (optical systems using spatial filters G02B 27/46; optics for phase object visualisation G02B 27/50) [4]
- 
- 43/00 Testing correct operation of photographic apparatus or parts thereof** (measuring specific variables G01)
- 43/02 • Testing shutters (measuring time intervals G04F)

**G03C PHOTSENSITIVE MATERIALS FOR PHOTOGRAPHIC PURPOSES; PHOTOGRAPHIC PROCESSES, e.g. CINE, X-RAY, COLOUR OR STEREO-PHOTOGRAPHIC PROCESSES; AUXILIARY PROCESSES IN PHOTOGRAPHY**  
(photographic processes characterised by the use or manipulation of apparatus classifiable *per se* in subclass G03B, *see* G03B)

**Note(s)**

In this subclass, the following expressions are used with the meanings indicated:

- "photosensitive compositions" covers photosensitive substances, e.g. silver halides, and, if applicable, binders or additives;
- "photosensitive materials" covers the photosensitive compositions, e.g. emulsions, the bases carrying them, and, if applicable, auxiliary layers.

**Subclass index**

PHOTOGRAPHIC PROCESSES

General.....	5/00, 11/00
For colour photography.....	7/00
For diffusion transfer processes.....	8/00
For stereo-photography and the like.....	9/00
PHOTSENSITIVE COMPOSITIONS AND MATERIALS.....	1/00
PACKAGING.....	3/00

<b>1/00</b>	<b>Photosensitive materials</b> (photosensitive materials for multicolour processes G03C 7/00; for diffusion transfer processes G03C 8/00) [5]	1/26	• • • • • Polymethine chain forming part of a heterocyclic ring
1/005	• Silver halide emulsions; Preparation thereof; Physical treatment thereof; Incorporation of additives therein (catalytic amounts of silver halide in dry silver systems G03C 1/498) [5]	1/28	• • • • together with supersensitising substances
1/015	• • Apparatus or processes for the preparation of emulsions (coating, drying G03C 1/74) [5]	1/29	• • • • • the supersensitising mixture being solely composed of dyes [5]
1/025	• • Physical treatment of emulsions, e.g. by ultrasonics, refrigeration, pressure (coating, drying G03C 1/74) [5]	1/295	• • • Development accelerators [5]
1/035	• • characterised by the crystal form or composition, e.g. mixed grain [5]	1/30	• • • Hardeners
1/04	• • with macromolecular additives; with layer-forming substances [5]	1/31	• • • Plasticisers [2]
1/043	• • • Polyalkylene oxides; Polyalkylene sulfides; Polyalkylene selenides; Polyalkylene tellurides [5]	1/32	• • • Matting agents
1/047	• • • Proteins, e.g. gelatine derivatives; Hydrolysis or extraction products of proteins [5]	1/33	• • • Spot-preventing agents [2]
1/053	• • • Polymers obtained by reactions only involving carbon-to-carbon unsaturated bonds, e.g. vinyl polymers [5]	1/34	• • • Fog-inhibitors; Stabilisers; Agents inhibiting latent image regression [5]
1/06	• • with non-macromolecular additives (G03C 1/04 takes precedence) [5]	1/35	• • • Antiplumming agents, i.e. antibronzing agents; Toners [2, 5]
1/07	• • • Substances influencing grain growth during silver salt formation [5]	1/36	• • • Desensitisers (direct positive emulsions G03C 1/485) [5]
1/08	• • • Sensitivity-increasing substances [5]	1/37	• • • Antiseptic agents [2]
1/09	• • • • Noble metals or mercury; Salts or compounds thereof; Sulfur, selenium or tellurium, or compounds thereof, e.g. for chemical sensitising (G03C 1/34, G03C 1/35 take precedence) [5]	1/38	• • • Dispersants; Agents facilitating spreading [5]
1/10	• • • • Organic substances	1/40	• • • Dyestuffs not covered by groups G03C 1/08-G03C 1/38 or G03C 1/42 [5]
1/12	• • • • • Methine or polymethine dyes	1/42	• • • Developers or their precursors [5]
1/14	• • • • • with an odd number of CH groups	1/43	• • • Processing agents or their precursors, not covered by groups G03C 1/07-G03C 1/42 [5]
1/16	• • • • • with one CH group	1/46	• • having more than one photosensitive layer
1/18	• • • • • with three CH groups	1/485	• • Direct positive emulsions [2, 5]
1/20	• • • • • with more than three CH groups	1/49	• • Print-out and photodevelopable emulsions [2, 5]
1/22	• • • • • with an even number of CH groups	1/492	• • Photosoluble emulsions [5]
1/24	• • • • • Styryl dyes	1/494	• Silver salt compositions other than silver halide emulsions; Photothermographic systems [5]
		1/496	• • Binder-free compositions, e.g. evaporated [5]
		1/498	• • Photothermographic systems, e.g. dry silver [5]
		1/50	• Compositions containing noble metal salts other than silver salts, as photosensitive substances [5]
		1/52	• Compositions containing diazo compounds as photosensitive substances (G03C 1/64 takes precedence) [5]
		1/54	• • Diazonium salts or diazo anhydrides
		1/56	• • Diazo sulfonates
		1/58	• • Coupling substances therefor [5]
		1/60	• • with macromolecular additives [5]
		1/61	• • with non-macromolecular additives [5]
		1/62	• • • Metal compounds reducible to metal

