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

F16 ENGINEERING ELEMENTS OR UNITS; GENERAL MEASURES FOR PRODUCING AND MAINTAINING EFFECTIVE FUNCTIONING OF MACHINES OR INSTALLATIONS; THERMAL INSULATION IN GENERAL

F16D **COUPLINGS FOR TRANSMITTING ROTATION** (gearing for conveying rotation F16H, e.g. fluid gearing F16H 39/00-F16H 47/00)**; CLUTCHES** (dynamo-electric clutches H02K 49/00; clutches using electrostatic attraction H02N 13/00)**; BRAKES** (electrodynamic brake systems for vehicles in general B60L 7/00; dynamo-electric brakes H02K 49/00) **[2]**

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Couplings

1/00 **Couplings for rigidly connecting two coaxial shafts or other movable machine elements** (for attachment of cranks to their shafts F16C 3/10) **[1, 2006.01]**

1/02 • for connecting two abutting shafts or the like **[1, 2006.01]**

1/027 • • non-disconnectable, e.g. involving gluing, welding or the like **[6, 2006.01]**

1/033 • • by clamping together two faces perpendicular to the axis of rotation, e.g. with bolted flanges **[6, 2006.01]**

1/04 • • with clamping hub; with hub and longitudinal key **[1, 2006.01]**

1/05 • • • with radial clamping due to axial loading of at least one pair of conical surfaces **[5, 2006.01]**

1/06 • for attachment of a member on a shaft or on a shaft-end (attachment of marine propellers on shafts B63H 23/34) **[1, 2006.01]**

1/064 • • non-disconnectable **[6, 2006.01]**

1/068 • • • involving gluing, welding or the like **[6, 2006.01]**

1/072 • • • involving plastic deformation (plastic welding F16D 1/068) **[6, 2006.01]**

1/076 • • by clamping together two faces perpendicular to the axis of rotation, e.g. with bolted flanges **[6, 2006.01]**

1/08 • • with clamping hub; with hub and longitudinal key **[1, 2006.01]**

1/09 • • • with radial clamping due to axial loading of at least one pair of conical surfaces **[5, 2006.01]**

1/091 • • • • and comprising a chamber including a tapered piston moved axially by fluid pressure to effect clamping **[2006.01]**

1/092 • • • • the pair of conical mating surfaces being provided on the coupled hub and shaft **[2006.01]**

1/093 • • • • using one or more elastic or segmented conical rings forming at least one of the conical surfaces, the rings being expanded or contracted to effect clamping (F16D 1/091 takes precedence) **[2006.01]**

1/094 • • • • • using one or more pairs of elastic or segmented rings with mutually mating conical surfaces, one of the mating rings being contracted and the other being expanded **[2006.01]**

1/095 • • • • • with clamping effected by ring contraction only **[2006.01]**

1/096 • • • • • • the ring or rings being located between the shaft and the hub **[2006.01]**

1/097 • • • • • with clamping effected by ring expansion only, e.g. with an expanded ring located between hub and shaft **[2006.01]**

1/10 • Quick-acting couplings in which the parts are connected by simply bringing them together axially **[1, 2006.01]**

1/104 • • having retaining means rotating with the coupling and acting only by friction **[6, 2006.01]**

1/108 • • having retaining means rotating with the coupling and acting by interengaging parts, i.e. positive coupling **[6, 2006.01]**

1/112 • • • the interengaging parts comprising torque-transmitting surfaces, e.g. bayonet joints **[6, 2006.01]**

1/116 • • • the interengaging parts including a continuous or interrupted circumferential groove in the surface of one of the coupling parts (circlips for retaining hubs on shafts F16B 21/18) **[6, 2006.01]**

1/12 • allowing adjustment of the parts about the axis (during motion F16D 3/10) **[1, 2006.01]**

3/00 Yielding couplings, i.e. with means permitting movement between the connected parts during the drive (couplings disconnectable simply by axial movement F16D 1/10; slip couplings F16D 7/00; fluid couplings F16D 31/00-F16D 39/00) **[1, 2006.01]**

3/02 • adapted to specific functions (universal joints, see the appropriate groups) **[1, 2006.01]**

3/04 • • specially adapted to allow radial displacement, e.g. Oldham couplings **[1, 2006.01]**

3/06 • • specially adapted to allow axial displacement **[1, 2006.01]**

3/08 • • Couplings for intersecting shafts, provided with intermediate bars bent in an angle corresponding with the angle of intersection **[1, 2006.01]**

3/10 • • Couplings with means for varying the angular relationship of two coaxial shafts during motion **[1, 2006.01]**

3/12 • • specially adapted for accumulation of energy to absorb shocks or vibration (by making use of fluid elements F16D 3/80) **[1, 2006.01]**

3/14 • • combined with a friction coupling for damping vibration or absorbing shock **[1, 2006.01]**

3/16 • Universal joints in which flexibility is produced by means of pivots or sliding or rolling connecting parts **[1, 2006.01]**

3/18 • • the coupling parts having slidably-interengaging teeth **[1, 2006.01]**

Note(s) [4]

In this group, the following expression is used with the meaning indicated:

- "coupling parts" means the driving member and the driven member of the coupling, which are mounted on, and rotate as a unit with, the shafts or their equivalents between which the coupling is placed. An intermediate member interconnecting these parts is regarded as such an equivalent.

3/19 • • • of resilient material or structure **[1, 2006.01]**

3/20 • • one coupling part entering a sleeve of the other coupling part and connected thereto by sliding or rolling members (F16D 3/18, F16D 3/24 take precedence) **[1, 4, 5, 2006.01]**

3/202 • • • one coupling part having radially projecting pins, e.g. tripod joints **[5, 2006.01]**

3/205 • • • • the pins extending radially outwardly from the coupling part **[5, 2006.01]**

3/207 • • • • the pins extending radially inwardly from the coupling part **[5, 2006.01]**

3/22 • • • the rolling members being balls, rollers, or the like, guided in grooves or sockets in both coupling parts **[1, 3, 5, 2006.01]**

3/221 • • • • the rolling members being located in sockets in one of the coupling parts **[5, 2006.01]**

3/223 • • • • the rolling members being guided in grooves in both coupling parts **[5, 2006.01, 2011.01]**

3/2233 • • • • • where the track is made up of two curves with a point of inflexion in between, i.e. S-track joints **[2011.01]**

3/2237 • • • • • where the grooves are composed of radii and adjoining straight lines, i.e. undercut free [UF] type joints **[2011.01]**

3/224 • • • • • the groove centre-lines of each coupling part lying on a sphere **[5, 2006.01, 2011.01]**

3/2245 • • • • • • where the groove centres are offset from the joint centre **[2011.01]**

