

47	Maskinelement	[-52]
47	Maskinelement; Isoleringskroppar; Bromsar; Smörjanordningar; Ventiler; Växlar	[52-62]
47	Maskinelement; Isoleringskroppar; Bromsar; Smörjanordningar; Ventiler; Växlar; Upplindning; Avlindning	[62-69]
47	(IPC: F16) Engineering elements and units; General measures for producing and maintaining effective functioning of machines or installations	[69-]
47a	Fasta eller lösbara förband; Maskinstativ e.d.; Energiackumulatorer i form av fjädrar; Anordningar i allmänhet till skydd mot olycksfall; Bekämpande av skadliga svängningar	[-52]
47a	Fasta eller lösbara förband; Maskinstativ e.d.; Värmeisolerande kroppar; Energiackumulatorer i form av fjädrar; Anordningar i allmänhet till skydd mot olycksfall; Bekämpande av skadliga svängningar	[52-69]
47a1	(IPC: F16B) Devices for fastening and securing machine parts together	[69-]
47a2	(IPC: F16M) Frames, casings, or beds of engines or other machines, not specific to an engine or machine provided for elsewhere; Stands or supports	[69-]
47a3	(IPC: F16F) Springs; Shock-absorbers; Means for dampening vibrations	[69-]
47a4	(IPC: F16P) Safety devices in general	[69-]
47a5	(IPC: F16S) Constructional elements in general; Structures built-up from such elements, in general	[69-]
47b	Konstruktionselement för fram-och-återgående, vridande eller skruvande rörelse.	[-69]
47b	(IPC: F16C) Shafts; Flexible shafts; Elements of crankshaft mechanisms; Rotary bodies other than gearing elements; Bearings	[69-]
47c	Axelkopplingar eller bromsar för vridningsrörelse	[-69]
47c	(IPC: F16D) Couplings; Clutches; Brakes	[69-]
47d	Drivremmar; Drivlinor; Drivsnören; Kedjor; Förband eller fästnanordningar för sådana; Påläggare; Omskiftare	[-69]
47d	(IPC: F16G) Belts, cables or ropes, predominantly used for driving purposes; Chains; Fittings predominantly used therefor	[69-]
47e	Smörjanordningar	[-69]
47e	(IPC: F16N) Lubricating	[69-]

47f	Rörledningar; Rör; Slangar; Cylindrar; Kapslar; Kolvar; Flottörer; Kolvbultar; Behållare; Tillslutningsanordningar för rör eller behållare; Tätningar; Skydd av rör; Värmeisolering för rör	[-69]
47f1	(IPC: F16L) Pipes; Joints or fittings for pipes; Supports for pipes or cables; Means for thermal insulation in general	[69-]
47f2	(IPC: F16J) Pistons; Cylinders; Packing	[69-]
47g	Ventiler	[-69]
47g1	(IPC: F16K) Valves; Taps; Cocks; Actuating floats	[69-]
47g2	(IPC: F16T) Steam traps or the like	[69-]
47h	Mekanisk kraftöverföring	[-69]
47h	(IPC: F16H) Gearing	[69-]
47i	Sammansatta finmekaniska konstruktionselement som inte omfattas av speciella klasser	[52-69]
47i	(IPC: G12B) Details of instruments, or comparable details of other apparatus, not otherwise provided for	[69-]
47k	Frammatning, styrning, förvaring eller uppsamling av trådformigt, repformigt, kabelformigt, slangformigt, bandformigt eller banformigt gods	[61-]
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47a	Fasta eller lösbara förband; Maskinstativ e.d.; Energiackumulatorer i form av fjädrar; Anordningar i allmänhet till skydd mot olycksfall; Bekämpande av skadliga svängningar	[-52]
47a	Fasta eller lösbara förband; Maskinstativ e.d.; Värmeisolerande kroppar; Energiackumulatorer i form av fjädrar; Anordningar i allmänhet till skydd mot olycksfall; Bekämpande av skadliga svängningar	[52-69]
47a-1	Kilar; Kilförband; Klämförband; Bajonettförband; Krympförband; Sprängförband (19a-8; 19a-10; 19a-11; 19a-14; 19a-9/00; 19a-13/00; 19a-21/00; 19a-23/00; 20h-6; 21c-21; 35a-13; 47d-12; 58b-8; 63a-44; 63c-85)	[-69]
47a-2	Förbindning av plattor genom nitning, svetsning, sammanskruvning, falsning eller bärtling (19d-3; 19d-6; 19d-19/00; 62b-24; 65a1-15)	[-69]
47a-3	Fastspänningsdon; Stångförband; Stel eller eftergivande förbindning av massiva eller ihåliga slänger; Förbindningar för profilerat stångmaterial (37d-26; 47d-12; 47a-1; 47f-7 – 47f-11)	[-69]
47a-4	Spik; Skruvspik; Märlor; Krampor; Spiksäkringar; Spikskruv; Träskruv; Säkringar av metall för träskruv (19a-10; 19a-9/06; 34c-18; 34f-3; 45i-14; 71a-33; 81c-3; tillverkning 7e-7 – 7e-20; 38k-4/01)	[-69]
47a-5	Expansionsbultar; Nitar med massiva eller ihåliga skaft; Styrpinnar; Räckflade stift; Säkringar med tvärgående förreglingar för sådana; Sprintar; Sprintsäkringar (37b-5; tillverkning 7f-9; 49g-16; 49i-4; 49i-6)	[-69]
47a-6	Pinnbultar; Fästskruvar; Stiftskruvar; Expansionsskruvar; Säkringar med tvärgående förreglingar för sådana; Gängformer; Hållare för bulthuvuden eller muttrar; Stenskrivar; Fundamentskruvar; Stoppskruvar; Anordningar för att förhindra fastbränning av skruvgångor (7c-20; 13a-23; ställskruvar 47b-29; tillverkning 7f-9, 49c, 49i-4)	[-69]
47a-7	Muttrar i en eller flera delar; Muttrar av tråd; Muttrar utan gängor; Vingmuttrar; Huvmuttrar (47b-29; tillverkning 49e)	[-69]

47a-8	Underläggsbrickor i en eller flera delar, stela eller fjädrande (47a-11)	[69-]
47a-9	Spärning mellan muttrar, bultar, underläggsbrickor eller arbetsstycken med enkel eller flerfaldig låsning	[69-]
47a-10	I axiella eller radiella urborringar eller spår i bultar eller muttrar indrivna kilar, sprintar, stift, kulor e.d., som ingriper i underläggsbrickor eller arbetsstycken	[69-]
47a-11	Säkring med hjälp av underläggsbrickor, t.ex. fjädrar, tungor, tandförsedda plåtbrickor eller brickor med skeva anliggningsytor (47a-8)	[69-]
47a-12	Säkring genom speciell utformning av muttrar eller bultar, t.ex. dubbelmuttrar, kägelformade muttrar, höger- och vänstergångor eller slitsade muttrar	[69-]
47a-13	Säkring genom fjäderinlägg, trådklämmor, plåtklämmor, hylsmuttrar e.d.	[69-]
47a-14	Säkring med hjälp av nyckelbrickor	[69-]
47a-15	Låsbara muttersäkringar e.d.	[69-]
47a-16/01	Bottenplattor, spännplattor eller stativ som maskinelement; Maskinstativ utan fast förbindelse med underlaget (20b-14; 20d-1; 21d1-47; 46c1; 65f1)	[69-]
47a-16/10	Stötdämpare i allmänhet (20d-22; 20e; 21b-1/02; 35a-17; 63a-16; 63b-13; 63b-24; 63c-42)	[69-]
47a-16/20	Värmeisolerande kroppar i allmänhet (34l-11/02; 37a-7/01; 37b-6; 39a; 39b; 46c1-16/04; 47f-27/30; 80b-9)	[52-69]
47a-17	Pneumatiska fjädrar; Hydrauliska fjädrar; Skruvfjädrar; Böjningsfjädrar; Stångfjädrar, Lamellfjädrar, Bladfjädrar; Evolutfjädrar, Torsionsfjädrar, Spiralfjädrar, Gummifjädrar, Sammansatta fjädrar, Ringfjädrar, Tallriksfjädrar, Buffertfjädrar, Membranfjädrar, Friktionsfjädrar (20d-21, 20d-22; 63b-13; 63c-40; 83a-61; 34g-17; tillverkning 7d-7; 49h-12 – 49h-24; 20e-25)	[69-]
47a-18	Anordningar i allmänhet till skydd mot olycksfall, t.ex. inklädnader eller skydd mot brott som inte är nödvändiga för maskinens eller verktygets igångsättning	[69-]
47a-19	Krympringar, spärrklinkor eller liknande maskinelement (35c-3; 47g-46; 47h-4; 83a-11)	[69-]
47a-20	Bekämpande av skadliga svängningar, t.ex. resonanssvängningar, eller vibrationer vid stationära maskinanläggningar på andra sätt än genom massutjämning (14c-22; 14f-9; 14g-10; 15g-45; 19a-1, 19a-9/00, 19a-21/00; 20d-21, 20d-22; 21a4-14 – 21a4-17; 21c-6; 27b-17; 27c-11/04; 30d-29; 37a-7/01; 37b-6; 42c-42; 46a11; 47h-26; 60-1; 63a-16; 63b-13; 63c-42/01; 65a1-15; 65a2-53 – 65a2-59; 72a-28; 85d-2, 85d-6)	[69-]

47a1 (IPC: F16B) Devices for fastening and securing machine parts together, e.g. nails, bolts, circlips, clamps, wedges, joints or jointing (buckles, slide fasteners 44a1; ornamental heads for nails, screws, etc. 34f-3/00; joints for building structures in general 37a-1/38; scaffolding couplings 37e-7/00; pipe joints 47f1; magnetic holding devices 21g; electrostatic holding devices 21d1) **[69-]**

47a1-1/00 Devices for securing together, or preventing relative movement between, constructional elements or machine parts (the following groups in this subclass take precedence) **[69-]**

- 47a1-1/02 . Means for securing elements of mechanisms after operation (means for bringing members to rest 47c) **[69-]**
- 47a1-1/04 . . disengaged by movement of the actuating member of the element **[69-]**

Fastenings for constructional elements or machine parts in general (fixed shaft couplings 47c-1/00) **[69-]**

47a1-2/00 Friction-grip releasable fastenings (for cables or ropes, e.g. cleats, 47d-11/00) **[69-]**

- 47a1-2/02 . Clamps, i.e. with gripping action effected by positive means other than the inherent resistance to deformation of the material of the fastening **[69-]**
- 47a1-2/04 . . internal, i.e. with spreading action (47a1-2/14 to 47a1-2/18 take precedence) **[69-]**
- 47a1-2/06 . . external, i.e. with contracting action (47a1-2/14 to 47a1-2/18 take precedence) **[69-]**
- 47a1-2/08 . . . using bands **[69-]**
- 47a1-2/10 . . . using pivoting jaws **[69-]**

47a1-2/12	. . . using sliding jaws	[69-]
47a1-2/14	. . using wedges	[69-]
47a1-2/16	. . using rollers or balls	[69-]
47a1-2/18	. . using cams, levers, eccentrics, or toggles	[69-]
47a1-2/20	. Clips, i.e. with gripping action effected solely by the inherent resistance to deformation of the material of the fastening	[69-]
47a1-2/22	. . of resilient material, e.g. rubbery material	[69-]
47a1-2/24	. . . of metal	[69-]
47a1-2/26	. . of pliable non-resilient material, e.g. plant tie	[69-]
47a1-3/00	Key-type connections; Keys (47a1-2/00 takes precedence; for rods or tubes mutually 47a1-7/00)	[69-]
47a1-3/04	. using keys formed of wire or other flexible material, to be inserted through an opening giving access to grooves in the adjacent surfaces of the parts to be connected	[69-]
47a1-3/06	. using taper sleeves	[69-]
47a1-4/00	Shrinkage connection, e.g. assembled with the parts at different temperature; Force fits (restricted to metal parts or objects 49l-9/02); Non-releasable friction-grip fastenings (47a1-2/00 takes precedence)	[69-]
47a1-5/00	Joining sheets or plates to one another or to strips or bars parallel to them (by sticking together 47a1-11/00; dowel connections 47a1-13/00; pins, including deformable elements 47a1-19/00; welding of seams 49h; covering of walls 37d-13/00; fastening signs, plates, panels, or boards to a supporting structure, fastening readily-detachable elements, e.g. letters to signs, plates, panels, or boards, 54h)	[69-]
47a1-5/01	. by means of fastening elements specially adapted for honeycomb panels	[69-]
47a1-5/02	. by means of fastening members using screw-thread (construction of screw-threaded connections 47a1-25/00 to 47a1-39/00)	[69-]
47a1-5/04	. by means of riveting (rivets 47a1-19/04)	[69-]
47a1-5/06	. by means of clamps or clips (friction-grip releasable fastenings in general 47a1-2/00)	[69-]
47a1-5/07	. by means of multiple interengaging protrusions on the surfaces, e.g. hooks, coils	[69-]
47a1-5/08	. by means of welds or the like	[69-]
47a1-5/10	. by means of bayonet connections (fastening devices locking by rotation 47a1-21/02)	[69-]
47a1-5/12	. Fastening strips or bars to sheets or plates, e.g. rubber strips, decorative strips for motor vehicles, by means of clips (friction-grip releasable fastenings in general 47a1-2/00; fastening rods or tubular parts to flat surfaces 47a1-9/00)	[69-]
47a1-7/00	Connections of rods or tubes, e.g. of non-circular section, mutually, including resilient connections (umbrella frames 33a-1/01; welding or soldering of connections 49h; vehicle connections in general 63a; railway couplings 20e; bicycle frames 63h; shaft couplings 47c; couplings for tubes conveying fluid 47f1)	[69-]
47a1-7/02	. with conical parts	[69-]
47a1-7/04	. Clamping or clipping connections (friction-grip releasable fastenings in general 47a1-2/00)	[69-]
47a1-7/06	. Turnbuckles (for cables, ropes, or wire 47d-11/12)	[69-]
47a1-7/08	. Pipe saddles (friction-grip releasable fastenings in general 47a1-2/00)	[69-]
47a1-7/10	. Telescoping systems (for scaffolding 37e-25/04; telescope props for mining 5c-15/14 to 5c-15/46; stands or trestles as supports for apparatus or articles placed thereon 47a2-11/00)	[69-]
47a1-7/12	. . locking only in extreme extended position	[69-]
47a1-7/14	. . locking in intermediate positions	[69-]
47a1-7/16	. . . locking only against movement in one direction	[69-]
47a1-7/18	. using screw-thread elements	[69-]
47a1-7/20	. using bayonet connections	[69-]
47a1-7/22	. using hooks or like elements	[69-]

47a1-9/00	Connections of rods or tubular parts to flat surfaces at an angle (friction-grip releasable fastenings in general 47a1-2/00; making press-fit connections 49l-11/00, 49l-19/00; fluid-tight connecting of pipes to reservoirs, sheets, or the like 47f1; hangers or supports for pipes 47f1-3/00)	[69-]
47a1-9/02	. Detachable connections	[69-]
47a1-11/00	Connecting constructional elements or machine parts by sticking or pressing them together, e.g. cold pressure welding (non-electric welding in general 49h; methods of using adhesives independently of the form of the surfaces joined 22i1, 22i2)	[69-]
47a1-12/00	Jointing of furniture or the like, e.g. hidden from exterior (47a1-2/00 to 47a1-11/00 take precedence; fastening means per se 47a1-13/00 to 47a1-47/00; wood-working 38)	[69-]
47a1-12/02	. Joints between panels and corner posts	[69-]
47a1-12/04	. Non-loosenable joints for non-metal furniture parts, e.g. glued	[69-]
47a1-12/06	. Non-loosenable joints for metal furniture parts	[69-]
47a1-12/08	. . without use of separate connecting elements	[69-]
47a1-12/10	. using pegs, bolts, tenons, clamps, clips, or the like (glued 47a1-12/04; fastening means per se 47a1-15/00 to 47a1-47/00)	[69-]
47a1-12/12	. . for non-metal furniture parts, e.g. made of wood, of plastics	[69-]
47a1-12/14	. . . using threaded bolts or screws	[69-]
47a1-12/16	. . . . using self-tapping screws	[69-]
47a1-12/18	. . . . using drawing bars	[69-]
47a1-12/20	. . . using clamps, clips, wedges, sliding bolts, or the like	[69-]
47a1-12/22	. . . using keyhole-shaped slots and pins	[69-]
47a1-12/24	. . . using separate pins, dowels, or the like	[69-]
47a1-12/26	. . . using snap-action elements	[69-]
47a1-12/28	. . for metal furniture parts	[69-]
47a1-12/30	. . . using threaded bolts	[69-]
47a1-12/32	. . . using clamps, clips, wedges, sliding bolts, or the like	[69-]
47a1-12/34	. . . using keyhole-shaped slots and pins	[69-]
47a1-12/36	. . . using separate pins, dowels, or the like	[69-]
47a1-12/38	. . . using snap-action elements	[69-]
47a1-12/40	. Joints for furniture tubing	[69-]
47a1-12/42	. . connecting furniture tubing to non-tubular parts	[69-]
47a1-12/44	. Leg joints; Corner joints	[69-]
47a1-12/46	. . Non-metal corner connections	[69-]
47a1-12/48	. . Non-metal leg connections (47a1-12/46 takes precedence)	[69-]
47a1-12/50	. . Metal corner connections	[69-]
47a1-12/52	. . Metal leg connections (47a1-12/50 takes precedence)	[69-]
47a1-12/54	. Fittings for bedsteads or the like	[69-]
47a1-12/56	. . Brackets for bedsteads; Coupling joints consisting of bolts or the like; Latches therefor	[69-]
47a1-12/58	. . Tapered connectors for bed rails	[69-]
47a1-12/60	. . Fittings for detachable side panels	[69-]
47a1-13/00	Dowels or other devices fastened in walls or the like by inserting them in holes made therein for that purpose (nails 47a1-15/00; self-locking pins or bolts in general, stud-and-socket releasable fastenings 47a1-21/00; dowels or bolts for railroad sleepers 19a-9/00; bolts or dowels used while laying bricks or casting concrete 37a-1/38)	[69-]
47a1-13/02	. in one piece with protrusions or ridges on the shaft	[69-]
47a1-13/04	. with parts gripping in the hole or behind the reverse side of the wall after inserting from the front (friction-grip releasable fastenings in general 47a1-2/00)	[69-]
47a1-13/06	. . combined with expanding sleeve	[69-]
47a1-13/08	. . with separate gripping parts moved into their final position in relation to the body of the device without further manual operation	[69-]
47a1-13/10	. . with separate gripping parts moved into their final position in relation to the body of the device by a separate operation (47a1-13/06 takes precedence)	[69-]

- 47a1-13/12 . Separate metal dowel sleeves fastened by inserting the screw, nail, or the like [69-]
- 47a1-13/14 . Non-metallic plugs or sleeves; Use of loose material therefor [69-]

Fastening means without screw-thread (horseshoe nails 45i-7/10; nails for footwear 71a-23/20; thumb-tacks 70e-7; for building constructions 37a-1/38; for hand railings 37d-11/18; for fencing 37f-17/00) **[69-]**

- 47a1-15/00 Nails; Staples** (manufacture thereof 7e) **[69-]**
- 47a1-15/02 . with specially-shaped heads, e.g. with enlarged surfaces (ornaments for furniture 34i-95/04; removable ornamental heads for nails 34f-3/00) [69-]
 - 47a1-15/04 . with spreading shaft [69-]
 - 47a1-15/06 . with barbs, e.g. for metal parts; Drive screws [69-]
 - 47a1-15/08 . formed in integral series but easily separable [69-]

47a1-17/00 Connecting constructional elements or machine parts by a part of or on one member entering a hole in the other (construction of bolts, pins, or rivets 47a1-19/00; riveting 47a1-19/04; means for preventing withdrawal of a pin, spigot, or the like from its operative position, stud-and-socket releasable fastenings 47a1-21/00) **[69-]**

- 47a1-19/00 Bolts without screw-thread; Pins, including deformable elements** (in screwed connections 47a1-29/00); **Rivets** (means for preventing withdrawal 47a1-21/00) **[69-]**
- 47a1-19/02 . Bolts or sleeves for positioning of machine parts, e.g. notched taper pins, fitting pins, sleeves, eccentric positioning rings [69-]
 - 47a1-19/04 . Rivets; Spigots or the like fastened by riveting (lead seals 81c) [69-]
 - 47a1-19/05 . . Bolts fastening by swaged-on collars (47a1-19/08 takes precedence) [69-]
 - 47a1-19/06 . . Solid rivets made in one piece [69-]
 - 47a1-19/08 . . Hollow rivets; Multi-part rivets [69-]
 - 47a1-19/10 . . . fastened by expanding mechanically [69-]
 - 47a1-19/12 . . . fastened by fluid pressure, including by explosion (bolts shot by means of detonation-operated nailing tools into concrete constructions, metal walls, or the like 47a1-19/14) [69-]
 - 47a1-19/14 . Bolts or the like for shooting into concrete constructions, metal walls, or the like by means of detonation-operated nailing tools (tools therefor 87a) [69-]

47a1-21/00 Means for preventing relative axial movement of a pin, spigot, shaft, or the like and a member surrounding it (riveted or deformable spigots 47a1-19/04; for gudgeon pins 47f2-1/18); **Stud-and-socket releasable fastenings** **[69-]**

- 47a1-21/02 . Releasable fastening devices locking by rotation (with snap action 47a1-21/06; studs or coupling-pins with resilient protrusions 47a1-21/08) [69-]
- 47a1-21/04 . . with bayonet catch [69-]
- 47a1-21/06 . Releasable fastening devices with snap action [69-]
- 47a1-21/07 . . in which the socket has a resilient part [69-]
- 47a1-21/08 . . in which the stud, pin, or spigot has a resilient part (wall-dowels 47a1-13/00) [69-]
- 47a1-21/09 . Releasable fastening devices with a stud engaging a keyhole slot [69-]
- 47a1-21/10 . by separate parts (key-type connection 47a1-3/00; locking screws or nuts against rotation by such means 47a1-39/04) [69-]
- 47a1-21/12 . . with locking-pins or split-pins thrust into holes [69-]
- 47a1-21/14 . . . Details of locking-pins or split-pins [69-]
- 47a1-21/16 . . with grooves or notches in the pin or shaft [69-]
- 47a1-21/18 . . . with circlips or like resilient retaining devices; Details (spring-washers for locking nuts 47a1-39/24; adjusting-rings 47a1-43/00) [69-]
- 47a1-21/20 . . for bolts or shafts without holes, grooves, or notches for locking members [69-]

Fastening means using screw-thread (wall-dowels 47a1-13/00; manufacture of threaded fastening means 7f, 7h 49g; screw mechanisms 47h) **[69-]**

47a1-23/00 Specially-shaped heads of bolts or screws for rotations by a tool **[69-]**

47a1-25/00	Screws that cut thread in the body into which they are screwed, e.g. wood-screws	[69-]
47a1-27/00	Bolts, screws, or nuts formed in integral series but easily separable, particularly for use in automatic machines	[69-]
47a1-29/00	Screwed connection with deformation of nut or auxiliary member while fastening (members deformed for locking screws, bolts or nuts 47a1-39/22)	[69-]
47a1-31/00	Screwed connections specially modified in view of tensile load; Break-bolts (shape of thread 47a1-33/04)	[69-]
47a1-31/02	. for indicating or limiting tensile load	[69-]
47a1-31/04	. for maintaining constant tensile load	[69-]
47a1-31/06	. having regard to possibility of fatigue rupture	[69-]
47a1-33/00	Features common to bolt and nut	[69-]
47a1-33/02	. Shape of thread; Special thread-forms (used as screw-locking device 47a1-39/30)	[69-]
47a1-33/04	. . in view of tensile load	[69-]
47a1-33/06	. Surface treatment of parts furnished with screw-thread, e.g. for preventing seizure	[69-]
47a1-35/00	Screw-bolts; Stay bolts; Screw-threaded studs; Screws; Set screws (thread-cutting screws 47a1-25/00)	[69-]
47a1-35/02	. divided longitudinally	[69-]
47a1-35/04	. with specially-shaped head or shaft in order to fix the bolt on or in an object (locking the bolt against turning in the object by the use of accessory parts 47a1-39/00)	[69-]
47a1-35/06	. . Specially-shaped heads (special shape in order to rotate the bolt 47a1-23/00)	[69-]
47a1-37/00	Nuts or like thread-engaging members	[69-]
47a1-37/02	. made of thin sheet material (fastening to surfaces 47a1-37/04)	[69-]
47a1-37/04	. Devices for fastening nuts to surfaces	[69-]
47a1-37/06	. . by means of welding or riveting	[69-]
47a1-37/08	. Quickly-detachable nuts, e.g. consisting of two or more parts; Nuts movable along the bolt after tilting the nut	[69-]
47a1-37/10	. . divided parallel or about parallel to the bolt axis	[69-]
47a1-37/12	. with thread-engaging surfaces formed by inserted coil-springs, discs, or the like; Independent pieces of wound wire used as nuts; Threaded inserts for holes	[69-]
47a1-37/14	. Cap nuts; Nut caps or bolt caps	[69-]
47a1-37/16	. Wing nuts (47a1-37/14 takes precedence)	[69-]
47a1-39/00	Locking of screws, bolts, or nuts (locking of bottle closures 64a; locking devices for valves or cocks 47g1)	[69-]
	Note:	[69-]
	Heads of screws or bolts are put on a par with nuts as far as pertains to locking; an object into which a screw is threaded is put on a par with a nut.	[69-]
47a1-39/01	. specially adapted to prevent loosening at extreme temperatures	[69-]
47a1-39/02	. in which the locking takes place after screwing down (47a1-39/01 takes precedence; split-pins, circlips, or the like for preventing relative axial movement only 47a1-21/10; fastening nuts by welding or riveting 47a1-37/06)	[69-]
47a1-39/04	. . with a member penetrating the screw-threaded surface of at least one part, e.g. a pin, wedge, cotter-pin, screw	[69-]
47a1-39/06	. . . with a pin or staple parallel to the bolt axis	[69-]
47a1-39/08	. . with a cap interacting with the nut, connected to the bolt by a pin or cotter-pin	[69-]
47a1-39/10	. . by a plate or ring immovable with regard to the bolt or object (47a1-39/08 takes precedence)	[69-]
47a1-39/12	. . by means of locknuts	[69-]
47a1-39/14	. . . made of thin sheet material or formed as spring washers (locknuts per se made of thin sheet material 47a1-37/02)	[69-]

47a1-39/16	. . . in which the screw-thread of the locknut differs from that of the nut	[69-]
47a1-39/18	. . . . in which the locknut grips with screw-thread in the nuts as well as on the bolt	[69-]
47a1-39/20	. . by means of steel wire or the like (47a1-39/10 takes precedence)	[69-]
47a1-39/22	. in which the locking takes place during screwing down or tightening (47a1-39/01 takes precedence)	[69-]
47a1-39/24	. . by means of washers, spring washers, or resilient plates that lock against the object (locking to the screw-thread 47a1-39/14, 47a1-39/36)	[69-]
47a1-39/26	. . . with spring washers fastened to the nut or bolt-head	[69-]
47a1-39/28	. . by special members on, or shape of, the nut or bolt (47a1-39/26 takes precedence; locknuts 47a1-39/12)	[69-]
47a1-39/282	. . . Locking by means of special shape of work-engaging surfaces, e.g. notched or toothed nuts	[69-]
47a1-39/284	. . . Locking by means of elastic deformation (47a1-39/38 takes precedence)	[69-]
47a1-39/286	. . . . caused by saw cuts	[69-]
47a1-39/30	. . . Locking exclusively by special shape of the screw-thread	[69-]
47a1-39/32	. . . Locking by means of a pawl or pawl-like tongue	[69-]
47a1-39/34	. . . Locking by deformable inserts or like parts	[69-]
47a1-39/36	. . . with conical locking parts, which may be split, including use of separate rings co-operating therewith	[69-]
47a1-39/38	. . . with a second part of the screw-thread which may be resiliently mounted (47a1-39/30 takes precedence)	[69-]
47a1-41/00	Measures against loss of bolts, nuts, or pins; Measures against unauthorized operation of bolts, nuts, or pins (seals 81c-16)	[69-]
47a1-43/00	Washers or equivalent devices; Other devices for supporting bolt-heads or nuts (circlips 47a1-21/18; with special means for locking bolts or nuts 47a1-39/10, 47a1-39/24)	[69-]
47a1-43/02	. with special provisions for engaging surfaces which are not perpendicular to a bolt axis or do not surround the bolt	[69-]
47a1-45/00	Hooks; Eyes (if the attaching parts or means are concerned, groups 47a1-13/00, 47a1-15/00, 47a1-19/00, 47a1-25/00, 35/00, 47a1-47/00 take precedence; for hanging pictures or the like 34f-1/16; for hoisting or hauling purposes 35b)	[69-]
47a1-45/02	. Hooks with pivoting closing member	[69-]
47a1-45/04	. Hooks with sliding closing member	[69-]
47a1-45/06	. Hooks with two symmetrically-pivoting hook parts	[69-]
47a1-47/00	Suction cups for attaching purposes; Equivalent means using adhesives	[69-]
47a2	(IPC: F16M) Frames, casings, or beds of engines or other machines, not specific to an engine or machine provided for elsewhere; Stands or supports	[69-]
47a2-1/00	Frames or casings of engines or machines, Frames serving as machinery beds	[69-]
47a2-1/02	. for reciprocating engines or similar machines	[69-]
47a2-1/021	. . for housing crankshafts	[69-]
47a2-1/022	. . . of tunnel type, i.e. wherein the crankshaft can only be introduced axially (for engines or machines with star-shaped cylinder arrangement 47a2-1/023)	[69-]
47a2-1/023	. . . specially adapted for engines or machines with star-shaped cylinder arrangement	[69-]
47a2-1/024	. . . facilitating assembly of power-transmitting parts of engines or machines, e.g. of connecting-rods	[69-]
47a2-1/025	. . . Assembling bearings in casings, e.g. having anchor bolts	[69-]
47a2-1/026	. . for housing movable engine or machine parts other than crankshafts, e.g. valve-gear housings	[69-]
47a2-1/04	. for rotary engines or similar machines	[69-]

