

## ECLA EUROPEAN CLASSIFICATION

**G03H HOLOGRAPHIC PROCESSES OR APPARATUS** (holograms, e.g. point holograms, used as ordinary optical elements [G02B5/32](#); producing stereoscopic or other three-dimensional effects [G02B27/22](#); diffraction-grating systems [G02B27/44](#); systems using moirè fringes [G02B27/60](#); optical logic elements [G02F3/00](#); stereo-photography [G03B35/00](#); photosensitive materials or processes for photographic purposes [G03C](#); [N: stereo-photographic or similar processes [G03C9/00](#)]; apparatus for processing exposed photographic materials [G03D](#); analogue computers performing mathematical operations with the aid of optical elements [G06E3/00](#); authentication by radiation, of concealed information carried by holograms or diffraction gratings [G06K19/16](#); holographic storage [G11B7/0065](#), [G11C13/04](#); [N: stereoscopic or other three dimensional effects in television systems [H04N13/00](#)]) [[C0805](#)]

### Note

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.

- G03H1/00 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**
- G03H1/00A . [N: Adaptation of holography to specific applications (holographic optical element [G02B5/32](#); holographic scanner [G02B26/10H](#); recognition using holographic mask [G06K9/76](#); holographic memories [G11B7/0065](#), [G11C13/04C](#)) ] [[N1204](#)]
  - G03H1/00A1 . . [N: for security or authentication (holograms on information-bearing cards [B42D15/10D](#); testing papers with holograms [G07D7/00B2](#))] [[N1204](#)]
  - G03H1/02 . Details [N: of features involved during the holographic process; Replication of holograms without interference recording] [[C1205](#)]
  - G03H1/02F . . [N: Form or shape of the hologram when not registered to the substrate, e.g. trimming the hologram to alphanumeric shape (substrates bearing a hologram [G03H1/02S](#))] [[N1204](#)]
  - G03H1/02H . . [N: Hologram nature or properties] [[N1204](#)]
  - G03H1/02H1 . . . [N: Surface relief holograms (replicating hologram without interference recording [G03H1/02X](#))] [[N1204](#)]
  - G03H1/02H2 . . . [N: Volume holograms] [[N1204](#)]
  - G03H1/02L . . [N: Laminate comprising a hologram layer] [[N1204](#)]
  - G03H1/02L5 . . . [N: having specific functional layer] [[N1204](#)]
  - G03H1/02S . . [N: Substrate bearing the hologram] [[N1204](#)]
  - G03H1/02X . . [N: Replicating a master hologram without interference recording (surface relief holograms [G03H1/02H1](#))] [[N1204](#)]
  - G03H1/02X2 . . . [N: by embossing] [[N1204](#)]
  - G03H1/04 . Processes or apparatus for producing holograms ([G03H1/26](#) takes precedence)
  - G03H1/04A . . [N: Recording geometries or arrangements ([G03H1/04E](#), [G03H1/04P](#), [G03H1/16](#) take precedence)] [[N1204](#)]