3/226 • • • • • the groove centre-lines of each coupling part lying on a cylinder co-axial with the respective coupling part **[5, 2006.01]**

3/227 • • • • • • the joints being telescopic **[5, 2006.01]**

3/229 • • • • • Prismatic coupling parts having each groove centre-line lying on planes parallel to the axis of the respective coupling part (F16D 3/224, F16D 3/226 take precedence) **[5, 2006.01]**

3/24 • • comprising balls, rollers, or the like, between overlapping driving faces, e.g. cogs, on both coupling parts **[1, 3, 5, 2006.01]**

3/26 • • Hooke's joints or other joints with an equivalent intermediate member to which each coupling part is pivotally or slideably connected (F16D 3/18, F16D 3/20 take precedence) **[1, 2006.01]**

3/27 • • • with two or more intermediate members pivotally or slidably connected together, e.g. tongue-and-slipper type joints **[5, 2006.01]**

3/28 • • • in which the interconnecting pivots include elastic members **[1, 2006.01]**

3/30 • • • in which the coupling is specially adapted to constant velocity-ratio **[1, 2006.01]**

3/32 • • • • by the provision of two intermediate members each having two relatively-perpendicular trunnions or bearings **[1, 2006.01]**

3/33 • • • • • with ball or roller bearings **[1, 2006.01]**

3/34 • • • • parts being connected by ridges, pins, balls, or the like guided in grooves or between cogs **[1, 2006.01]**

3/36 • • • in which each pivot between the coupling parts and the intermediate member comprises a single ball **[1, 2006.01]**

3/38 • • • with a single intermediate member with trunnions or bearings arranged on two axes perpendicular to one another (F16D 3/36 takes precedence) **[1, 2006.01]**

3/40 • • • • with intermediate member provided with two pairs of outwardly-directed trunnions on intersecting axes **[1, 2006.01]**

3/41 • • • • • with ball or roller bearings **[1, 2006.01]**

3/42 • • • • with ring-shaped intermediate member provided with bearings or inwardly-directed trunnions **[1, 2006.01]**

3/43 • • • • • with ball or roller bearings **[1, 2006.01]**

3/44 • • • the intermediate member being connected to the coupling parts by ridges, pins, balls, or the like guided in grooves or between cogs **[1, 2006.01]**

3/46 • • • • each coupling part embracing grooves or ridges on the intermediate member **[1, 2006.01]**

3/48 • • one coupling part having pins arranged parallel to the axis and entering holes in the other coupling part **[1, 2006.01]**

3/50 • with the coupling parts connected by one or more intermediate members (F16D 3/16 takes precedence) **[1, 2006.01]**

3/52 • • comprising a continuous strip, spring, or the like engaging the coupling parts at a number of places **[1, 2006.01]**

3/54 • • Couplings comprising a chain or strip surrounding two wheels arranged side by side and provided with teeth or the equivalent **[1, 2006.01]**

3/56 • • comprising elastic metal lamellae, elastic rods, or the like, e.g. arranged radially or parallel to the axis, the members being shear-loaded collectively by the total load **[1, 2006.01]**

3/58 • • • the intermediate members being made of rubber or like material **[1, 2006.01]**

3/60 • • comprising pushing or pulling links attached to both parts (F16D 3/64 takes precedence) **[1, 2006.01]**

3/62 • • • the links or their attachments being elastic **[1, 2006.01]**

3/64 • • comprising elastic elements arranged between substantially-radial walls of both coupling parts **[1, 2006.01]**

3/66 • • • the elements being metallic, e.g. in the form of coils **[1, 2006.01]**

3/68 • • • the elements being made of rubber or similar material **[1, 2006.01]**

3/70 • • comprising elastic elements arranged in holes in one coupling part and surrounding pins on the other coupling part **[1, 2006.01]**

3/72 • • with axially-spaced attachments to the coupling parts (F16D 3/56 takes precedence) **[1, 2006.01]**

3/74 • • • the intermediate member or members being made of rubber or other flexible material **[1, 2006.01]**

3/76 • • shaped as an elastic ring centered on the axis, surrounding a portion of one coupling part and surrounded by a sleeve of the other coupling part **[1, 2006.01]**

3/77 • • • the ring being metallic **[1, 2006.01]**

3/78 • • shaped as an elastic disc or flat ring, arranged perpendicular to the axis of the coupling parts, different sets of spots of the disc or ring being attached to each coupling part, e.g. Hardy couplings **[1, 2006.01]**

3/79 • • • the disc or ring being metallic **[1, 2006.01]**

3/80 • in which a fluid is used (fluid couplings allowing continuous slip F16D 31/00-F16D 35/00) **[1, 2006.01]**

3/82 • • with a coupling element in the form of a pneumatic tube **[1, 2006.01]**

3/84 • Shrouds, e.g. casings, covers; Sealing means specially adapted therefor **[1, 2006.01]**

5/00 Impulse couplings, i.e. couplings that alternately accelerate and decelerate the driven member (fluid couplings F16D 31/00-F16D 39/00) **[1, 2006.01]**

7/00 Slip couplings, e.g. slipping on overload, for absorbing shock (combined with yielding shaft couplings F16D 3/14; fluid slip couplings F16D 31/00-F16D 35/00) **[1, 2006.01]**

7/02 • of the friction type (couplings in which overload initiates a decrease of coupling pressure or a disconnection, see the relevant groups for clutches) **[1, 2006.01]**

7/04 • of the ratchet type **[1, 2006.01]**

7/06 • • with intermediate balls or rollers **[1, 2006.01]**

7/08 • • • moving axially between engagement and disengagement **[5, 2006.01]**

7/10 • • • moving radially between engagement and disengagement **[5, 2006.01]**

9/00 Couplings with safety member for disconnecting [1, 2006.01]

9/02 • by thermal means, e.g. melting member **[6, 2006.01]**

9/04 • by tensile breaking **[6, 2006.01]**

9/06 • by breaking due to shear stress **[6, 2006.01]**

9/08 • • over a single area encircling the axis of rotation, e.g. shear necks on shafts (F16D 9/10 takes precedence) **[6, 2006.01]**

9/10 • • having a part movable after disconnection so as to provide reconnection, e.g. advanceable shear pins **[6, 2006.01]**

Clutches with mechanically-actuated clutching members; Synchronisation arrangements for clutches

11/00 Clutches in which the members have interengaging parts (arrangements for synchronisation F16D 23/02; automatic clutches F16D 43/00-F16D 45/00; external control F16D 48/00) **[1, 2006.01]**

11/02 • disengaged by a contact of a part mounted on the clutch with a stationarily-mounted member **[1, 2006.01]**

11/04 • • with clutching members movable only axially **[1, 2006.01]**

11/06 • • with clutching members movable otherwise than only axially, e.g. rotatable keys **[1, 2006.01]**