47a2-1/08	. characterised by being built-up of sheet material or welded parts	[69-]
47a2-3/00	Portable or wheeled frames or beds, e.g. for emergency power-supply aggregates, compressor sets (construction of vehicles in general 20, 63)	[69-]
47a2-5/00	Engine beds, i.e. means for supporting engines or machines on foundations	[69-]
47a2-7/00	Details of attaching or adjusting engine beds, frames, or supporting-legs on foundation or base; Attaching non-moving engine parts, e.g. cylinder blocks (elastic or equivalent mounting for absorbing vibrations 47a3, especially 47a3-15/04)	[69-]
47a2-9/00	Special layout of foundations with respect to machinery to be supported (foundations for machinery 84c-27/44)	[69-]
47a2-11/00	Stands or trestles as supports for apparatus or articles placed thereon (without heads 47a2-13/00; stands for drawing-boards 34i-27/00; show-stands 34i-7/00; for workmen 37e-1/32; special modifications for particular apparatus or articles, see the appropriate subclasses)	[69-]
47a2-11/02	. Heads	[69-]
47a2-11/04	. . Means for attachment of apparatus; Means allowing adjustment of the apparatus relatively to the stand	[69-]
47a2-11/06	. . . allowing pivoting	[69-]
47a2-11/08	. . . . around a vertical axis	[69-]
47a2-11/10	. . . . around a horizontal axis	[69-]
47a2-11/12	. . . . in more than one direction	[69-]
47a2-11/14	. . . . with ball-joint (ball-jointed hinges 47b-11/06)	[69-]
47a2-11/16	. . Details concerning attachment of head-supporting legs, with or without actuation of locking members therefor	[69-]
47a2-11/18	. . with mechanism for moving the apparatus relatively to the stand	[69-]
47a2-11/20	. Undercarriages with or without wheels	[69-]
47a2-11/22	. . with approximately constant height, e.g. with constant length of column or of legs (47a2-11/42 takes precedence)	[69-]
47a2-11/24	. . changeable in height or length of legs, also for transport only (47a2-11/42 takes precedence)	[69-]
47a2-11/26	. . . by telescoping, with or without folding (details concerning the constructional features of telescoping parts only 47a1-7/10)	[69-]
47a2-11/28	. . . . Undercarriages for supports with one single telescoping pillar	[69-]
47a2-11/30	. . . . with co-moving side-struts	[69-]
47a2-11/32	. . . . Undercarriages for supports with three or more telescoping legs	[69-]
47a2-11/34	. . . . Members limiting spreading of legs	[69-]
47a2-11/36	. . . . Members preventing slipping of the feet	[69-]
47a2-11/38	. . . by folding	[69-]
47a2-11/40	. . . by means of coilable or bendable legs	[69-]
47a2-11/42	. with arrangement for propelling the support	[69-]
47a2-13/00	Other supports for positioning apparatus or articles (heads thereof 47a2-11/02); Means for steadying hand-held apparatus or articles	[69-]
47a2-13/02	. for supporting on, or attaching to, an object, e.g. tree, gate, window-frame, cycle	[69-]
47a2-13/04	. for supporting on, or holding steady relative to, a person, e.g. by chains	[69-]
47a2-13/06	. also serviceable for other purposes, e.g. to be used as spade, chair, ski-stick	[69-]
47a2-13/08	. . for use as a walking-cane	[69-]
47a3	(IPC: F16F) Springs; Shock-absorbers; Means for dampening vibrations	[69-]
47a3-1/00	Springs (working with fluid 47a3-5/00, 47a3-9/00; clockwork springs 83a-1)	[69-]
47a3-1/02	. made of steel or other material having low internal friction	[69-]

47a3-1/04	. . Wound springs	[69-]
47a3-1/06	. . . with turns lying in cylindrical surfaces	[69-]
47a3-1/08	. . . with turns lying in mainly conical surfaces	[69-]
47a3-1/10	. . . Spiral springs with turns lying substantially in plane surfaces	[69-]
47a3-1/12	. . . Attachments or mountings	[69-]
47a3-1/14	. . Torsion springs consisting of bars or tubes	[69-]
47a3-1/16	. . . Attachments or mountings	[69-]
47a3-1/18	. . Leaf springs	[69-]
47a3-1/20	. . . with layers, e.g. anti-friction layers, or with rollers between the leaves	[69-]
47a3-1/22	. . . with means for modifying the spring characteristic	[69-]
47a3-1/24	. . . Lubrication; Covers, e.g. for retaining lubricant	[69-]
47a3-1/26	. . . Attachments or mountings	[69-]
47a3-1/28	. . . . comprising cylindrical metal pins pivoted in close-fitting sleeves	[69-]
47a3-1/30	. . . . comprising intermediate pieces made of rubber or similar elastic material	[69-]
47a3-1/32	. . Cup springs; Dished disc springs (diaphragms 47f2-3/00)	[69-]
47a3-1/34	. . Ring springs, i.e. annular bodies deformed radially due to axial load	[69-]
47a3-1/36	. made of a material having high internal friction, e.g. rubber, plastic, cork, steel wool, compressed hair	[69-]
47a3-1/37	. . of foam-like material, e.g. sponge rubber	[69-]
47a3-1/38	. . with a sleeve of elastic material between a rigid outer sleeve and a rigid inner sleeve or pin	[69-]
47a3-1/40	. . consisting of a stack of similar elements separated by non-elastic intermediate layers	[69-]
47a3-1/42	. . characterised by the mode of stressing	[69-]
47a3-1/44	. . . loaded mainly in compression	[69-]
47a3-1/46	. . . loaded mainly in tension	[69-]
47a3-1/48	. . . loaded mainly in torsion	[69-]
47a3-1/50	. . . loaded mainly in shear	[69-]
47a3-1/52	. . . loaded in combined stresses	[69-]
47a3-1/54	. . . . loaded in compression and shear	[69-]
47a3-3/00	Spring units consisting of several springs, e.g. for obtaining a desired spring characteristic (if including fluid springs 47a3-5/00, 47a3-13/00)	[69-]
47a3-3/02	. with springs made of steel or of other material having low internal friction	[69-]
47a3-3/04	. . composed only of wound springs	[69-]
47a3-3/06	. . . of which some are placed around others in such a way that they damp each other by mutual friction	[69-]
47a3-3/07	. . combined with chambers filled with gas or liquid	[69-]
47a3-3/08	. with springs made of a material having high internal friction, e.g. rubber	[69-]
47a3-3/10	. . combined with springs made of steel or other material having low internal friction	[69-]
47a3-5/00	Liquid springs in which the liquid works as a spring by compression, e.g. combined with throttling action; Combinations of devices including liquid springs	[69-]
47a3-6/00	Magnetic springs; Fluid magnetic springs	[69-]
47a3-7/00	Vibration-dampers; Shock-absorbers (using fluid 47a3-5/00, 47a3-9/00; specific for rotary systems 47a3-15/10)	[69-]
47a3-7/02	. with relatively-rotatable friction surfaces that are pressed together (if one of the members being a spring 47a3-13/02)	[69-]
47a3-7/04	. . in the direction of the axis of rotation	[69-]
47a3-7/06	. . in a direction perpendicular or inclined to the axis of rotation	[69-]
47a3-7/08	. with friction surfaces rectilinearly movable along each other	[69-]
47a3-7/10	. using inertia effect	[69-]
47a3-7/12	. using plastic deformation of members	[69-]
47a3-7/14	. of cable-support type, i.e. frictionally-engaged loop-forming cables	[69-]
47a3-9/00	Springs, vibration-dampers, shock-absorbers, or similarly-constructed movement-dampers using a fluid or the equivalent as damping medium	

	(47a3-5/00 takes precedence; door-operating appliances with fluid braking systems 68d)	[69-]
47a3-9/02	. using gas only	[69-]
47a3-9/04	. . in a chamber with a flexible wall	[69-]
47a3-9/06	. using both gas and liquid	[69-]
47a3-9/08	. . in a chamber with a flexible wall	[69-]
47a3-9/10	. using liquid only; using a fluid of which the nature is immaterial	[69-]
47a3-9/12	. . Devices with one or more rotary vanes turning in the fluid, any throttling effect being immaterial	[69-]
47a3-9/14	. . Devices with one or more members, e.g. pistons, vanes, moving to and fro in chambers and using throttling effect	[69-]
47a3-9/16	. . . involving only straight-line movement of the effective parts	[69-]
47a3-9/18	. . . . with a closed cylinder and a piston separating two or more working spaces therein	[69-]
47a3-9/19	. . . . . with a single cylinder	[69-]
47a3-9/20	. . . . . with the piston-rod extending through both ends of the cylinder	[69-]
47a3-9/22	. . . . . with one or more cylinders, each having a single working space closed by a piston or plunger	[69-]
47a3-9/24	. . . . . with a single cylinder and a single piston or plunger	[69-]
47a3-9/26	. . . . . with two cylinders in line and with the two pistons or plungers connected together	[69-]
47a3-9/28	. . . . . with two parallel cylinders and with the two pistons or plungers connected together	[69-]
47a3-9/30	. with solid or semi-solid material, e.g. pasty masses, as damping medium	[69-]
47a3-9/32	. Details	[69-]
47a3-9/34	. . Special valve constructions (valves in general 47g1); Shape or construction of throttling passages	[69-]
47a3-9/342	. . . Throttling passages operating with metering pins	[69-]
47a3-9/346	. . . Throttling passages in the form of slots arranged in cylinder walls	[69-]
47a3-9/348	. . . Throttling passages in the form of annular discs operating in opposite directions	[69-]
47a3-9/36	. . Special sealings, including sealings or guides for piston-rods (sealing of moving parts in general 47f2-15/16 to 47f2-15/56)	[69-]
47a3-9/38	. . Covers for protection or appearance	[69-]
47a3-9/40	. . Arrangements for preventing froth	[69-]
47a3-9/42	. . Cooling arrangements	[69-]
47a3-9/43	. . Filling arrangements, e.g. for supply of gas	[69-]
47a3-9/44	. . Means on or in the damper for manual or non-automatic adjustment; Such means combined with temperature correction (temperature correction only 47a3-9/52)	[69-]
47a3-9/46	. . . allowing control from a distance	[69-]
47a3-9/48	. . Arrangements for providing different damping effects at different parts of the stroke	[69-]
47a3-9/49	. . . Stops limiting fluid passage, e.g. hydraulic stops	[69-]
47a3-9/50	. . Special means providing automatic adjustment	[69-]
47a3-9/52	. . . in case of change of temperature (combined with external adjustment 47a3-9/44)	[69-]
47a3-9/54	. . Arrangements for attachment	[69-]
47a3-11/00	Vibration-dampers or shock-absorbers working with both friction and a damping fluid	[69-]
47a3-13/00	Units comprising springs of the non-fluid type as well as vibration-dampers, shock-absorbers, or fluid springs (47a3-5/00 takes precedence)	[69-]
47a3-13/02	. damping by frictional contact between the spring and braking means (frictionally coating wound springs 47a3-3/06)	[69-]

47a3-15/00	Suppression of vibrations in systems; Means or arrangements for avoiding or reducing out-of-balance forces, e.g. due to motion	[69-]
47a3-15/02	. Suppression of vibrations of non-rotating, e.g. reciprocating, systems; Suppression of vibrations of rotating systems by use of members not moving with the rotating system	[69-]
47a3-15/03	. . using electromagnetic means	[69-]
47a3-15/04	. . Elastic or equivalent mounting of engines, instruments, or other stationary objects, insofar as the relative disposition of the objects and the elastic members is shown	[69-]
47a3-15/06	. . . with metal springs (with rubber springs also 47a3-15/08)	[69-]
47a3-15/08	. . . with rubber springs	[69-]
47a3-15/10	. Suppression of vibrations in rotating systems by making use of members moving with the system (by balancing 47a3-15/22; with flywheels acting variably or intermittently 47h)	[69-]
47a3-15/12	. . using elastic members or friction-damping members	[69-]
47a3-15/14	. . using freely-swinging masses rotating with the system	[69-]
47a3-15/16	. . using a fluid (devices connecting input and output members 47c)	[69-]
47a3-15/18	. . using dynamo-electric means	[69-]
47a3-15/20	. Suppression of vibrations of rotating systems by favourable grouping or relative arrangement of the moving members of the system or systems	[69-]
47a3-15/22	. Compensation of inertia forces	[69-]
47a3-15/24	. . of crankshaft systems by particular disposition of cranks, pistons, etc.	[69-]
47a3-15/26	. . of crankshaft systems using solid masses, other than the ordinary pistons, moving with the system	[69-]
47a3-15/28	. Counterweights; Attaching or mounting same	[69-]
47a3-15/30	. Flywheels (rotary-body aspects in general 47b-13/00, 47b-15/00)	[69-]
47a3-15/32	. Correcting-weights or equivalent means for balancing rotating bodies (machines for balancing 42k)	[69-]
47a4	(IPC: F16P) Safety devices in general (safety devices adapted to machines or apparatus for special purposes, see the relevant classes for the machines or apparatus)	[69-]
	<u>Devices protecting or preventing injuries to people</u>	[69-]
47a4-1/00	Safety devices independent of the control and operation of any machine (protective devices for the eyes or ears, worn on the body or carried in the hand, 30d-27, 30d-29)	[69-]
47a4-1/02	. Fixed screens or hoods	[69-]
47a4-1/04	. Screens or hoods rotating with rotary shafts	[69-]
47a4-1/06	. specially designed for welding	[69-]
47a4-3/00	Safety devices acting in conjunction with the control or operation of a machine; Control arrangements requiring the simultaneous use of two or more parts of the body (47a4-5/00 takes precedence)	[69-]
47a4-3/02	. Screens or other safety members moving in synchronism with members which move to and fro	[69-]
47a4-3/04	. . for machines with parts which approach one another during operation, e.g. for stamping presses	[69-]
47a4-3/06	. . . in which body parts of the operator are removed from the danger zone on approach of the machine parts	[69-]
47a4-3/08	. in connection with the locking of doors, covers, guards, or like members giving access to moving machine parts	[69-]
47a4-3/10	. . in which the operation of locking the door or other member causes the machine to start	[69-]
47a4-3/12	. with means, e.g. feelers, which in case of the presence of a body part of a person in or near the danger zone influence the control or operation of the machine (47a4-3/08 takes precedence)	[69-]
47a4-3/14	. . the means being photocells or other devices sensitive without mechanical contact	[69-]
47a4-3/16	. . with feeling members moved by the machine	[69-]

47a4-3/18	. Control arrangements requiring the use of both hands	[69-]
47a4-3/20	. . for electric control systems	[69-]
47a4-3/22	. . for hydraulic or pneumatic control systems	[69-]
47a4-3/24	. . for mechanical controls	[69-]
47a4-5/00	Emergency means for rendering ineffective a coupling conveying reciprocating movement if the motion of the driven part is prematurely resisted	[69-]
47a4-7/00	Emergency devices preventing damage to a machine or apparatus (47a4-1/00, 47a4-3/00, 47a4-5/00 take precedence; indicating means, see the appropriate classes)	[69-]
47a4-7/02	. by causing the machine to stop on the occurrence of dangerous conditions therein (devices in bearings affected by abnormal conditions 47b)	[69-]
47a5	(IPC: F16S) Constructional elements in general; Structures built-up from such elements, in general	[69-]
	Note:	[69-]
	Attention is drawn to subclass 37b, in which similar elements and structures, restricted to use in the building art, are to be found.	[69-]
47a5-1/00	Sheets, panels, or other members of similar proportions; Constructions comprising assemblies of such members (built-up gratings 47a5-3/00)	[69-]
	Note:	[69-]
	In general shape the members may be flat or curved, but they may depart from such shape in detail over part or all of their area, e.g. they may be corrugated, ribbed, flanged; ribs, flanges, or the like may be separately formed.	[69-]
47a5-1/02	. designed for being secured together edge to edge, e.g. at an angle; Assemblies thereof	[69-]
47a5-1/04	. produced by deforming or otherwise working a flat sheet	[69-]
47a5-1/06	. . by deforming only	[69-]
47a5-1/08	. . by cutting or perforating, with or without deformation	[69-]
47a5-1/10	. Composite members, e.g. with ribs or flanges attached (47a5-1/02 takes precedence)	[69-]
47a5-1/12	. of substantial thickness, e.g. with varying thickness, with channels	[69-]
47a5-1/14	. Assemblies of such members with members of forms covered by group 47a5-3/00 or 47a5-5/00 (such other members being for jointing only 47a5-1/02)	[69-]
47a5-3/00	Elongated members, e.g. profiled members; Assemblies thereof; Gratings or grilles (gratings or grilles formed from a sheet or the like 47a5-1/00, particularly 47a5-1/08)	[69-]
47a5-3/02	. composed of two or more elongated members secured together side by side	[69-]
47a5-3/04	. designed for being joined to similar members in various relative positions	[69-]
47a5-3/06	. Assemblies of elongated members (47a5-3/02, 47a5-3/04 take precedence)	[69-]
47a5-3/08	. . forming frameworks, e.g. gratings	[69-]
47a5-5/00	Other constructional members not restricted to an application fully provided for in a single class	[69-]
47b	Konstruktionselement för fram-och-återgående, vridande eller skruvande rörelse, t.ex. lager, tappar, länkar, rörelseskruvar, hävstänger, hjul eller remskivor	[-69]
	Axlar; Valsar; Tappar	[-69]
47b-1	Axlar; Styva axlar; Fjädrande axlar; Valsar; Vevaxlar (46c1-12)	[-69]
47b-2	Böjliga eller ledade axlar (47c-4, 47c-5; 63c-18)	[-69]
47b-3	Tappar som maskinelement	[-69]

	Lager (för finmekaniska rörelseöverföringsmekanismer 47i-1)	[-69]
47b-4	Lager i allmänhet	[-69]
47b-5	Inställbara lager	[-69]
47b-6	Efterställbara lager	[-69]
47b-7	Elastiska lager (82b-10)	[-69]
47b-8	Avlastningsanordningar för lager	[-69]
47b-9	Skålar eller foder för lager (31c; 40b)	[-69]
47b-10	Kylanordningar för lager	[-69]
47b-11	Lageranordningar för valsar eller trummor (7a-18; 40a-5)	[-69]
47b-12	Rullager; Kullager; Valslager; Hållare för sådana (20d-15; 63d-20; 63d-21)	[-69]
	Vridleder; Stångformiga maskinelement	[-69]
47b-13	Vridleder; Kulleleder (47c-4, 47c-5)	[-69]
47b-14	Hävvarmar; Handhjul	[-69]
47b-15	Tvärstycken	[-69]
47b-16	Vevslängar; Ställbara vevslängar; Säkerhetsvevar (46c5; 47h-1)	[-69]
47b-17	Excentrar; Kuggskivor (47h-2)	[-69]
47b-18	Vevstakar; Koppelstänger (46c1-12)	[-69]
47b-19	Kolvstänger (46c1-12)	[-69]
	Drivhjul; Drivskivor	[-69]
47b-20	Drivhjul eller drivskivor	[-69]
47b-21	Styva remskivor	[-69]
47b-22	Inställbara remskivor (47h-15; 63c-12)	[-69]
47b-23	Kuggghjul; Kuggstänger (47h-6; 49d)	[-69]
47b-24	Kedjehjul	[-69]
47b-25	Friktionshjul (47h-8; 63c-9; 63k-24)	[-69]
47b-26	Linskivor (20a-12; 35a-10)	[-69]
	Andra konstruktionselement för rörelseöverföringsmekanismer (sturmekanismer för rätlinjig rörelse, styranordningar för rörliga delar för finmekanik 47i-3)	[-69]
47b-27	Ledrullar; Spännrullar; Tryckrullar; Glidrullar (47d-17; 47h-9; 47h-10)	[-69]
47b-28	Svängghjul; Massutjämnare (14a-15; 14c-22; 42c-42; 47h-20; 47h-25; 47h-26; 65f2-6)	[-69]
47b-29	Skrubar eller muttrar för skruvrörelser (47a-6; 47h-3)	[-69]
47b-31	Gejdrar för prismatiska kroppar eller rullar	[-69]
47b-32	Kablar med styrhylsor för fjärrmanövrering (47h-20; 47h-22; 47h-27; 57a-32; 63c-60; 63i)	[-69]
47b-33	Skyddsanordningar mot damm eller föroreningar vid lageranordningar (20d-17; 46c1-16; 47f-22 – 47f-26; 63d-20; 63d-21)	[-69]
47b	(IPC: F16C) Shafts; Flexible shafts; Elements of crankshaft mechanisms; Rotary bodies other than gearing elements; Bearings	[-69-]
	Note:	[-69-]
	The phrase "Rotary bodies other than gearing elements" in the subclass title, and the relevant groups 47b-13/00 and 47b-15/00, cover any element which rotates so far as its features are affected only by the fact that it rotates.	[-69-]
47b-1/00	Flexible shafts; Mechanical means for transmitting movement in a flexible sheathing	[-69-]
47b-1/02	. for conveying rotary movements	[-69-]
47b-1/04	. . Articulated shafts	[-69-]

47b-1/06	. . with guiding-sheathing, tube, or box (47b-1/04 takes precedence; guiding-sheathings 47b-1/26)	[69-]
47b-1/08	. . End connections	[69-]
47b-1/10	. Means for transmitting linear movement in a flexible sheathing, e.g. "Bowden mechanisms" (guiding-sheathings 47b-1/26)	[69-]
47b-1/12	. . Arrangements for transmitting movement to or from the flexible member	[69-]
47b-1/14	. . . Construction of the end-piece of the flexible member; Attachment thereof to the flexible member	[69-]
47b-1/16	. . . in which the end-piece is guided rectilinearly	[69-]
47b-1/18	. . . in which the end portion of the flexible member is laid along a curved surface of a pivoted member	[69-]
47b-1/20	. . Construction of flexible members moved to and fro in the sheathing	[69-]
47b-1/22	. . Adjusting; Compensating length	[69-]
47b-1/24	. Lubrication; Lubricating equipment	[69-]
47b-1/26	. Construction of guiding-sheathings or guiding-tubes	[69-]
47b-1/28	. . with built-in bearings	[69-]
47b-3/00	Shafts (flexible shafts 47b-1/00); Axles; Cranks; Eccentrics	[69-]
47b-3/02	. Shafts; Axles	[69-]
47b-3/03	. . telescopic	[69-]
47b-3/035	. . . with built-in bearings	[69-]
47b-3/04	. Crankshafts, eccentric-shafts; Cranks, eccentrics	[69-]
47b-3/06	. . Crankshafts	[69-]
47b-3/08	. . . made in one piece (features relating to lubrication 47b-3/14, to cooling 47b-3/16)	[69-]
47b-3/10	. . . assembled of several parts, e.g. by welding	[69-]
47b-3/12	. . . . releasably connected	[69-]
47b-3/14	. . . Features relating to lubrication	[69-]
47b-3/16	. . . Features relating to cooling	[69-]
47b-3/18	. . Eccentric-shafts	[69-]
47b-3/20	. . Shape of crankshafts or eccentric-shafts having regard to balancing	[69-]
47b-3/22	. . Cranks; Eccentrics (constructional features of crank-pins per se 47b-11/02)	[69-]
47b-3/24	. . . with return cranks, i.e. a second crank carried by the crank-pin	[69-]
47b-3/26	. . . Elastic crank-webs; Resiliently-mounted crank-pins (elastic connecting-rods 47b-7/04)	[69-]
47b-3/28	. . . Adjustable cranks or eccentrics (adjustable crank mechanisms 47h-21/20)	[69-]
47b-3/30	. . . with arrangements for overcoming dead-centres	[69-]
47b-5/00	Crossheads; Constructions of connecting-rod heads or piston-rod connections rigid with crossheads (piston-rods 47f2-7/00)	[69-]
47b-7/00	Connecting-rods or like links pivoted at both ends (coupling-rods for locomotive driving-wheels 20b; with clutch or overload release 47h-57/06 to 47h-57/10); Construction of connecting-rod heads (heads rigid with crossheads 47h-5/00)	[69-]
47b-7/02	. Constructions of connecting-rods with constant length	[69-]
47b-7/04	. with elastic intermediate part or fluid cushion	[69-]
47b-7/06	. Adjustable connecting-rods	[69-]
47b-7/08	. made from sheet metal	[69-]
47b-9/00	Bearings for crankshafts or connecting-rods; Attachment of connecting-rods (lubrication of connecting-rods in connection with crankshafts 47b-3/14; connections to crossheads 47b-5/00, to pistons 47f2-1/14)	[69-]
47b-9/02	. Crankshaft bearings	[69-]
47b-9/03	. . Arrangements for adjusting play	[69-]
47b-9/04	. Connecting-rod bearings; Attachment thereof	[69-]
47b-9/06	. . Arrangements for adjusting play in bearings, operating either automatically or not (adjustable bearings in general 47b-25/00; adjusting arrangements in general 47h-57/00)	[69-]

47b-11/00	Pivots; Pivotal connections	[69-]
47b-11/02	. Trunnions; Crank-pins (fastening crank-pins to webs, crank-pins integral with cranks 47b-3/06, 47b-3/22)	[69-]
47b-11/04	. Pivotal connections (for windows or doors 68c; rubber springs with stiff outer sleeve and inner sleeve or pin 47a3-1/38)	[69-]
47b-11/06	. . Ball-joints; Other joints having more than one degree of angular freedom, i.e. universal joints (for transmitting rotary motion 47c-3/00)	[69-]
47b-11/08	. . . with resilient bearings	[69-]
47b-11/10	. . Arrangements for locking	[69-]
47b-11/12	. . incorporating flexible connections, e.g. leaf springs	[69-]
47b-13/00	Rolls, drums, discs, or the like (pulleys 47h-55/00; special adaptations, see the relevant classes); Bearings or mountings therefor	[69-]
47b-13/02	. Bearings	[69-]
47b-13/04	. . Bearings with only partial enclosure of the member to be borne; Bearings with local support at two or more points	[69-]
47b-13/06	. . self-adjusting	[69-]
47b-15/00	Construction of rotary bodies to resist centrifugal force (flywheels, correction weights 47a3-15/30, 47a3-15/32)	[69-]
<u>Bearings for rotary parts (47b-9/00, 47b-13/02 take precedence; allowing for linear movement also 47b-31/00)</u>		[69-]
47b-17/00	Sliding-contact bearings	[69-]
47b-17/02	. for radial load only	[69-]
47b-17/03	. . with tiltably-supported segments, e.g. Michell bearings	[69-]
47b-17/04	. for axial load only	[69-]
47b-17/06	. . with tiltably-supported segments, e.g. Michell bearings	[69-]
47b-17/08	. . for supporting the end face of a shaft or other member, e.g. footstep bearings	[69-]
47b-17/10	. for both radial and axial load	[69-]
47b-17/12	. characterised by features not related to the direction of the load	[69-]
47b-17/14	. . specially adapted for operating in water	[69-]
47b-17/16	. . (with rotating member supported by a fluid cushion formed, at least to a large extent, otherwise than by rotation of the shaft, e.g. hydrostatic air-cushion bearings	[69-]
47b-17/18	. . with floating brasses or bushings, rotatable at a reduced speed	[69-]
47b-17/20	. . with emergency supports or bearings	[69-]
47b-17/22	. . with arrangements compensating for thermal expansion	[69-]
47b-17/24	. . with devices affected by abnormal or undesired conditions, e.g. for preventing overheating, for safety	[69-]
47b-17/26	. Systems consisting of a plurality of sliding-contact bearings	[69-]
47b-19/00	Bearings with rolling contact	[69-]
47b-19/02	. with bearing balls essentially of the same size in one or more circular rows	[69-]
47b-19/04	. . for radial load mainly	[69-]
47b-19/06	. . . with a single row of balls	[69-]
47b-19/08	. . . with two or more rows of balls	[69-]
47b-19/10	. . for axial load mainly	[69-]
47b-19/12	. . . for supporting the end face of a shaft or other member, e.g. footstep bearings	[69-]
47b-19/14	. . for both radial and axial load	[69-]
47b-19/16	. . . with a single row of balls	[69-]
47b-19/18	. . . with two or more rows of balls	[69-]
47b-19/20	. . with loose spacing bodies, e.g. balls, between the bearing balls	[69-]
47b-19/22	. with bearing rollers essentially of the same size in one or more circular rows, e.g. needle bearings	[69-]
47b-19/24	. . for radial load mainly	[69-]
47b-19/26	. . . with a single row of rollers	[69-]
47b-19/28	. . . with two or more rows of rollers	[69-]
47b-19/30	. . for axial load mainly	[69-]