- 1/64 • Compositions containing iron compounds as photosensitive substances [5]
- 1/66 • Compositions containing chromates as photosensitive substances [5]
- 1/67 • Compositions containing cobalt compounds as photosensitive substances [5]
- 1/675 • Compositions containing polyhalogenated compounds as photosensitive substances [5]
- 1/685 • Compositions containing spiro-condensed pyran compounds or derivatives thereof, as photosensitive substances [5]
- 1/695 • Compositions containing azides as photosensitive substances [5]
- 1/705 • Compositions containing chalcogenides, metals or alloys thereof, as photosensitive substances, e.g. photodope systems [5]
- 1/72 • Photosensitive compositions not covered by groups G03C 1/005-G03C 1/705 [5]
- 1/725 • • containing inorganic compounds [5]
- 1/73 • • containing organic compounds [5]
- 1/735 • • • Organo-metallic compounds [5]
- 1/74 • Applying photosensitive compositions to the base; Drying processes therefor (G03C 1/496 takes precedence) [2, 5]
- 1/76 • Photosensitive materials characterised by the base or auxiliary layers [5]
- 1/765 • • characterised by the shape of the base, e.g. arrangement of perforations, jags [5]
- 1/77 • • the base being of metal [5]
- 1/775 • • the base being of paper [5]
- 1/785 • • • translucent [5]
- 1/79 • • • Macromolecular coatings or impregnations therefor, e.g. varnishes [5]
- 1/795 • • the base being formed of macromolecular substances (G03C 1/775 takes precedence) [5]
- 1/805 • • characterised by stripping layers or stripping means [5]
- 1/81 • • characterised by anti-coiling means [5]
- 1/815 • • characterised by means for filtering or absorbing ultra-violet light, e.g. optical bleaching agents (for photoprinting G03C 5/10; for intensifying X-ray images G03C 5/17) [5]
- 1/825 • • characterised by antireflecting means or visible-light filtering means, e.g. anti-halation [5]
- 1/83 • • • Organic dyestuffs therefor [5]
- 1/835 • • • Macromolecular substances therefor, e.g. mordants [5]
- 1/85 • • characterised by antistatic additives or coatings [5]
- 1/89 • • • Macromolecular substances therefor [5]
- 1/91 • • characterised by subbing layers or subbing means [5]
- 1/93 • • • Macromolecular substances therefor [5]
- 1/95 • • rendered opaque or writable, e.g. with inert particulate additives (G03C 1/775 takes precedence) [5]
- 3/00 Packages of films for inserting into cameras, e.g. roll-films or film-packs; Wrapping materials for light-sensitive plates, films, or papers, e.g. materials characterised by the use of special dyes, printing inks or adhesives**
- 3/02 • Photographic roll-films with paper strips
- 5/00 Photographic processes or agents therefor; Regeneration of such processing agents** (multicolour processes G03C 7/00; diffusion transfer processes G03C 8/00; stereo-photographic processes G03C 9/00) [4, 5]
- 5/02 • Sensitometric processes, e.g. determining sensitivity, colour sensitivity, gradation, graininess, density; Making sensitometric wedges
- 5/04 • Photo-taking processes
- 5/06 • • Travelling-mask processes
- 5/08 • Photoprinting (G03C 5/18 takes precedence); Processes or means for preventing photoprinting [3, 5]
- 5/10 • • Reflex-printing; Photoprinting using fluorescent or phosphorescent means [5]
- 5/12 • Cinematographic processes of taking pictures or printing
- 5/14 • • combined with sound-recording
- 5/16 • X-ray, infra-red, or ultra-violet ray processes
- 5/17 • • using screens to intensify X-ray images [2, 4]
- 5/18 • Diazo-type processes, e.g. thermal development, or agents therefor [3, 5]
- 5/20 • • Reflex-printing
- 5/22 • Direct chromate processes, i.e. without preceding silver picture, or agents therefor [5]
- 5/26 • Processes using silver-salt-containing photosensitive materials or agents therefor (physical development G03C 5/58) [5]
- 5/28 • • Cinematographic-film processes [5]
- 5/29 • • Development processes or agents therefor (G03C 5/38, G03C 5/50 take precedence) [5]
- 5/30 • • • Developers
- 5/305 • • • Additives other than developers [5]
- 5/31 • • • Regeneration; Replenishers [5]
- 5/315 • • • Tanning development [5]
- 5/32 • • Latensification; Desensitising [5]
- 5/38 • • Fixing; Developing-fixing; Hardening-fixing (bleach-fixing G03C 5/44) [5]
- 5/39 • • • Stabilising, i.e. fixing without washing out [2, 5]
- 5/395 • • Regeneration of photographic processing agents other than developers; Replenishers therefor [4, 5]
- 5/40 • • Chemically transforming developed images (G03C 5/50 takes precedence) [5]
- 5/42 • • • Reducing; Intensifying [5]
- 5/44 • • • Bleaching; Bleach-fixing [5]
- 5/46 • • • Toning [5]
- 5/48 • • • Mordanting [5]
- 5/50 • • Reversal development; Contact processes (G03C 5/315, G03C 8/00 take precedence) [5]
- 5/56 • Processes using photosensitive compositions covered by groups G03C 1/64-G03C 1/72 or agents therefor (G03C 5/58 takes precedence) [5]
- 5/58 • Processes for obtaining metallic images by vapour deposition or physical development [5]
- 5/60 • Processes for obtaining vesicular images [5]
- 7/00 Multicolour photographic processes or agents therefor; Regeneration of such processing agents; Photosensitive materials for multicolour processes** (diffusion transfer processes G03C 8/00) [4, 5]
- 7/02 • Direct bleach-out processes; Materials therefor; Preparing or processing such materials [5]
- 7/04 • Additive processes using colour screens; Materials therefor; Preparing or processing such materials [5]
- 7/06 • • Manufacture of colour screens