11/08 • actuated by moving a non-rotating part axially (actuating-mechanisms in the relevant groups) **[1, 2006.01]**

11/10 • • with clutching members movable only axially **[1, 2006.01]**

11/12 • • with clutching members movable otherwise than only axially **[1, 2006.01]**

11/14 • with clutching members movable only axially (F16D 11/02, F16D 11/08 take precedence) **[5, 2006.01]**

11/16 • with clutching members movable otherwise than only axially (F16D 11/02, F16D 11/08 take precedence) **[5, 2006.01]**

13/00 **Friction clutches** (arrangements for synchronisation F16D 23/02; automatic clutches F16D 43/00-F16D 45/00; external control F16D 48/00) **[1, 2006.01]**

13/02 • disengaged by the contact of a part mounted on the clutch with a stationarily-mounted member **[1, 2006.01]**

13/04 • with means for actuating or keeping engaged by a force derived at least partially from one of the shafts to be connected (automatic clutches F16D 43/00) **[1, 2006.01]**

13/06 • • with clutching members movable otherwise than only axially (F16D 13/08, F16D 13/12 take precedence) **[1, 2006.01]**

13/08 • with a helical band or equivalent member, which may be built-up from linked parts, with more than one turn embracing a drum or the like, with or without an additional clutch actuating the end of the band (F16D 13/02 takes precedence) **[1, 2006.01]**

13/10 • with clutching members co-operating with the periphery of a drum, a wheel-rim, or the like (F16D 13/02-F16D 13/08 take precedence) **[1, 2006.01]**

13/12 • with an expansible band or coil co-operating with the inner surface of a drum or the like (F16D 13/02 takes precedence) **[1, 2006.01]**

13/14 • with outwardly-movable clutching members co-operating with the inner surface of a drum or the like (F16D 13/02, F16D 13/06, F16D 13/12 take precedence) **[1, 2006.01]**

13/16 • • shaped as radially-movable segments **[1, 2006.01]**

13/18 • • shaped as linked or separately-pivoted segments **[1, 2006.01]**

13/20 • with clutching members co-operating with both the periphery and the inner surface of a drum or wheel-rim **[1, 2006.01]**

13/22 • with axially-movable clutching members **[1, 2006.01]**

13/24 • • with conical friction surfaces **[1, 2006.01]**

13/26 • • • in which the or each axially-movable member is pressed exclusively against an axially-located member **[1, 2006.01]**

13/28 • • • • with means for increasing the effective force between the actuating sleeve or equivalent member and the pressure member **[1, 2006.01]**

13/30 • • • • • in which the clutching pressure is produced by springs only **[1, 2006.01]**

13/32 • • • in which two or more axially-movable members are pressed from one side towards an axially-located member **[1, 2006.01]**

13/34 • • • • with means for increasing the effective force between the actuating sleeve or equivalent member and the pressure member **[1, 2006.01]**

13/36 • • • • • in which the clutching pressure is produced by springs only **[1, 2006.01]**

13/38 • • with flat clutching surfaces, e.g. discs **[1, 2006.01]**

13/40 • • • in which the or each axially-movable member is pressed exclusively against an axially-located member **[1, 2006.01]**

13/42 • • • • with means for increasing the effective force between the actuating sleeve or equivalent member and the pressure member **[1, 2006.01]**

13/44 • • • • • in which the clutching pressure is produced by springs only **[1, 2006.01]**

13/46 • • • in which two axially-movable members, of which one is attached to the driving side and the other to the driven side, are pressed from one side towards an axially-located member **[1, 2006.01]**

13/48 • • • • with means for increasing the effective force between the actuating sleeve or equivalent member and the pressure member **[1, 2006.01]**

13/50 • • • • • in which the clutching pressure is produced by springs only **[1, 2006.01]**

13/52 • • • Clutches with multiple lamellae **[1, 2006.01]**

13/54 • • • • with means for increasing the effective force between the actuating sleeve or equivalent member and the pressure member **[1, 2006.01]**

13/56 • • • • • in which the clutching pressure is produced by springs only **[1, 2006.01]**

13/58 • Details **[1, 2006.01]**

13/60 • • Clutching elements (friction lining or attachment thereof F16D 69/00) **[1, 2006.01]**

13/62 • • • Clutch-bands; Clutch-shoes; Clutch-drums (brake-bands, brake-shoes, brake-drums F16D 65/00) **[1, 2006.01]**

13/64 • • • Clutch-plates; Clutch-lamellae (brake-plates, brake-lamellae F16D 65/12) **[1, 2006.01]**

13/66 • • • • of conical shape **[1, 2006.01]**

13/68 • • • • Attachments of plates or lamellae to their supports **[1, 2006.01]**

13/69 • • • • Arrangements for spreading lamellae in released state **[1, 2006.01]**

13/70 • • Pressure members, e.g. pressure plates, for clutch-plates or lamellae; Guiding arrangements for pressure members **[1, 2006.01]**

13/71 • • • in which the clutching pressure is produced by springs only **[1, 2006.01]**

13/72 • • Features relating to cooling **[1, 2006.01]**

13/74 • • Features relating to lubrication **[1, 2006.01]**

13/75 • • Features relating to adjustment, e.g. slack adjusters **[1, 2006.01]**

13/76 • specially adapted to incorporate with other transmission parts, i.e. at least one of the clutch parts also having another function, e.g. being the disc of a pulley **[1, 2006.01]**

15/00 **Clutches with wedging balls or rollers or with other wedgeable separate clutching members** (freewheels, freewheel clutches F16D 41/00; automatic clutches F16D 43/00-F16D 45/00; external control F16D 48/00) **[1, 2006.01]**

17/00 **Clutches in which the drive is transmitted solely by virtue of the eccentricity of the contacting surfaces of clutch members which fit one around the other** (automatic clutches F16D 43/00-F16D 45/00; external control F16D 48/00) **[1, 2006.01]**

19/00 **Clutches with mechanically-actuated clutching members not otherwise provided for** (automatic clutches F16D 43/00-F16D 45/00; external control F16D 48/00) **[1, 2006.01]**

21/00 **Systems comprising a plurality of mechanically-actuated clutches** (for synchronisation F16D 23/04; automatic clutches F16D 43/00-F16D 45/00; external control F16D 48/00) **[1, 2006.01]**

21/02 • for interconnecting three or more shafts or other transmission members in different ways **[1, 2006.01]**

21/04 • • with a shaft carrying a number of rotatable transmission members, e.g. gears, each of which can be connected to the shaft by a clutching member or members between the shaft and the hub of the transmission member **[1, 2006.01]**

21/06 • • at least two driving shafts or two driven shafts being concentric **[1, 2006.01]**

21/08 • Serially-arranged clutches interconnecting two shafts only when all the clutches are engaged (F16D 13/08, F16D 13/12 take precedence) **[1, 2006.01]**