47b-19/32	. . . for supporting the end face of a shaft or other member, e.g. footstep bearings	[69-]
47b-19/34	. . for both radial and axial load	[69-]
47b-19/36	. . . with a single row of rollers	[69-]
47b-19/38	. . . with two or more rows of rollers	[69-]
47b-19/40	. . with loose spacing bodies between the rollers	[69-]
47b-19/44	. . Needle bearings	[69-]
47b-19/46	. . . with one row of needles	[69-]
47b-19/48	. . . with two or more rows of needles	[69-]
47b-19/49	. Bearings with both balls and rollers	[69-]
47b-19/50	. Other types of ball or roller bearings	[69-]
47b-19/52	. with devices affected by abnormal or undesired conditions	[69-]
47b-19/54	. Systems consisting of a plurality of bearings with rolling friction (spindle bearings 47b-35/08)	[69-]
47b-19/55	. . with intermediate floating rings rotating at reduced speed	[69-]
47b-19/56	. . in which the rolling bodies of one bearing differ in diameter from those of another	[69-]
47b-21/00	Combinations of sliding-contact bearings with ball or roller bearings	[69-]
47b-23/00	Bearings adjustable for aligning or positioning (47b-27/00 takes precedence)	[69-]
47b-23/02	. Sliding-contact bearings	[69-]
47b-23/04	. . self-adjusting	[69-]
47b-23/06	. Ball or roller bearings	[69-]
47b-23/08	. . self-adjusting	[69-]
47b-23/10	. Bearings, parts of which are eccentrically adjustable with respect to each other	[69-]
47b-25/00	Bearings adjustable for wear or play (47b-27/00 takes precedence)	[69-]
47b-25/02	. Sliding-contact bearings	[69-]
47b-25/04	. . self-adjusting	[69-]
47b-25/06	. Ball or roller bearings	[69-]
47b-25/08	. . self-adjusting	[69-]
47b-27/00	Elastic or yielding bearings	[69-]
47b-27/02	. Sliding-contact bearings	[69-]
47b-27/04	. Ball or roller bearings, e.g. with resilient rolling bodies	[69-]
47b-27/06	. by means of parts of rubber or like materials (47b-27/08 takes precedence; with sliding surfaces of rubber or synthetic rubber 47b-33/22; construction of units comprising rigid inner and outer members with rubber or the like between them 47a3-1/38)	[69-]
47b-27/08	. primarily for axial load, e.g. for vertically-arranged shafts	[69-]
Other bearings		[69-]
47b-29/00	Bearings for parts moving only linearly (incorporated in flexible shafts 47b-1/28)	[69-]
47b-29/02	. Sliding-contact bearings, e.g. hydrostatic	[69-]
47b-29/04	. Ball or roller bearings	[69-]
47b-29/06	. . in which the rolling bodies circulate partly without carrying load	[69-]
47b-29/08	. Arrangements for covering or protecting the ways	[69-]
47b-29/10	. Arrangements for locking the bearings (preventing relative movement between machine parts in general 47a1, e.g. 47a1-1/00)	[69-]
47b-29/12	. Arrangements for adjusting play	[69-]
47b-31/00	Bearings for parts which both rotate and move linearly	[69-]
47b-31/02	. Sliding-contact bearings	[69-]
47b-31/04	. Ball or roller bearings	[69-]
47b-31/06	. . in which the rolling bodies circulate partly without carrying load	[69-]
47b-32/00	Bearings not otherwise provided for	[69-]
47b-32/02	. Knife-edge bearings	[69-]

47b-32/04	. Bearings for contact-free coaction with a movable part by the action of a magnetic field (arrangement of bearings in special classes, e.g. 21e-11/12, 21e-11/14; arrangement of magnetic bearings for relieving bearings 47b-39/06)	[71-]
47b-32/06	. Bearings for contact-free coaction with a movable part by the action of an electric field (arrangement of bearings in special classes, e.g. 21e-11/12, 21e-11/14)	[71-]
47b-32/08	. Bearings for contact-free coaction with a movable part by the action of an acoustic pressure field (arrangement of bearings in special classes, e.g. 21e-11/12, 21e-11/14, 47i-3/06)	[71-]

Details or accessories of bearings **[69-]**

47b-33/00	Parts of bearings; Special methods for making bearings or parts thereof (metal-working or like operations, see the relevant classes)	[69-]
47b-33/02	. Parts of sliding-contact bearings	[69-]
47b-33/04	. . Brasses; Bushes; Linings	[69-]
47b-33/06	. . . Sliding surface mainly made of metal (47b-33/24 to 47b-33/28 take precedence)	[69-]
47b-33/08	. . . . Attachment of brasses, bushes, or linings to the bearing housing	[69-]
47b-33/10	. . . . Construction relative to lubrication	[69-]
47b-33/12	. . . . Structural composition; Use of special materials or surface treatments, e.g. for rust-proofing (the materials or treatments themselves, see the relevant classes, e.g. 40b, 39a3-31/02)	[69-]
47b-33/14	. . . . Special methods of manufacture; Running-in	[69-]
47b-33/16	. . . Sliding surface consisting mainly of graphite	[69-]
47b-33/18	. . . Sliding surface consisting mainly of wood or fibrous material	[69-]
47b-33/20	. . . Sliding surface consisting mainly of plastics (47b-33/22 to 47b-33/28 take precedence)	[69-]
47b-33/22	. . . Sliding surface consisting mainly of rubber or synthetic rubber (47b-33/24 to 47b-33/28 take precedence; of interest apart from the surface itself 47b-27/06)	[69-]
47b-33/24	. . . with different areas of the sliding surface consisting of different materials	[69-]
47b-33/26	. . . made from wire coils; made from a number of discs, rings, rods, or other members	[69-]
47b-33/28	. . . with embedded reinforcements shaped as frames or meshed materials	[69-]
47b-33/30	. Parts of ball or roller bearings	[69-]
47b-33/32	. . Balls	[69-]
47b-33/34	. . Rollers; Needles	[69-]
47b-33/36	. . . with bearing-surfaces other than cylindrical, e.g. tapered; with grooves in the bearing surfaces	[69-]
47b-33/37	. . Loose spacing bodies	[69-]
47b-33/372	. . . solid	[69-]
47b-33/374	. . . resilient	[69-]
47b-33/38	. . Ball cages	[69-]
47b-33/40	. . . for multiple rows of balls	[69-]
47b-33/41	. . . comb-shaped	[69-]
47b-33/42	. . . made from wire or sheet-metal strips (47b-33/40, 47b-33/41 take precedence)	[69-]
47b-33/44	. . . Selection of substances (47b-33/40, 47b-33/41 take precedence)	[69-]
47b-33/46	. . Cages for rollers or needles	[69-]
47b-33/48	. . . for multiple rows of rollers or needles	[69-]
47b-33/49	. . . comb-shaped	[69-]
47b-33/50	. . . formed of interconnected members, e.g. chains	[69-]
47b-33/51	. . . formed of unconnected members	[69-]
47b-33/52	. . . with no part entering between, or touching, the bearing surfaces of the rollers (47b-33/50 takes precedence)	[69-]
47b-33/54	. . . made from wire, strips, or sheet metal (47b-33/48, 47b-33/49 take precedence)	[69-]
47b-33/56	. . . Selection of substances (47b-33/48, 47b-33/49 take precedence)	[69-]
47b-33/58	. . Raceways, Race rings	[69-]
47b-33/60	. . . divided	[69-]
47b-33/61	. . . . formed by wires	[69-]

47b-33/62	. . . Selection of substances	[69-]
47b-33/64	. . . Special methods of manufacture	[69-]
47b-33/66	. . Special parts or details in view of lubrication	[69-]
47b-33/72	. Sealings (sealings in general 47f2)	[69-]
47b-33/74	. . of sliding-contact bearings	[69-]
47b-33/76	. . of ball or roller bearings	[69-]
47b-33/78	. . . with a diaphragm, disc, or ring, with or without resilient members	[69-]
47b-33/80	. . . Labyrinth sealings	[69-]
47b-33/82	. . . Arrangements for electrostatic or magnetic action against dust or other particles	[69-]
47b-35/00	Support of bearing units; Housings, e.g. caps, covers (47b-23/00 takes precedence)	[69-]
47b-35/02	. in the case of sliding-contact bearings	[69-]
47b-35/04	. in the case of ball or roller bearings	[69-]
47b-35/06	. . Mounting of ball or roller bearings; Fixing them on the shaft or in the housing	[69-]
47b-35/08	. for spindles	[69-]
47b-35/10	. . with sliding-contact bearings	[69-]
47b-35/12	. . with ball or roller bearings	[69-]
47b-37/00	Cooling of bearings	[69-]
47b-39/00	Relieving load on bearings	[69-]
47b-39/02	. using mechanical means	[69-]
47b-39/04	. using hydraulic or pneumatic means	[69-]
47b-39/06	. using magnetic means	[69-]
47b-41/00	Other accessories	[69-]
47b-41/02	. Arrangements for equalising the load on a plurality of bearings or their elements	[69-]
47b-41/04	. Preventing damage to bearings during storage or transport thereof or when otherwise out of use	[69-]
47b-43/00	Assembling bearings	[69-]
47b-43/02	. Assembling sliding-contact bearings	[69-]
47b-43/04	. Assembling rolling contact bearings	[69-]
47b-43/06	. . Placing rolling bodies in cages or bearings	[69-]
47b-43/08	. . . by deforming the cages or the races	[69-]

47c **Axelkopplingar eller bromsar för vridningsrörelse** (kopplingar för valsverk 7a-20; kopplingar för pressmaskiner, klippmaskiner eller stansmaskiner 7e-18, 49c-17/08; kopplingar för rälsfordon 20e; kopplingar för lyftanordningar 35c-1/22; kopplingar för slättermaskiner 45c-33/06, 45c-69/08; stångförbindningar 47a-3; linlås 47d-11, 47d-12; rörförbindningar 47f-7 – 47f-14; kopplingar för svarvar 49a-21/01; kopplingar för symaskiner 52a-56/01 – 52a-56/03; kopplingar för axelledningar på flygplan 62c-12/04, 63c-12/05; kopplingar för fordon för dragdjur 63a-40; kopplingar för motorfordon 63c-13 – 63c-18, 63c-24; kopplingar för cyklar eller motorcyklar 63k-34 – 63k-37; kopplingar för axelledningar på fartyg 65f3-21; kopplingar för dubbelfönster 68b-14; kopplingar för skjutfönster 68b-27/80; kopplingar för centrifuger 82b-11/50; bromsar för ångmaskiner 14g- 5/01; bromsar för tryckerimaskiner 15d-11/03; 15d-26/30; bromsar för rälsfordon 20f; rälsbromsar 20h-3 – 20h-5; bromsar för elektriska motorer 21c-59/55 – 21c-59/59, 21d2-23/02; bromsar för rullgardiner 34e-7, 34e-8; bromsar för hissar eller lyftdon 35c-3; bromsregulatorer för grammofoner 42g-19/01; bromsdynamometrar 42k-2; bromsar för slättermaskiner 45c-33/06, 45c-69/10; bromsar för tröskverk 45e-3/01, 45e-7/58; bromsar för hackelsemaskiner 45e-34/01, 45e-29/14; bromsar för

förbränningsmotorer 46b1-23; bromsar för ventiler 47g-6, 47g-35/02; bromsar för finmekaniska rörelseöverföringsmekanismer 47i-5; bromsar för symaskiner 52a-56/01; bromsar för kameraslutare 57a-32/02; bromsregulatorer för kraftmaskiner 60-9; bromsar för livräddningsanordningar 61a-8/01, 61a-8/02; bromsar för flygplan 62b-47; stationära bromsar för flygplan 62e-27/01; bromsar för handkärror eller fordon för dragdjur 63a-45 – 63a-54, 63b-7, 63b-15, 63b-26; bromsar för motorfordon 63c-51 – 63c-57; bromsar för cyklar eller motorcyklar 63i; bromsar för fartyg 65a2-8; bromsar för dörrar eller fönster 68d-9 – 68d-15, 68d-17; bromsar för artilleripjäser 72c-8, 72c-9/02; bromsregulatorer för automatiska eldvapen 72h-1/03; bromsar för centrifuger 82b-12; bromsar för vävstolar 86c-18/10; bromsar för vindmotorer 88c-3/16; bromsar för rätlinjig rörelse se specialklasser) **[-69]**

Icke frånslagbara axelkopplingar **[-69]**

47c-1	Fasta axelkopplingar	[-69]
47c-2	Fästanordningar för nav	[-69]
47c-3	Stoppringar	[-69]
47c-4	Rörliga axelkopplingar, t.ex. korsledskopplingar, kullekopplingar, kardankopplingar eller oldhamkopplingar	[-69]
47c-5	Elastiska kopplingar	[-69]

Till- och frånslagbara axelkopplingar; Anordningar för manövrering av sådana **[-69]**

47c-6	Klokkopplingar; Medbringarkopplingar; Fjäderkopplingar; Borstkopplingar	[-69]
47c-7	Cylindriska friktionskopplingar	[-69]
47c-8	Överbelastningskopplingar eller säkerhetskopplingar för axlar	[-69]
47c-9	Koniska friktionskopplingar; Skivfriktionskopplingar	[-69]
47c-10	Bromsbandskopplingar; Bromsringkopplingar; Friktionskopplingar med skruvfjädrar	[-69]
47c-11	Lamellkopplingar	[-69]
47c-12	Kombinerade axelkopplingar	[-69]
47c-13	Centrifugalkopplingar	[-69]
47c-14	Hydrauliska kopplingar; Hydrauliskt eller pneumatiskt manövrerade kopplingar	[-69]
47c-15	Elektromagnetiskt manövrerade friktionskopplingar eller klokkopplingar (21d1-40; 21d1-41)	[-69]
47c-16	Manövreringsanordningar för axelkopplingar (47d-20; 47d-21)	[-69]

Bromsar för vridningsrörelse; Friktionsbeläggningar **[-69]**

47c-17/01	Bromsar för vridningsrörelse, allmänt (stötdämpare 47a-16/10; bromskraftregulatorer 20f-49, 63c-53; fjäderbromsar 20f-14, 63c-51, 72c-8/03; buffertbromsar 20f-19)	[-69]
47c-17/02	Bandbromsar; Blockbromsar	[-69]
47c-17/03	Skivfriktionsbromsar	[-69]
47c-17/04	Centrifugalfriktionsbromsar	[-69]
47c-17/05	Hydrauliska bromsar (hydraulisk manövrering av bromsar 20f-26/43, 63a-53, 63c-53/01 – 63c-54/10; hydraulisk manövrering, allmänt 47h-22, hydrauliska bromsdynamometrar 42k-2/02; hydrauliska bromsar som buffertar eller stötdämpare 47a-16/10, 20e-25, 68d-10 – 68d-13; som rekylbromsar 72c-8/01, 72c-8/04; bromsvätskor 23c-5)	[-69]
47c-17/06	Elektromagnetiskt manövrerade friktionsbromsar (elektriska bromsanordningar för järnvägar 20l-28, 20l-29; elektromagnetisk eller elektromekanisk bromsning av elektriska maskiner 21d1-42, 21d2-19, 21d2-23; virvelströmsbromsar 21d1-42, 20f-44; bromsmagneter 21g-2)	[-69]

47c-18 Friktionsbeläggningar; Friktionskroppar (20f-1, 63c-51/05; mekanisk framställning av friktionselement med organiska bindemedel 39a, med oorganiska bindemedel 80a, framställning av massor med organiska bindemedel 39b, med oorganiska bindemedel 80b; legeringsteknisk sammansättning av friktionselement eller bromselement 18d, 40b) [69-]

47c (IPC: F16D) Couplings; Clutches; Brakes [69-]

Couplings (fluid couplings 47c-31/00 to 47c-39/00; couplings or joints specially adapted for deep-drilling rods or sucker rods 5a; for transmitting motion through a wall without relatively-moving surfaces 47f2-15/50) [69-]

47c-1/00 Couplings for rigidly connecting two coaxial shafts or other movable machine elements (attachment of wheels to axles for railway carriages 20b; for attachment of cranks to their shafts 47b-3/10) [69-]

- 47c-1/02 . for connecting two abutting shafts or the like [69-]
- 47c-1/04 . . with clamping hub; with hub and longitudinal key [69-]
- 47c-1/06 . for attachment of a member on a shaft or on a shaft-end [69-]
- 47c-1/08 . . with clamping hub; with hub and longitudinal key [69-]
- 47c-1/10 . Quick-acting couplings in which the parts are connected by simply bringing them together axially [69-]
- 47c-1/12 . allowing adjustment of the parts about the axis (during motion 47c-3/10) [69-]

47c-3/00 Yielding couplings, i.e. with means permitting movement between the connected parts during the drive (couplings disconnectable simply by axial movement 47c-1/10; slip couplings 47c-7/00) [69-]

- 47c-3/02 . adapted to specific functions (universal joints, see the appropriate groups) [69-]
- 47c-3/04 . . specially adapted to allow radial displacement, e.g. Oldham couplings [69-]
- 47c-3/06 . . specially adapted to allow axial displacement [69-]
- 47c-3/08 . . Couplings for intersecting shafts, provided with intermediate bars bent in an angle corresponding with the angle of intersection [69-]
- 47c-3/10 . . Couplings with means for varying the angular relationship of two coaxial shafts during motion [69-]
- 47c-3/12 . . specially adapted for accumulation of energy to absorb shocks or vibration (by making use of fluid elements 47c-3/80) [69-]
- 47c-3/14 . . combined with a friction coupling for damping vibration or absorbing shock [69-]
- 47c-3/16 . Universal joints in which flexibility is produced by means of pivots or sliding or rolling connecting parts [69-]
- 47c-3/18 . . the coupling parts having slidably-interengaging teeth ("coupling parts" means the driving member and the driven member of the coupling to the 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.) [69-]
- 47c-3/19 . . . of resilient material or structure [69-]
- 47c-3/20 . . one coupling part entering a sleeve of the other coupling part and connected thereto by sliding or rolling members (47c-3/18, 47c-3/24 take precedence) [69-]
- 47c-3/22 . . . the rolling members being balls, rollers, or the like, guided in grooves [69-]
- 47c-3/24 . . comprising balls, rollers, or the like between overlapping driving faces, e.g. cogs, on both coupling parts [69-]
- 47c-3/26 . . Hooke's joints or other joints with an equivalent intermediate member to which each coupling part is pivotally or slidably connected (47c-3/18, 47c-3/20 take precedence) [69-]
- 47c-3/28 . . . in which the interconnecting pivots include elastic members [69-]
- 47c-3/30 . . . in which the coupling is specially adapted to constant velocity-ratio [69-]
- 47c-3/32 by the provision of two intermediate members each having two relatively-perpendicular trunnions or bearings [69-]
- 47c-3/33 with ball or roller bearings [69-]
- 47c-3/34 parts being connected by ridges, pins, balls, or the like guided in grooves or between cogs [69-]
- 47c-3/36 . . . in which each pivot between the coupling parts and the intermediate member comprises a single ball [69-]

47c-3/38	. . . with a single intermediate member with trunnions or bearings arranged on two axes perpendicular to one another (47c-3/36 takes precedence)	[69-]
47c-3/40	. . . . with intermediate member provided with two pairs of outwardly-directed trunnions on intersecting axes	[69-]
47c-3/41	. . . . . with ball or roller bearings	[69-]
47c-3/42	. . . . with ring-shaped intermediate member provided with bearings or inwardly-directed trunnions	[69-]
47c-3/43	. . . . . with ball or roller bearings	[69-]
47c-3/44	. . . the intermediate member being connected to the coupling parts by ridges, pins, balls, or the like guided in grooves or between cogs	[69-]
47c-3/46	. . . . each coupling part embracing grooves or ridges on the intermediate member	[69-]
47c-3/48	. . one coupling part having pins arranged parallel to the axis and entering holes in the other coupling part	[69-]
47c-3/50	. with the coupling parts connected by one or more intermediate members (47c-3/16 takes precedence)	[69-]
47c-3/52	. . comprising a continuous strip, spring, or the like engaging the coupling parts at a number of places	[69-]
47c-3/54	. . Couplings comprising a chain or strip surrounding two wheels arranged side by side and provided with teeth or the equivalent	[69-]
47c-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	[69-]
47c-3/58	. . . the intermediate members being made of rubber or like material	[69-]
47c-3/60	. . comprising pushing or pulling links attached to both parts (47c-3/64 takes precedence)	[69-]
47c-3/62	. . . the links or their attachments being elastic	[69-]
47c-3/64	. . comprising elastic elements arranged between substantially-radial walls of both coupling parts	[69-]
47c-3/66	. . . the elements being metallic, e.g. in the form of coils	[69-]
47c-3/68	. . . the elements being made of rubber or similar material	[69-]
47c-3/70	. . comprising elastic elements arranged in holes in one coupling part and surrounding pins on the other coupling part	[69-]
47c-3/72	. . with axially-spaced attachments to the coupling parts (47c-3/56 takes precedence)	[69-]
47c-3/74	. . . the intermediate member or members being made of rubber or other flexible material	[69-]
47c-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	[69-]
47c-3/77	. . . the ring being metallic	[69-]
47c-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	[69-]
47c-3/79	. . . the disc or ring being metallic	[69-]
47c-3/80	. in which a fluid is used (fluid couplings allowing continuous slip 47c-31/00 to 47c-35/00)	[69-]
47c-3/82	. . with a coupling element in the form of a pneumatic tube (similar clutches 47c-25/04)	[69-]
47c-3/84	. Shrouds, e.g. casings, covers; Sealing means specially adapted therefor	[69-]
47c-5/00	Impulse couplings, i.e. couplings that alternately accelerate and decelerate the driven member	[69-]
47c-7/00	Slip couplings, e.g. slipping on overload, for absorbing shock (combined with yielding shaft couplings 47c-3/14; fluid slip couplings 47c-31/00 to 47c-35/00)	[69-]
47c-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)	[69-]
47c-7/04	. of the ratchet type (similar gearings based on repeated accumulation and delivery of inertia-energy 47h-33/08)	[69-]
47c-7/06	. . with intermediate balls or rollers	[69-]

47c-9/00	Couplings with safety member for disconnecting, e.g. breaking or melting member	[69-]
<u>Clutches with mechanically-actuated clutching members (automatic clutches 47c-41/00 to 47c-45/00)</u>		
47c-11/00	Clutches in which the members have interengaging parts (arrangements for synchronisation 47c-23/02)	[69-]
47c-11/02	. disengaged by a contact of a part mounted on the clutch with a stationarily-mounted member	[69-]
47c-11/04	. . with clutching members movable only axially	[69-]
47c-11/06	. . with clutching members movable otherwise than only axially, e.g. rotatable keys	[69-]
47c-11/08	. actuated by moving a non-rotating part axially (actuating-mechanisms in the relevant groups)	[69-]
47c-11/10	. . with clutching members movable only axially	[69-]
47c-11/12	. . with clutching members movable otherwise than only axially	[69-]
47c-13/00	Friction clutches (arrangements for synchronisation 47c-23/02)	[69-]
47c-13/02	. disengaged by the contact of a part mounted on the clutch with a stationarily-mounted member	[69-]
47c-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 47c-43/00)	[69-]
47c-13/06	. . with clutching members movable otherwise than only axially (47c-13/08, 47c-13/12 take precedence)	[69-]
47c-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 (47c-13/02 takes precedence; similar freewheel clutches 47c-41/20; similar brakes 47c-49/02)	[69-]
47c-13/10	. with clutching members co-operating with the periphery of a drum, a wheel-rim, or the like (47c-13/02 to 47c-13/08 take precedence; similar brakes 47c-49/00)	[69-]
47c-13/12	. with an expansible band or coil co-operating with the inner surface of a drum or the like (47c-13/02 takes precedence; similar brakes 47c-51/02)	[69-]
47c-13/14	. with outwardly-movable clutching members co-operating with the inner surface of a drum or the like (47c-13/02, 47c-13/06, 47c-13/12 take precedence; similar brakes 47c-51/00)	[69-]
47c-13/16	. . shaped as radially-movable segments	[69-]
47c-13/18	. . shaped as linked or separately-pivoted segments	[69-]
47c-13/20	. with clutching members co-operating with both the periphery and the inner surface of a drum or wheel-rim (similar brakes 47c-53/00)	[69-]
47c-13/22	. with axially-movable clutching members (similar brakes 47c-55/00)	[69-]
47c-13/24	. . with conical friction surfaces	[69-]
47c-13/26	. . . in which the or each axially-movable member is pressed exclusively against an axially-located member	[69-]
47c-13/28	. . . . with means for increasing the effective force between the actuating sleeve or equivalent member and the pressure member	[69-]
47c-13/30	. . . . in which the clutching pressure is produced by springs only	[69-]
47c-13/32	. . . in which two or more axially-movable members are pressed from one side towards an axially-located member	[69-]
47c-13/34	. . . . with means for increasing the effective force between the actuating sleeve or equivalent member and the pressure member	[69-]
47c-13/36	. . . . in which the clutching pressure is produced by springs only	[69-]
47c-13/38	. . with flat clutching surfaces, e.g. discs	[69-]
47c-13/40	. . . in which the or each axially-movable member is pressed exclusively against an axially-located member	[69-]
47c-13/42	. . . . with means for increasing the effective force between the actuating sleeve or equivalent member and the pressure member	[69-]
47c-13/44	. . . . in which the clutching pressure is produced by springs only	[69-]
47c-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	[69-]

47c-13/48	. . . . with means for increasing the effective force between the actuating sleeve or equivalent member and the pressure member	[69-]
47c-13/50	. . . . . in which the clutching pressure is produced by springs only	[69-]
47c-13/52	. . . Clutches with multiple lamellae	[69-]
47c-13/54	. . . . with means for increasing the effective force between the actuating sleeve or equivalent member and the pressure member	[69-]
47c-13/56	. . . . . in which the clutching pressure is produced by springs only	[69-]
47c-13/58	. Details	[69-]
47c-13/60	. . Clutching elements (friction lining or attachment thereof 47c-69/00)	[69-]
47c-13/62	. . . Clutch-bands; Clutch-shoes; Clutch-drums (brake-bands, brake-shoes, brake-drums 47c-65/00)	[69-]
47c-13/64	. . . Clutch-plates; Clutch-lamellae (brake-plates, brake-lamellae 47c-65/12)	[69-]
47c-13/66	. . . . . of conical shape	[69-]
47c-13/68	. . . . Attachments of plates or lamellae to their supports	[69-]
47c-13/69	. . . . Arrangements for spreading lamellae in released state	[69-]
47c-13/70	. . Pressure members, e.g. pressure plates, for clutch-plates or lamellae; Guiding arrangements for pressure members	[69-]
47c-13/71	. . . in which the clutching pressure is produced by springs only	[69-]
47c-13/72	. . Features relating to cooling	[69-]
47c-13/74	. . Features relating to lubrication	[69-]
47c-13/75	. . Features relating to adjustment, e.g. slack adjusters	[69-]
47c-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	[69-]
47c-15/00	Clutches with wedging balls or rollers or with other wedgeable separate clutching members (freewheels, freewheel clutches 47c-41/00)	[69-]
47c-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	[69-]
47c-19/00	Clutches with mechanically-actuated clutching members not otherwise provided for	[69-]
47c-21/00	Systems comprising a plurality of mechanically-actuated clutches (for synchronisation 47c-23/04)	[69-]
47c-21/02	. for interconnecting three or more shafts or other transmission members in different ways (in endless-track vehicles 63a)	[69-]
47c-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	[69-]
47c-21/06	. . at least two driving shafts or two driven shafts being concentric	[69-]
47c-21/08	. Serially-arranged clutches interconnecting two shafts only when all the clutches are engaged (47c-13/08, 47c-13/12 take precedence)	[69-]
47c-23/00	Details of mechanically-actuated clutches not specific for one distinct type	[69-]
47c-23/02	. Arrangements for synchronisation, also for power-operated clutches (shape or mounting of interengaging parts of clutch members to facilitate engagement 47c-11/08)	[69-]
47c-23/04	. . with an additional friction clutch	[69-]
47c-23/06	. . . and a blocking mechanism preventing the engagement of the main clutch prior to synchronisation	[69-]
47c-23/08	. . with a blocking mechanism that only releases the clutching member on synchronisation (in combination with an additional friction clutch 47c-23/06)	[69-]
47c-23/10	. . automatically producing the engagement of the clutch when the clutch members are moving at the same speed; Indicating synchronisation	[69-]
47c-23/12	. Mechanical clutch-actuating mechanisms arranged outside the clutch as such (specific for combined clutches 47c-21/00; mechanisms specific for synchronisation 47c-23/02)	[69-]
47c-23/14	. . Clutch-actuating sleeves; Actuating members directly connected to clutch-actuating sleeves	[69-]