- 7/08 • • • from diversely-coloured grains irregularly distributed
- 7/10 • • • with regular areas of colour, e.g. bands, lines, dots
- 7/12 • • • • by photo-exposure
- 7/14 • Additive processes using lenticular screens; Materials therefor; Preparing or processing such materials [5]
- 7/18 • Processes for the correction of the colour image in subtractive colour photography (using coloured colour-couplers G03C 7/333) [5]
- 7/20 • Subtractive colour processes using differently sensitised films, each coated on its own base, e.g. bipacks, tripacks [5]
- 7/22 • Subtractive cinematographic processes; Materials therefor; Preparing or processing such materials [5]
- 7/24 • • • combined with sound-recording
- 7/25 • • Dye-imbibition processes; Materials therefor; Preparing or processing such materials [5]
- 7/26 • Silver halide emulsions for subtractive colour processes (G03C 7/28-G03C 7/30 take precedence) [5]
- 7/28 • Silver dye bleach processes; Materials therefor; Preparing or processing such materials [5]
- 7/29 • • Azo dyes therefor [5]
- 7/30 • Colour processes using colour-coupling substances; Materials therefor; Preparing or processing such materials [5]
- 7/305 • • Substances liberating photographically active agents, e.g. development-inhibiting releasing couplers (G03C 7/388 takes precedence) [5]
- 7/32 • • Colour-coupling substances (G03C 7/305, G03C 7/388 take precedence) [5]
- 7/327 • • • Macromolecular coupling substances [5]
- 7/333 • • • Coloured coupling substances, e.g. for the correction of the coloured image [5]
- 7/34 • • • Couplers containing phenols (G03C 7/327, G03C 7/333 take precedence) [5]
- 7/36 • • • Couplers containing compounds with active methylene groups (G03C 7/327, G03C 7/333 take precedence) [5]
- 7/38 • • • • in rings [5]
- 7/384 • • • • • in pyrazolone rings [5]
- 7/388 • • Processes for the incorporation in the emulsion of substances liberating photographically active agents or colour-coupling substances; Solvents therefor [5]
- 7/392 • • Additives (G03C 7/305, G03C 7/32 take precedence) [5]
- 7/396 • • • Macromolecular additives [5]
- 7/407 • • Development processes or agents therefor [5]
- 7/413 • • • Developers [5]
- 7/42 • • Bleach-fixing or agents therefor [3, 5]
- 7/44 • • Regeneration; Replenishers (G03C 7/42 takes precedence) [5]
- 7/46 • Subtractive colour processes not covered by group G03C 7/26; Materials therefor; Preparing or processing such materials [5]
- 8/00 Diffusion transfer processes or agents therefor; Photosensitive materials for such processes [5]**
- 8/02 • Photosensitive materials characterised by the image-forming section [5]
- 8/04 • • the substances transferred by diffusion consisting of inorganic compounds or of organo-metallic compounds derived from photosensitive noble metals [5]
- 8/06 • • • Silver salt diffusion transfer [5]
- 8/08 • • the substances transferred by diffusion consisting of organic compounds (G03C 8/04 takes precedence) [5]
- 8/10 • • • of dyes or their precursors [5]
- 8/12 • • • • characterised by the release mechanism [5]
- 8/14 • • • • • Oxidation of the chromogenic substance [5]
- 8/16 • • • • • initially diffusible in alkaline environment [5]
- 8/18 • • • • • • Dye developers [5]
- 8/20 • • • • • • initially non-diffusible in alkaline environment [5]
- 8/22 • • • • • Reduction of the chromogenic substance [5]
- 8/24 • Photosensitive materials characterised by the image-receiving section [5]
- 8/26 • • Image-receiving layers (G03C 8/52 takes precedence) [5]
- 8/28 • • • containing development nuclei or compounds forming such nuclei [5]
- 8/30 • Additive processes using colour screens; Materials therefor; Preparing or processing such materials [5]
- 8/32 • Development processes or agents therefor (G03C 8/18 takes precedence) [5]
- 8/34 • • Containers for the agents (G03C 8/48, G03B 17/50 take precedence) [5]
- 8/36 • • Developers [5]
- 8/38 • • • containing viscosity increasing substances [5]
- 8/40 • • Development by heat [5]
- 8/42 • Structural details [5]
- 8/44 • • Integral units, i.e. the image-forming section not being separated from the image-receiving section [5]
- 8/46 • • • characterised by the trapping means or by gas releasing means [5]
- 8/48 • • • characterised by substances used for masking the image-forming section [5]
- 8/50 • • Peel-apart units, i.e. the image-forming section being separated from the image-receiving section [5]
- 8/52 • • Bases or auxiliary layers; Substances therefor [5]
- 8/54 • • • Timing layers [5]
- 8/56 • • • Mordant layers [5]
- 9/00 Stereo-photographic or similar processes**
- 9/02 • Parallax-stereogram
- 9/04 • Vectographic-image
- 9/06 • Anaglyph
- 9/08 • producing three-dimensional images
- 11/00 Auxiliary processes in photography (characterised by apparatus used G03D 15/00)**
- 11/02 • Marking or applying of text
- 11/04 • Retouching
- 11/06 • Smoothing; Renovating; Roughening; Matting; Cleaning; Lubricating; Flame retardant treatments [5]
- 11/08 • Varnishing, e.g. application of protective layers on finished photographic prints [5]
- 11/10 • • for protection from ultra-violet light
- 11/12 • Stripping or transferring intact photographic layers
- 11/14 • Pasting; Mounting
- 11/16 • Drying
- 11/18 • Colouring
- 11/20 • • with powdered or molten colours

G03C

- 11/22 • Preparing plates or films for the manufacture of photographic negatives by non-photographic processes
- 11/24 • Removing emulsion from waste photographic material; Recovery of photosensitive substances [5]

**G03D APPARATUS FOR PROCESSING EXPOSED PHOTOGRAPHIC MATERIALS; ACCESSORIES THEREFOR**

Subclass index

APPARATUS FOR PROCESSING EXPOSED MATERIAL

- Liquid; gas; diffusion processing apparatus..... 3/00, 5/00, 7/00, 9/00
- Reversal processing apparatus..... 11/00
- Other apparatus and accessories..... 13/00