23/00 **Details of mechanically-actuated clutches not specific for one distinct type; Synchronisation arrangements for clutches [1, 2006.01]**

23/02 • Arrangements for synchronisation (shape or mounting of interengaging parts of clutch members to facilitate engagement F16D 11/08) **[1, 2006.01]**

23/04 • • with an additional friction cluch **[1, 2006.01]**

23/06 • • • and a blocking mechanism preventing the engagement of the main clutch prior to synchronisation **[1, 2006.01]**

23/08 • • with a blocking mechanism that only releases the clutching member on synchronisation (in combination with an additional friction clutch F16D 23/06) **[1, 2006.01]**

23/10 • • automatically producing the engagement of the clutch when the clutch members are moving at the same speed; Indicating synchronisation **[1, 2006.01]**

23/12 • Mechanical clutch-actuating mechanisms arranged outside the clutch as such (specific for combined clutches F16D 21/00; mechanisms specific for synchronisation F16D 23/02) **[1, 2006.01]**

23/14 • • Clutch-actuating sleeves; Actuating members directly connected to clutch-actuating sleeves **[1, 2006.01]**

Clutches actuated non-mechanically [3]

25/00 **Fluid-actuated clutches** (arrangements for synchronisation F16D 23/02; fluid clutches F16D 31/00-F16D 39/00; automatic clutches F16D 43/00-F16D 45/00; external control F16D 48/00) **[1, 2006.01]**

25/02 • with means for actuating or keeping engaged by a force derived at least partially from one of the shafts to be connected **[1, 2006.01]**

25/04 • in which the fluid actuates an elastic clutching member, e.g. a diaphragm or a pneumatic tube (F16D 25/02 takes precedence; coupling using a pneumatic tube F16D 3/82) **[1, 2006.01]**

25/06 • in which the fluid actuates a piston incorporated in the clutch (F16D 25/02 takes precedence) **[1, 2006.01]**

25/061 • • the clutch having interengaging clutch members **[1, 2006.01]**

25/062 • • the clutch having friction surfaces **[1, 2006.01]**

25/063 • • • with clutch members exclusively moving axially **[1, 2006.01]**

25/0632 • • • • with conical friction surfaces, e.g. cone clutches **[5, 2006.01]**

25/0635 • • • • with flat friction surfaces, e.g. discs **[5, 2006.01]**

25/0638 • • • • • with more than two discs, e.g. multiple lamellae **[5, 2006.01]**

25/064 • • • • the friction surface being grooved **[1, 2006.01]**

25/065 • • • with clutching members having a movement which has at least a radial component **[1, 2006.01]**

25/08 • with fluid-actuated member not rotating with a clutching member (F16D 25/02 takes precedence) **[1, 2006.01]**

25/10 • Clutch systems with a plurality of fluid-actuated clutches **[1, 2006.01]**

25/12 • Details not specific to one of the before-mentioned types **[1, 2006.01]**

27/00 **Magnetically-actuated clutches; Control or electric circuits therefor** (arrangements for synchronisation F16D 23/02; clutches with magnetisable particles F16D 37/02; automatic clutches F16D 43/00-F16D 45/00; circuits for external control F16D 48/00) **[1, 2, 2006.01]**

27/01 • with permanent magnets **[1, 2006.01]**

27/02 • with electromagnets incorporated in the clutch, i.e. with collecting rings **[1, 2006.01]**

27/04 • • with axially-movable friction surfaces **[1, 2006.01]**

27/06 • • • with friction surfaces arranged within the flux **[1, 2006.01]**

27/07 • • • • Constructional features of clutch-plates or clutch-lamellae **[1, 2006.01]**

27/08 • • • with friction surfaces arranged externally to the flux **[1, 2006.01]**

27/09 • • and with interengaging jaws or gear-teeth **[1, 2006.01]**

27/10 • with an electromagnet not rotating with a clutching member, i.e. without collecting rings **[1, 2006.01]**

27/102 • • with radially movable clutching members (F16D 27/105 takes precedence) **[5, 2006.01]**

27/105 • • with a helical band or equivalent member co-operating with a cylindrical coupling surface **[5, 2006.01]**

27/108 • • with axially movable clutching members **[5, 2006.01]**

27/11 • • • with conical friction surfaces, e.g. cone clutches **[5, 2006.01]**

27/112 • • • with flat friction surfaces, e.g. discs **[5, 2006.01]**

27/115 • • • • with more than two discs, e.g. multiple lamellae **[5, 2006.01]**

27/118 • • with interengaging jaws or gear teeth **[5, 2006.01]**

27/12 • Clutch systems with a plurality of electromagnetically-actuated clutches **[1, 2006.01]**

27/14 • Details **[1, 2006.01]**

28/00 **Electrically-actuated clutches** (arrangements for synchronisation F16D 23/02; clutches actuated directly by means of an electromagnet F16D 27/00; automatic clutches F16D 43/00-F16D 45/00; external control F16D 48/00) **[6, 2006.01]**

29/00 **Clutches or systems of clutches involving both fluid and magnetic or both fluid and electric actuation [1, 6, 2006.01]**

Couplings or clutches with a fluid or semifluid as power-transmitting means

31/00 **Fluid couplings or clutches with pumping sets of the volumetric type, i.e. in the case of liquid passing a predetermined volume per revolution [1, 2006.01]**

31/02 • using pumps with pistons or plungers working in cylinders **[1, 2006.01]**

31/04 • using gear-pumps **[1, 2006.01]**

31/06 • using pumps of types differing from those before-mentioned **[1, 2006.01]**

31/08 • Control of slip **[1, 2006.01]**

33/00 **Rotary fluid couplings or clutches of the hydrokinetic type [1, 2006.01]**

33/02 • controlled by changing the flow of the liquid in the working circuit, while maintaining a completely filled working circuit **[1, 2006.01]**

33/04 • • by altering the position of blades **[1, 2006.01]**

33/06 • controlled by changing the amount of liquid in the working circuit **[1, 2006.01]**

33/08 • • by devices incorporated in the fluid coupling, with or without remote control **[1, 2006.01]**

33/10 • • • consisting of controllable supply and discharge openings **[1, 2006.01]**

33/12 • • • • controlled automatically by self-actuated valves **[1, 2006.01]**

33/14 • • • consisting of shiftable or adjustable scoops **[1, 2006.01]**

33/16 • • by means arranged externally of the coupling or clutch **[1, 2006.01]**

33/18 • Details **[1, 2006.01]**

33/20 • • Shape of wheels, blades, or channels with respect to function **[1, 2006.01]**

35/00 **Fluid clutches in which the clutching is predominantly obtained by fluid adhesion** (F16D 37/00 takes precedence) **[1, 2006.01]**

35/02 • with rotary working chambers and rotary reservoirs, e.g. in one coupling part **[5, 2006.01]**

37/00 **Clutches in which the drive is transmitted through a medium consisting of small particles, e.g. centrifugally speed-responsive [1, 2006.01]**

37/02 • the particles being magnetisable **[1, 2006.01]**

39/00 **Combinations of couplings according to two or more of the groups F16D 31/00-F16D 37/00 [1, 2006.01]**

Freewheels or freewheel clutches; Automatic clutches

Note(s) [2009.01]

Groups F16D 31/00-F16D 39/00 take precedence over groups F16D 41/00-F16D 45/00.