- G03H1/04A1 . . . [N: In-line recording arrangement] [N1204]
- G03H1/04A2 . . . [N: Image plane or focused image holograms, i.e. an image of the object or holobject is formed on, in or across the recording plane] [N1204]
- G03H1/04A3 . . . [N: Total internal reflection [TIR] holograms, e.g. edge lit or substrate mode holograms] [N1204]
- G03H1/04A4 . . . [N: Optical element in the object space affecting the object beam, not otherwise provided for] [N1204]
- G03H1/04E . . [N: Digital holography, i.e. recording holograms with digital recording means (holobject computation G03H1/08H)] [N1204]
- G03H1/04L . . [N: Particular recording light; Beam shape or geometry (G03H1/06 takes precedence)] [N1204]
- G03H1/04P . . [N: Holographic printer (G03H1/26S takes precedence)] [N1204]
- G03H1/04Q . . [N: Improving or monitoring the quality of the record, e.g. by compensating distortions, aberrations] [N1204]
- G03H1/04S . . [N: Special holograms not otherwise provided for, e.g. conoscopic, referenceless holography] [N1204]
- G03H1/06 . . using incoherent light
- G03H1/08 . . Synthesising holograms, [N: i.e. holograms synthesized from objects or objects from holograms] (using electric digital computers G06F; G06T) [C0805]
- G03H1/08C . . . [N: Methods of numerical synthesis, e.g. coherent ray tracing [CRT], diffraction specific] [N1204]
- G03H1/08D . . . [N: Encoding method mapping the synthesized field into a restricted set of values representative of the modulator parameters, e.g. detour phase coding] [N1204]
- G03H1/08H . . . [N: Digital holographic imaging, i.e. synthesizing holobjects from holograms] [N1204]
- G03H1/08M . . . [N: Processes or apparatus adapted to convert digital holographic data into a hologram (G03H1/22S takes precedence)] [N1204]
- G03H1/10 . . using modulated reference beam
- G03H1/12 . . . Spatial modulation, e.g. ghost imaging
- G03H1/14 . . . Temporal modulation, e.g. extending depth of field or phase compensation for object motion
- G03H1/16 . . using Fourier transform ([N: [G03H1/10](#), [G03H1/12](#), [G03H1/14](#) take precedence; analogue computers G06G, e.g. [G06G7/19](#)])
- G03H1/18 . . Particular processing of hologram record carriers, e.g. for obtaining blazed holograms [N: (photographic processing in general G03C, G03D)] [C0805]
- G03H1/18A . . . [N: Pre-exposure processing, e.g. hypersensitisation] [N1204]
- G03H1/18B . . . [N: Post-exposure processing, e.g. latensification] [N1204]
- G03H1/20 . . Copying holograms by holographic [N: i.e. optical] means [C1205]
- G03H1/20C . . . [N: Contact copy when the reconstruction beam for the master H1 also serves as reference beam for the copy H2] [N1204]
- G03H1/22 . . Processes or apparatus for obtaining an optical image from holograms ([G03H1/26](#) to [G03H1/34](#) take precedence)
- G03H1/22A . . [N: Reconstruction geometries or arrangements] [N1204]
- G03H1/22A1 . . . [N: using downstream optical component] [N1204]
- G03H1/22H . . [N: Holobject properties] [N1204]
- G03H1/22L . . [N: Particular reconstruction light (G03H1/24 takes precedence); Beam properties]

- N1204]
- G03H1/22S . . [N: Addressing the hologram to an active spatial light modulator] [N1204]
- G03H1/24 . . using white light [N: e.g. rainbow holograms]
- G03H1/26 . Processes or apparatus specially adapted to produce multiple [N: sub-] holograms or to obtain images from them, e.g. multicolour technique [C1205]
- G03H1/26M . . [N: Multiplexing processes, e.g. aperture, shift, or wavefront multiplexing] [N1204]
- G03H1/26M2 . . . [N: Angle multiplexing; Multichannel holograms (G03H1/26S takes precedence)] [N1204]
- G03H1/26S . . [N: Holographic stereogram] [N1204]
- G03H1/28 . . superimposed holograms only
- G03H1/30 . . discrete holograms only
- G03H1/32 . Systems for obtaining speckle elimination
- G03H1/34 . Systems for reducing the space-spatial bandwidth product
- G03H3/00** **Holographic processes or apparatus using ultrasonic, sonic or infrasonic waves for obtaining holograms; Processes or apparatus for obtaining an optical image from them (G03H1/22 takes precedence; [N: acoustic non-destructive testing using holographic methods G01N29/06D1; seismology using acoustic vibrations G01V1/00; non-holographic methods for visualizing acoustic waves G10K15/00]) [C0805]**
- G03H5/00** **Holographic processes or apparatus using particles or using waves other than those covered by groups G03H1/00 or G03H3/00 for obtaining holograms; Processes or apparatus for obtaining an optical image from them (G03H1/22 takes precedence; construction of electron microscopes H01J37/26; [N: investigating or analysing materials by the use of microwaves G01N22/00, by the use of particles wave or X-rays G01N23/00, G21K7/00]) [C0805]**