APPARATUS FOR TREATING PROCESSED MATERIAL..... 15/00

DARK-ROOMS..... 17/00

**3/00 Liquid processing apparatus involving immersion; Washing apparatus involving immersion (G03D 9/00, G03D 11/00 take precedence)**

- 3/02 • Details of liquid circulation
- 3/04 • • Liquid agitators
- 3/06 • • Liquid supply; Liquid circulation outside tanks
- 3/08 • having progressive mechanical movement of exposed material
- 3/10 • • for plates, films, or prints held individually
- 3/12 • • for plates, films or prints spread onto belt conveyors [2]
- 3/13 • • for long films or prints in the shape of strips, e.g. fed by roller assembly [2]
- 3/14 • • • with means for taking into account of elongation or contraction of films
- 3/16 • Treating exposed material in original holder

**5/00 Liquid processing apparatus in which no immersion is effected; Washing apparatus in which no immersion is effected (G03D 9/00, G03D 11/00 take precedence)**

- 5/02 • using rupturable ampoules of liquid
- 5/04 • using liquid sprays
- 5/06 • Applicator pads, rollers, or strips [2]

**7/00 Gas processing apparatus**

**9/00 Diffusion development apparatus**

- 9/02 • using rupturable ampoules of liquid

**11/00 Reversal processing apparatus**

**13/00 Processing apparatus or accessories therefor, not covered by groups G03D 3/00-G03D 11/00**

- 13/02 • Containers; Holding-devices
- 13/04 • • Trays; Dishes; Tanks
- 13/06 • • • Light-tight tanks with provision for loading in daylight
- 13/08 • • Devices for holding exposed material; Devices for supporting exposed material
- 13/10 • • • Clips (G03D 13/14 takes precedence)
- 13/12 • • • Frames (G03D 13/14 takes precedence)
- 13/14 • • • for holding films in spaced convolutions

**15/00 Apparatus for treating processed material**

- 15/02 • Drying; Glazing (combined with processing apparatus G03D 3/00-G03D 13/00)
- 15/04 • Cutting; Splicing
- 15/06 • Applying varnish or other coating
- 15/08 • Flattening prints
- 15/10 • Mounting, e.g. of processed material in a frame (frames specially adapted for projection G03B 21/64)

**17/00 Dark-room arrangements not provided for in the other groups of this subclass; Portable dark-rooms**

**G03F PHOTOMECHANICAL PRODUCTION OF TEXTURED OR PATTERNED SURFACES, e.g. FOR PRINTING, FOR PROCESSING OF SEMICONDUCTOR DEVICES; MATERIALS THEREFOR; ORIGINALS THEREFOR; APPARATUS SPECIALLY ADAPTED THEREFOR (phototypographic composing devices B41B; photosensitive materials or processes for photographic purposes G03C; electrography, sensitive layers or processes G03G)**

Note(s)

In this subclass, the following terms or expressions are used with the meanings indicated:

- "photosensitive" means not only sensitive of electromagnetic radiation but also to corpuscular radiation;
- "photosensitive compositions" covers photosensitive substances, e.g. quinonediazides, and, if applicable, binders or additives;
- "photosensitive materials" covers the photosensitive compositions, e.g. photoresists, the bases carrying them and, if applicable, auxiliary layers.

**1/00 Originals for photomechanical production of textured or patterned surfaces, e.g. masks, photo-masks or reticles; Mask blanks or pellicles therefor; Containers specially adapted therefor; Preparation thereof [3, 2012.01]**

Note(s) [2012.01]

In this main group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.