41/00 **Freewheels or freewheel clutches** (cycle brakes controlled by back-pedalling B62L 5/00) **[1, 2006.01]**

41/02 • disengaged by contact of a part of or on the freewheel or freewheel clutch with a stationarily-mounted member **[1, 2006.01]**

41/04 • combined with a clutch for locking the driving and driven members (F16D 41/02, F16D 41/24 take precedence) **[1, 2006.01]**

41/06 • with intermediate wedging coupling members between an inner and an outer surface (F16D 41/02, F16D 41/24 take precedence) **[1, 2006.01]**

41/061 • • the intermediate members wedging by movement having an axial component **[6, 2006.01]**

41/063 • • the intermediate members wedging by moving along the inner and the outer surface without pivoting or rolling, e.g. sliding wedges (F16D 41/061 takes precedence) **[6, 2006.01]**

41/064 • • the intermediate members wedging by rolling and having a circular cross-section, e.g. balls (F16D 41/061 takes precedence) **[6, 2006.01]**

41/066 • • • all members having the same size and only one of the two surfaces being cylindrical **[6, 2006.01]**

41/067 • • • • and the members being distributed by a separate cage encircling the axis of rotation **[6, 2006.01]**

41/069 • • the intermediate members wedging by pivoting or rocking, e.g. sprags (F16D 41/061 takes precedence) **[6, 2006.01]**

41/07 • • • between two cylindrical surfaces **[1, 6, 2006.01]**

41/08 • • with provision for altering the freewheeling action **[1, 2006.01]**

41/10 • • • with self-actuated reversing **[1, 2006.01]**

41/12 • with hinged pawl co-operating with teeth, cogs, or the like (F16D 41/02, F16D 41/24 take precedence) **[1, 2006.01]**

41/14 • • the effective stroke of the pawl being adjustable **[1, 2006.01]**

41/16 • • the action being reversible **[1, 2006.01]**

41/18 • with non-hinged detent (F16D 41/02, F16D 41/24 take precedence) **[1, 2006.01]**

41/20 • with expandable or contractable clamping ring or band (F16D 41/02, F16D 41/24 take precedence) **[1, 2006.01]**

41/22 • with clutching ring or disc axially shifted as a result of lost motion between actuating members (F16D 41/02, F16D 41/24 take precedence) **[1, 2006.01]**

41/24 • specially adapted for cycles **[1, 2006.01]**

41/26 • • with provision for altering the action **[1, 2006.01]**

41/28 • • with intermediate wedging coupling members **[1, 2006.01]**

41/30 • • with hinged pawl co-operating with teeth, cogs, or the like **[1, 2006.01]**

41/32 • • with non-hinged detent **[1, 2006.01]**

41/34 • • with expandable or contractable clamping ring or band **[1, 2006.01]**

41/36 • • with clutching ring or disc axially shifted as a result of lost motion between actuating members **[1, 2006.01]**

43/00 **Internally controlled automatic clutches** (freewheels, freewheel clutches F16D 41/00; external control of clutches F16D 48/00) **[1, 6, 2006.01]**

43/02 • actuated entirely mechanically **[1, 2006.01]**

43/04 • • controlled by angular speed (F16D 43/24 takes precedence; clutches in which the drive is transmitted through a medium consisting of small particles F16D 37/00) **[1, 2006.01]**

43/06 • • • with centrifugal masses actuating axially a movable pressure ring or the like **[1, 2006.01]**

43/08 • • • • the pressure ring actuating friction plates, cones, or similar axially-movable friction surfaces **[1, 2006.01]**

43/09 • • • • • in which the carrier of the centrifugal masses can be stopped **[1, 2006.01]**

43/10 • • • • • the centrifugal masses acting directly on the pressure ring, no other actuating mechanism for the pressure ring being provided **[1, 2006.01]**

43/12 • • • • • the centrifugal masses acting on, or forming a part of, an actuating mechanism by which the pressure ring can also be actuated independently of the masses **[1, 2006.01]**

43/14 • • • with centrifugal masses actuating the clutching members directly in a direction which has at least a radial component; with centrifugal masses themselves being the clutching members **[1, 2006.01]**

43/16 • • • • with clutching members having interengaging parts **[1, 2006.01]**

43/18 • • • • with friction clutching members **[1, 2006.01]**

43/20 • • controlled by torque, e.g. overload-release clutches, slip-clutches with means by which torque varies the clutching pressure **[1, 2006.01]**

43/202 • • • of the ratchet type (slip couplings of the ratchet type F16D 7/04) **[5, 2006.01]**

43/204 • • • • with intermediate balls or rollers **[5, 2006.01]**

43/206 • • • • • moving axially between engagement and disengagement **[5, 2006.01]**

43/208 • • • • • moving radially between engagement and disengagement **[5, 2006.01]**

43/21 • • • with friction members **[1, 2006.01]**

43/22 • • controlled by both speed and torque **[1, 2006.01]**

43/24 • • controlled by acceleration or deceleration of angular speed **[1, 2006.01]**

43/25 • • controlled by thermo-responsive elements **[1, 2006.01]**

43/26 • • acting at definite angular position or disengaging after a definite number of rotations (actuating by means of stationary abutment F16D 11/02, F16D 13/02, F16D 15/00) **[1, 2006.01]**

43/28 • actuated by fluid pressure **[1, 2006.01]**

43/284 • • controlled by angular speed **[1, 2006.01]**

43/286 • • controlled by torque **[1, 2006.01]**

43/30 • Systems of a plurality of automatic clutches **[1, 2006.01]**

45/00 Freewheels or freewheel clutches combined with automatic clutches [1, 2006.01]

47/00 Systems of clutches, or clutches and couplings, comprising devices of types grouped under at least two of the following sets of groups: F16D 1/00-F16D 9/00; F16D 11/00-F16D 23/00; F16D 25/00-F16D 29/00; F16D 31/00-F16D 39/00; F16D 41/00-F16D 45/00 (freewheels combined with a clutch to lock the driving and driven members of the freewheel F16D 41/04, F16D 41/26) **[1, 2006.01]**

47/02 • of which at least one is a coupling (elastic attachment of clutch parts, see the relevant groups for clutches) **[1, 2006.01]**

47/04 • of which at least one is a freewheel (F16D 47/02, F16D 47/06 take precedence) **[1, 2006.01]**

47/06 • of which at least one is a clutch with a fluid or a semifluid as power-transmitting means **[1, 2006.01]**

48/00 External control of clutches [6, 2006.01]

Note(s) [6]

This group does not cover actuation, which is covered by groups F16D 11/00-F16D 29/00.