<u>Clutches actuated non-mechanically</u> (arrangements for synchronisation 47c-23/02; fluid clutches 47c-31/00 to 47c-39/00; automatic clutches 47c-41/00 to 47c-45/00; electric clutches 21d1)		[69-]
47c-25/00	Fluid-actuated clutches	[69-]
47c-25/02	. with means for actuating or keeping engaged by a force derived at least partially from one of the shafts to be connected	[69-]
47c-25/04	. in which the fluid actuates an elastic clutching member, e.g. a diaphragm or a pneumatic tube (47c-25/02 takes precedence; coupling using a pneumatic tube 47c-3/82)	[69-]
47c-25/06	. in which the fluid actuates a piston incorporated in the clutch (47c-25/02 takes precedence)	[69-]
47c-25/061	. . the clutch having interengaging clutch members	[69-]
47c-25/062	. . the clutch having friction surfaces	[69-]
47c-25/063	. . . with clutch members exclusively moving axially	[69-]
47c-25/064	. . . . the friction surface being grooved	[69-]
47c-25/065	. . . with clutching members having a movement which has at least a radial component	[69-]
47c-25/08	. with fluid-actuated member not rotating with a clutching member (47c-25/02 takes precedence)	[69-]
47c-25/10	. Clutch systems with a plurality of fluid-actuated clutches	[69-]
47c-25/12	. Details not specific to one of the before-mentioned types	[69-]
47c-27/00	Magnetically-actuated clutches; Circuits therefor (clutches with magnetisable particles 47c-37/02)	[69-]
47c-27/01	. with permanent magnets	[69-]
47c-27/02	. with electromagnets incorporated in the clutch, i.e. with collecting rings	[69-]
47c-27/04	. . with axially-movable friction surfaces	[69-]
47c-27/06	. . . with friction surfaces arranged within the flux	[69-]
47c-27/07	. . . . Constructional features of clutch-plates or clutch-lamellae	[69-]
47c-27/08	. . . with friction surfaces arranged externally to the flux	[69-]
47c-27/09	. . and with interengaging jaws or gear-teeth	[69-]
47c-27/10	. with an electromagnet not rotating with a clutching member, i. e. without collecting rings	[69-]
47c-27/12	. Clutch systems with a plurality of electromagnetically-actuated clutches	[69-]
47c-27/14	. Details	[69-]
47c-29/00	Clutches and systems of clutches involving both fluid and magnetic actuation	[69-]
<u>Freewheels or freewheel clutches with a fluid or semifluid as power-transmitting means</u>		[69-]
47c-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	[69-]
47c-31/02	. using pumps with pistons or plungers working in cylinders	[69-]
47c-31/04	. using gear-pumps	[69-]
47c-31/06	. using pumps of types differing from those before-mentioned	[69-]
47c-31/08	. Control of slip	[69-]
47c-33/00	Rotary fluid couplings or clutches of the hydrokinetic type	[69-]
47c-33/02	. controlled by changing the flow of the liquid in the working circuit, while maintaining a completely filled working circuit	[69-]
47c-33/04	. . by altering the position of blades	[69-]
47c-33/06	. controlled by changing the amount of liquid in the working circuit	[69-]
47c-33/08	. . by devices incorporated in the fluid coupling, with or without remote control	[69-]
47c-33/10	. . . consisting of controllable supply and discharge openings	[69-]
47c-33/12	. . . . controlled automatically by self-actuated valves	[69-]
47c-33/14	. . . consisting of shiftable or adjustable scoops	[69-]
47c-33/16	. . by means arranged externally of the coupling or clutch	[69-]
47c-33/18	. Details (applicable also to fluid gearing 47h-41/24)	[69-]
47c-33/20	. . Shape of wheels, blades, or channels with respect to function	[69-]

47c-35/00	Fluid clutches in which the clutching is predominantly obtained by fluid adhesion (47c-37/00 takes precedence)	[69-]
47c-37/00	Clutches in which the drive is transmitted through a medium consisting of small particles, e.g. centrifugally speed-responsive	[69-]
47c-37/02	. the particles being magnetisable	[69-]
47c-39/00	Combinations of couplings according to two or more of the groups 47c-31/00 to 47c-37/00	[69-]
<u>Freewheels or freewheel clutches; Automatic clutches</u> (47c-31/00 to 47c-39/00 take precedence)		[69-]
47c-41/00	Freewheels or freewheel clutches	[69-]
47c-41/02	. disengaged by contact of a part of or on the freewheel or freewheel clutch with a stationarily-mounted member	[69-]
47c-41/04	. combined with a clutch for locking the driving and driven members (47c-41/02, 47c-41/24 take precedence)	[69-]
47c-41/06	. with intermediate wedging coupling members (47c-41/02, 47c-41/24 take precedence)	[69-]
47c-41/07	. . between two cylindrical surfaces	[69-]
47c-41/08	. . with provision for altering the freewheeling action	[69-]
47c-41/10	. . . with self-actuated reversing	[69-]
47c-41/12	. with hinged pawl co-operating with teeth, cogs, or the like (47c-41/02, 47c-41/24 take precedence)	[69-]
47c-41/14	. . the effective stroke of the pawl being adjustable	[69-]
47c-41/16	. . the action being reversible	[69-]
47c-41/18	. with non-hinged detent (47c-41/02, 47c-41/24 take precedence)	[69-]
47c-41/20	. with expandable or contractable clamping ring or band (47c-41/02, 47c-41/24 take precedence)	[69-]
47c-41/22	. with clutching ring or disc axially shifted as a result of lost motion between actuating members (47c-41/02, 47c-41/24 take precedence)	[69-]
47c-41/24	. specially adapted for cycles	[69-]
47c-41/26	. . with provision for altering the action	[69-]
47c-41/28	. . with intermediate wedging coupling members	[69-]
47c-41/30	. . with hinged pawl co-operating with teeth, cogs, or the like	[69-]
47c-41/32	. . with non-hinged detent	[69-]
47c-41/34	. . with expandable or contractable clamping ring or band	[69-]
47c-41/36	. . with clutching ring or disc axially shifted as a result of lost motion between actuating members	[69-]
47c-43/00	Automatic clutches (varying the relationship between two coaxial shafts 47c-3/10; freewheels, freewheel clutches 47c-41/00)	[69-]
47c-43/02	. actuated entirely mechanically	[69-]
47c-43/04	. . controlled by angular speed (47c-43/24 takes precedence; clutches in which the drive is transmitted through a medium consisting of small particles 47c-37/00)	[69-]
47c-43/06	. . . with centrifugal masses actuating axially a movable pressure ring or the like	[69-]
47c-43/08	. . . . the pressure ring actuating friction plates, cones, or similar axially-movable friction surfaces	[69-]
47c-43/09	. . . . in which the carrier of the centrifugal masses can be stopped	[69-]
47c-43/10	. . . . the centrifugal masses acting directly on the pressure ring, no other actuating mechanism for the pressure ring being provided	[69-]
47c-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	[69-]
47c-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	[69-]
47c-43/16	. . . . with clutching members having interengaging parts	[69-]
47c-43/18	. . . . with friction clutching members	[69-]

47c-43/20	. . controlled by torque, e.g. overload-release clutches, slip-clutches with means by which torque varies the clutching pressure (slip couplings of the ratchet type 47c-7/04)	[69-]
47c-43/21	. . . with friction members	[69-]
47c-43/22	. . controlled by both speed and torque	[69-]
47c-43/24	. . controlled by acceleration or deceleration of angular speed	[69-]
47c-43/25	. . controlled by thermo-responsive elements	[69-]
47c-43/26	. . acting at definite angular position or disengaging after a definite number of rotations (actuating by means of stationary abutment 47c-11/02, 47c-13/02, 47c-15/00; automatically-controlled reversing mechanisms for toothed gearings 47h-5/68)	[69-]
47c-43/28	. actuated by fluid pressure	[69-]
47c-43/284	. . controlled by angular speed	[69-]
47c-43/286	. . controlled by torque	[69-]
47c-43/30	. Systems of a plurality of automatic clutches	[69-]
47c-45/00	Freewheels or freewheel clutches combined with automatic clutches	[69-]
47c-47/00	Systems of clutches, or clutches and couplings, comprising devices of types grouped under at least two of the preceding subgroups	[69-]
47c-47/02	. of which at least one is a coupling (elastic attachment of clutch parts, see the groups for the clutches)	[69-]
47c-47/04	. of which at least one is a freewheel (47c-47/02, 47c-47/06 take precedence; freewheels combined with a clutch to lock the driving and driven members of the freewheel 47c-41/04, 47c-41/26)	[69-]
47c-47/06	. of which at least one is a clutch with a fluid or a semifluid as power-transmitting means	[69-]
Brakes (dynamo-electric brakes 21d1)		[69-]
47c-49/00	Brakes with a braking member co-operating with the periphery of a drum, wheel-rim, or the like (similar clutches 47c-13/10)	[69-]
47c-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 (similar clutches 47c-13/08)	[69-]
47c-49/04	. . mechanically actuated	[69-]
47c-49/06	. . fluid actuated	[69-]
47c-49/08	. shaped as an encircling band extending over approximately 360°	[69-]
47c-49/10	. . mechanically actuated (self-tightening 47c-49/20)	[69-]
47c-49/12	. . fluid actuated	[69-]
47c-49/14	. shaped as a fluid-filled flexible member actuated by variation of the fluid pressure	[69-]
47c-49/16	. Brakes with two brake-blocks (self-tightening 47c-49/20)	[69-]
47c-49/18	. Brakes with three or more brake-blocks (self-tightening 47c-49/20)	[69-]
47c-49/20	. Self-tightening brakes (with helical band or coil with more than one turn 47c-49/02)	[69-]
47c-49/22	. . with an auxiliary friction member initiating or increasing the action of the brake	[69-]
47c-51/00	Brakes with outwardly-movable braking members co-operating with the inner surface of a drum or the like (similar clutches 47c-13/14)	[69-]
47c-51/02	. shaped as one or more circumferential bands (similar clutches 47c-13/12)	[69-]
47c-51/04	. . mechanically actuated	[69-]
47c-51/06	. . fluid actuated	[69-]
47c-51/08	. shaped as an expansible fluid-filled flexible member	[69-]
47c-51/10	. shaped as exclusively radially-movable brake-shoes	[69-]
47c-51/12	. . mechanically actuated	[69-]
47c-51/14	. . fluid actuated	[69-]
47c-51/16	. shaped as brake-shoes pivoted on a fixed or nearly-fixed axis (self-tightening 47c-51/46)	[69-]
47c-51/18	. . with two brake-shoes	[69-]
47c-51/20	. . . extending in opposite directions from their pivots	[69-]
47c-51/22	. . . . mechanically actuated	[69-]
47c-51/24	. . . . fluid actuated	[69-]

47c-51/26	. . . both extending in the same direction from their pivots	[69-]
47c-51/28	. . . . mechanically actuated	[69-]
47c-51/30	. . . . fluid actuated	[69-]
47c-51/32	. . with three or more brake-shoes	[69-]
47c-51/34	. . . extending in opposite directions from their pivots	[69-]
47c-51/36	. . . . mechanically actuated	[69-]
47c-51/38	. . . . fluid actuated	[69-]
47c-51/40	. . . all extending in the same direction from their pivots	[69-]
47c-51/42	. . . . mechanically actuated	[69-]
47c-51/44	. . . . fluid actuated	[69-]
47c-51/46	. Self-tightening brakes with pivoted brake-shoes	[69-]
47c-51/48	. . with two linked or directly-interacting brake-shoes	[69-]
47c-51/50	. . . mechanically actuated	[69-]
47c-51/52	. . . fluid actuated	[69-]
47c-51/54	. . with three or more brake-shoes, at least two of them being linked or directly interacting	[69-]
47c-51/56	. . . mechanically actuated	[69-]
47c-51/58	. . . fluid actuated	[69-]
47c-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	[69-]
47c-51/62	. . . mechanically actuated	[69-]
47c-51/64	. . . fluid actuated	[69-]
47c-51/66	. . an actuated brake-shoe being carried along and thereby engaging a member for actuating another brake-shoe	[69-]
47c-51/68	. . . mechanically actuated	[69-]
47c-51/70	. . . fluid actuated	[69-]
47c-53/00	Brakes with braking members co-operating with both the periphery and the inner surface of a drum, wheel-rim, or the like (similar clutches 47c-13/20)	[69-]
47c-55/00	Brakes with substantially-radial braking surfaces pressed together in axial direction, e.g. disc brakes (similar clutches 47c-13/38)	[69-]
47c-55/02	. with axially-movable discs or shoes pressed against axially-located rotating members	[69-]
47c-55/04	. . by moving discs or shoes away from one another against radial walls of drums or cylinders	[69-]
47c-55/06	. . . without self-tightening action	[69-]
47c-55/08	. . . . Mechanically-actuated brakes	[69-]
47c-55/10	. . . . Brakes actuated by a fluid-pressure device arranged in or on the brake	[69-]
47c-55/12	. . . . . comprising an expansible fluid-filled flexible member coaxial with the brake	[69-]
47c-55/14	. . . with self-tightening action, e.g. by means of coating helical surfaces or balls and inclined surfaces	[69-]
47c-55/15	. . . . initiated by means of brake-bands or brake-shoes	[69-]
47c-55/16	. . . . Mechanically-actuated brakes	[69-]
47c-55/18	. . . . Brakes actuated by a fluid-pressure device arranged in or on the brake	[69-]
47c-55/20	. . . . . comprising an expansible fluid-filled flexible member coaxial with the brake	[69-]
47c-55/22	. . by clamping an axially-located rotating disc between two movable discs or brake-shoes	[69-]
47c-55/224	. . . with common actuating member for both sides	[69-]
47c-55/228	. . . with a separate actuating member for each side	[69-]
47c-55/24	. with a plurality of axially-movable discs, lamellae, or shoes, pressed from one side towards an axially-located member	[69-]
47c-55/26	. . without self-tightening action	[69-]
47c-55/28	. . . Brakes with only one rotating disc	[69-]
47c-55/30	. . . . mechanically actuated	[69-]
47c-55/31	. . . . . by means of an intermediate leverage	[69-]
47c-55/32	. . . . . actuated by a fluid-pressure device arranged in or on the brake	[69-]
47c-55/33	. . . . . by means of an intermediate leverage	[69-]

47c-55/34	. . . . . comprising an expansible fluid-filled flexible member coaxial with the brake	[69-]
47c-55/36	. . . Brakes with a plurality of rotating discs all lying side by side	[69-]
47c-55/38	. . . . . mechanically actuated	[69-]
47c-55/39	. . . . . by means of an intermediate leverage	[69-]
47c-55/40	. . . . . actuated by a fluid-pressure device arranged in or on the brake	[69-]
47c-55/41	. . . . . by means of an intermediate leverage	[69-]
47c-55/42	. . . . . comprising an expansible fluid-filled flexible member coaxial with the brake	[69-]
47c-55/44	. . . with the rotating part consisting of both central plates and ring-shaped plates arranged concentrically around the central plates	[69-]
47c-55/46	. . with self-tightening action	[69-]
47c-55/48	. . . with discs or shoes having a small free angular travel relative to their support, which produces the self-tightening action	[69-]
47c-55/50	. . . with auxiliary friction members, which may be of different type, producing the self-tightening action	[69-]
47c-57/00	Liquid-resistance brakes; Air-resistance brakes	[69-]
47c-57/02	. with blades or like members braked by the fluid	[69-]
47c-57/04	. with blades causing a directed flow, e.g. Föttinger type	[69-]
47c-57/06	. comprising a pump circulating fluid, braking being effected by throttling of the circulation	[69-]
47c-59/00	Self-acting brakes, e.g. coming into operation at a predetermined speed	[69-]
47c-59/02	. spring-loaded and adapted to be released by mechanical, fluid, or electromagnetic means	[69-]
47c-61/00	Brakes with means for making the energy absorbed available for use (47c-57/00 takes precedence)	[69-]
47c-63/00	Brakes not otherwise provided for; Brakes combining a plurality of the before-mentioned types (brakes with auxiliary members for self-tightening 47c-49/22, 47c-51/66, 47c-55/50)	[69-]
47c-65/00	Parts or details (similar members for clutches 47c-13/58)	[69-]
47c-65/02	. Braking members; Mounting thereof (friction linings or attachment thereof 47c-69/00)	[69-]
47c-65/04	. . Bands or shoes; Pivots or supporting members therefor	[69-]
47c-65/06	. . . for externally-engaging brakes	[69-]
47c-65/08	. . . for internally-engaging brakes	[69-]
47c-65/10	. . Drums for externally- or internally-engaging brakes	[69-]
47c-65/12	. . Discs; Drums for disc brakes	[69-]
47c-65/13	. . Details of disc brakes	[69-]
47c-65/14	. Actuating mechanisms for brakes; Means for initiating operation at a predetermined position	[69-]
47c-65/16	. . arranged in or on the brake	[69-]
47c-65/18	. . . adapted for drawing members together	[69-]
47c-65/20	. . . . . comprising a fluid-pressure device	[69-]
47c-65/22	. . . adapted for pressing members apart	[69-]
47c-65/24	. . . . . comprising a fluid-pressure device	[69-]
47c-65/26	. . . . . in the form of a fluid-filled flexible member	[69-]
47c-65/28	. . arranged apart from the brake	[69-]
47c-65/30	. . . acting mechanically	[69-]
47c-65/32	. . . acting by fluid means	[69-]
47c-65/34	. . . acting by electric means	[69-]
47c-65/36	. . . acting by both fluid and electric means	[69-]
47c-65/38	. Slack adjusters	[69-]
47c-65/40	. . mechanical	[69-]
47c-65/42	. . . non-automatic	[69-]
47c-65/44	. . . . . by means of direct linear adjustment (47c-65/46, 47c-65/48 take precedence)	[69-]

47c-65/46	. . . . with screw-thread and nut	[69-]
47c-65/48	. . . . with eccentric or helical body	[69-]
47c-65/50	. . . . for angular adjustment of two concentric parts of the brake control system	[69-]
47c-65/52	. . . self-acting in one direction for adjusting excessive play	[69-]
47c-65/54	. . . . by means of direct linear adjustment (47c-65/56, 47c-65/58 take precedence)	[69-]
47c-65/56	. . . . with screw-thread and nut	[69-]
47c-65/58	. . . . with eccentric or helical body	[69-]
47c-65/60	. . . . for angular adjustment of two concentric parts of the brake control system	[69-]
47c-65/62	. . . self-acting in both directions for adjusting excessive and insufficient play	[69-]
47c-65/64	. . . . by means of direct linear adjustment (47c-65/66, 47c-65/68 take precedence)	[69-]
47c-65/66	. . . . with screw-thread and nut	[69-]
47c-65/68	. . . . with eccentric or helical body	[69-]
47c-65/70	. . . . for angular adjustment of two concentric parts of the brake control system	[69-]
47c-65/72	. . hydraulic	[69-]
47c-65/74	. . . self-acting in one direction	[69-]
47c-65/76	. . . self-acting in both directions	[69-]
47c-65/78	. Features relating to cooling	[69-]
47c-65/80	. . for externally-engaging brakes	[69-]
47c-65/82	. . for internally-engaging brakes	[69-]
47c-65/84	. . for disc brakes	[69-]
47c-66/00	Arrangements for monitoring working conditions, e.g. wear, temperature	[69-]
47c-66/02	. Apparatus for indicating wear	[69-]
47c-67/00	Combinations devices of at least two of the following categories-couplings, clutches, brakes, other mechanical transmission devices (47c-71/00 takes precedence; combinations of couplings and clutches 47c-47/02)	[69-]
47c-67/02	. Clutch-brake combinations	[69-]
47c-67/04	. . fluid actuated	[69-]
47c-67/06	. . electromagnetically actuated	[69-]
47c-69/00	Friction linings; Attachment thereof; Selection of coating friction substances or surfaces (clutching elements 47c-13/60; braking members 47c-65/02)	[69-]
47c-69/02	. Composition of linings (chemical aspects, see the relevant classes)	[69-]
47c-69/04	. Attachment of linings	[69-]
47c-71/00	Mechanisms for bringing members to rest in a predetermined position (combined with, or controlling, clutches 47c-43/26; means for initiating operation of brakes at a predetermined position 47c-65/14; means for securing members after operation 47a1-1/02)	[69-]
47c-71/02	. comprising auxiliary means for producing the final movement	[69-]
47c-71/04	. providing for selection between a plurality of positions (47c-71/02 takes precedence)	[69-]
47d	Drivremmar; Drivlinor; Drivsnören; Kedjor; Förband eller fästånordningar för sådana; Påläggare; Omskiftare (remdrift, lindrift och kedjedrift 47h-9 – 47h-11)	[-69]
	Drivremmar med tillbehör	[-69]
47d-1	Drivremmar; Tillbehör för drivremmar, t.ex. smörjanordningar (linsmörjare, kedjesmörjare 47e-35)	[-69]
47d-2	Drivremmar av läder; Tillverkning av sådana (speciella framställningssätt 28b-20 – 28b-24)	[-69]
47d-3	Drivremmar av fibermaterial; Tillverkning av sådana (speciella tillverkningssätt 25a, 25b, 86c)	[-69]
47d-4	Drivremmar av trådväv (framställning 7d-6, 86f)	[-69]

47d-5	Drivremmar av gummi (framställning 39a-10, 39a3-29/00, 39a6-7/22)	[-69]
47d-6	Drivremmar av metallband	[-69]
47d-7	Länkdirivremmar; Metallänkremmar (63k-29)	[-69]
47d-8	Sammansatta drivremmar (63k-29)	[-69]
47d-9	Förbindningsorgan eller förbindningsmetoder för drivremmar (47d-17, 47d-17/50)	[-69]
	Drivlinor; Drivsnören; Tillbehör för sådana (linor och snören i allmänhet 73; 5a-32/60; 19a-23/01; 19a-25/18; 20a)	[-69]
47d-10	Drivlinor; Drivsnören	[-69]
47d-11	Organ eller förfaranden för förbindning av drivlinor eller drivsnören (47d-17, 47d-17/50)	[-69]
47d-12	Låsorgan e.d. för linor, t.ex. linklämmor eller linmuffar; Spännlås för linor eller andra dragorgan (21c-21; 37d-36/03; 87a-21; lingripare 20a-18 – 29a-20; snörklämmor för gardiner e.d. 34e-4 – 34e-6)	[-69]
	Kedjor; Kättingar; Tillbehör för sådana; Krokar	[-69]
47d-13	Icke isärtagbara kedjor (tillverkning 49k; cyklar eller motorcyklar 63k-29; kedjor för ur eller smycken 44a-40)	[-69]
47d-14	Isärtagbara kedjor (63k-29)	[-69]
47d-15	Förbindningsorgan eller låsorgan vid kedjor, t.ex. kläppar, svivlar eller schacklar (44a-37, 44a-40, 44a-43; 45h-2, 45h-3; 56b-23; 63a-24)	[-69]
47d-16	Lastkrokar, karbinhakar e.d. (tillverkning 7e-19; 35b-6/01; 44a-34, 44a-37, 44a-40, 44a-43; 45h-2, 45h-3; 56b-23; 63a-24)	[-69]
	Hjälpanordningar för förbindning av drivremmar eller drivlinor; Påläggare eller omskiftare för drivremmar eller drivlinor	[-69]
47d-17	Spännanordningar för förbindning av drivremmar eller drivlinor	[-69]
47d-17/50	Andra hjälpanordningar för förbindning av drivremmar eller drivlinor	[-69]
47d-18	Handredskap för påläggning av drivremmar eller drivlinor	[-69]
47d-19	Maskinella anordningar för påläggning av drivremmar eller drivlinor	[-69]
47d-20	Skiftare för drivremmar eller drivlinor	[-69]
47d-21	Avtagare, t.ex. för avståndsmanövrerade drivanordningar (säkerhetsanordningar 47a-18; skiftare 47d-20; 47g-45)	[-69]
47d	(IPC: F16G) Belts, cables or ropes, predominantly used for driving purposes; Chains; Fittings predominantly used therefor (conveyer belts 81e; traction chains for conveyer chains 81e; gearings using flexible members 47h)	[-69]
47d-1/00	Driving-belts (V-belts 47d-5/00; conveyer belts 81e)	[-69]
47d-1/02	. made of leather (47d-1/28 takes precedence; making thereof 28b)	[-69]
47d-1/04	. made of fibrous material, e.g. textiles, whether rubber-covered or not (47d-1/28 takes precedence; making thereof 86c)	[-69]
47d-1/06	. made of rubber (47d-1/28 takes precedence; making thereof 39a6-7/22)	[-69]
47d-1/08	. . with reinforcement bonded by the rubber	[-69]
47d-1/10	. . . with textile reinforcement	[-69]
47d-1/12	. . . with metal reinforcement	[-69]
47d-1/14	. made of plastics (47d-1/28 takes precedence; making thereof 39a3-29/00)	[-69]
47d-1/16	. . with reinforcement bonded by the plastic material	[-69]
47d-1/18	. made of wire (making thereof 7d-43/00)	[-69]
47d-1/20	. made of a single metal strip (making thereof 7c-53/14)	[-69]
47d-1/21	. built-up from superimposed layers, e.g. zig-zag folded	[-69]
47d-1/22	. consisting of several parts	[-69]
47d-1/24	. . in the form of links (in the shape of chain links 47d-13/08)	[-69]
47d-1/26	. . in the form of strips or lamellae	[-69]
47d-1/28	. with a contact surface of special shape, e.g. toothed	[-69]

47d-3/00	Belt fastenings, e.g. for conveyer belts (for V-belts 47d-7/00)	[69-]
47d-3/02	. with series of eyes or the like, interposed and linked by a pin to form a hinge (47d-3/09 takes precedence)	[69-]
47d-3/04	. . in which the ends of separate U-shaped or like eyes are attached to the belt by parts penetrating into it	[69-]
47d-3/06	. with outwardly-bent, mutually-connected belt ends	[69-]
47d-3/07	. Friction clamps, e.g. of grommet-thimble type	[69-]
47d-3/08	. consisting of plates and screw-bolts or rivets (47d-3/06 takes precedence)	[69-]
47d-3/09	. . the plates forming a hinge	[69-]
47d-3/10	. Joining belts by sewing, sticking, vulcanising, or the like; Constructional adaptations of the belt ends for this purpose	[69-]
47d-3/12	. Joining belts by lacing	[69-]
47d-3/14	. with extensible parts; with resilient parts	[69-]
47d-3/16	. Devices or machines for connecting driving-belts or the like	[69-]
47d-5/00	V-belts, i.e. belts of tapered cross-section	[69-]
47d-5/02	. made of leather (47d-5/20 takes precedence)	[69-]
47d-5/04	. made of rubber (47d-5/20 takes precedence)	[69-]
47d-5/06	. . with reinforcement bonded by the rubber	[69-]
47d-5/08	. . . with textile reinforcement	[69-]
47d-5/10	. . . with metal reinforcement	[69-]
47d-5/12	. made of plastics (47d-5/20 takes precedence)	[69-]
47d-5/14	. . with reinforcement bonded by the plastic material	[69-]
47d-5/16	. consisting of several parts	[69-]
47d-5/18	. . in the form of links	[69-]
47d-5/20	. with a contact surface of special shape, e.g. toothed	[69-]
47d-5/22	. built-up from superimposed layers	[69-]
47d-5/24	. . zig-zag folded	[69-]
47d-7/00	V-belt fastenings	[69-]
47d-7/02	. locked, e.g. riveted	[69-]
47d-7/04	. quickly detachable	[69-]
47d-7/06	. adjustable, e.g. for tension	[69-]
47d-9/00	Ropes or cables specially adapted for driving, or for being driven by, pulleys or other gearing elements (ropes or cables in general 73)	[69-]
47d-9/02	. made of leather; having enveloping sheathings made of leather	[69-]
47d-9/04	. made of rubber or plastics (47d-9/02 takes precedence)	[69-]
47d-11/00	Means for fastening cables or ropes to one another or to other objects; Caps or sleeves for fixing on cables or ropes (attaching ropes or cables to lift cars or cages 35a-9, to winch drums or barrels 35c-1; ground anchors 37b-5/00; anchoring devices for prestressed members 37b-5/00)	[69-]
47d-11/02	. with parts deformable to grip the cable or cables; Fastening means which engage a sleeve or the like fixed on the cable	[69-]
47d-11/03	. incorporating resiliently-mounted members for attachment of the cable end	[69-]
47d-11/04	. with wedging action, e.g. friction clamps of grommet-thimble type (47d-11/02 takes precedence)	[69-]
47d-11/05	. . by using conical plugs insertable between the strands	[69-]
47d-11/06	. with laterally-arranged screws (47d-11/02, 47d-11/04 take precedence)	[69-]
47d-11/08	. Fastenings for securing ends of driving-cables to one another, the fastenings having approximately the same diameter as the cables	[69-]
47d-11/09	. . incorporating hinge joints or pivots for the attachment of the cable ends	[69-]
47d-11/10	. Quick-acting fastenings; Clamps holding in one direction only	[69-]
47d-11/12	. Connections or attachments, e.g. turnbuckles, adapted for straining of cables, ropes, or wire (straining wire in general 7d-9/00)	[69-]
47d-11/14	. Devices or coupling-pieces designed for easy formation of adjustable loops, e.g. choker hooks; Hooks or eyes with integral parts designed to facilitate quick attachment to cables or ropes at any point, e.g. by forming loops (crane hooks 35b-1/34; hooks or eyes in general 47a1-45/00)	[69-]

47d-13/00	Chains (making thereof 7i)	[69-]
47d-13/02	. Driving-chains (specially adapted to gearings with variable gear-ratio 47h-9/00)	[69-]
47d-13/04	. . Toothed chains	[69-]
47d-13/06	. . with links connected by parallel driving-pins with or without rollers	[69-]
47d-13/07	. . . the links being of identical shape, e.g. cranked	[69-]
47d-13/08	. . with links closely interposed on the joint pins (47d-13/04 takes precedence)	[69-]
47d-13/10	. . with universal joints	[69-]
47d-13/12	. Hauling- or hoisting-chains	[69-]
47d-13/14	. . without separate joint pins; built-up from readily-separable links	[69-]
47d-13/16	. . with arrangements for holding electric cables, hoses, or the like	[69-]
47d-13/18	. Chains having special overall characteristics	[69-]
47d-13/20	. . stiff; Push-pull chains	[69-]
47d-13/22	. . extensible	[69-]
47d-13/24	. . . resilient	[69-]