- 1/20 • Masks or mask blanks for imaging by charged particle beam [CPB] radiation, e.g. by electron beam; Preparation thereof **[2012.01]**
- 1/22 • Masks or mask blanks for imaging by radiation of 100 nm or shorter wavelength, e.g. X-ray masks, extreme ultra-violet [EUV] masks; Preparation thereof **[2012.01]**
- 1/24 • • Reflection masks; Preparation thereof **[2012.01]**
- 1/26 • Phase shift masks [PSM]; PSM blanks; Preparation thereof **[2012.01]**
- 1/28 • • with three or more diverse phases on the same PSM; Preparation thereof **[2012.01]**
- 1/29 • • Rim PSM or outrigger PSM; Preparation thereof **[2012.01]**
- 1/30 • • Alternating PSM, e.g. Levenson-Shibuya PSM; Preparation thereof **[2012.01]**
- 1/32 • • Attenuating PSM [att-PSM], e.g. halftone PSM or PSM having semi-transparent phase shift portion; Preparation thereof **[2012.01]**
- 1/34 • • Phase-edge PSM, e.g. chromeless PSM; Preparation thereof **[2012.01]**
- 1/36 • Masks having proximity correction features; Preparation thereof, e.g. optical proximity correction [OPC] design processes **[2012.01]**
- 1/38 • Masks having auxiliary features, e.g. special coatings or marks for alignment or testing; Preparation thereof **[2012.01]**
- 1/40 • • Electrostatic discharge [ESD] related features, e.g. antistatic coatings or a conductive metal layer around the periphery of the mask substrate **[2012.01]**
- 1/42 • • Alignment or registration features, e.g. alignment marks on the mask substrates **[2012.01]**
- 1/44 • • Testing or measuring features, e.g. grid patterns, focus monitors, sawtooth scales or notched scales **[2012.01]**
- 1/46 • • Antireflective coatings **[2012.01]**
- 1/48 • • Protective coatings **[2012.01]**
- 1/50 • Mask blanks not covered by groups G03F 1/20-G03F 1/26; Preparation thereof **[2012.01]**
- 1/52 • Reflectors **[2012.01]**
- 1/54 • Absorbers, e.g. opaque materials **[2012.01]**
- 1/56 • • Organic absorbers, e.g. photo-resists **[2012.01]**
- 1/58 • • having two or more different absorber layers, e.g. stacked multilayer absorbers **[2012.01]**
- 1/60 • Substrates **[2012.01]**
- 1/62 • Pellicles or pellicle assemblies, e.g. having membrane on support frame; Preparation thereof **[2012.01]**
- 1/64 • • characterised by the frames, e.g. structure or material thereof **[2012.01]**
- 1/66 • Containers specially adapted for masks, mask blanks or pellicles; Preparation thereof **[2012.01]**
- 1/68 • Preparation processes not covered by groups G03F 1/20-G03F 1/50 **[2012.01]**
- 1/70 • • Adapting basic layout or design of masks to lithographic process requirements, e.g. second iteration correction of mask patterns for imaging **[2012.01]**
- 1/72 • • Repair or correction of mask defects **[2012.01]**
- 1/74 • • • by charged particle beam [CPB], e.g. focused ion beam **[2012.01]**
- 1/76 • • Patterning of masks by imaging **[2012.01]**
- 1/78 • • • by charged particle beam [CPB], e.g. electron beam **[2012.01]**
- 1/80 • • Etching **[2012.01]**
- 1/82 • • Auxiliary processes, e.g. cleaning **[2012.01]**
- 1/84 • • • Inspecting **[2012.01]**
- 1/86 • • • • by charged particle beam [CPB] **[2012.01]**
- 1/88 • prepared by photographic processes for producing originals simulating relief **[2012.01]**
- 1/90 • prepared by montage processes **[2012.01]**
- 1/92 • prepared from printing surfaces **[2012.01]**
- 3/00 Colour separation; Correction of tonal value** (photographic copying apparatus in general G03B)
- 3/02 • by retouching
- 3/04 • by photographic means
- 3/06 • • by masking
- 3/08 • by photoelectric means
- 3/10 • Checking the colour or tonal value of separation negatives or positives
- 5/00 Screening processes; Screens therefor**
- 5/02 • by projecting methods (cameras G03B)
- 5/04 • • changing the screen effect
- 5/06 • • changing the diaphragm effect
- 5/08 • • using line screens
- 5/10 • • using cross-line screens
- 5/12 • • using other screens, e.g. granulated screen
- 5/14 • by contact methods
- 5/16 • • using grey half-tone screens
- 5/18 • • using colour half-tone screens
- 5/20 • using screens for gravure printing
- 5/22 • combining several screens; Elimination of moire
- 5/24 • by multiple exposure, e.g. combined processes for line photo and screen
- 7/00 Photomechanical, e.g. photolithographic, production of textured or patterned surfaces, e.g. printed surfaces; Materials therefor, e.g. comprising photoresists; Apparatus specially adapted therefor** (using photoresist structures for special production processes, *see* the relevant places, e.g. B44C, H01L, e.g. H01L 21/00, H05K) [3, 5]
- 7/004 • Photosensitive materials (G03F 7/12, G03F 7/14 take precedence) [5]
- 7/008 • • Azides (G03F 7/075 takes precedence) [5]
- 7/012 • • • Macromolecular azides; Macromolecular additives, e.g. binders [5]
- 7/016 • • Diazonium salts or compounds (G03F 7/075 takes precedence) [5]
- 7/021 • • • Macromolecular diazonium compounds; Macromolecular additives, e.g. binders [5]
- 7/022 • • Quinonediazides (G03F 7/075 takes precedence) [5]
- 7/023 • • • Macromolecular quinonediazides; Macromolecular additives, e.g. binders [5]
- 7/025 • • Non-macromolecular photopolymerisable compounds having carbon-to-carbon triple bonds, e.g. acetylenic compounds (G03F 7/075 takes precedence) [5]
- 7/027 • • Non-macromolecular photopolymerisable compounds having carbon-to-carbon double bonds, e.g. ethylenic compounds (G03F 7/075 takes precedence) [5]
- 7/028 • • • with photosensitivity-increasing substances, e.g. photoinitiators [5]
- 7/029 • • • • Inorganic compounds; Onium compounds; Organic compounds having hetero atoms other than oxygen, nitrogen or sulfur [5]
- 7/031 • • • • Organic compounds not covered by group G03F 7/029 [5]
- 7/032 • • • with binders [5]