48/02 • Control by fluid pressure **[6, 2006.01]**

48/04 • • providing power assistance **[6, 2006.01]**

48/06 • Control by electric or electronic means, e.g. of fluid pressure **[6, 2006.01]**

48/08 • • Regulating clutch take-up on starting **[6, 2006.01]**

48/10 • • Preventing unintentional or unsafe engagement **[6, 2006.01]**

48/12 • • Control of torque transfer between driven axles **[6, 2006.01]**

Brakes

49/00 Brakes with a braking member co-operating with the periphery of a drum, wheel-rim, or the like [1, 2006.01]

49/02 • shaped as a helical band or coil with more than one turn, with or without intensification of the braking force by the tension of the band or contracting member **[1, 2006.01]**

49/04 • • mechanically actuated **[1, 2006.01]**

49/06 • • fluid actuated **[1, 2006.01]**

49/08 • shaped as an encircling band extending over approximately 360° **[1, 2006.01]**

49/10 • • mechanically actuated (self-tightening F16D 49/20) **[1, 2006.01]**

49/12 • • fluid actuated **[1, 2006.01]**

49/14 • shaped as a fluid-filled flexible member actuated by variation of the fluid pressure **[1, 2006.01]**

49/16 • Brakes with two brake-blocks (self-tightening F16D 49/20) **[1, 2006.01]**

49/18 • Brakes with three or more brake-blocks (self-tightening F16D 49/20) **[1, 2006.01]**

49/20 • Self-tightening brakes (with helical band or coil with more than one turn F16D 49/02) **[1, 2006.01]**

49/22 • • with an auxiliary friction member initiating or increasing the action of the brake **[1, 2006.01]**

51/00 Brakes with outwardly-movable braking members co-operating with the inner surface of a drum or the like [1, 2006.01]

51/02 • shaped as one or more circumferential bands **[1, 2006.01]**

51/04 • • mechanically actuated **[1, 2006.01]**

51/06 • • fluid actuated **[1, 2006.01]**

51/08 • shaped as an expansible fluid-filled flexible member **[1, 2006.01]**

51/10 • shaped as exclusively radially-movable brake-shoes **[1, 2006.01]**

51/12 • • mechanically actuated **[1, 2006.01]**

51/14 • • fluid actuated **[1, 2006.01]**

51/16 • shaped as brake-shoes pivoted on a fixed or nearly-fixed axis (self-tightening F16D 51/46) **[1, 2006.01]**

51/18 • • with two brake-shoes **[1, 2006.01]**

51/20 • • • extending in opposite directions from their pivots **[1, 2006.01]**

51/22 • • • • mechanically actuated **[1, 2006.01]**

51/24 • • • • fluid actuated **[1, 2006.01]**
51/26 • • • both extending in the same direction from their pivots **[1, 2006.01]**
51/28 • • • • mechanically actuated **[1, 2006.01]**
51/30 • • • • fluid actuated **[1, 2006.01]**
51/32 • • with three or more brake-shoes **[1, 2006.01]**
51/34 • • • extending in opposite directions from their pivots **[1, 2006.01]**
51/36 • • • • mechanically actuated **[1, 2006.01]**
51/38 • • • • fluid actuated **[1, 2006.01]**
51/40 • • • all extending in the same direction from their pivots **[1, 2006.01]**
51/42 • • • • mechanically actuated **[1, 2006.01]**
51/44 • • • • fluid actuated **[1, 2006.01]**
51/46 • Self-tightening brakes with pivoted brake-shoes **[1, 2006.01]**
51/48 • • with two linked or directly-interacting brake-shoes **[1, 2006.01]**
51/50 • • • mechanically actuated **[1, 2006.01]**
51/52 • • • fluid actuated **[1, 2006.01]**
51/54 • • with three or more brake-shoes, at least two of them being linked or directly interacting **[1, 2006.01]**
51/56 • • • mechanically actuated **[1, 2006.01]**
51/58 • • • fluid actuated **[1, 2006.01]**
51/60 • • with wedging action of a brake-shoe, e.g. the shoe entering as a wedge between the brake-drum and a stationary part **[1, 2006.01]**
51/62 • • • mechanically actuated **[1, 2006.01]**
51/64 • • • fluid actuated **[1, 2006.01]**
51/66 • • an actuated brake-shoe being carried along and thereby engaging a member for actuating another brake-shoe **[1, 2006.01]**
51/68 • • • mechanically actuated **[1, 2006.01]**
51/70 • • • fluid actuated **[1, 2006.01]**

53/00 Brakes with braking members co-operating with both the periphery and the inner surface of a drum, wheel-rim, or the like [1, 2006.01]

55/00 Brakes with substantially-radial braking surfaces pressed together in axial direction, e.g. disc brakes [1, 2006.01]