47d-15/00	Chain couplings; Shackles; Chain joints; Chain links; Chain bushes (making chain elements 7i)	[69-]
47d-15/02	. for fastening more or less permanently	[69-]
47d-15/04	. Quickly-detachable chain couplings; Shackles	[69-]
47d-15/06	. . Shackles designed for attachment by joint pins to chain elements, e.g. D-shackles	[69-]
47d-15/08	. Swivels	[69-]
47d-15/10	. Emergency joints or links	[69-]
47d-15/12	. Chain links	[69-]
47d-15/14	. . made of sheet metal, e.g. profiled	[69-]

47d-17/00	Hooks as integral parts of chains (hooks for cranes 35b-1/34; hooks in general 47a1-45/00)	[69-]
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47e	Smörjanordningar	[-69]
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	Smörjanordningar för lager (7a-18; 14c-19/02; 20d-18 – 20d-20; 47b; 63d-19; 76c-25; 85b-10/40)	[-69]
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47e-1	Smörjanordningar för vågräta lager (20d-18)	[-69]
47e-2	Smörjanordningar för stödlager eller halslager (spindelsmörjning 76c-25; centrifuger 82b-10/40)	[-69]
47e-3	Smörjanordningar för lager av andra typer, t.ex. kamlager (blocklager 47b)	[-69]

	Smörjkoppar för element som inte är tryckbelastade (47e-19, 47e-31)	[-69]
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47e-4	Smörjkoppar utan rörliga delar	[-69]
47e-5	Smörjkoppar med rörliga delar	[-69]
47e-6	Smörjkoppar med veckor; Andra smörjkoppar	[-69]

	Smörjanordningar för roterande maskinelement	[-69]
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47e-7	Smörjanordningar för vevslängar eller excentrar	[-69]
47e-8	Smörjanordningar för lösskivor eller löptringar	[-69]

	Smörjanordningar för fram-och-återgående maskinelement	[-69]
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47e-9	Smörjanordningar för slider	[-69]
47e-10	Smörjanordningar för kolvar	[-69]
47e-11	Smörjanordningar för packningsboxar eller kolvstänger	[-69]
47e-12	Smörjanordningar för tvärstycken eller stänger	[-69]

	Smörjanordningar för cylindrar till ångmaskiner eller gasmaskiner (46c1-2)	[-69]
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47e-13	Smörjanordningar med kondensvattenpåverkan	[-69]
47e-14	Smörjanordningar utnyttjande tryckändringar e.d.	[-69]

	Smörjpressar	[-69]
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47e-15	Smörjpressar med mekaniska utväxlingar	[-69]
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47e-16	Smörjpressar drivna med hjälp av ånga, tryckluft eller tryckvätska	[-69]
47e-17	Smörjpressar drivna med hjälp av fjäderverk	[-69]
47e-18	Smörjpressar drivna med hjälp av vikter	[-69]
47e-19	Smörjpressar drivna för hand; Staufferkoppar	[-69]
47e-20	Smörjpressar drivna med hjälp av centrifugalkraft	[-69]
47e-21	Andra smörjpressar	[-69]

Smörj pumpar; Oljeslussar; Oljeuppföringshjul [-69]

47e-22	Smörj pumpar med mekaniska drivanordningar	[-69]
47e-23	Smörj pumpar drivna med hjälp av ånga	[-69]
47e-24	Andra smörj pumpar (59)	[-69]
47e-25	Oljeslussar	[-69]
47e-26	Uppföringshjul för olja (59d-1)	[-69]

Centralsmörjningsanordningar [-69]

47e-27	Oljefördelare för centralsmörjningsanordningar	[-69]
47e-28	Centralsmörjningsanordningar drivna med hjälp av tryckluft eller tryckvätska	[-69]
47e-29	Andra centralsmörjningsanordningar	[-69]
47e-30	Smörjningsanordningar för grafithaltiga smörjmedel	[-69]

Detaljer vid smörjanordningar [-69]

47e-31	Stängningsanordningar eller lock vid smörjkoppar	[-69]
47e-32	Regleringsspindlar vid smörjanordningar	[-69]
47e-33	Andra detaljer vid smörjanordningar	[-69]
47e-34	Oljekannor för smörjning	[-69]

47e-35	Smörjanordningar för andra ändamål (smörjanordningar för drivremmar 47d-1; för motorfordon 63c-75/01, 63c-75/02; för transportkedjor 81e-41; för transportlinor 35a-26, 73)	[-69]
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47e (IPC: F16N) Lubricating (special modifications of devices or systems for use in particular machines or apparatus, see the relevant classes for the machines or apparatus) [-69]

Lubrication devices or arrangements for oil or grease [-69]

47e-1/00 Constructional modifications of parts of machines or apparatus for the purpose of lubrication [-69]

47e-3/00 Devices for supplying lubricant by manual action [-69]

47e-3/02	. delivering oil	[-69-]
47e-3/04	. . Oil cans; Oil syringes	[-69-]
47e-3/06	. . . delivering on squeezing	[-69-]
47e-3/08	. . . incorporating a piston-pump	[-69-]
47e-3/10	. delivering grease	[-69-]
47e-3/12	. . Grease guns	[-69-]

47e-5/00 Apparatus with hand-positioned nozzle supplied with lubricant under pressure (47e-3/00 takes precedence) [-69]

47e-5/02	. Nozzles and nozzle-valve arrangements therefor, e.g. high-pressure grease guns	[-69-]
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47e-7/00 Arrangements for supplying oil or unspecified lubricant from a stationary reservoir or the equivalent in or on the machine or member to be lubricated (axle-box lubrication for railway rolling-stock 20d) [-69]

47e-7/02	. with gravity feed or drip lubrication	[-69-]
47e-7/04	. . with oil flow promoted by vibration	[-69-]
47e-7/06	. . Arrangements in which the droplets are visible	[-69-]
47e-7/08	. . controlled by means of the temperature of the member to be lubricated (thermostats 42i)	[-69-]

47e-7/10	. . incorporating manually-operated regulating means, e.g. spindles	[69-]
47e-7/12	. with feed by capillary action, e.g. by wicks	[69-]
47e-7/14	. the lubricant being conveyed from the reservoir by mechanical means (by pumping devices 47e-7/36, 47e-7/38; adaptations for lubrication engines 46c)	[69-]
47e-7/16	. . the oil being carried up by a lifting device (scoop devices in general 59d)	[69-]
47e-7/18	. . . with one or more feed members fixed on a shaft	[69-]
47e-7/20	. . . with one or more members moving around the shaft to be lubricated	[69-]
47e-7/22	. . . . shaped as rings	[69-]
47e-7/24	. . . with discs, rollers, belts, or the like contacting the shaft to be lubricated	[69-]
47e-7/26	. . Splash lubrication (mist lubrication 47e-7/32)	[69-]
47e-7/28	. . Dip lubrication	[69-]
47e-7/30	. the oil being fed or carried along by another fluid (in internal-combustion engines 46c)	[69-]
47e-7/32	. . Mist lubrication (splash lubrication 47e-7/26)	[69-]
47e-7/34	. . . Atomizing devices for oil (atomising devices in general 85g)	[69-]
47e-7/36	. with feed by pumping action of the member to be lubricated or of a shaft of the machine; Centrifugal lubrication	[69-]
47e-7/38	. with a separate pump; Central lubrication systems	[69-]
47e-7/40	. . in a closed circulation system	[69-]
47e-9/00	Arrangements for supplying oil or unspecified lubricant from a moving reservoir or the equivalent (also usable with a stationary reservoir 47e-7/00)	[69-]
47e-9/02	. with reservoir on or in a rotary member	[69-]
47e-9/04	. with reservoir on or in a reciprocating, rocking, or swinging member	[69-]
47e-11/00	Arrangements for supplying grease from a stationary reservoir or the equivalent in or on the machine or member to be lubricated; Grease cups	[69-]
47e-11/02	. Hand-actuated grease cups, e.g. Stauffer cups	[69-]
47e-11/04	. Spring-loaded devices	[69-]
47e-11/06	. Weight-loaded devices	[69-]
47e-11/08	. with mechanical drive, other than directly by springs or weights (lubricating-pumps 47e-13/00)	[69-]
47e-11/10	. by pressure of another fluid	[69-]
47e-11/12	. by centrifugal action	[69-]
47e-13/00	Lubricating-pumps (oil cans with pump 47e-3/08; pumps for liquids in general 59)	[69-]
47e-13/02	. with reciprocating piston (pumps with distributing equipment 47e-13/22)	[69-]
47e-13/04	. . Adjustable reciprocating pumps	[69-]
47e-13/06	. . Actuation of lubricating-pumps	[69-]
47e-13/08	. . . by hand	[69-]
47e-13/10	. . . with mechanical drive (47e-13/18 takes precedence)	[69-]
47e-13/12	. . . . with ratchet	[69-]
47e-13/14	. . . . with cam or wobble-plate on shaft parallel to the pump cylinder or cylinders	[69-]
47e-13/16	. . . with fluid drive	[69-]
47e-13/18	. . . relative movement of pump parts being produced by inertia of one of the parts or of a driving member	[69-]
47e-13/20	. Rotary pumps (with distributing equipment 47e-13/22)	[69-]
47e-13/22	. with distributing equipment (separate distributing equipment 47e-25/00)	[69-]
47e-15/00	Lubrication with substances other than oil or grease; Lubrication characterised by the use of particular lubricants in particular apparatus or conditions (47e-17/00 takes precedence; lubricating compositions, selection of particular substances as lubricants in general 23c; bearings with surfaces incorporating lubricant 47b-33/04; lubrication specially adapted to machines or apparatus provided for in a single other class, see the relevant class for the machine or apparatus)	[69-]
47e-15/02	. with graphite or graphite-containing compositions	[69-]

47e-15/04	. with water (bearings working in water 47b)	[69-]
47e-17/00	Lubrication of machines or apparatus working under extreme conditions (additives to lubricating oil or lubricating grease 23c)	[69-]
47e-17/02	. at high temperature (of turbines 14c, 46f, 88a; lubrication of internal-combustion engines 46c)	[69-]
47e-17/04	. at low temperature (lubrication of refrigerating machines 17a)	[69-]
47e-17/06	. in vacuum or under reduced pressure (lubrication of evacuating pumps 27b, 27c; of rotary anodes of X-ray tubes 21g)	[69-]
<u>Details of lubricators or lubrication systems</u>		[69-]
47e-19/00	Lubricant containers for use in lubricators or lubrication systems	[69-]
47e-21/00	Conduits; Junctions (in general 47f1); Fittings for lubrication apertures	[69-]
47e-21/02	. Lubricating nipples	[69-]
47e-21/04	. Nozzles for connection of lubricating equipment to nipples	[69-]
47e-21/06	. Covering members for nipples, conduits, or apertures	[69-]
47e-23/00	Special adaptations of check valves (check valves in general 47g1)	[69-]
47e-25/00	Distributing equipment	[69-]
47e-25/02	. with reciprocating distributing slide valve	[69-]
47e-25/04	. with rotary distributing member (combined with oil pump 47e-13/22)	[69-]
47e-27/00	Proportioning devices (liquid meters 42e)	[69-]
47e-27/02	. Gating equipment (multiple-way valves 47g1; metering cocks 42e)	[69-]
47e-29/00	Special means in lubricating arrangements or systems providing for the indication or detection of undesired conditions; Uses of devices responsive to conditions in lubricating arrangements or systems (in bearings 47b; constructions of apparatus outside the lubricating arrangements or systems, see the relevant classes)	[69-]
47e-29/02	. for influencing the supply of lubricant	[69-]
47e-29/04	. enabling a warning to be given; enabling moving parts to be stopped	[69-]
47e-31/00	Means for collecting, retaining, or draining-off lubricant in or on machines or apparatus (oil separators for separating oil from exhaust steam 13d)	[69-]
47e-31/02	. Oil catchers; Oil wipers (oil-scraping rings for pistons 47f2-9/20)	[69-]
47e-33/00	Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts	[69-]
<u>Care of lubricants</u>		[69-]
47e-35/00	Storage of lubricants in engine-rooms or the like (storage containers 81c)	[69-]
47e-37/00	Equipment for transferring lubricant from one container to another	[69-]
47e-37/02	. for filling grease guns	[69-]
47e-39/00	Arrangements for conditioning of lubricants in the lubricating system (cleaning of lubricating oil, additions to lubricating oil or lubricating grease 23c)	[69-]
47e-39/02	. by cooling (heat-exchangers in general 17)	[69-]
47e-39/04	. by heating (heat-exchangers in general 17)	[69-]
47e-39/06	. by filtration (filters in general 12d; magnetic separators 1b, 23c)	[69-]
47e-39/08	. by diluting, e.g. by addition of fuel (lubrication for internal-combustion engines 46c)	[69-]

47f	Rörledningar; Rör; Slangar; Cylindrar; Kapslar; Kolvar; Flottörer; Kolvbultar; Behållare; Anordningar för tillslutning av rör eller behållare; Tätningar; Skydd av rör; Värmeisolering för rör	[-69]
	Rörledningar i allmänhet; Speciella anordningar för rörledningar (4c-15 – 4c-22; 5d; 13d; 21c-18 – 21c-27; 36c; 37d-39; 85d; 85e-6 – 85e-8)	[-69]
47f-1/01	Rörledningar med anordningar för att påverka strömningsförloppet, t.ex. för minskning av friktion eller undvikande av virvelbildning, kavitation e.d. (14g-10; 27c-11/04; 42e-4; 46c2-5/01; 47g-35/01; 59a, 59b; 72a-28; 84d-5/04, 84d-7/10; 88a)	[-69]
47f-1/10	Rörledningar med skydd mot vibrationssvängningar eller tryckstegringar (47a-20; 85d-6)	[-69]
47f-1/50	Anordningar för nedläggande av rörledningar (85e-8)	[-69]
47f-1/60	Anordningar för kontroll av rörledningar under drift, observation eller rengöring, t.ex. fönster, lock eller borstar	[-69]
47f-1/70	Anordningar för avhjälpande av skador på rörledningar	[-69]
47f-1/80	Andra anordningar för rörledningar, t.ex. separationsanordningar (13b; 13d; 14g; 17a-16; 17a-17; 17d; 46d; 85e-9)	[-69]
	Fästning av rör	[-69]
47f-2/01	Fästning av rör genom upphängning eller stöd i allmänhet (37b-5; 37e)	[-69]
47f-2/02	Rörklämmor (21c-17; 21c-18; 37c-10; 37c-11/05; 47f-17)	[-69]
47f-2/03	Lagring på rullar	[-69]
47f-2/10	Infattningar, beklädnad eller tätningar vid genomföringar i väggar eller tak e.d.	[-69]
	Rör; Slangar	[-69]
	Styva metallrör (13a; 13b; 17f; 36c-9)	[-69]
47f-3/01	allmänt (tillverkning av rör 7a, 7b, 7c, 31b, 31c, 80a)	[-69]
47f-3/02	dubbelväggiga (80b-13)	[-69]
47f-3/03	ribbformiga (7b-16)	[-69]
47f-3/04	vågformiga	[-69]
47f-3/05	armerade	[-69]
47f-3/06	utdragbara	[-69]
	Andra rör	[-69]
47f-3/20	av trä	[-69]
47f-3/25	av cement eller betong	[-69]
47f-3/30	av keramiska material, t.ex. lera, stengods eller porslin	[-69]
47f-3/35	av glas	[-69]
47f-3/40	av hårdgummi eller celluloid	[-69]
47f-3/45	av papper eller liknande ämnen (54c)	[-69]
47f-3/49	av andra material	[-69]
47f-3/50	Raka förbindningsrör	[-69]
47f-3/51	Knärör; Böjda rör; Helkrökar; Dubbelkrökar	[-69]
47f-3/52	T-rör; Korsrör; Andra fördelningsrör	[-69]
47f-3/53	Grenrör	[-69]
47f-3/54	Anslutningsrör; Förminskningsrör	[-69]
47f-3/55	Anbörningsbyglar (49a)	[-69]
47f-3/56	Andra rörformer	[-69]
47f-4	Slangar av icke-metalliska material, t.ex. av väv eller gummi (tillverkning 25a, 25b, 39a-10, 39a-11, 39a6-7/00, 86c-1 – 86c-7)	[-69]
47f-5/01	Metallslangar (7b)	[-69]
47f-5/10	Böjliga metallrör, t.ex. veckade rör (7b)	[-69]

**Olösbara rörförbindningar eller slangförbindningar (21c-18 – 21c-27;
37b-5; 85e-8)**

		[-69]
47f-6/01	Nitförband för rör	[-69]
47f-6/05	Nitförband för rör med omvikta eller utkragade ändpartier	[-69]
47f-6/10	Lödförband för rör (7c; 49h-25 – 49h-33)	[-69]
	Svetsförband (7b; 7c; 21h; 37b-5; 49h-34 – 49h-37)	[-69]
47f-6/20	allmänt	[-69]
47f-6/21	med förstärkt eller förlängd söm, t.ex. genom förtjockning eller sicksackformning av den vid rörändarna bildade svetsfogen	[-69]
47f-6/22	med anordningar för att avlasta eller säkra svetsömmen mot dragpåkänningar, tryckpåkänningar e.d., t.ex. muffar med utkragade svetsade flänsar, spårsäkringar, laskning, påkrympning eller expansionsanordningar	[-69]
47f-6/23	med anordningar för riktningsändringar i rörledningen, t.ex. svetsade kulmuffar	[-69]
47f-6/24	med anordningar för att utjämna krympspänningar eller temperaturspänningar	[-69]
47f-6/25	med anordningar för att skydda rörmaterialet mot ogynnsamma inverknings på grund av svetsvärme	[-69]
47f-6/26	med flera av ovannämnda anordningar	[-69]
47f-6/40	med provrum	[-69]
47f-6/41	Andra speciella anordningar för svetsade rörförband	[-69]
47f-6/50	Andra olösbara förbindningar för rör eller slangar	[-69]

Lösbara rörförbindningar eller slangförbindningar **[-69]**

	Flänsförband	[-69]
47f-7/01	med fasta flänsar utförda i ett stycke med röret	[-69]
47f-7/02	med fasta flänsar förbundna med röret genom nitning	[-69]
47f-7/03	med fasta flänsar förbundna med röret genom gängning	[-69]
47f-7/04	med fasta flänsar förbundna med röret genom valsning	[-69]
47f-7/05	med fasta flänsar förbundna med röret genom lödning eller gjutning	[-69]
47f-7/06	med fasta flänsar förbundna med röret genom svetsning, t.ex. med försvetsade flänsar	[-69]
47f-7/07	med flera av de ovannämnda fastgöringsmetoderna	[-69]
47f-7/10	med lösa flänsar och fastgjutna, påstukade eller med omvikta eller utkragade kanter försedda bandringar	[-69]
47f-7/11	med lösa flänsar och pånitade, påskruvade, påvalsade eller påsvetsade bandringar	[-69]
47f-7/12	med lösa flänsar och med flera fastgöringssätt av bandet	[-69]
47f-7/20	Andra flänsförband; Speciella anordningar	[-69]
	Muffförband	[-69]
47f-8/01	allmänt	[-69]
47f-8/02	med genom ringar, omvikta eller utkragade ändar e.d. förstärkta muffar	[-69]
47f-8/03	för släta rör med dubbelmuffar	[-69]
47f-8/04	med speciella anordningar för att förhindra utpressning eller förstöring av tätningen	[-69]
47f-8/20	Andra muffförband; Speciella anordningar	[-69]
47f-9	Rörkopplingar; Rörförskruvningar	[-69]
47f-10	Snabbkopplingar för rör eller slangar	[-69]
47f-11	Självverkande kopplingar för rör eller slangar, t.ex. med fjädrande spärrhakar	[-69]
47f-12	Kopplingar för rör eller slangar med självverkande avstängningsventil (4c-15; 47g; 87b)	[-69]
47f-13	Länkkopplingar för rör eller slangar	[-69]
47f-14	Andra rörkopplingar eller slangkopplingar (4c-15; 20c-22; 45f-22 – 45f-25)	[-69]

	Expansionsanordningar för rör	[-69]
47f-15/01	Expansionskrökar	[-69]
47f-15/10	Expansionsbälgar	[-69]
47f-15/20	Expansionsboxar	[-69]
47f-15/30	Ledbara expansionskrökar	[-69]
47f-15/40	Andra expansionsanordningar	[-69]
	Speciella anordningar för slangar	[-69]
47f-16	Anordningar för att avhjälpa slangskador, t.ex. slangförband	[-69]
	Fästning av slangar	[-69]
47f-17/01	allmänt	[-69]
47f-17/02	genom klämmor	[-69]
47f-17/03	genom spännband, t.ex. slangbindare	[-69]
	Cylindrar; Kapslar; Behållare (12f; 17g-3; 17g-4; 21b-1; 21h-3; 32a, 32b; 34k, 34l; 39a; 47e; 53b; 54f; 64a; 64c; 80a)	[-69]
47f-18/01	för kolvar med rätlinjig rörelse (14a)	[-69]
47f-18/10	för vridkolvar eller svängkolvar (14b; 46a4)	[-69]
47f-18/20	med elastiska väggar	[-69]
47f-18/50	Behållare som maskinelement	[-69]
	Kolvar; Kolvbultar; Kolvverktyg	[-69]
	Kolvar med rätlinjig rörelse (59a-32)	[-69]
47f-19/01	allmänt (46c1-8)	[-69]
47f-19/02	av lättmetall (46c1-9)	[-69]
47f-19/10	Vridkolvar; Svängkolvar	[-69]
47f-19/20	Membrankolvar, t.ex. rullmembrankolvar eller säckkolvar (27b-13, 59a-35)	[-69]
47f-19/30	Förbindning av kolven med kolvstången i allmänhet (konstruktionsdetaljer för kolvstänger 47b-19)	[-69]
47f-19/40	Kolvbultar, i allmänhet	[-69]
47f-19/41	Kulledsanordningar i kolvar	[-69]
47f-19/49	Anordningar eller verktyg för att föra in eller ta ut kolvar i cylindrar	[-69]
47f-20	Flottörer (13c-9)	[-69]
	Anordningar för tillslutning av rör eller behållare (13a; 12f; 17g-3; 47g-47; 53b; 64a)	[-69]
47f-21/01	Anordningar för skruvtillslutning av rör eller behållare	[-69]
47f-21/02	Regellås; Manhålslock	[-69]
47f-21/03	Automatiska anordningar för tillslutning av rör eller behållare	[-69]
47f-21/04	Andra anordningar för tillslutning av rör eller behållare	[-69]
	Tätningar	[-69]
47f-22/01	Utan användande av packningar, t.ex. med slipade eller skurna anliggningsytor	[-69]
47f-22/10	Plastiska eller elastiska packningar, t.ex. av fibermassa, gummi eller läder; Packningar motståndskraftiga endast mot dragspänningar, t.ex. linor, trådar eller band	[-69]
47f-22/11	Metallarmerade elastiska packningar, t.ex. av koppar-asbest	[-69]
47f-22/20	Styva packningar, t.ex. av koppar, aluminium eller hårdgummi	[-69]
47f-22/30	med gas, vätska, plastiska eller korniga material, t.ex. ånga, vatten, olja, fett eller metallkorn	[-69]
47f-22/40	Bälgtätningar; Membrantätningar	[-69]
47f-22/50	Manschettätningar	[-69]
47f-22/60	Fluidumfyllda tätningar	[-69]
	Spännringstätningar, t.ex. kolvringar	[-69]
47f-22/70	med egenfjädring	[-69]

47f-22/75	med separata fjäderelement	[69]
47f-22/80	Släpningstätningar, dvs. tätningar för roterande axlar med en eller flera ringar med radiella glidytor	[69]
47f-22/85	Tätningar av axlar eller stänger mot föroreningar eller förlust av smörjmedel, som inte utgör en del av lagret eller smörjanordningen, t.ex. smörjringar (detaljer hos tätningsskropparna 47f-22/01 – 47f-22/75)	[69]
47f-22/90	Tätningar med flera av de ovannämnda packningarna; Andra tätningar	[69]
	Inbyggnadsanordningar; Verktyg	[69]
47f-22/95	för spännringstätningar, t.ex. kolvringar	[69]
47f-22/96	för tätningar med plastiska, elastiska e.d. packningar, t.ex. för muffrörsförband	[69]
	Tätningar med packningsboxar	[69]
47f-23	med icke-metalliska, elastiska packningar, t.ex. av fibermassa, gummi eller läder (28a-8); med packningar motståndskraftiga endast mot dragspänningar; Anordningar i allmänhet	[69]
47f-24/01	Packningar av metall i allmänhet	[69]
47f-24/02	Packningar av metall i form av med smörjmedel fyllda ihåliga ringar	[69]
47f-24/03	Packningar av metall i form av kilformiga ringar	[69]
47f-24/04	Packningar av metall i form av spännringar anordnade i vinkelformiga kammare	[69]
47f-24/05	Icke-metalliska, styva packningar, t.ex. av trä eller kol	[69]
47f-25	Packningsboxar med gasformiga, flytande, plastiska eller korniga packningar, t.ex. ånga, vatten, olja, fett eller metallkorn	[69]
47f-26	Labyrinttätningar	[69]
	Skydd av rör; Värmeisolering (värmeisolerande kroppar i allmänhet 47a-16/20)	[69]
	Skydd av rör	[69]
47f-27/01	mot mekaniska skador	[69]
47f-27/10	mot kemiska angrepp, t.ex. syror, rost eller korrosion (12f; 17d-5; 21b-1; 31c-18; 39a; 75c; 80a-57; 80b-9, 80b-13)	[69]
47f-27/20	mot elektrolytiska angrepp, t.ex. jordströmmar (20k-18)	[69]
	Värmeisolering för rör, kännetecknad av material eller byggnadssätt (34l-11; 17c, 17g; 37a-7; 37b-6; 39a; 39b-26; 46c1-16/04; 68e-3; 80b-9)	[69]
47f-27/30	Isolerande material i allmänhet (tillverknings sätt för mineraliska isolermaterial 80b-9; för icke-mineraliska isolermaterial 39b-9)	[69]
47f-27/40	Isolering med plastiska massor eller formkroppar	[69]
47f-27/50	Isolering med torrs substans, t.ex. med slaggull	[69]
47f-27/60	Isolering med hjälp av luftskikt	[69]
47f-27/70	Isolering med hjälp av vakuum	[69]
47f-27/80	Isolering mot strålning, t.ex. med metallfolie	[69]
47f-27/90	Isoleringar bestående av flera av de ovan nämnda typerna av isolering	[69]
47f-27/95	Isolering av flänsar, rörformstycken e.d.	[69]

47f1 (IPC: F16L) Pipes; Joints or fittings for pipes; Supports for pipes or cables; Means for thermal insulation in general [69-]

Note: [69-]
In this subclass, the word "pipes" is understood to include all pipes and tubes not specially adapted to purposes other than that of conveying fluids, materials, or objects. A pipe may or may not be flexible; if flexibility is essential the word "hose" is used. [69-]

47f1-1/00 Laying or reclaiming pipes (making special pipe joints, see the relevant groups for the joints; conduits made of concrete in situ 84c-29/10; machines

	for digging trenches in combination with pipe-assembly 84d-5/10; laying sewer pipes 85e-4)	[69-]
<u>Supporting</u>		[69-]
47f1-3/00	Hangers or supports for pipes or cables (pipe or rod clamps for scaffolding 37e-7/00; staples or hooks having a part for entering a wall or other support 47a1-15/00, 47a1-45/00)	[69-]
47f1-3/02	. partly surrounding the pipe	[69-]
47f1-3/04	. . pressing the pipe against a wall or other support	[69-]
47f1-3/06	. . with supports for wires	[69-]
47f1-3/08	. Brackets substantially surrounding the pipe	[69-]
47f1-3/10	. . Divided brackets, i.e. with two members engaging the pipe	[69-]
47f1-3/12	. . comprising a member substantially surrounding the pipe	[69-]
47f1-3/14	. Hangers in the form of bands or chains	[69-]
47f1-3/16	. with special provision allowing movement of the pipe (for pipes supported in outer sleeve 47f1-7/00)	[69-]
47f1-3/18	. . allowing movement in axial direction	[69-]
47f1-3/20	. . allowing movement in transverse direction; Spring-systems therefor	[69-]
47f1-3/22	. specially adapted to supporting a number of parallel pipes	[69-]
47f1-3/24	. with special member for attachment to profiled girders	[69-]
47f1-5/00	Devices for use where pipes pass through walls or partitions	[69-]
47f1-5/02	. sealing the pipe in the wall or partition	[69-]
47f1-7/00	Supporting of pipes inside other pipes or sleeves	[69-]
<u>Pipes</u>		[69-]
47f1-9/00	Rigid pipes	[69-]
47f1-9/02	. of metal (47f1-9/16 to 47f1-9/22 take precedence; finned pipes 17f)	[69-]
47f1-9/04	. . Reinforced pipes	[69-]
47f1-9/06	. . Corrugated pipes	[69-]
47f1-9/08	. of concrete, cement, or asbestos cement, with or without reinforcement (47f1-9/16 to 47f1-9/22 take precedence)	[69-]
47f1-9/10	. of glass or ceramics, e.g. clay, clay tile, porcelain (47f1-9/16 to 47f1-9/22 take precedence)	[69-]
47f1-9/12	. of plastics with or without reinforcement (47f1-9/16 to 47f1-9/22 take precedence)	[69-]
47f1-9/14	. Compound tubes, i.e. made of materials not wholly covered by any one of the preceding groups (47f1-9/16 to 47f1-9/22 take precedence)	[69-]
47f1-9/16	. wound from sheets or strips, with or without reinforcement	[69-]
47f1-9/18	. Double-walled pipes; Multi-channel pipes or pipe assemblies (joints therefor 47f1-39/00)	[69-]
47f1-9/20	. . Pipe assemblies	[69-]
47f1-9/22	. Pipes composed of a plurality of segments	[69-]
47f1-11/00	Hoses, i.e. flexible pipes (suction-cleaner hoses 34c-9/24)	[69-]
47f1-11/02	. made of fibres or threads, e.g. of textile material	[69-]
47f1-11/04	. made of rubber or flexible plastics	[69-]
47f1-11/06	. . with homogeneous wall	[69-]
47f1-11/08	. . with reinforcements embedded in the wall	[69-]
47f1-11/10	. . with specially-shaped reinforcement not embedded in the wall	[69-]
47f1-11/12	. . with arrangements for special purposes, e.g. specially profiled, with protecting layer, heated, electrically conducting	[69-]
47f1-11/14	. made of metal	[69-]
47f1-11/16	. . wound from profiled strips or bands	[69-]
47f1-11/18	. . Articulated hoses, e.g. composed of a series of rings	[69-]