## G03F

- 7/033 • • • • the binders being polymers obtained by reactions only involving carbon-to-carbon unsaturated bonds, e.g. vinyl polymers [5]
- 7/035 • • • • the binders being polyurethanes [5]
- 7/037 • • • • the binders being polyamides or polyimides [5]
- 7/038 • • Macromolecular compounds which are rendered insoluble or differentially wettable (G03F 7/075 takes precedence; macromolecular azides G03F 7/012; macromolecular diazonium compounds G03F 7/021) [5]
- 7/039 • • Macromolecular compounds which are photodegradable, e.g. positive electron resists (G03F 7/075 takes precedence; macromolecular quinonediazides G03F 7/023) [5]
- 7/04 • • Chromates (G03F 7/075 takes precedence) [5]
- 7/06 • • Silver salts (G03F 7/075 takes precedence) [5]
- 7/07 • • • used for diffusion transfer [5]
- 7/075 • • Silicon-containing compounds [5]
- 7/085 • • Photosensitive compositions characterised by adhesion-promoting non-macromolecular additives (G03F 7/075 takes precedence) [5]
- 7/09 • • characterised by structural details, e.g. supports, auxiliary layers (supports for printing plates in general B41N) [5]
- 7/095 • • • having more than one photosensitive layer (G03F 7/075 takes precedence) [5]
- 7/105 • • • having substances, e.g. indicators, for forming visible images [5]
- 7/11 • • • having cover layers or intermediate layers, e.g. subbing layers [5]
- 7/115 • • • having supports or layers with means for obtaining a screen effect or for obtaining better contact in vacuum printing [5]
- 7/12 • Production of screen printing forms or similar printing forms, e.g. stencils
- 7/14 • Production of collotype printing forms
- 7/16 • Coating processes; Apparatus therefor (applying coatings to base materials in general B05; applying photosensitive compositions to the base for photographic purposes G03C 1/74)
- 7/18 • • Coating curved surfaces
- 7/20 • Exposure; Apparatus therefor (photographic printing apparatus for making copies G03B 27/00) [4]
- 7/207 • • Means for focusing, e.g. automatically (combination of positioning and focusing G03F 9/02; systems for automatic generation of focusing signals in general G02B 7/28; means for automatic focusing of projection printing apparatus G03B 27/34) [4]
- 7/213 • • Exposing with the same light pattern different positions of the same surface at the same time (G03F 7/207 takes precedence) [4]
- 7/22 • • Exposing sequentially with the same light pattern different positions of the same surface (G03F 7/207 takes precedence) [4]
- 7/23 • • • Automatic means therefor [4]
- 7/24 • • Curved surfaces
- 7/26 • Processing photosensitive materials; Apparatus therefor (G03F 7/12-G03F 7/24 take precedence) [3, 5]
- 7/28 • • for obtaining powder images (G03F 3/10 takes precedence) [5]
- 7/30 • • Imagewise removal using liquid means [5]
- 7/32 • • • Liquid compositions therefor, e.g. developers [5]
- 7/34 • • Imagewise removal by selective transfer, e.g. peeling away [5]
- 7/36 • • Imagewise removal not covered by groups G03F 7/30-G03F 7/34, e.g. using gas streams, using plasma [5]
- 7/38 • • Treatment before imagewise removal, e.g. prebaking [5]
- 7/40 • • Treatment after imagewise removal, e.g. baking [5]
- 7/42 • • Stripping or agents therefor [5]
- 9/00 **Registration or positioning of originals, masks, frames, photographic sheets or textured or patterned surfaces, e.g. automatically** (G03F 7/22 takes precedence; preparation of photographic masks G03F 1/00; within photographic printing apparatus for making copies G03B 27/00) [4]
- 9/02 • combined with means for automatic focusing (automatic focusing in general G02B 7/09; systems for automatic generation of focusing signals G02B 7/28) [4]

**G03G ELECTROGRAPHY; ELECTROPHOTOGRAPHY; MAGNETOGRAPHY** (information storage based on relative movement between record carrier and transducer G11B; static stores with means for writing-in or reading-out information G11C; recording of television signals H04N 5/76)

### Note(s)

1. This subclass **covers**:
  - the production of permanent directly-visible pictures in conformity with an original picture or document, using an intermediate imagewise distribution of an electric or magnetic quantity, such as a charge pattern, an electric conductivity pattern, or a magnetic pattern;
  - the production of permanent directly-visible pictures using an intermediate imagewise distribution of an electric or magnetic quantity, when the origin and the way of generating said intermediate distribution are not relevant.
2. This subclass **does not cover**:
  - use of electric signals for the transmission of the picture information from the original to the reproduction, i.e. pictorial communication, which is covered by subclass H04N;
  - production of pictures by heat patterns exclusively, not using an electrostatic or magnetic pattern, which is covered by group B41M 5/00;
  - production of prints by transferring ink from a printing form to a printing surface, without physical contact and using the force of an electrostatic field, which is covered by subclass B41M;
  - selective printing mechanisms characterised by the selective supply of electric current, or the selective application of magnetism or radiation, to a printing material or impression-transfer material, which are covered by groups B41J 2/385, B41J 2/435.

**Subclass index**

ORIGINAL RECORDING, MEMBERS AND MATERIALS.....	5/00, 7/00, 9/00
ELECTROGRAPHIC PROCESSES AND APPARATUS	
Using a charge pattern.....	13/00, 15/00
Using patterns other than charge patterns.....	17/00
Using deformation of thermoplastic layers.....	16/00
PROCESSES AND APPARATUS USING MAGNETIC PATTERNS.....	19/00
DETAILS NOT OTHERWISE PROVIDED FOR.....	8/00, 11/00, 21/00