55/02 • with axially-movable discs or pads pressed against axially-located rotating members **[1, 2006.01]**
55/04 • • by moving discs or pads away from one another against radial walls of drums or cylinders **[1, 2006.01]**
55/06 • • • without self-tightening action **[1, 2006.01]**
55/08 • • • • Mechanically-actuated brakes **[1, 2006.01]**
55/10 • • • • Brakes actuated by a fluid-pressure device arranged in or on the brake **[1, 2006.01]**
55/12 • • • • • comprising an expansible fluid-filled flexible member coaxial with the brake **[1, 2006.01]**
55/14 • • • with self-tightening action, e.g. by means of coacting helical surfaces or balls and inclined surfaces **[1, 2006.01]**
55/15 • • • • initiated by means of brake-bands or brake-shoes **[1, 2006.01]**
55/16 • • • • Mechanically-actuated brakes **[1, 2006.01]**
55/18 • • • • Brakes actuated by a fluid-pressure device arranged in or on the brake **[1, 2006.01]**
55/20 • • • • • comprising an expansible fluid-filled flexible member coaxial with the brake **[1, 2006.01]**
55/22 • • by clamping an axially-located rotating disc between movable braking members, e.g. movable brake discs or brake pads **[1, 5, 2006.01]**
55/224 • • • with a common actuating member for the braking members **[1, 5, 2006.01]**
55/225 • • • • the braking members being brake pads **[5, 2006.01]**
55/2255 • • • • • in which the common actuating member is pivoted **[5, 2006.01]**
55/226 • • • • • in which the common actuating member is moved axially **[5, 2006.01]**
55/2265 • • • • • • the axial movement being guided by one or more pins **[5, 2006.01]**
55/227 • • • • • • • by two pins **[5, 2006.01]**
55/228 • • • with a separate actuating member for each side **[1, 2006.01]**
55/24 • with a plurality of axially-movable discs, lamellae, or pads, pressed from one side towards an axially-located member **[1, 2006.01]**
55/26 • • without self-tightening action **[1, 2006.01]**
55/28 • • • Brakes with only one rotating disc **[1, 2006.01]**
55/30 • • • • mechanically actuated **[1, 2006.01]**
55/31 • • • • • by means of an intermediate leverage **[1, 2006.01]**
55/32 • • • • actuated by a fluid-pressure device arranged in or on the brake **[1, 2006.01]**
55/33 • • • • • by means of an intermediate leverage **[1, 2006.01]**
55/34 • • • • • comprising an expansible fluid-filled flexible member coaxial with the brake **[1, 2006.01]**
55/36 • • • Brakes with a plurality of rotating discs all lying side by side **[1, 2006.01]**
55/38 • • • • mechanically actuated **[1, 2006.01]**
55/39 • • • • • by means of an intermediate leverage **[1, 2006.01]**
55/40 • • • • actuated by a fluid-pressure device arranged in or on the brake **[1, 2006.01]**
55/41 • • • • • by means of an intermediate leverage **[1, 2006.01]**
55/42 • • • • • comprising an expansible fluid-filled flexible member coaxial with the brake **[1, 2006.01]**
55/44 • • • with the rotating part consisting of both central plates and ring-shaped plates arranged concentrically around the central plates **[1, 2006.01]**
55/46 • • with self-tightening action **[1, 2006.01]**
55/48 • • • with discs or pads having a small free angular travel relative to their support, which produces the self-tightening action **[1, 2006.01]**
55/50 • • • with auxiliary friction members, which may be of different type, producing the self-tightening action **[1, 2006.01]**

57/00 Liquid-resistance brakes; Air-resistance brakes [1, 2006.01]

57/02 • with blades or like members braked by the fluid **[1, 2006.01]**
57/04 • with blades causing a directed flow, e.g. Föttinger type **[1, 2006.01]**
57/06 • comprising a pump circulating fluid, braking being effected by throttling of the circulation **[1, 2006.01]**

59/00 Self-acting brakes, e.g. coming into operation at a predetermined speed [1, 2006.01]

59/02 • spring-loaded and adapted to be released by mechanical, fluid, or electromagnetic means **[1, 2006.01]**

61/00 Brakes with means for making the energy absorbed available for use (F16D 57/00 takes precedence) **[1, 2006.01]**

63/00 Brakes not otherwise provided for; Brakes combining more than one of the types of groups F16D 49/00-F16D 61/00 (brakes with auxiliary members for self-tightening F16D 49/22, F16D 51/66, F16D 55/50) **[1, 2006.01]**

65/00 Parts or details of brakes [1, 2006.01]

65/02 • Braking members; Mounting thereof (friction linings or attachment thereof F16D 69/00) **[1, 2006.01]**

65/04 • • Bands, shoes or pads; Pivots or supporting members therefor **[1, 5, 2006.01]**

65/06 • • • for externally-engaging brakes **[1, 2006.01]**

65/08 • • • for internally-engaging brakes **[1, 2006.01]**

65/09 • • • • Pivots or supporting members therefor **[2, 2006.01]**

65/092 • • • for axially-engaging brakes, e.g. disc brakes **[5, 2006.01]**

65/095 • • • • Pivots or supporting members therefor **[5, 2006.01]**

65/097 • • • • • Resilient means interposed between pads and supporting members **[5, 2006.01]**

65/10 • • Drums for externally- or internally-engaging brakes **[1, 2006.01]**

65/12 • • Discs; Drums for disc brakes **[1, 2006.01]**

65/14 • Actuating mechanisms for brakes; Means for initiating operation at a predetermined position (brake control systems, parts thereof B60T) **[1, 2006.01]**

Note(s) [2012.01]

In this group, it is desirable to add the indexing codes of groups F16D 121/00-F16D 131/00 relating to actuators.

65/16 • • arranged in or on the brake **[1, 2006.01]**

65/18 • • • adapted for drawing members together **[1, 2006.01]**

65/22 • • • adapted for pressing members apart **[1, 2006.01]**

65/28 • • arranged apart from the brake **[1, 2006.01]**

65/38 • Slack adjusters **[1, 2006.01]**

65/40 • • mechanical **[1, 2006.01]**

65/42 • • • non-automatic **[1, 2006.01]**

65/44 • • • • by means of direct linear adjustment (F16D 65/46, F16D 65/48 take precedence) **[1, 2006.01]**

65/46 • • • • with screw-thread and nut **[1, 2006.01]**

65/48 • • • • with eccentric or helical body **[1, 2006.01]**

65/50 • • • • for angular adjustment of two concentric parts of the brake control system **[1, 2006.01]**

65/52 • • • self-acting in one direction for adjusting excessive play **[1, 2006.01]**

65/54 • • • • by means of direct linear adjustment (F16D 65/56, F16D 65/58 take precedence) **[1, 2006.01]**

65/56 • • • • with screw-thread and nut **[1, 2006.01]**

65/58 • • • • with eccentric or helical body **[1, 2006.01]**

65/60 • • • • for angular adjustment of two concentric parts of the brake control system **[1, 2006.01]**

65/62 • • • self-acting in both directions for adjusting excessive and insufficient play **[1, 2006.01]**

65/64 • • • • by means of direct linear adjustment (F16D 65/66, F16D 65/68 take precedence) **[1, 2006.01]**

65/66 • • • • with screw-thread and nut **[1, 2006.01]**

65/68 • • • • with eccentric or helical body **[1, 2006.01]**

65/70 • • • • for angular adjustment of two concentric parts of the brake control system **[1, 2006.01]**

65/72 • • hydraulic **[1, 2006.01]**

65/74 • • • self-acting in one direction **[1, 2006.01]**

65/76 • • • self-acting in both directions **[1, 2006.01]**

65/78 • Features relating to cooling **[1, 2006.01]**

65/80 • • for externally-engaging brakes **[1, 2006.01]**

65/807 • • • with open cooling system, e.g. cooled by air **[2, 2006.01]**

65/813 • • • with closed cooling system **[2, 2006.01]**

65/82 • • for internally-engaging brakes **[1, 2006.01]**

65/827 • • • with open cooling system, e.g. cooled by air **[2, 2006.01]**

65/833 • • • with closed cooling system **[2, 2006.01]**

65/84 • • for disc brakes **[1, 2006.01]**

65/847 • • • with open cooling system, e.g. cooled by air **[2, 2006.01]**

65/853 • • • with closed cooling system **[2, 2006.01]**

66/00 Arrangements for monitoring working conditions of brakes, e.g. wear or temperature [1, 2006.01]