Pipe joints; Hose nipples		[69-]
47f1-13/00	Non-disconnectible pipe joints, e.g. soldered, adhesive, or caulked joints (joints for rigid pipes of plastics 47f1-47/00)	[69-]
47f1-13/02	. Welded joints	[69-]
47f1-13/04	. . with arrangements preventing overstressing	[69-]
47f1-13/06	. . . with tension-relief of the weld by means of detachable members, e.g. divided tensioning rings, bolts in flanges	[69-]
47f1-13/08	. Soldered joints	[69-]
47f1-13/10	. Adhesive or cemented joints	[69-]
47f1-13/12	. with a seal made of lead, caulked packing, or the like	[69-]
47f1-13/14	. made by plastically deforming the material of the pipe, e.g. by flanging, rolling	[69-]
47f1-15/00	Screw-threaded joints (joints sealed primarily by means other than engagement of screw-threads, see the relevant groups characterised by the sealing arrangements; casing joints used in deep-drilling 5a-17/08); Forms of screw-threads for such joints	[69-]
47f1-15/02	. allowing substantial longitudinal adjustment by the use of a long screw-threaded part	[69-]
47f1-17/00	Joints with packing adapted to sealing by fluid pressure (compensating devices 47f1-51/00; sealings tightened by external pressure, inflatable packings 47f2-15/00)	[69-]
47f1-17/02	. with sealing rings arranged between outer surface of pipe and inner surface of sleeve or socket	[69-]
47f1-17/04	. . with longitudinally split or divided sleeve	[69-]
47f1-17/06	. with sealing rings arranged between the end surfaces of the pipes or flanges or arranged in recesses in the pipe ends or flanges	[69-]
47f1-19/00	Joints in which sealing surfaces are pressed together by means of a member, e.g. a swivel nut, screwed on or into one of the joint parts (47f1-17/00 takes precedence; if using bolts or equivalent connecting means 47f1-23/00)	[69-]
47f1-19/02	. Pipe ends provided with collars or flanges, integral with the pipe or not, pressed together by a screwed member, with or without flexible sealing rings between the sealing surfaces	[69-]
47f1-19/04	. using additional rigid rings, sealing directly on at least one pipe end, which is flared either before or during the making of the connection	[69-]
47f1-19/06	. in which radial clamping is obtained by wedging action on non-deformed pipe ends	[69-]
47f1-19/08	. with metal rings which bite into the wall of the pipe	[69-]
47f1-21/00	Joints with sleeve or socket (47f1-13/00, 47f1-17/00, 47f1-19/00 take precedence)	[69-]
47f1-21/02	. with elastic sealing rings between pipe and sleeve or between pipe and socket, e.g. with rolling or other prefabricated profiled rings (47f1-21/06, 47f1-21/08 take precedence; if adjustability is essential 47f1-27/00)	[69-]
47f1-21/04	. . in which sealing rings are compressed by axially-movable members	[69-]
47f1-21/06	. with a divided sleeve or ring clamping around the pipe ends (flanged joints 47f1-23/00; couplings of the quick-acting type 47f1-37/00)	[69-]
47f1-21/08	. with additional locking means (47f1-21/06 takes precedence; couplings of the quick- acting type 47f1-37/00)	[69-]
47f1-23/00	Flanged joints (47f1-13/00, 47f1-17/00, 47f1-19/00 take precedence; adjustable joints 47f1-27/00; couplings of the quick-acting type 47f1-37/00)	[69-]
47f1-25/00	Constructive types of pipe joints not provided for in groups 47f1-13/00 to 47f1-23/00 (adjustable joints 47f1-27/00; couplings of the quick-acting type 47f1-37/00; specially adapted to be made of plastics or to be used with pipes made of plastics 47f1-47/00)	[69-]

47f1-27/00	Adjustable joints; Joints allowing movement (for double-walled or multi-channel pipes or pipe assemblies 47f1-39/04)	[69-]
47f1-27/02	. Universal joints, i.e. with mechanical connection allowing angular movement or adjustment of the axes of the parts in any direction	[69-]
47f1-27/04	. . with partly-spherical engaging surfaces	[69-]
47f1-27/06	. . . with special sealing means between the engaging surfaces	[69-]
47f1-27/08	. allowing adjustment or movement only about the axis of one pipe	[69-]
47f1-27/10	. comprising a flexible connection only	[69-]
47f1-27/12	. allowing substantial longitudinal adjustment or movement (by use of screw-thread 47f1-15/02)	[69-]
47f1-29/00	Joints with fluid cut-off means (quick-acting joints with cut-off means 47f1-37/28)	[69-]
47f1-31/00	Arrangements for connecting hoses to one another or to flexible sleeves (47f1-33/00 takes precedence)	[69-]
47f1-33/00	Arrangements for connecting hoses to rigid members (hand tools for inserting fittings into hoses 87a-22); Rigid hose-connectors, i.e. single members engaging both hoses	[69-]
47f1-33/02	. Hose-clips	[69-]
47f1-33/04	. . tightened by tangentially-arranged threaded pin and nut	[69-]
47f1-33/06	. . . in which the threaded pin is rigid with the hose-encircling member	[69-]
47f1-33/08	. . in which a worm coacts with a part of the hose-encircling member that is toothed like a worm-wheel	[69-]
47f1-33/10	. . with a substantially-radial tightening member	[69-]
47f1-33/12	. . with a pivoted or swinging tightening or securing member, e.g. toggle lever	[69-]
47f1-33/14	. . with a taping-bolt, i.e. winding up the end of the hose-encircling member	[69-]
47f1-33/16	. with sealing or securing means using fluid pressure	[69-]
47f1-33/18	. characterised by the use of additional sealing means	[69-]
47f1-33/20	. Undivided rings, sleeves, or like members contracted on the hose or expanded inside the hose by means of tools; Arrangements using such members	[69-]
47f1-33/22	. with means not mentioned in the preceding groups for gripping the hose between inner and outer parts	[69-]
47f1-33/24	. with parts screwed directly on or into the hose (47f1-33/22 takes precedence)	[69-]
47f1-33/26	. specially adapted for hoses made of metal	[69-]
47f1-35/00	Special arrangements used in connection with end fittings of hoses, e.g. safety or protecting devices	[69-]
47f1-37/00	Couplings of the quick-acting type (radially-binding sleeves 47f1-17/04, 47f1-21/06; connecting hoses to rigid members 47f1-33/00; connections made automatically when vehicles are brought together 20e, 63a, 63c; specially adapted for lubricating devices 47e-21/00)	[69-]
47f1-37/02	. in which the connection is maintained only by friction of the parts being joined (47f1-37/22 takes precedence)	[69-]
47f1-37/04	. . with an elastic outer part pressing against an inner part by reason of its elasticity (with locking members 47f1-37/08)	[69-]
47f1-37/06	. . . tightened by fluid pressure	[69-]
47f1-37/08	. in which the connection between abutting or axially-overlapping ends is maintained by locking members (47f1-37/22 to 47f1-37/26 take precedence)	[69-]
47f1-37/10	. . using a rotary external sleeve or ring on one part	[69-]
47f1-37/12	. . using hooks, pawls, or other movable or insertable locking members	[69-]
47f1-37/14	. . . Joints secured by inserting between mating surfaces an element, e.g. a piece of wire, a pin, a chain	[69-]
47f1-37/16	. . . Joints tightened by the action of wedge-shaped hinged hooks	[69-]
47f1-37/18	. . . Joints tightened by eccentrics or rotatable cams	[69-]
47f1-37/20	. . . Joints tightened by toggle-action levers	[69-]
47f1-37/22	. in which the connection is maintained by means of balls, rollers, or helical springs under radial pressure between the parts	[69-]

47f1-37/24	. in which the connection is made by inserting one member axially into the other and rotating it to a limited extent, e.g. with bayonet-action	[69-]
47f1-37/26	. in which the connection is made by transversely moving the parts together, with or without their subsequent rotation	[69-]
47f1-37/28	. with fluid cut-off means	[69-]
47f1-39/00	Joints or fittings for double-walled or multi-channel pipes or pipe assemblies	[69-]
47f1-39/02	. for hoses	[69-]
47f1-39/04	. allowing adjustment or movement	[69-]
47f1-41/00	Branching pipes; Joining pipes to walls (47f1-39/00 takes precedence; joints suitable for connecting together pipe ends, see the relevant groups; connections not designed for conveying fluid 47a1-9/00)	[69-]
47f1-41/02	. Branch units, e.g. made in one piece, welded, riveted	[69-]
47f1-41/04	. Tapping pipe walls, i.e. making connections through the walls of pipes while they are carrying fluids; Fittings therefor (apparatus or operations relating to metal-working steps, see the relevant classes for metal-working)	[69-]
47f1-41/06	. . making use of attaching means embracing the pipe	[69-]
47f1-43/00	Bends; Siphons (with cleaning apertures 47f1-45/00; siphons in general 59c)	[69-]
47f1-43/02	. adapted to make use of special securing means	[69-]
47f1-45/00	Pipe units with cleaning aperture and closure therefor	[69-]
47f1-47/00	Connecting arrangements or other fittings specially adapted to be made of plastics or to be used with pipes made of plastics	[69-]
47f1-47/02	. Welded joints; Adhesive joints	[69-]
47f1-49/00	Connecting arrangements specially adapted for pipes of brittle material, e.g. glass, earthenware	[69-]
47f1-51/00	Expansion-compensation arrangements for pipe-lines (telescopic pipes 47f1-27/12)	[69-]
47f1-51/02	. making use of a bellows or an expansible folded or corrugated tube	[69-]
47f1-51/04	. making use of bends, e.g. lyre-shaped	[69-]
47f1-53/00	Heating or cooling pipes or pipe systems (preventing freezing of pipes, thawing frozen pipes 85d-10, 85d-11)	[69-]
47f1-55/00	Devices or appurtenances for use in, or in connection with, pipes or pipe systems (the preceding groups take precedence; 47f1-57/00, 47f1-59/00 take precedence; aerating or venting in valves 47g1-45/00; air or other gas venting devices, devices for removing unwanted liquids, steam traps or the like 47g2; nozzles 85g; arrangements for draining water-supply systems 85d-13; devices for preventing bursting of water pipes by freezing 85d-8)	[69-]
47f1-55/02	. Energy absorbers; Noise absorbers (in valves 47g1-47/00)	[69-]
47f1-55/04	. Devices damping pulsations or vibrations in fluids	[69-]
47f1-55/06	. Means for aerating	[69-]
47f1-55/09	. Air-conditioning, e.g. de-watering, in pneumatic systems (in general 36d)	[69-]
47f1-55/10	. Means for stopping flow from or in pipes or hoses (47f1-29/00, 47f1-37/28 take precedence; valves 47g1)	[69-]
47f1-55/12	. . using a member which is expanded in place	[69-]
47f1-55/14	. . Means, e.g. clamps, for flattening hoses	[69-]
47f1-55/16	. . Devices for covering leaks in pipes or hoses, e.g. hose-menders	[69-]
47f1-55/18	. Appliances for use in repairing pipes (47f1-55/10 takes precedence)	[69-]
47f1-55/24	. Preventing accumulation of dirt or other matter in pipes, e.g. by traps, by strainers	[69-]
47f1-55/26	. Monitoring means	[69-]
47f1-55/28	. Devices for cleaning pipes	[69-]

47f1-57/00	Protection of pipes or objects of similar shape against external or internal damage or wear	[69-]
47f1-58/00	Protection of pipes or pipe fittings against corrosion or incrustation (by supporting pipes inside other pipes or sleeves 47f1-7/00; prevention of corrosion or incrustation in general 48d1)	[69-]
<u>Insulation</u>		[69-]
47f1-59/00	Thermal insulation not adapted to particular purposes provided for in other classes (in buildings 37a-1/62)	[69-]
47f1-59/02	. Shape or form of insulating materials (chemical aspects, see the relevant classes)	[69-]
47f1-59/04	. Arrangements using dry fillers, e.g. using slag wool	[69-]
47f1-59/06	. Arrangements using an air layer or vacuum	[69-]
47f1-59/08	. Means for preventing radiation, e.g. with metal foil	[69-]
47f1-59/10	. Bandages for insulation	[69-]
47f1-59/12	. Arrangements for supporting insulation from the wall or body insulated, e.g. by means of spacers between pipe and heat-insulating material; Arrangements specially adapted for supporting insulated bodies	[69-]
47f1-59/14	. Arrangements for the insulation of pipes or pipe systems (47f1-59/02 to 47f1-59/12 take precedence)	[69-]
47f1-59/16	. . Arrangements specially adapted to local requirements at flanges, junctions, valves, or the like	[69-]
47f2	(IPC: F16J) Pistons; Cylinders; Packing	[69-]
47f2-1/00	Pistons; Trunk pistons; Plungers (bellows pistons 47f2-3/00; piston-rings or seatings therefor 47f2-9/00; rotary pistons, e.g. for "Wankel" type engines, 14b; specific for combustion engines, i.e. constructed to withstand high temperature or modified for guiding, igniting, vaporising, or otherwise treating the charge, 46a, 46c; for pumps 27b-17, 59a-32; floats 47g1-33/00)	[69-]
47f2-1/02	. Bearing surfaces	[69-]
47f2-1/04	. Resilient guiding parts, e.g. skirts, particularly for trunk pistons	[69-]
47f2-1/06	. . with separate expansion members; Expansion members	[69-]
47f2-1/08	. Constructional features providing for lubrication	[69-]
47f2-1/10	. Connection to driving members	[69-]
47f2-1/12	. . with piston-rods, e.g. rigid connections	[69-]
47f2-1/14	. . with connecting-rods, i.e. pivotal connections	[69-]
47f2-1/16	. . . with gudgeon-pin; Gudgeon-pins	[69-]
47f2-1/18	. . . . Securing of gudgeon-pins	[69-]
47f2-1/20	. . . with rolling contact, other than in ball or roller bearings	[69-]
47f2-1/22	. . . with universal joint, e.g. ball-joint	[69-]
47f2-1/24	. . designed to give the piston some rotary movement about its axis	[69-]
47f2-3/00	Diaphragms; Bellows; Bellows pistons	[69-]
47f2-7/00	Piston-rods	[69-]
47f2-9/00	Piston-rings; Seatings therefor; Ring sealings of similar construction in general (tools for mounting or removing piston-rings or the like 87a)	[69-]
47f2-9/02	. L-section rings	[69-]
47f2-9/04	. Helical rings	[69-]
47f2-9/06	. using separate springs expanding the rings; Springs therefor	[69-]
47f2-9/08	. with expansion obtained by pressure of the medium	[69-]
47f2-9/10	. Special members for adjusting the rings	[69-]
47f2-9/12	. Details	[69-]
47f2-9/14	. . Joint-closures	[69-]
47f2-9/16	. . . obtained by stacking of rings	[69-]
47f2-9/18	. . . with separate bridge-elements	[69-]
47f2-9/20	. . Rings with special cross-section (L-section rings 47f2-9/02); Oil-scraping rings	[69-]
47f2-9/22	. . Rings for preventing wear of grooves or like seatings	[69-]

47f2-9/24	. . Members preventing rotation of rings in grooves	[69-]
47f2-11/00	Engine or like cylinders (specific for combustion engines, e.g. constructed to withstand high temperature, 46a, 46c); Pressure vessels in general (covers therefor 47f2-13/00); Features of hollow, e.g. cylindrical, bodies in general	[69-]
47f2-11/02	. Cylinders designed to receive moving pistons or plungers (cylinders for engines or other apparatus of particular kinds, see the appropriate subclasses)	[69-]
47f2-11/04	. . Running faces; Liners	[69-]
47f2-11/06	. Pressure vessels (steam boilers 13)	[69-]
47f2-13/00	Covers or similar closure members (for engine or like cylinders 47f2-11/00; sealings 47f2-15/02)	[69-]
47f2-13/02	. Detachable closure members; Means for tightening closures (specially for pivoted closures 47f2-13/16)	[69-]
47f2-13/04	. . attached with a bridge member	[69-]
47f2-13/06	. . attached only by clamps along the circumference	[69-]
47f2-13/08	. . attached by one or more members actuated to project behind a part or parts of the frame (similar constructions for doors or windows 68b)	[69-]
47f2-13/10	. . attached by means of a divided ring	[69-]
47f2-13/12	. . attached by wedging action by means of screw-thread, interrupted screw-thread, bayonet closure, or the like	[69-]
47f2-13/14	. . attached exclusively by spring action or elastic action	[69-]
47f2-13/16	. Pivoted closures	[69-]
47f2-13/18	. . pivoted directly on the frame	[69-]
47f2-13/20	. . mounted by mobile fastening on swinging arms	[69-]
47f2-15/00	Sealings	[69-]
47f2-15/02	. between relatively-stationary surfaces (47f2-15/46, 47f2-15/48 take precedence)	[69-]
47f2-15/04	. . without packing between the surfaces, e.g. with ground surfaces, with cutting edge	[69-]
47f2-15/06	. . with solid packing compressed between sealing surfaces	[69-]
47f2-15/08	. . . with exclusively metal packing	[69-]
47f2-15/10	. . . with non-metallic packing	[69-]
47f2-15/12	. . . with metal reinforcement or covering	[69-]
47f2-15/14	. . by means of granular or plastic material, or fluid	[69-]
47f2-15/16	. between relatively-moving surfaces (47f2-15/50, 47f2-15/52 take precedence; between pistons and cylinders 47f2-9/00; spindle sealings for valves 47g1-41/00)	[69-]
47f2-15/18	. . with stuffing-boxes for elastic or plastic packings	[69-]
47f2-15/20	. . . Packing materials therefor	[69-]
47f2-15/22	. . . . shaped as strands, ropes, threads, ribbons, or the like	[69-]
47f2-15/24	. . . with radially or tangentially compressed packing	[69-]
47f2-15/26	. . with stuffing-boxes for rigid sealing rings	[69-]
47f2-15/28	. . . with sealing rings made of metal	[69-]
47f2-15/30	. . . with sealing rings made of carbon	[69-]
47f2-15/32	. . with elastic sealing lip	[69-]
47f2-15/34	. . with slip-ring pressed against a more or less radial face on one member	[69-]
47f2-15/36	. . . connected by a diaphragm to the other member	[69-]
47f2-15/38	. . . sealed by a packing against a more or less radial face on one member	[69-]
47f2-15/40	. . by means of fluid	[69-]
47f2-15/42	. . . kept in sealing position by centrifugal force	[69-]
47f2-15/44	. Free-space packings, e.g. labyrinth packings	[69-]
47f2-15/46	. with packing ring expanded or pressed into place by fluid pressure, e.g. inflatable packings (for tube connections 47f1)	[69-]
47f2-15/48	. . influenced by the pressure within the member to be sealed	[69-]
47f2-15/50	. between relatively-movable members, by means of a sealing without relatively-moving surfaces, e.g. fluid-tight sealings for transmitting motion through a wall	[69-]
47f2-15/52	. . by means of sealing bellows or diaphragms	[69-]
47f2-15/54	. Other sealings for rotating shafts	[69-]

47f2-15/56 . Other sealings for reciprocating rods		[69-]
47g	Ventiler, t.ex. kranar, slider, tryckreduceringsventiler eller rörbrottsventiler (4c; 13; 46b; 46e; 85d; 85e; 85h)	[-69]
47g-1/01	Skruvventiler i allmänhet	[-69]
47g-1/02	Utloppsventiler (ventiler för dricksvattenfontäner 85d-4)	[-69]
47g-1/03	Membranventiler	[-69]
47g-2/01	Skruvventiler med ventilkroppen säkrad mot vridning	[-69]
47g-2/02	Skruvventiler med delad spindel	[-69]
47g-3	Skruvventiler för högtryck, t.ex. för gasbehållare	[-69]
47g-4/01	Skruvventiler med speciellt inställbart genomströmningstvårsnitt, t.ex. radiatorventiler	[-69]
47g-4/02	Speciella strypkroppar, t.ex. för ventiler med inställbart genomströmningstvårsnitt	[-69]
	Ventiler med automatisk stängning; Tappventiler för mätta vattenmängder; Spolventiler	[-69]
47g-5/01	Ventiler med automatisk stängning i strömningsriktningen	[-69]
47g-5/02	Ventiler med automatisk stängning mot strömningsriktningen	[-69]
47g-5/03	Ventiler med automatisk öppning genom strömningstryck	[-69]
47g-6	Ventiler med automatisk stängning med bromsning av ventilkroppen	[-69]
47g-7/01	Kolvventiler med automatisk stängning med mottryckskammare och hjälpventil, hjälpkran eller hjälpslid (spolventiler, spolkranar eller spolslider för spolning av klosetter 85h-9)	[-69]
47g-7/02	Självstängande membranventiler för framsläppning av en bestämd vattenmängd (membranventiler för klosettspolning 85h-9)	[-69]
47g-8	Bakslagsventiler	[-69]
	Tvångstyrda ventiler för kraftmaskiner eller arbetsmaskiner	[-69]
47g-9/01	Automatiska ventiler i allmänhet	[-69]
47g-9/02	Automatiska ventiler för pumpar, t.ex. tryckventiler eller sugventiler (27b-8; 59a-16, 59a-29)	[-69]
47g-9/03	Fjäderbandsventiler; Lamellventiler	[-69]
47g-9/04	Vridventiler	[-69]
47g-10/01	Automatiska ringventiler	[-69]
47g-10/02	Fjäderkonstruktioner för ringventiler	[-69]
47g-13	Styrning av ventiler (styrning av ventiler för förbränningsmotorer 46b1)	[-69]
	Ventiler som inte omfattas av 47g-1 – 47g-13	[-69]
47g-19/01	Ventiler med klaffformiga ventilkroppar	[-69]
47g-19/02	Speciella drivanordningar för klaffventiler	[-69]
47g-19/03	Flervägsventiler med klaffar	[-69]
47g-19/04	Strypventiler med klaffar	[-69]
47g-20/01	Flervägskrantar; Flervägsventiler; Flervägsslider (för tvättställ, vaskar, badkar eller duschar 85f)	[-69]
47g-20/02	Blandningsventiler; Blandningskrantar (för tvättställ, vaskar, badkar eller duschar 85f)	[-69]
47g-21/01	Ventiler av andra slag	[-69]
47g-21/02	Ventiler med strömlinjeformade ventilkroppar	[-69]
47g-21/03	Ventiler med speciella strypkroppar	[-69]
47g-21/04	Ventiler med dubbla säten	[-69]
47g-21/05	Termostatventiler	[-69]
47g-21/06	Slangklämmor; Slangventiler	[-69]
47g-21/10	Speciella ventiler, som inte omfattas av 47g-21/01 – 47g-21/06	[-69]

	Kikkranar	[-69]
47g-22/01	Kikkranar i allmänhet	[-69]
47g-22/02	Kikkranar med smörjanordningar	[-69]
47g-22/03	Kikkranar med lyftanordningar	[-69]
47g-22/04	Kikkranar med rörliga tätningsplattor	[-69]
47g-22/05	Anordningar för stängning eller spärrning av kikkranar	[-69]
	Slidkonstruktioner; Slussventiler; Slidventiler	[-69]
47g-26/01	Planslider, i allmänhet	[-69]
47g-26/02	Slider med rörliga avspärrningsplattor	[-69]
47g-26/03	Slider med i ventilhuset rörliga säten	[-69]
47g-27	Vridslider	[-69]
47g-28	Rörslider; Kolvslider	[-69]
47g-29	Styrningsslider för kraftmaskiner eller arbetsmaskiner	[-69]
	Anordningar för ventiler, kranar eller slider	[-69]
47g-34	Anordningar för avlastning	[-69]
47g-35/01	Ljuddämpning (41f-1/01; för dricksvattenledningar 85d-6)	[-69]
47g-35/02	Bromsanordningar (för dricksvattenledningar 85d-6)	[-69]
47g-36	Anordningar för att uppfånga vätskestötar vid stängning	[-69]
47g-37	Anordningar för avledning av vatten	[-69]
47g-38	Anordningar för insläppning eller utsläppning av luft (för dricksvattenledningar 85d-14)	[-69]
47g-39/01	Konstruktiv utformning av ventilhus (gjutning av ventiler 31c)	[-69]
47g-39/02	Skydd mot korrosion	[-69]
47g-39/03	Strömningsventiler	[-69]
47g-40/01	Andra konstruktionselement för ventiler, kranar eller slider	[-69]
47g-40/02	Tätningar för spindlar	[-69]
47g-40/03	Tätningar för säten	[-69]
47g-40/04	Fästning av ventilkroppar	[-69]
47g-40/05	Fästning av sätesringar	[-69]
47g-40/06	Handrattar	[-69]
47g-40/07	Huvar; Muffar	[-69]
47g-40/08	Verktyg	[-69]
47g-41/01	Kylanordningar	[-69]
47g-41/02	Uppvärmningsanordningar	[-69]
47g-42	Hjälptillslutningsanordningar	[-69]
	Anordningar för manövrering av ventiler, kranar eller slider	[-69]
47g-43/01	Manövreringsanordningar i allmänhet	[-69]
47g-43/02	Speciella drivanordningar för spindlar	[-69]
47g-43/03	Drivning med hjälp av excentrar eller kurvskivor	[-69]
47g-43/04	Drivning med hjälp av rattar	[-69]
47g-43/05	Drivning med hjälp av tidstyrda organ	[-69]
47g-44	Manövrering med hjälp av flottörer	[-69]
47g-45/01	Fjärrmanövrering i allmänhet	[-69]
47g-45/02	Elektromagnetiska anordningar för fjärrmanövrering	[-69]
47g-45/03	Anordningar för fjärrmanövrering drivna av elektriska motorer	[-69]
47g-45/04	Hydrauliska anordningar för fjärrmanövrering	[-69]
47g-46	Anordningar för stängning eller spärrning av ventiler eller slider	[-69]
47g-47/01	Säkerhetsventiler med viktbelastning	[-69]
47g-47/02	Säkerhetsventiler med fjäderbelastning	[-69]
47g-47/03	Säkerhetsanordningar för ventiler, t.ex. sprängmembran	[-69]

Tryckreduceringsventiler		[-69-]
47g-48/01	med direkt inställning genom kolvar	[-69-]
47g-48/02	med direkt inställning genom membran	[-69-]
47g-48/03	med inställning genom bälgar	[-69-]
47g-48/04	med direkt inställning genom flottörer	[-69-]
47g-48/05	av andra slag	[-69-]
47g-49/01	Rörbrottsventiler i allmänhet	[-69-]
47g-49/02	Rörbrottsventiler med självstängning på grund av strömningsenergi	[-69-]
47g-49/03	Rörbrottsventiler med speciella omledningar	[-69-]
47g-49/04	Rörbrottsventiler med hjälpventiler	[-69-]
47g-49/05	Rörbrottsventil med indirekt styrning	[-69-]
47g1	(IPC: F16K) Valves; Taps; Cocks; Actuating floats	[-69-]
Constructional types (check valves 47g1-15/00)		[-69-]
47g1-1/00	Lift valves, i.e. cut-off apparatus with closure members having at least a component of their opening and closing motion perpendicular to the closing faces (diaphragm valves 47g1-7/00)	[-69-]
47g1-1/02	. with screw-spindle (47g1-1/12 to 47g1-1/28 take precedence; actuating mechanisms with screw-spindles 47g1-31/50)	[-69-]
47g1-1/04	. . with a cut-off member rigid with the spindle, e.g. main valves	[-69-]
47g1-1/06	. . Special arrangements for improving the flow, e.g. special shape of passages or casings	[-69-]
47g1-1/08	. . . in which the spindle is perpendicular to the general direction of flow	[-69-]
47g1-1/10	. . . in which the spindle is inclined to the general direction of flow	[-69-]
47g1-1/12	. with streamlined valve member around which the fluid flows when the valve is opened	[-69-]
47g1-1/14	. with ball-shaped valve members (check valves 47g1-15/04)	[-69-]
47g1-1/16	. with pivoted closure members	[-69-]
47g1-1/18	. . with pivoted discs or flaps	[-69-]
47g1-1/20	. . . with axis of rotation arranged externally of valve member	[-69-]
47g1-1/22	. . . with axis of rotation crossing the valve member, e.g. butterfly valves	[-69-]
47g1-1/226	. . . . Shaping or arrangement of the sealing	[-69-]
47g1-1/228	. . . . Movable sealing bodies	[-69-]
47g1-1/24	. with valve members that, on opening of the valve, are initially lifted from the seat and next are turned around an axis parallel to the seat	[-69-]
47g1-1/26	. . Shape or arrangement of the sealing	[-69-]
47g1-1/28	. . . Movable sealing bodies	[-69-]
47g1-1/30	. specially adapted for pressure containers	[-69-]
47g1-1/32	. Details (details of more general applicability 47g1-25/00 to 47g1-51/00)	[-69-]
47g1-1/34	. . Cutting-off parts, e.g. valve members, seats (47g1-1/06, 47g1-1/12, 47g1-1/14, 47g1-1/26 take precedence)	[-69-]
47g1-1/36	. . . Valve members (for double-seat valves 47g1-1/44)	[-69-]
47g1-1/38	. . . . of conical shape	[-69-]
47g1-1/40	. . . . of helical shape	[-69-]
47g1-1/42	. . . Valve seats (for double-seat valves 47g1-1/44)	[-69-]
47g1-1/44	. . . Details of seats or valve members of double-seat valves	[-69-]
47g1-1/46	. . . Attachment of sealing rings	[-69-]
47g1-1/48	. . Attaching valve members to screw-spindles	[-69-]
47g1-1/50	. . Preventing rotation of valve members	[-69-]
47g1-1/52	. . Means for additional adjustment of the rate of flow	[-69-]
47g1-1/54	. . Arrangements for modifying the way in which the rate of flow varies during the actuation of the valve	[-69-]