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| <p><b>5/00 Recording-members for original recording by exposure e.g. to light, to heat, to electrons; Manufacture thereof; Selection of materials therefor</b> (recording surfaces for measuring apparatus G01D 15/34; photosensitive materials for photographic purposes G03C)</p> <p>5/02 • Charge-receiving layers (G03G 5/153 takes precedence) [5]</p> <p>5/022 • • Layers for surface-deformation imaging, e.g. frost imaging [2]</p> <p>5/024 • • Photoelectret layers [2]</p> <p>5/026 • • Layers in which during the irradiation a chemical reaction occurs whereby electrically conductive patterns are formed in the layers, e.g. for chemixerography [2]</p> <p>5/028 • • Layers in which after being exposed to heat patterns electrically conductive patterns are formed in the layers, e.g. for thermoxerography [2]</p> <p>5/04 • • Photoconductive layers; Charge-generation layers or charge-transporting layers; Additives therefor; Binders therefor [2, 5]</p> <p>5/043 • • • Photoconductive layers characterised by having two or more layers or characterised by their composite structure [5]</p> <p>5/047 • • • • characterised by the charge-generation layers or charge-transporting layers [5]</p> <p>5/05 • • • Organic bonding materials; Methods for coating a substrate with a photoconductive layer; Inert supplements for use in photoconductive layers [2]</p> <p>5/06 • • • characterised by the photoconductive material being organic [5]</p> <p>5/07 • • • • Polymeric photoconductive materials [2]</p> <p>5/08 • • • • characterised by the photoconductive material being inorganic [2, 5]</p> <p>5/082 • • • • and not being incorporated in a bonding material, e.g. vacuum deposited [2]</p> <p>5/085 • • • • and being incorporated in an inorganic bonding material, e.g. glass-like layers [2]</p> <p>5/087 • • • • and being incorporated in an organic bonding material [2]</p> <p>5/09 • • • Sensitisers or activators, e.g. dyestuffs (G03G 5/12 takes precedence) [2]</p> <p>5/10 • Bases for charge-receiving or other layers</p> <p>5/12 • Recording members for multicolour processes [2]</p> <p>5/14 • Inert intermediate or cover layers for charge-receiving layers (G03G 5/04 takes precedence) [2, 5]</p> <p>5/147 • • Cover layers [5]</p> <p>5/153 • Charge-receiving layers combined with additional photo- or thermo-sensitive, but not photoconductive, layers, e.g. silver-salt layers [5]</p> <p>5/16 • Layers for recording by changing the magnetic properties, e.g. for Curie-point-writing [3]</p> | <p><b>7/00 Selection of materials for use in image-receiving members, i.e. for reversal by physical contact; Manufacture thereof</b> (photosensitive materials for photographic purposes G03C)</p> <p><b>8/00 Layers covering the final reproduction, e.g. for protecting, for writing thereon [2]</b></p> <p><b>9/00 Developers [5]</b></p> <p>9/06 • the developer being electrolytic</p> <p>9/08 • with toner particles [2]</p> <p><b>Note(s)</b></p> <p>In groups G03G 9/083-G03G 9/12, in the absence of an indication to the contrary, classification is made in the last appropriate place.</p> <p>9/083 • • Magnetic toner particles [5]</p> <p>9/087 • • Binders for toner particles [5]</p> <p>9/09 • • Colouring agents for toner particles [5]</p> <p>9/093 • • Encapsulated toner particles [5]</p> <p>9/097 • • Plasticisers; Charge controlling agents [5]</p> <p>9/10 • • characterised by carrier particles [2, 5]</p> <p>9/107 • • • having magnetic components [5]</p> <p>9/113 • • • having coatings applied thereto [5]</p> <p>9/12 • • in liquid developer mixtures [2]</p> <p>9/125 • • • characterised by the liquid [5]</p> <p>9/13 • • • characterised by polymer components [5]</p> <p>9/135 • • • characterised by stabiliser or charge-controlling agents [5]</p> <p>9/16 • Developers not provided for in groups G03G 9/06-G03G 9/135, e.g. solutions, aerosols [2]</p> <p>9/18 • • Differentially-wetting liquid developers [2]</p> <p><b>11/00 Selection of substances for use as fixing agents</b></p> <p><b>13/00 Electrographic processes using a charge pattern</b> (G03G 15/00, G03G 16/00, G03G 17/00 take precedence) [2, 5]</p> <p>13/01 • for multicoloured copies [2]</p> <p>13/02 • Sensitising, i.e. laying-down a uniform charge (devices for corona discharge <i>per se</i> H01T 19/00)</p> <p>13/04 • Exposing, i.e. imagewise exposure by optically projecting the original image on a photoconductive recording material [6]</p> <p>13/045 • • Charging or discharging distinct portions of the charge pattern on the recording material, e.g. discharging non-image areas, contrast enhancement (G03G 13/34, G03G 15/36, G03G 21/06 take precedence) [6]</p> <p>13/05 • Imagewise charging, i.e. laying-down a charge in the configuration of an original image using a modulated stream of charged particles, e.g. of corona ions, modulated by a photoconductive control screen bearing a charge pattern or by optically activated charging means (using charging means controlled by electric image signals B41J) [6]</p> |
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- 13/054 • using X-rays, e.g. electroradiography [6]  
 13/056 • using internal polarisation [2, 6]  
 13/06 • Developing  
 13/08 • • using a solid developer, e.g. powder developer  
 13/09 • • • using magnetic brush [2]  
 13/095 • • • Removing excess solid developer [6]  
 13/10 • • using a liquid developer  
 13/11 • • • Removing excess liquid developer, e.g. by heat [6]  
 13/14 • Transferring a pattern to a second base  
 13/16 • • of a toner pattern, e.g. a powder pattern  
 13/18 • • of a charge pattern  
 13/20 • Fixing, e.g. by using heat  
 13/22 • Processes involving the combination of more than one step according to groups G03G 13/02-G03G 13/20 (G03G 13/01 takes precedence) [2]  
 13/23 • • specially adapted for copying both sides of an original or for copying on both sides of a recording or image-receiving material [6]  
 13/24 • • whereby at least two steps are performed simultaneously [2]  
 13/26 • for the production of printing plates for non-xerographic printing processes [2]  
 13/28 • • Planographic printing plates [2]  
 13/30 • • Hectographic masters [2]  
 13/32 • • Relief printing plates [2]  
 13/34 • Editing, i.e. producing a composite image by copying one or more original images or parts thereof [6]
- 15/00 Apparatus for electrographic processes using a charge pattern** (G03G 16/00, G03G 17/00 take precedence) [2, 5]  
**Note(s)**  
 This group covers also processes in so far as they are characterised by the use or manipulation of apparatus classifiable per se in this group.
- 15/01 • for producing multicoloured copies [2]  
 15/02 • for laying down a uniform charge, e.g. for sensitising; Corona discharge devices (G03G 15/14 takes precedence) [6]  
 15/04 • for exposing, i.e. imagewise exposure by optically projecting the original image on a photoconductive recording material [6]  
 15/041 • • with variable magnification [6]  
 15/043 • • with means for controlling illumination or exposure (G03G 15/041 takes precedence) [6]  
 15/045 • • with means for charging or discharging distinct portions of the charge pattern on the recording material, e.g. for contrast enhancement or discharging non-image areas (G03G 15/36, G03G 21/06 take precedence) [6]  
 15/047 • • • for discharging non-image areas [6]  
 15/05 • for imagewise charging, e.g. photoconductive control screen, optically activated charging means (charging means controlled by electric image signals B41J) [6]  
 15/054 • using X-rays, e.g. electroradiography [6]  
 15/056 • using internal polarisation [2, 6]  
 15/06 • for developing  
 15/08 • • using a solid developer, e.g. powder developer  
 15/09 • • • using magnetic brush [2]  
 15/095 • • • Removing excess solid developer [6]  
 15/10 • • using a liquid developer
- 15/11 • • • Removing excess liquid developer e.g. by heat [6]  
 15/14 • for transferring a pattern to a second base  
 15/16 • • of a toner pattern, e.g. a powder pattern  
 15/18 • • of a charge pattern  
 15/20 • for fixing, e.g. by using heat  
 15/22 • involving the combination of more than one step according to groups G03G 13/02-G03G 13/20 (G03G 15/01 takes precedence) [2]  
 15/23 • • specially adapted for copying both sides of an original or for copying on both sides of a recording or image-receiving material [6]  
 15/24 • • whereby at least two steps are performed simultaneously [2]  
 15/26 • • in which the charge pattern is obtained by projection of the entire image, i.e. whole-frame projection (G03G 15/04 takes precedence) [2, 6]  
 15/28 • • in which projection is obtained by line scanning (G03G 15/04 takes precedence) [2, 6]  
 15/30 • • • in which projection is formed on a drum [2]  
 15/32 • • in which the charge pattern is formed dotwise (G03G 15/04, G03G 15/05, G03G 15/34 take precedence) [2, 6]  
 15/34 • • in which the powder image is formed directly on the recording material [6]  
 15/36 • Editing, i.e. producing a composite image by copying one or more original images or parts thereof [6]
- 16/00 Electrographic processes using deformation of thermoplastic layers** (layers for surface-deformation imaging G03G 5/022); **Apparatus therefor** [2, 6]
- 17/00 Electrographic processes using patterns other than charge patterns, e.g. an electric conductivity pattern; Processes involving a migration; e.g. photoelectrophoresis, photoelectrosolography; Processes involving a selective transfer, e.g. electrophoto-adhesive processes; Apparatus essentially involving a single such process** [5]  
 17/02 • with electrolytic development [2]  
 17/04 • using photoelectrophoresis [2]  
 17/06 • • Apparatus therefor [5]  
 17/08 • using an electrophoto-adhesive process, e.g. manifold imaging [5]  
 17/10 • using migration imaging, e.g. photoelectrosolography (G03G 17/04 takes precedence) [5]
- 19/00 Processes using magnetic patterns; Apparatus therefor**
- 21/00 Arrangements not provided for by groups G03G 13/00-G03G 19/00, e.g. cleaning, elimination of residual charge** [2]  
 21/02 • Counting the number of copies; Billing [6]  
 21/04 • Preventing copies being made of an original [6]  
 21/06 • Eliminating residual charges from a reusable imaging member [6]  
 21/08 • • using optical radiation [6]  
 21/10 • Collecting or recycling waste developer [6]  
 21/12 • • Toner waste containers [6]  
 21/14 • Electronic sequencing control [6]  
 21/16 • Mechanical means for facilitating the maintenance of the apparatus, e.g. modular arrangements [6]  
 21/18 • • using a processing cartridge [6]  
 21/20 • Humidity or temperature control [6]