66/02 • Apparatus for indicating wear **[1, 2006.01]**

67/00 Combinations of couplings and brakes; Combinations of clutches and brakes (F16D 71/00 takes precedence; conjoint control of brake systems and driveline clutches in vehicles B60W 10/02, B60W 10/18) **[1, 2, 2006.01]**

67/02 • Clutch-brake combinations **[1, 2006.01]**

67/04 • • fluid actuated **[1, 2006.01]**

67/06 • • electromagnetically actuated **[1, 2006.01]**

69/00 Friction linings; Attachment thereof; Selection of coacting friction substances or surfaces (braking members F16D 65/02) **[1, 2006.01]**

69/02 • Composition of linings (chemical aspects, see the relevant classes) **[1, 2006.01]**

69/04 • Attachment of linings **[1, 2006.01]**

71/00 Mechanisms for bringing members to rest in a predetermined position (combined with, or controlling, clutches F16D 43/26; means for initiating operation of brakes at a predetermined position F16D 65/14) **[1, 2006.01]**

71/02 • comprising auxiliary means for producing the final movement **[1, 2006.01]**

71/04 • providing for selection between a plurality of positions (F16D 71/02 takes precedence) **[1, 2006.01]**

Indexing scheme associated with groups F16D 65/14-F16D 65/28 relating to actuators [2012.01]

121/00 Type of actuator operation force [2012.01]

121/02 • Fluid pressure **[2012.01]**

121/04 • • acting on a piston-type actuator, e.g. for liquid pressure **[2012.01]**

121/06 • • • for releasing a normally applied brake **[2012.01]**
121/08 • • acting on a membrane-type actuator, e.g. for gas pressure **[2012.01]**
121/10 • • • for releasing a normally applied brake **[2012.01]**
121/12 • • for releasing a normally applied brake, the type of actuator being irrelevant or not provided for in groups F16D 121/04-F16D 121/10 **[2012.01]**
121/14 • Mechanical **[2012.01]**
121/16 • • for releasing a normally applied brake **[2012.01]**
121/18 • Electric or magnetic **[2012.01]**
121/20 • • using electromagnets **[2012.01]**
121/22 • • • for releasing a normally applied brake **[2012.01]**
121/24 • • using motors **[2012.01]**
121/26 • • • for releasing a normally applied brake **[2012.01]**
121/28 • • using electrostrictive or magnetostrictive elements, e.g. piezoelectric elements **[2012.01]**
121/30 • • • for releasing a normally applied brake **[2012.01]**
121/32 • using shape memory elements **[2012.01]**
121/34 • • for releasing a normally applied brake **[2012.01]**

123/00 Multiple operation forces [2012.01]

Note(s) [2012.01]

When indexing in this group, each kind of operation force must be indexed in the appropriate subgroups of group F16D 121/00.

125/00 Components of actuators [2012.01]
125/02 • Fluid-pressure mechanisms **[2012.01]**
125/04 • • Cylinders **[2012.01]**
125/06 • • Pistons **[2012.01]**
125/08 • • Seals, e.g. piston seals **[2012.01]**
125/10 • • Plural pistons interacting by fluid pressure, e.g. hydraulic force amplifiers using different sized pistons **[2012.01]**
125/12 • • Membrane or diaphragm types **[2012.01]**
125/14 • • Fluid-filled flexible members, e.g. enclosed air bladders **[2012.01]**
125/16 • • Devices for bleeding or filling **[2012.01]**
125/18 • Mechanical mechanisms **[2012.01]**
125/20 • • converting rotation to linear movement or vice-versa **[2012.01]**
125/22 • • • acting transversely to the axis of rotation **[2012.01]**
125/24 • • • • Rack-and-pinion **[2012.01]**
125/26 • • • • Cranks **[2012.01]**
125/28 • • • • Cams; Levers with cams **[2012.01]**
125/30 • • • • • acting on two or more cam followers, e.g. S-cams **[2012.01]**
125/32 • • • • • acting on one cam follower **[2012.01]**
125/34 • • • acting in the direction of the axis of rotation **[2012.01]**
125/36 • • • • Helical cams; Ball-rotating ramps **[2012.01]**
125/38 • • • • • with plural cam or ball-ramp mechanisms arranged concentrically with the brake rotor axis **[2012.01]**
125/40 • • • • Screw-and-nut **[2012.01]**
125/42 • • • • Rack-and-worm gears **[2012.01]**
125/44 • • transmitting rotation **[2012.01]**
125/46 • • • Rotating members in mutual engagement **[2012.01]**
125/48 • • • • with parallel stationary axes, e.g. spur gears **[2012.01]**
125/50 • • • • with parallel non-stationary axes, e.g. planetary gearing **[2012.01]**
125/52 • • • • with non-parallel stationary axes, e.g. worm or bevel gears **[2012.01]**
125/54 • • • • with non-parallel non-stationary axes **[2012.01]**
125/56 • • • Shafts for transmitting torque directly **[2012.01]**
125/58 • • transmitting linear movement **[2012.01]**
125/60 • • • Cables or chains, e.g. Bowden cables **[2012.01]**
125/62 • • • • Fixing arrangements therefor, e.g. cable end attachments **[2012.01]**
125/64 • • • Levers **[2012.01]**
125/66 • • • Wedges **[2012.01]**
125/68 • • • Lever-link mechanisms, e.g. toggles with change of force ratio **[2012.01]**
125/70 • • • Rods **[2012.01]**

127/00 Auxiliary mechanisms [2012.01]
127/02 • Release mechanisms **[2012.01]**
127/04 • • for manual operation **[2012.01]**
127/06 • Locking mechanisms, e.g. acting on actuators, on release mechanisms or on force transmission mechanisms **[2012.01]**
127/08 • Self-amplifying or de-amplifying mechanisms **[2012.01]**
127/10 • • having wedging elements **[2012.01]**
127/12 • • having additional frictional elements **[2012.01]**

129/00 Type of operation source for auxiliary mechanisms [2012.01]
129/02 • Fluid-pressure **[2012.01]**
129/04 • Mechanical **[2012.01]**
129/06 • Electric or magnetic **[2012.01]**
129/08 • • Electromagnets **[2012.01]**
129/10 • • Motors **[2012.01]**
129/12 • • Electrostrictive or magnetostrictive elements, e.g. piezoelectric **[2012.01]**
129/14 • Shape memory elements **[2012.01]**

131/00 Overall arrangement of the actuators or their elements, e.g. modular construction [2012.01]
131/02 • of the actuator controllers **[2012.01]**