47g1-3/00	Gate valves or sliding valves, i.e. cut-off apparatus with closing members having a sliding movement along the seat for opening and closing (47g1-5/00 takes precedence; in barrages or weirs 84a-7/56, 84a-8/04)	[69-]
47g1-3/02	. with flat sealing faces; Packings therefor	[69-]
47g1-3/03	. . with a closure member in the form of an iris-diaphragm	[69-]
47g1-3/04	. . with pivoted closure members	[69-]
47g1-3/06	. . . in the form of closure plates arranged between supply and discharge passages (47g1-3/10 takes precedence)	[69-]
47g1-3/08	. . . . with circular closure plates rotatable around their centres	[69-]
47g1-3/10	. . . with special arrangements for separating the sealing faces or for pressing them together	[69-]
47g1-3/12	. . with wedge-shaped arrangements of sealing faces	[69-]
47g1-3/14	. . . with special arrangements for separating the sealing faces or for pressing them together	[69-]
47g1-3/16	. . with special arrangements for separating the sealing faces or for pressing them together (47g1-3/10, 47g1-3/14 take precedence)	[69-]
47g1-3/18	. . . by movement of the closure members	[69-]
47g1-3/20	. . . by movement of the seats	[69-]
47g1-3/22	. with sealing faces shaped as surfaces of solids of revolution (47g1-13/02 takes precedence; with resilient valve members 47g1-3/28)	[69-]
47g1-3/24	. . with cylindrical valve members	[69-]
47g1-3/26	. . . with fluid passages in the valve member	[69-]
47g1-3/28	. with resilient valve members	[69-]
47g1-3/30	. Details	[69-]
47g1-3/312	. . Line blinds	[69-]
47g1-3/314	. . Forms or constructions of slides; Attachment of the slide to the spindle	[69-]
47g1-3/316	. . Guiding of the slide	[69-]
47g1-3/32	. . Means for additional adjustment of the rate of flow	[69-]
47g1-3/34	. . Arrangements for modifying the way in which the rate of flow varies during the actuation of the valve	[69-]
47g1-3/36	. . Features relating to lubrication	[69-]
47g1-5/00	Taps or cocks comprising only cut-off apparatus having at least one of the sealing faces shaped as a more or less complete surface of a solid of revolution, the opening and closing movement being predominantly rotary (taps of the lift-valve type 47g1-1/00)	[69-]
47g1-5/02	. with plugs having conical surfaces; Packings therefor	[69-]
47g1-5/04	. with plugs having cylindrical surfaces; Packings therefor	[69-]
47g1-5/06	. with plugs having spherical surfaces; Packings therefor	[69-]
47g1-5/08	. Details	[69-]
47g1-5/10	. . Means for additional adjustment of the rate of flow	[69-]
47g1-5/12	. . Arrangements for modifying the way in which the rate of flow varies during the actuation of the valve	[69-]
47g1-5/14	. . Special arrangements for separating the sealing faces or for pressing them together	[69-]
47g1-5/16	. . . for plugs with conical surfaces	[69-]
47g1-5/18	. . . for plugs with cylindrical surfaces	[69-]
47g1-5/20	. . . for plugs with spherical surfaces	[69-]
47g1-5/22	. . Features relating to lubrication	[69-]
47g1-7/00	Diaphragm cut-off apparatus, e.g. with a member deformed, but not moved bodily, to close the passage (means for plugging pipes or hoses 47f1-55/10)	[69-]
47g1-7/02	. with tubular diaphragm	[69-]
47g1-7/04	. . constrictable by external radial force	[69-]
47g1-7/06	. . . by means of a screw-spindle, cam, or other mechanical means	[69-]
47g1-7/07	. . . by means of fluid pressure	[69-]
47g1-7/08	. . constrictable by twisting	[69-]
47g1-7/10	. with inflatable member	[69-]

47g1-7/12	. with flat, dished, or bowl-shaped diaphragm	[69-]
47g1-7/14	. . arranged to be deformed against a flat seat	[69-]
47g1-7/16	. . . the diaphragm being mechanically actuated, e.g. by screw-spindle or cam	[69-]
47g1-7/17	. . . the diaphragm being actuated by fluid pressure	[69-]
47g1-7/18	. with diaphragm secured at one side only, e.g. to be laid on the seat by rolling action	[69-]
47g1-7/20	. with a compressible solid closure member	[69-]
47g1-9/00	Arrangements for cutting-off by means of liquid or granular medium	[69-]
47g1-11/00	Multiple-way valves, e.g. mixing valves; Pipe fittings incorporating such valves	[69-]
47g1-11/02	. with all movable sealing faces moving as one unit	[69-]
47g1-11/04	. . comprising only lift valves	[69-]
47g1-11/06	. . comprising only sliding valves	[69-]
47g1-11/07	. . . with cylindrical slides	[69-]
47g1-11/08	. . comprising only taps or cocks	[69-]
47g1-11/10	. with two or more closure members not moving as a unit	[69-]
47g1-11/12	. . with one plug turning in another	[69-]
47g1-11/14	. . operated by one actuating member, e.g. a handle (with one plug turning in another 47g1-11/12)	[69-]
47g1-11/16	. . . which only slides, or only turns, or only swings in one plane	[69-]
47g1-11/18	. . . with separate operating movements for separate closure members	[69-]
47g1-11/20	. . operated by separate actuating members (with one plug turning in another 47g1-11/12)	[69-]
47g1-11/22	. . . with an actuating member for each valve, e.g. interconnected to form multiple-way valves	[69-]
47g1-11/24	. . . with an electromagnetically-operated valve, e.g. for washing machines	[69-]
47g1-13/00	Other constructional types of cut-off apparatus (means for plugging pipes or hoses 47f1-55/10)	[69-]
47g1-13/02	. with both sealing faces shaped as small segments of a cylinder and the moving member pivotally mounted	[69-]
47g1-13/04	. with a breakable closure member	[69-]
47g1-13/06	. . constructed to be ruptured by an explosion	[69-]
Functional types		[69-]
47g1-15/00	Check valves (adapted especially for inflatable balloons 77a-41/00)	[69-]
47g1-15/02	. with guided rigid valve members	[69-]
47g1-15/03	. . with a hinged closure member	[69-]
47g1-15/04	. . shaped as balls	[69-]
47g1-15/06	. . with guided stems	[69-]
47g1-15/08	. . shaped as rings	[69-]
47g1-15/10	. . . integral with, or rigidly fixed to, a common valve plate	[69-]
47g1-15/12	. . Springs for ring valves	[69-]
47g1-15/14	. with flexible valve members	[69-]
47g1-15/16	. . with tongue-shaped laminae	[69-]
47g1-15/18	. with actuating mechanism; Combined check valves and actuated valves	[69-]
47g1-15/20	. Specially designed for inflatable bodies, e.g. tyres (combinations of valves with tyres 63e-31)	[69-]
47g1-17/00	Safety valves; Equalising valves	[69-]
47g1-17/02	. opening on surplus pressure on one side; closing on insufficient pressure on one side (check valves 47g1-15/00)	[69-]
47g1-17/04	. . spring-loaded	[69-]
47g1-17/06	. . . with special arrangements for adjusting the opening pressure	[69-]
47g1-17/08	. . . with special arrangements for providing a large discharge passage	[69-]
47g1-17/10	. . . with auxiliary valve for fluid operation of the main valve	[69-]
47g1-17/12	. . weight-loaded	[69-]
47g1-17/14	. . with fracturing member	[69-]
47g1-17/16	. . . with fracturing diaphragm	[69-]

47g1-17/164	. . and remaining closed after return of the normal pressure	[69-]
47g1-17/168	. . combined with manually-controlled valves, e.g. a valve combined with a safety valve	[69-]
47g1-17/18	. opening on surplus pressure on either side	[69-]
47g1-17/19	. . Equalising valves predominantly for tanks	[69-]
47g1-17/192	. . . with closure member in the form of a movable liquid column	[69-]
47g1-17/194	. . . weight-loaded	[69-]
47g1-17/196	. . . spring-loaded	[69-]
47g1-17/20	. Excess-flow valves (actuated in consequence of shock or similar extraneous influence 47g1-17/36)	[69-]
47g1-17/22	. . actuated by the difference of pressure between two places in the flow line	[69-]
47g1-17/24	. . . acting directly on the cutting-off member	[69-]
47g1-17/26	. . . . operating in either direction	[69-]
47g1-17/28	. . . . operating in one direction only	[69-]
47g1-17/30	. . . . . spring-loaded	[69-]
47g1-17/32	. . . acting on a servo-mechanism or on a catch-releasing mechanism	[69-]
47g1-17/34	. . in which the flow-energy of the flowing medium actuates the closing mechanism	[69-]
47g1-17/36	. actuated in consequence of extraneous circumstances, e.g. shock, change of position	[69-]
47g1-17/38	. . of excessive temperature	[69-]
47g1-17/40	. with a fracturing member, e.g. fracturing diaphragm, glass, fusible joint (valves opening on surplus pressure 47g1-17/14)	[69-]
47g1-17/42	. Valves preventing penetration of air in the outlet of containers for liquids	[69-]
47g1-18/00	Pressure relief valves	[69-]
47g1-19/00	Valve arrangements specially adapted for mixing fluids coming from different conduits; Valve fittings with mixing devices (multiple-way valves 47g1-11/00)	[69-]
47g1-21/00	Fluid-delivery valves (for liquid handling 64c; for flushing devices for water-closets or the like 85h-3/02)	[69-]
47g1-21/02	. providing a continuous small flow	[69-]
47g1-21/04	. Self-closing valves, i.e. closing automatically after operation	[69-]
47g1-21/06	. . in which the closing movement, either retarded or not, starts immediately after opening	[69-]
47g1-21/08	. . . with ball-shaped closing members	[69-]
47g1-21/10	. . . with hydraulic brake cylinder acting on the closure member	[69-]
47g1-21/12	. . . with hydraulically-operated opening means; with arrangements for pressure relief before opening	[69-]
47g1-21/14	. . with special means for preventing the self-closing	[69-]
47g1-21/16	. . closing after a predetermined quantity of fluid has been delivered (47g1-21/10 takes precedence)	[69-]
47g1-21/18	. . closed when a rising liquid reaches a predetermined level (float-actuated valves 47g1-31/18)	[69-]
47g1-21/20	. . . by means making use of air-suction through an opening closed by the rising liquid	[69-]
47g1-23/00	Valves for preventing drip from nozzles	[69-]
Details (venting or aerating means 47g1-45/00)		[69-]
Note:		[69-]
Details not provided for in the following groups are classified in the preceding groups.		[69-]
47g1-25/00	Details relating to contact between valve members and seats (sealing constructions, see the appropriate groups according to the type of valve; movement of valve members other than for opening and closing 47g1-29/00)	[69-]
47g1-25/02	. Arrangements using fluid issuing from valve members or seats	[69-]

47g1-25/04	. Arrangements for preventing erosion, not otherwise provided for	[69-]
47g1-27/00	Construction of housings (methods for welding housings 49h); Applications of materials therefor	[69-]
47g1-27/02	. of lift valves (for reducing the flow resistance of screw-spindle lift-valves 47g1-1/06)	[69-]
47g1-27/03	. . specially adapted for tank-cars	[69-]
47g1-27/04	. of sliding valves	[69-]
47g1-27/06	. of taps or cocks	[69-]
47g1-27/08	. Guiding yokes for spindles; Means for closing housings; Dust caps, e.g. for tyre valves	[69-]
47g1-27/10	. Welded housings	[69-]
47g1-27/12	. Covers for housings	[69-]
47g1-29/00	Arrangements for movement of valve members other than for opening and closing the valve, e.g. for grinding-in, for preventing sticking	[69-]
47g1-29/02	. providing for continuous motion	[69-]
47g1-31/00	Operating means; Releasing devices	[69-]
47g1-31/02	. electric; magnetic	[69-]
47g1-31/04	. . using a motor	[69-]
47g1-31/05	. . . specially adapted for operating hand-operated valves or for combined motor and hand operation	[69-]
47g1-31/06	. . using a magnet	[69-]
47g1-31/08	. . . using a permanent magnet	[69-]
47g1-31/10	. . . with additional mechanism between armature and closure member	[69-]
47g1-31/12	. actuated by fluid (fluid-actuated check valves 47g1-15/00; fluid-actuated safety valves 47g1-17/00)	[69-]
47g1-31/14	. . for mounting on, or in combination with, hand-actuated valves	[69-]
47g1-31/143	. . . the fluid acting on a piston	[69-]
47g1-31/145	. . . the fluid acting on a diaphragm	[69-]
47g1-31/16	. . with a mechanism, other than pulling- or pushing-rod, between fluid motor and closure member (with float 47g1-31/18)	[69-]
47g1-31/163	. . . the fluid acting on a piston	[69-]
47g1-31/165	. . . the fluid acting on a diaphragm	[69-]
47g1-31/18	. . actuated by a float (floats 47g1-33/00)	[69-]
47g1-31/20	. . . actuating a lift valve	[69-]
47g1-31/22	. . . . with the float rigidly connected to the valve	[69-]
47g1-31/24	. . . . with a transmission with parts linked together from a single float to a single valve	[69-]
47g1-31/26	. . . . . with the valve guided for rectilinear movement and the float attached to a pivoted arm	[69-]
47g1-31/28	. . . . with two or more floats actuating one valve	[69-]
47g1-31/30	. . . actuating a gate valve or sliding valve	[69-]
47g1-31/32	. . . actuating a tap or cock	[69-]
47g1-31/34	. . . acting on pilot valve controlling the cut-off apparatus	[69-]
47g1-31/36	. . in which fluid from the conduit is constantly supplied to the fluid motor	[69-]
47g1-31/363	. . . the fluid acting on a piston (47g1-31/38 takes precedence)	[69-]
47g1-31/365	. . . the fluid acting on a diaphragm	[69-]
47g1-31/38	. . . in which the fluid works directly on both sides of the fluid motor, one side being connected by means of a restricted passage and the motor being actuated by operating a discharge from that side (47g1-31/40 takes precedence)	[69-]
47g1-31/383	. . . . the fluid acting on a piston	[69-]
47g1-31/385	. . . . the fluid acting on a diaphragm	[69-]
47g1-31/40	. . . with electrically-actuated member in the discharge of the motor	[69-]
47g1-31/42	. . by means of electrically-actuated members in the supply or discharge conduits of the fluid motor (47g1-31/40 takes precedence)	[69-]
47g1-31/44	. Mechanical actuating means	[69-]
47g1-31/46	. . for remote operation	[69-]
47g1-31/48	. . actuated by mechanical timing-device, e.g. with dash-pot (self-closing valves 47g1-21/16)	[69-]

47g1-31/50	. . with screw-spindle	[69-]
47g1-31/52	. . with crank, eccentric, or cam	[69-]
47g1-31/524	. . . with a cam	[69-]
47g1-31/528	. . . with pin and slot	[69-]
47g1-31/53	. . with toothed gearing	[69-]
47g1-31/54	. . . with pinion and rack	[69-]
47g1-31/56	. . without stable intermediate position, e.g. with snap action	[69-]
47g1-31/58	. . comprising a movable discharge-nozzle	[69-]
47g1-31/60	. . Handles	[69-]
47g1-31/62	. . Pedals or like operating members, e.g. actuated by knee or hip	[69-]
47g1-33/00	Floats for actuation of valves or other apparatus	[69-]
47g1-35/00	Means to prevent accidental or unauthorized actuation	[69-]
47g1-35/02	. to be locked or disconnected by means of a push or pull	[69-]
47g1-35/04	. yieldingly resisting the actuation	[69-]
47g1-35/06	. using a removable actuating or locking member, e.g. a key (47g1-35/10, 47g1-35/12 take precedence)	[69-]
47g1-35/08	. requiring setting according to a code, e.g. permutation locks	[69-]
47g1-35/10	. with locking caps or locking bars	[69-]
47g1-35/12	. with sealing wire	[69-]
47g1-35/14	. interlocking two or more valves	[69-]
47g1-35/16	. with locking member actuated by magnet	[69-]
47g1-37/00	Special means in or on valves or other cut-off apparatus for indicating or recording operation thereof, or for enabling an alarm to be given	[69-]
47g1-39/00	Devices for relieving the pressure on the sealing faces	[69-]
47g1-39/02	. for lift valves	[69-]
47g1-39/04	. for sliding valves	[69-]
47g1-39/06	. for taps or cocks	[69-]
47g1-41/00	Spindle sealings	[69-]
47g1-41/02	. with stuffing-box	[69-]
47g1-41/04	. . with at least one ring of rubber or like material between spindle and housing	[69-]
47g1-41/06	. . with at least one ring attached to both spindle and housing	[69-]
47g1-41/08	. . with at least one ring provided with axially-protruding peripheral closing-lip	[69-]
47g1-41/10	. with diaphragm, e.g. shaped as bellows or tube	[69-]
47g1-41/12	. . with approximately flat diaphragm	[69-]
47g1-41/14	. with conical flange on the spindle which co-operates with a conical surface in the housing	[69-]
47g1-41/16	. with a flange on the spindle which rests on a sealing ring	[69-]
47g1-41/18	. . sealing only when the closure member is in the opened position	[69-]
47g1-43/00	Auxiliary closure means in valves, which in case of repair, e.g. rewashing, of the valve, can take over the function of the normal closure means; Devices for temporary replacement of parts of valves for the same purpose	[69-]
47g1-45/00	Means, e.g. valves, for venting or aerating (equalising valves 47g1-17/00; aerating-means for use in pipes 47f1-55/06; apparatus for draining-off, or releasing, liquid from containers or pipe-lines 47g2)	[69-]
47g1-45/02	. for venting of superfluous air	[69-]
47g1-45/04	. for aeration	[69-]
47g1-47/00	Means in valves for absorbing fluid energy (for pipes 47f1-55/00)	[69-]
47g1-47/02	. for preventing water-hammer or noise	[69-]
47g1-47/04	. for decreasing pressure, the throttle being incorporated in the closure member	[69-]
47g1-47/06	. . with a throttle in the form of a helical channel	[69-]
47g1-47/08	. for decreasing pressure and having a throttling member separate from the closure member	[69-]

47g1-47/10	. . in which the medium in one direction must flow through the throttling channel, and in the other direction may flow through a much wider channel parallel to the throttling channel	[69-]
47g1-47/12	. . the throttling channel being of helical form	[69-]
47g1-47/14	. . the throttling member being a perforated membrane	[69-]
47g1-47/16	. . the throttling member being a cone	[69-]
47g1-49/00	Means in or on valves for heating or cooling (for pipes 47f1-53/00; thermal insulation in connection with pipes or pipe systems 47f1-59/16)	[69-]
47g1-51/00	Other details not peculiar to particular types of valves or cut-off apparatus	[69-]
47g2	(IPC: F16T) Steam traps or the like	[69-]
47g2-1/00	Steam traps or like apparatus for releasing, e.g. draining-off liquid from pipe lines, e.g. steam lines or from containers for gases or vapours, e.g. steam drums	[69-]
47g2-1/02	. with valves controlled thermally	[69-]
47g2-1/04	. . by expansion rods	[69-]
47g2-1/06	. . by expansion tubes	[69-]
47g2-1/08	. . by bimetallic strips or plates	[69-]
47g2-1/10	. . by thermally-expansive liquids	[69-]
47g2-1/12	. with valves controlled by excess or release of pressure	[69-]
47g2-1/14	. . involving a piston, diaphragm, or bellows, e.g. displaceable under pressure of incoming condensate	[69-]
47g2-1/16	. . involving a high-pressure chamber and a low-pressure chamber communicating with one another, i.e. thermodynamic steam chambers	[69-]
47g2-1/18	. . involving a vacuum chamber	[69-]
47g2-1/20	. with valves controlled by floats	[69-]
47g2-1/22	. . of closed-hollow-body type	[69-]
47g2-1/24	. . . using levers	[69-]
47g2-1/26	. . of upright-open-bucket type	[69-]
47g2-1/28	. . . using levers	[69-]
47g2-1/30	. . of inverted-open-bucket type; of bell type	[69-]
47g2-1/32	. . of rocking or tilting type	[69-]
47g2-1/34	. without moving parts other than hand valves, e.g. labyrinth type	[69-]
47g2-1/36	. specially adapted for steam lines of low pressure	[69-]
47g2-1/38	. Component parts; Accessories	[69-]
47g2-1/40	. . Actuating mechanisms of ball valves	[69-]
47g2-1/42	. . Actuating mechanisms of slide valves	[69-]
47g2-1/44	. . Valve arrangements for venting air from pipe lines; Valve arrangements for preventing inlet of atmospheric air into pipe lines	[69-]
47g2-1/46	. . Valves opening when pressure or vacuum is cut off	[69-]
47g2-1/48	. . Monitoring arrangements for inspecting, e.g. flow of steam and steam condensate	[69-]
47h	Mekanisk kraftöverföring	[69-]
	Vevmekanismer; Kurvbanemekanismer; Skruvmekanismer	[69-]
47h-1	Vevrörelsemekanismer; Excentermekanismer; Kulissmekanismer; Anordningar för övervinnande av dödpunktslägen; Hävarmsmekanismer; Länkmekanismer; Trampmekanismer; Styrmekanismer för rätlinjig rörelse (14f; 46a10; 47b-16; 47b-17)	[69-]
47h-2	Kurvbanemekanismer; Kammekanismer; Vingelmekanismer; Snedskivemekanismer	[69-]
47h-3	Skruvrörelsemekanismer; Snäckväxlar	[69-]
	Spärrmekanismer (finmekaniska spärrmekanismer 47i-4)	[69-]
47h-4	Spärrmekanismer; Utlösningmekanismer (47h-5)	[69-]

- 47h-5 Spärrverksmekanismer för omformning av rörelse till intermitterent rörelse, t.ex. klinkspärrverk, klämrulesspärrverk, bandspärrverk eller malteserkorsmekanismer (start-och-stoppmekanismer 47h-27, 47h-4) [-69]
- Mekanismer för roterande rörelse med mot varandra rullande hjul [-69]**
- 47h-6 Kuggväxlar i allmänhet (47h-12) [-69]
- 47h-7 Växelmekanismer med roterande hjul i allmänhet, t.ex. planetväxlar eller differentialväxlar (47h-13) [-69]
- 47h-8 Friktionsväxlar i allmänhet (47h-14) [-69]
- Mekanismer för roterande rörelse med hjul förbundna genom ändlösa rörelseöverförande organ [-69]**
- 47h-9 Remväxlar i allmänhet (47h-15; 47h-19) [-69]
- 47h-10 Linväxlar i allmänhet (47h-16; 47h-19) [-69]
- 47h-11 Kedjeväxlar i allmänhet (47h-17; 47h-19) [-69]
- Växlar med varierbart utväxlingsförhållande; Omkastningsväxlar (automatiskt varierbara 47h-21, 47h-25; spärrverksväxlar 47h-5) [-69]**
- 47h-12 Kuggväxlar med varierbart utväxlingsförhållande (47h-6; 47h-19) [-69]
- 47h-13 Planetväxlar med varierbart utväxlingsförhållande (47h-7; 47h-19) [-69]
- 47h-14 Friktionsväxlar med varierbart utväxlingsförhållande (47h-8; 47h-19) [-69]
- 47h-15 Remväxlar med varierbart utväxlingsförhållande (47h-9; 47h-19) [-69]
- 47h-16 Linväxlar med varierbart utväxlingsförhållande (47h-10; 47h-19) [-69]
- 47h-17 Kedjeväxlar med varierbart utväxlingsförhållande (47h-11; 47h-19; 63k-13; 63k-14) [-69]
- 47h-18 Hydrauliska eller pneumatiska kraftöverföringssystem med obegränsad vridningsrörelse som vridmomentomvandlare (med begränsad rörelse 47h-22; hydrauliska kopplingar med kraftöverföring utan vridmomentomvandling 47c-14) [-69]
- 47h-19 Omkastningsväxlar (47h-1; 47h-2; 47h-5; 47h-12 – 47h-18; 47h-21) [-69]
- Sammansatta mekanismer för kraftöverföring [-69]**
- 47h-20 Mekanismer för mekanisk kraftöverföring i allmänhet, som inte omfattas av 47h-1 – 47h-19 eller 47h-21 – 47h-27 (46e-8); Mekanismer för kraftöverföring sammanbyggda med drivmaskiner (21d1-44; 21d1-47; 34b-13/10; 49a-21); Kraftöverföring med hjälp av dragorgan eller tryckorgan, t.ex. bowdenkablar (hydraulisk överföring 47h-22); Synkront rörliga momentförstärkare eller servomekanismer [-69]
- 47h-21 Mekanismer för mekanisk omformning av rörelse, som inte omfattas av 47h-1 – 47h-5; Mekanismer för kraftöverföring med hjälp av kuggjul och kuggstänger eller kuggbågar; Omformning av kontinuerlig vridningsrörelse till vridningsrörelse med vilopaus, med variabel vinkelhastighet eller med periodiskt växlande vridningsriktning [-69]
- 47h-22 Hydrauliska eller pneumatiska kraftöverföringssystem med begränsad rörelse, t.ex. fram-och-återgående; Med stångsystem jämförbara hydrauliska eller pneumatiska kraftöverföringssystem mellan en impulsgevare och en impulsmottagare (servomotorer för allmän användning 60-30, 60-35); Allmänna detaljer vid hydrauliska eller pneumatiska kraftöverföringssystem [-69]
- 47h-23 Mekaniska energiackumulatorer, t.ex. fjädrar eller massor (fjädermotorer, tyngdkraftmotorer 46e) [-69]
- 47h-24 Mekanismer för åstadkommande av kurvformig rörelse, t.ex. ovalrörelse eller cykloidrörelse [-69]
- 47h-25 Anordningar för automatisk balansering av effekt eller last i maskiner (60; 63c-13) [-69]
- 47h-26 Förfaranden eller anordningar för dämpning av mekaniska svängningar i kraftöverföringsmekanismer (14a-15; 42s; 46a11; 47b-28; 63c-8/01; 63c-13/01; 65f2-6; för fundament 47a-20) [-69]
- 47h-27 Mekaniska startmekanismer eller stoppmekanismer, allmänt (47h-22; 46c5; 21c-45, 21c-46) [-69]

47h (IPC: F16H) Gearing [69-]

Note: [69-]
In this subclass
"Toothed gearing" includes worm gearing and other gearing involving at least one wheel or sector provided with teeth or the equivalent, except gearing with chains or toothed belts, which is treated as friction gearing.
"Conveying . . . motion" includes transmitting energy, and means that the applied and resultant motions are of the same kind, though they may differ in, e.g. speed, direction, extent.
"Rotary" implies that the motion may continue indefinitely.
"Oscillating" means moving about an axis to an extent which is limited by the construction of the gearing and which may exceed one revolution, the movement being alternately forwards and backwards during continued operation of the gearing.
"Reciprocating" means moving substantially in a straight line, the movement being alternately forwards and backwards during continued operation of the gearing.
"Reversing" or "reversal" means that an applied movement in one direction may produce a resultant movement in either of two opposed directions at will.
"Central gears" includes any gears whose axis is the main axis of the gearing. Sets of rigidly-connected members are regarded as single members. [69-]

Toothed gearings for conveying rotary motion [69-]