**G03H HOLOGRAPHIC PROCESSES OR APPARATUS** (holograms, e.g. point holograms, used as ordinary optical elements G02B 5/32; analogue computers performing mathematical operations with the aid of optical elements G06E 3/00; holographic storage G11B 7/0065, G11C 13/04) [2]

**Note(s)**

This subclass covers means for producing a record of the phase and amplitude information of a wave-front, which information can be used to reconstruct the original wave-front, or means to reconstruct the original wave-front from a record containing the phase and amplitude information of the wave-front.

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| <p><b>1/00 Holographic processes or apparatus using light, infra-red, or ultra-violet waves for obtaining holograms or for obtaining an image from them; Details peculiar thereto [2]</b></p> <p>1/02 • Details [2]</p> <p>1/04 • Processes or apparatus for producing holograms (G03H 1/26 takes precedence) [2]</p> <p>1/06 • • using incoherent light [2]</p> <p>1/08 • • Synthesising holograms [2]</p> <p>1/10 • • using modulated reference beam [2]</p> <p>1/12 • • • Spatial modulation, e.g. ghost imaging [2]</p> <p>1/14 • • • Temporal modulation, e.g. extending depth of field or phase compensation for object motion [2]</p> <p>1/16 • • using Fourier transform (G03H 1/12, G03H 1/14 take precedence) [2]</p> <p>1/18 • • Particular processing of hologram record carriers, e.g. for obtaining blazed holograms [2]</p> <p>1/20 • • Copying holograms by holographic means [2]</p> <p>1/22 • Processes or apparatus for obtaining an optical image from holograms (G03H 1/26-G03H 1/34 take precedence) [2]</p> | <p>1/24 • • using white light [2]</p> <p>1/26 • Processes or apparatus specially adapted to produce multiple holograms or to obtain images from them, e.g. multicolour technique [2]</p> <p>1/28 • • superimposed holograms only [2]</p> <p>1/30 • • discrete holograms only [2]</p> <p>1/32 • Systems for obtaining speckle elimination [2]</p> <p>1/34 • Systems for reducing the space-spatial bandwidth product [2]</p> <p><b>3/00 Holographic processes or apparatus using ultrasonic, sonic, or infrasonic waves for obtaining holograms; Processes or apparatus for obtaining an optical image from them (G03H 1/22 takes precedence) [2]</b></p> <p><b>5/00 Holographic processes or apparatus using particles or using waves other than those covered by groups G03H 1/00 or G03H 3/00 for obtaining holograms; Processes or apparatus for obtaining an optical image from them (G03H 1/22 takes precedence) [2]</b></p> |
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