- 47h-1/00 Toothed gearings for conveying rotary motion** (specific for conveying rotary motion with variable gear ratio or for reversing rotary motion 47h-3/00) [69-]
- 47h-1/02 . without gears having orbital motion [69-]
 - 47h-1/04 . . involving only two intermeshing members [69-]
 - 47h-1/06 . . . with parallel axes [69-]
 - 47h-1/08 the members having helical, herring-bone, or like teeth [69-]
 - 47h-1/10 one of the members being internally toothed [69-]
 - 47h-1/12 . . . with non-parallel axes [69-]
 - 47h-1/14 comprising conical gears only [69-]
 - 47h-1/16 comprising worm and worm-wheel [69-]
 - 47h-1/18 the members having helical, herring-bone, or like teeth (47h-1/14 takes precedence) [69-]
 - 47h-1/20 . . involving more than two intermeshing members [69-]
 - 47h-1/22 . . . with a plurality of driving or driven shafts; with arrangements for dividing torque between two or more intermediate shafts [69-]
 - 47h-1/24 . . involving gears essentially having intermeshing elements other than involute or cycloidal teeth (47h-1/16 takes precedence) [69-]
 - 47h-1/26 . . Special means compensating for misalignment of axes [69-]
 - 47h-1/28 . with gears having orbital motion [69-]
 - 47h-1/30 . . in which an orbital gear has an axis crossing the main axis of the gearing and has helical teeth or is a worm [69-]
 - 47h-1/32 . . in which the central axis of the gearing lies inside the periphery of an orbital gear [69-]
 - 47h-1/34 . . involving gears essentially having intermeshing elements other than involute or cycloidal teeth (in worm gearing 47h-1/30) [69-]
 - 47h-1/36 . . with two central gears coupled by intermeshing orbital gears [69-]
 - 47h-1/38 . . Differential gearings [69-]
 - 47h-1/40 . . . comprising orbital conical gears [69-]
 - 47h-1/42 . . . comprising orbital spur gears [69-]
 - 47h-1/44 . . . with locking devices or other provisions for suppressing or influencing the differential action [69-]

47h-1/46	. . Systems consisting of a plurality of gear trains, each with orbital gears	[69-]
47h-1/48	. . Special means compensating for misalignment of axes	[69-]
47h-3/00	Toothed gearings for conveying rotary motion with variable gear ratio or for reversing rotary motion (speed-changing or reversing mechanisms	
	47h-5/00)	[69-]
47h-3/02	. without gears having orbital motion	[69-]
47h-3/04	. . with internally-toothed gears	[69-]
47h-3/06	. . with worm and worm-wheel or gears essentially having helical or herring-bone teeth	[69-]
47h-3/08	. . exclusively or essentially with continuously-meshing gears, that can be disengaged from their shafts	[69-]
47h-3/10	. . . with one or more one-way clutches as an essential feature	[69-]
47h-3/12	. . . with means for synchronisation not incorporated in the clutches (synchronised clutches 47c-23/02)	[69-]
47h-3/14	. . . Gearings for reversal only	[69-]
47h-3/16	. . essentially with both gears that can be put out of gear and continuously-meshing gears that can be disengaged from their shafts	[69-]
47h-3/18	. . . Gearings for reversal only	[69-]
47h-3/20	. . exclusively or essentially using gears that can be moved out of gear	[69-]
47h-3/22	. . . with gears shiftable only axially	[69-]
47h-3/24	. . . . with driving and driven shafts coaxial	[69-]
47h-3/26	. . . . . and two or more additional shafts	[69-]
47h-3/28	. . . . . an additional shaft being coaxial with the main shafts	[69-]
47h-3/30	. . . . with driving and driven shafts not coaxial	[69-]
47h-3/32	. . . . . and an additional shaft	[69-]
47h-3/34	. . . with gears shiftable otherwise than only axially	[69-]
47h-3/36	. . . with a single gear meshable with any of a set of coaxial gears of different diameters	[69-]
47h-3/38	. . . with synchro-meshing	[69-]
47h-3/40	. . . Gearings for reversal only	[69-]
47h-3/42	. . with gears having teeth formed or arranged for obtaining multiple gear ratios, e.g. nearly infinitely variable	[69-]
47h-3/44	. using gears having orbital motion	[69-]
47h-3/46	. . Gearings having only two central gears, connected by orbital gears (47h-3/68 to 47h-3/78 take precedence)	[69-]
47h-3/48	. . . with single orbital gears or pairs of rigidly-connected orbital gears	[69-]
47h-3/50	. . . . comprising orbital conical gears	[69-]
47h-3/52	. . . . comprising orbital spur gears	[69-]
47h-3/54	. . . . . one of the central gears being internally toothed and the other externally toothed	[69-]
47h-3/56	. . . . . both central gears being sun gears	[69-]
47h-3/58	. . . with sets of orbital gears, each consisting of two or more intermeshing orbital gears	[69-]
47h-3/60	. . . Gearings for reversal only	[69-]
47h-3/62	. . Gearings having three or more central gears (47h-3/68 to 47h-3/78 take precedence)	[69-]
47h-3/64	. . . composed of a number of gear trains, the drive always passing through all the trains, each train having not more than one connection for driving another train	[69-]
47h-3/66	. . . composed of a number of gear trains without drive passing from one train to another	[69-]
47h-3/68	. . in which an orbital gear has an axis crossing the main axis of the gearing and has helical teeth or is a worm	[69-]
47h-3/70	. . in which the central axis of the gearing lies inside the periphery of an orbital gear	[69-]
47h-3/72	. . with a secondary drive, e.g. regulating motor, in order to vary speed continuously	[69-]
47h-3/74	. . Complexes, not using actuatable speed-changing or regulating members, e.g. with gear ratio determined by free play of frictional or other forces	[69-]

47h-3/76	. . with an orbital gear having teeth formed or arranged for obtaining multiple gear ratios, e.g. nearly infinitely variable	[69-]
47h-3/78	. . Special adaptation of synchronisation mechanisms to these gearings	[69-]
47h-5/00	Speed-changing or reversing mechanisms for toothed gearings conveying rotary motion (mechanisms adapted only for special gearings, see the relevant groups for those gearings; control devices in general 42r1)	[69-]
47h-5/02	. for non-automatic operation (mechanisms with preselection 47h-5/74)	[69-]
47h-5/04	. . actuated entirely mechanically	[69-]
47h-5/06	. . . specific for gearings without orbital gears	[69-]
47h-5/08	. . . . with gears that can be disengaged from their shafts	[69-]
47h-5/10	. . . specific for gearings with orbital gears	[69-]
47h-5/12	. . actuated by fluid pressure	[69-]
47h-5/14	. . . specific for gearings without orbital gears	[69-]
47h-5/16	. . . . with gears that can be disengaged from their shafts	[69-]
47h-5/18	. . . specific for gearings with orbital gears	[69-]
47h-5/20	. . actuated electrically	[69-]
47h-5/22	. . . specific for gearings without orbital gears	[69-]
47h-5/24	. . . . with gears that can be disengaged from their shafts	[69-]
47h-5/26	. . . specific for gearings with orbital gears	[69-]
47h-5/28	. . with essential mechanical and fluid-pressure and electrical features, or with essential features of at least two of these kinds	[69-]
47h-5/30	. . . specific for gearings without orbital gears	[69-]
47h-5/32	. . . . with gears that can be disengaged from their shafts	[69-]
47h-5/34	. . . specific for gearings with orbital gears	[69-]
47h-5/36	. . for additional actuation of an auxiliary gearing, a main clutch or one or more separating clutches	[69-]
47h-5/38	. . Means for indicating synchronisation of the gears to be engaged	[69-]
47h-5/40	. automatically controlled, e.g. by speed, torque, acceleration, temperature, atmospheric pressure which mechanisms may or may not actuated other transmission members (mechanisms with preselection 47h-5/74)	[69-]
47h-5/42	. . by speed	[69-]
47h-5/44	. . . actuated entirely mechanically	[69-]
47h-5/46	. . . . using centrifugal clutches for speed-changing (clutches 47c-43/00 to 47c-43/18)	[69-]
47h-5/48	. . . actuated by fluid pressure	[69-]
47h-5/50	. . . actuated electrically	[69-]
47h-5/52	. . by torque, e.g. position of throttle valve of engine	[69-]
47h-5/54	. . . actuated entirely mechanically	[69-]
47h-5/56	. . . actuated by fluid pressure	[69-]
47h-5/58	. . . actuated electrically	[69-]
47h-5/60	. . by both speed and torque	[69-]
47h-5/62	. . . actuated entirely mechanically	[69-]
47h-5/64	. . . actuated by fluid pressure	[69-]
47h-5/66	. . . actuated electrically	[69-]
47h-5/68	. . specific for reversal	[69-]
47h-5/70	. . . cyclically actuated	[69-]
47h-5/72	. . . with change of velocity ratio on change in direction of the driving torque	[69-]
47h-5/74	. with preselection, automatic or non-automatic, which mechanisms may or may not actuate, or be actuated by, other transmission members	[69-]
47h-5/76	. . acting or actuated entirely mechanically	[69-]
47h-5/78	. . acting or actuated by fluid pressure	[69-]
47h-5/80	. . acting or actuated electrically	[69-]
47h-5/82	. . specific for automatic preselection (not specially adapted for gearings, see 42r1)	[69-]
47h-5/84	. . with blocking of the engagement as long as the elements that are to be engaged are not running synchronously	[69-]

<u>Gearing for conveying rotary motion by endless flexible members</u>		[69-]
47h-7/00	Gearings for conveying rotary motion by endless flexible members (specific for conveying rotary motion with variable gear ratio or for reversing rotary motion 47h-9/00)	[69-]
47h-7/02	. with belts; with V-belts	[69-]
47h-7/04	. with ropes	[69-]
47h-7/06	. with chains	[69-]
47h-7/08	. Means for varying tension of belts, ropes, or chains (pulleys of adjustable construction 47h-55/52)	[69-]
47h-7/10	. . by adjusting the axis of a pulley	[69-]
47h-7/12	. . . of an idle pulley	[69-]
47h-7/14	. . . of a driving or driven pulley	[69-]
47h-7/16	. . . . without adjusting the driving or driven shaft	[69-]
47h-7/18	. Means for guiding or supporting belts, ropes, or chains (construction of pulleys 47h-55/36)	[69-]
47h-7/20	. . Mountings for rollers or pulleys	[69-]
47h-7/22	. Belt, rope, or chain shifters	[69-]
47h-7/24	. Equipment for mounting belts, ropes, or chains	[69-]
47h-9/00	Gearings for conveying rotary motion with variable gear ratio, or for reversing rotary motion, by endless flexible members (speed-changing or reversing mechanisms 47h-11/00)	[69-]
47h-9/02	. without members having orbital motion	[69-]
47h-9/04	. . using belts, V-belts, or ropes (with toothed belts 47h-9/24; pulleys of adjustable construction 47h-55/52)	[69-]
47h-9/06	. . . engaging a stepped pulley	[69-]
47h-9/08	. . . engaging a conical drum (47h-9/12 takes precedence)	[69-]
47h-9/10	. . . engaging a pulley provided with radially-actuatable elements carrying the belt	[69-]
47h-9/12	. . . engaging a pulley built-up out of relatively axially-adjustable parts in which the belt engages the opposite flanges of the pulley directly without interposed belt-supporting members	[69-]
47h-9/14	. . . . using only one pulley built-up out of adjustable conical parts	[69-]
47h-9/16	. . . . using two pulleys, both built-up out of adjustable conical parts	[69-]
47h-9/18	. . . . . only one flange of each pulley being adjustable	[69-]
47h-9/20	. . . . . both flanges of the pulleys being adjustable	[69-]
47h-9/22	. . . specially adapted for ropes	[69-]
47h-9/24	. . using chains or toothed belts; Chains specially adapted to such gearing	[69-]
47h-9/26	. with members having orbital motion	[69-]
47h-11/00	Speed-changing or reversing mechanisms for gearings for conveying rotary motion by endless flexible members	[69-]
47h-11/02	. for infinitely-variable types	[69-]
47h-11/04	. . non-automatic	[69-]
47h-11/06	. . automatic	[69-]
47h-11/08	. for types with stepped variation of speed	[69-]
<u>Other friction gearing for conveying rotary motion</u>		[69-]
47h-13/00	Gearings for conveying rotary motion by friction between rotary members (specific for conveying rotary motion with variable gear ratio or for reversing rotary motion 47h-15/00)	[69-]
47h-13/02	. without members having orbital motion	[69-]
47h-13/04	. . with balls or with rollers acting in a similar manner	[69-]
47h-13/06	. with members having orbital motion	[69-]
47h-13/08	. . with balls or with rollers acting in a similar manner	[69-]
47h-13/10	. Means for influencing the pressure between the members	[69-]
47h-13/12	. . by magnetic forces	[69-]
47h-13/14	. . for automatically varying the pressure mechanically	[69-]

47h-15/00	Gearings for conveying rotary motion with variable gear ratio, or for reversing rotary motion, by friction between rotary members (speed-changing or reversing mechanisms 47h-17/00)	[69-]
47h-15/02	. without members having orbital motion	[69-]
47h-15/04	. . Gearings providing a continuous range of gear ratios	[69-]
47h-15/06	. . . in which a member A of uniform effective diameter mounted on a shaft may co-operate with different parts of a member B	[69-]
47h-15/08	. . . . in which the member B is a disc with a flat or approximately-flat friction surface	[69-]
47h-15/10	. . . . . in which the axes of the two members cross or intersect	[69-]
47h-15/12	. . . . . in which one or each member is duplicated, e.g. for obtaining better transmission, for lessening the reaction forces on the bearings	[69-]
47h-15/14	. . . . . in which the axes of the members are parallel or approximately parallel	[69-]
47h-15/16	. . . . in which the member B has a conical friction surface	[69-]
47h-15/18	. . . . . externally	[69-]
47h-15/20	. . . . . co-operating with the outer rim of the member A, which is perpendicular or nearly perpendicular to the friction surface of the member B	[69-]
47h-15/22	. . . . . the axes of the members being parallel or approximately parallel	[69-]
47h-15/24	. . . . . internally	[69-]
47h-15/26	. . . . in which the member B has a spherical friction surface centered on its axis of revolution	[69-]
47h-15/28	. . . . . with external friction surface	[69-]
47h-15/30	. . . . . with internal friction surface	[69-]
47h-15/32	. . . . in which the member B has a curved friction surface formed as a surface of a body of revolution generated by a curve which is neither a circular arc centered on its axis of revolution nor a straight line	[69-]
47h-15/34	. . . . . with convex friction surface	[69-]
47h-15/36	. . . . . with concave friction surface, e.g. a hollow toroid surface	[69-]
47h-15/38	. . . . . with two members B having hollow toroid surfaces opposite to each other, the member or members A being adjustably mounted between the surfaces	[69-]
47h-15/40	. . . in which two members co-operate by means of balls, or rollers of uniform effective diameter, not mounted on shafts	[69-]
47h-15/42	. . . in which two members co-operate by means of rings or by means of parts of endless flexible members pressed between the first-mentioned members	[69-]
47h-15/44	. . . in which two members of non-uniform effective diameter directly co-operate with one another	[69-]
47h-15/46	. . Gearings providing a discontinuous or stepped range of gear ratios	[69-]
47h-15/48	. with members having orbital motion	[69-]
47h-15/50	. . Gearings providing a continuous range of gear ratios	[69-]
47h-15/52	. . . in which a member of uniform effective diameter mounted on a shaft may co-operate with different parts of another member	[69-]
47h-15/54	. . . in which two members co-operate by means of rings or by means of parts of endless flexible members pressed between the first-mentioned members	[69-]
47h-15/56	. . Gearings providing a discontinuous or stepped range of gear ratios	[69-]
47h-17/00	Speed-changing or reversing mechanisms for gearings for conveying rotary motion by friction between rotary members	[69-]
47h-17/02	. for infinitely-variable types	[69-]
47h-17/04	. . non-automatic	[69-]
47h-17/06	. . automatic	[69-]
47h-17/08	. for types with stepped variation of speed	[69-]
47h-19/00	Gearings comprising essentially only toothed gears or friction members and not capable of conveying indefinitely-continuing rotary motion (with intermittently-driving members 47h-27/00 to 47h-31/00; rope or like tackle for lifting or haulage 35c)	[69-]
47h-19/02	. for interconverting rotary motion and reciprocating motion	[69-]
47h-19/04	. . comprising a rack	[69-]
47h-19/06	. . comprising an endless flexible member	[69-]

47h-19/08	. for interconverting rotary motion and oscillating motion	[69-]
<u>Gearing for conveying or converting motion by means of levers, links, or cams</u> <u>(combinations of gearings of different types 47h-37/00)</u>		[69-]
47h-21/00	Gearings comprising primarily only links or levers, with or without slides	[69-]
47h-21/02	. the movements of two or more independently-moving members being combined into a single movement	[69-]
47h-21/04	. Guiding mechanisms, e.g. for straight-line guidance (for drawing-machines 70e)	[69-]
47h-21/06	. which can be made ineffective when desired	[69-]
47h-21/08	. . by pushing a reciprocating rod out of its operative position	[69-]
47h-21/10	. all movement being in, or parallel to, a single plane	[69-]
47h-21/12	. . for conveying rotary motion	[69-]
47h-21/14	. . . by means of cranks, eccentrics, or like members fixed to one rotary member and guided along tracks on the other	[69-]
47h-21/16	. . for interconverting rotary motion and reciprocating motion	[69-]
47h-21/18	. . . Crank gearings; Eccentric gearings	[69-]
47h-21/20	. . . . with adjustment of throw (adjustable cranks or eccentrics 47b-3/28; adjustable connecting-rods 47b-7/06)	[69-]
47h-21/22	. . . . with one connecting-rod and one guided slide to each crank or eccentric	[69-]
47h-21/24	. . . . . without further links or guides	[69-]
47h-21/26	. . . . . with toggle action	[69-]
47h-21/28	. . . . . with cams or additional guides	[69-]
47h-21/30	. . . . . with members having rolling contact	[69-]
47h-21/32	. . . . . with additional members comprising only pivoted links or arms	[69-]
47h-21/34	. . . . with two or more connecting-rods to each crank or eccentric	[69-]
47h-21/36	. . . . without swinging connecting-rod, e.g. with epicyclic parallel motion, slot-and-crank motion	[69-]
47h-21/38	. . . . with means for temporary energy accumulation, e.g. to overcome dead-centre positions	[69-]
47h-21/40	. . for interconverting rotary motion and oscillating motion	[69-]
47h-21/42	. . . with adjustable throw	[69-]
47h-21/44	. . for conveying or interconverting oscillating or reciprocating motions	[69-]
47h-21/46	. with movements in three dimensions	[69-]
47h-21/48	. . for conveying rotary motion	[69-]
47h-21/50	. . for interconverting rotary motion and reciprocating motion (47h-23/00 takes precedence)	[69-]
47h-21/52	. . for interconverting rotary motion and oscillating motion	[69-]
47h-21/54	. . for conveying or interconverting oscillating or reciprocating motions	[69-]
47h-23/00	Wobble-plate gearings; Oblique-crank gearings	[69-]
47h-23/02	. with adjustment of throw by changing the position of the wobble-member (47h-29/04, 47h-33/10 take precedence)	[69-]
47h-23/04	. with non-rotary wobble-members	[69-]
47h-23/06	. . with sliding members hinged to reciprocating members	[69-]
47h-23/08	. . connected to reciprocating members by connecting-rods	[69-]
47h-23/10	. with rotary wobble-plates with plane surfaces	[69-]
47h-25/00	Gearings comprising primarily only cams, cam-followers and screw-and-nut mechanisms	[69-]
47h-25/02	. the movements of two or more independently-moving members being combined into a single movement	[69-]
47h-25/04	. for conveying rotary motion	[69-]
47h-25/06	. . with intermediate members guided along tracks on both rotary members	[69-]
47h-25/08	. for interconverting rotary motion and reciprocating motion (47h-23/00 takes precedence)	[69-]
47h-25/10	. . with adjustable throw (adjustable cams 47h-53/04)	[69-]
47h-25/12	. . with reciprocation along the axis of rotation, e.g. gearings with helical grooves and automatic reversal (screw mechanisms without automatic reversal 47h-25/20)	[69-]
47h-25/14	. . with reciprocation perpendicular to the axis of rotation (47h-21/36 takes precedence)	[69-]

47h-25/16	. for interconverting rotary motion and oscillating motion	[69-]
47h-25/18	. for conveying or interconverting oscillating or reciprocating motions	[69-]
47h-25/20	. . Screw mechanisms (with automatic reversal 47h-25/12)	[69-]
47h-25/22	. . . with balls, rollers, or similar members between the co-operating parts; Elements essential to the use of such members	[69-]
47h-25/24	. . . Elements essential to such mechanisms, e.g. screws, nuts (47h-25/22 takes precedence)	[69-]
Gearings with intermittently-driving members		[69-]
47h-27/00	Step-by-step mechanisms without freewheel members, e.g. Geneva drives (rotary gearings with cyclically-varying velocity ratio 47h-35/02; impulse couplings 47c-5/00; clockwork escapements 83a)	[69-]
47h-27/02	. with at least one reciprocating or oscillating transmission member	[69-]
47h-27/04	. for converting continuous rotation into a step-by-step rotary movement	[69-]
47h-27/06	. . Mechanisms with driving pins in driven slots, e.g. Geneva drives	[69-]
47h-27/08	. . with driving toothed gears with interrupted toothing	[69-]
47h-27/10	. . obtained by means of disengageable transmission members, combined or not combined with mechanisms according to group 47h-27/06 or 47h-27/08	[69-]
47h-29/00	Gearings for conveying rotary motion with intermittently-driving members, e.g. with freewheel action (freewheels 47c-41/00)	[69-]
47h-29/02	. between one of the shafts and an oscillating or reciprocating intermediate member, not rotating with either of the shafts (47h-29/20, 47h-29/22 take precedence)	[69-]
47h-29/04	. . in which the transmission ratio is changed by adjustment of a crank, an eccentric, a wobble-plate, or a cam, on one of the shafts	[69-]
47h-29/06	. . . with concentric shafts, an annular intermediate member moving around and being supported on an adjustable crank or eccentric	[69-]
47h-29/08	. . in which the transmission ratio is changed by adjustment of the path of movement, the location of the pivot, or the effective length, of an oscillating connecting member	[69-]
47h-29/10	. . in which the transmission ratio is changed by directly operating on the intermittently driving members	[69-]
47h-29/12	. between rotary driving and driven members (47h-29/20, 47h-29/22 take precedence)	[69-]
47h-29/14	. . in which the transmission ratio is changed by adjustment of an otherwise stationary guide member for the intermittently-driving members	[69-]
47h-29/16	. . in which the transmission ratio is changed by adjustment of the distance between the axes of the rotary members	[69-]
47h-29/18	. . . in which the intermittently-driving members slide along approximately radial guides while rotating with one of the rotary members	[69-]
47h-29/20	. the intermittently-acting members being shaped as worms, screws, or racks	[69-]
47h-29/22	. with automatic speed change	[69-]
47h-31/00	Other gearings with freewheeling members or other intermittently-driving members (47h-21/00, 47h-23/00, 47h-25/00 take precedence; gearings involving the use of automatic changing-mechanisms, e.g. cyclically-actuated reversal gearings, see the appropriate groups)	[69-]
47h-33/00	Gearings based on repeated accumulation and delivery of energy	[69-]
47h-33/02	. Rotary transmissions with mechanical accumulators, e.g. weights, springs, intermittently-connected flywheels	[69-]
47h-33/04	. . Gearings for conveying rotary motion with variable velocity ratio, in which self-regulation is sought	[69-]
47h-33/06	. . . based essentially on spring action (ratchet slip couplings 47c-7/04)	[69-]
47h-33/08	. . . based essentially on inertia	[69-]
47h-33/10	. . . . with gyroscopic action, e.g. comprising wobble-plates, oblique cranks	[69-]
47h-33/12	. . . . with a driving member connected differentially with both a driven member with large resistance to movement, e.g. Constantinesco gearing	[69-]
47h-33/14	. . . . having orbital members influenced by regulating masses	[69-]
47h-33/16	. . . . which have their own free motion, or consist of fluid	[69-]
47h-33/18	. . . . of which the motion is constrained	[69-]

47h-33/20	. for interconversion, based essentially on inertia, of rotary motion and reciprocating or oscillating motion (shaking, jolting, or vibratory apparatus 42s)	[69-]
47h-35/00	Gearings or mechanisms with other special functional features	[69-]
47h-35/02	. for conveying rotary motion with cyclically-varying velocity ratio (speed-changing mechanisms operating cyclically, see the appropriate groups)	[69-]
47h-35/04	. Mechanical differential gearings without members having orbital motion (comprising freewheels only 47c-41/00)	[69-]
47h-35/06	. Gearings designed to allow relative movement between supports thereof without ill effects (47h-1/26, 47h-1/48 take precedence)	[69-]
47h-35/08	. for adjustment of members on moving parts from a stationary place	[69-]
47h-35/10	. Arrangements or devices for absorbing overload or preventing damage by overload (couplings, clutches 47c)	[69-]
47h-35/12	. Transmitting mechanisms with delayed effect (vibration- or shock-dampers in general 47a3)	[69-]
47h-35/14	. Mechanisms with only two stable positions	[69-]
47h-35/16	. Mechanisms for movements or movement relations conforming to mathematical formulae (devices in which computing operations are performed mechanically 42m4-3/00)	[69-]
47h-35/18	. Turning devices for rotatable members, e.g. shafts (starting devices for internal-combustion engines 46l)	[69-]
47h-37/00	Combinations of mechanical gearings, not hereinbefore provided for (applications of "underdrives" or "overdrives" in motor vehicles, combinations with differential gearings in motor vehicles 63c)	[69-]
47h-37/02	. comprising essentially only toothed or friction gearings	[69-]
47h-37/04	. . Combinations of toothed gearings only (47h-37/06 takes precedence)	[69-]
47h-37/06	. . with a plurality of driving or driven shafts; with arrangements for dividing torque between two or more intermediate shafts	[69-]
47h-37/08	. . . with differential gearing	[69-]
47h-37/10	. . . . at both ends of intermediate shafts	[69-]
47h-37/12	. Gearings comprising primarily toothed or friction gearing, links or levers, and cams, or members of at least two of these three types (47h-21/14, 47h-21/28, 47h-21/30 take precedence; toothed or friction gearing or cam gearing, with only an additional lever or link, see the appropriate group for the main gearing)	[69-]
47h-37/14	. . the movements of two or more independently-moving members being combined into a single movement	[69-]
47h-37/16	. . with a driving or driven member which both rotates or oscillates on its axis and reciprocates	[69-]
Fluid gearing (fluid actuators 60a)		[69-]
47h-39/00	Rotary fluid gearing using pumps and motors of the volumetric type, i.e. passing a predetermined volume of fluid per revolution (application to lifting or pushing equipment 35)	[69-]
47h-39/02	. the motors being at a distance from pumps	[69-]
47h-39/04	. with the motor and pump combined in one unit	[69-]
47h-39/06	. . pump and motor being of the same type	[69-]
47h-39/08	. . . each with one main shaft and provided with pistons reciprocating in cylinders	[69-]
47h-39/10	. . . . with cylinders arranged around, and parallel or approximately parallel to, the main axis of the gearing	[69-]
47h-39/12	. . . . . with stationary cylinders	[69-]
47h-39/14	. . . . . with cylinders carried in rotary cylinder blocks or cylinder-bearing members	[69-]
47h-39/16	. . . . with cylinders arranged perpendicular to the main axis of the gearing	[69-]
47h-39/18	. . . . . the connections of the pistons being at the outer ends of the cylinders	[69-]
47h-39/20	. . . . . the connections of the pistons being at the inner ends of the cylinders	[69-]
47h-39/22	. . . with liquid chambers shaped as bodies of revolution concentric with the main axis of the gearing	[69-]
47h-39/24	. . . . with rotary displacement members, e.g. provided with axially or radially movable vanes passing movable sealing members	[69-]

47h-39/26	. . . with liquid chambers not shaped as bodies of revolution or shaped as bodies of revolution eccentric to the main axis of the gearing	[69-]
47h-39/28	. . . . with liquid chambers formed in rotary members	[69-]
47h-39/30	. . . . with liquid chambers formed in stationary members	[69-]
47h-39/32	. . . . with sliding vanes carried by the rotor	[69-]
47h-39/34	. . . in which a rotor on one shaft co-operates with a rotor on another shaft	[69-]
47h-39/36	. . . . Toothed-gear type	[69-]
47h-39/38	. . . . Displacement screw-pump type	[69-]
47h-39/40	. . . Hydraulic differential gearings, e.g. having a rotary input housing with interconnected liquid chambers for both outputs	[69-]
47h-39/42	. . pump and motor being of different types	[69-]
47h-39/44	. Control (involving modification of the gearing 47h-39/02 to 47h-39/42)	[69-]
47h-39/46	. . involving adjustment of a pump or motor with adjustable output or capacity	[69-]
47h-39/48	. . by varying the number of pump or motor units in operation	[69-]
47h-39/50	. . Automatic regulation in accordance with output requirements (servomotors 60a)	[69-]
47h-39/52	. . . for use in drives for winding or unwinding mechanisms for tapes, threads, or wire	[69-]
47h-41/00	Rotary fluid gearing of the hydrokinetic type	[69-]
47h-41/02	. with pump and turbine connected by conduits or ducts	[69-]
47h-41/04	. Combined pump-turbine units	[69-]
47h-41/06	. . controlled by changing the flow, force, or reaction of the liquid in the working circuit, while maintaining a completely filled working circuit	[69-]
47h-41/08	. . . by altering the position of blades	[69-]
47h-41/10	. . . . by means of axially-shiftable blade runners	[69-]
47h-41/12	. . . . to change the blade angle	[69-]
47h-41/14	. . . by change of the mechanical connection of or between the runners	[69-]
47h-41/16	. . . . exclusively by the use of freewheel clutches	[69-]
47h-41/18	. . . . involving use of a speed-changing gearing or of a clutch in the connection between runners (47h-41/16, 47h-45/02 take precedence)	[69-]
47h-41/20	. . controlled by changing the amount of liquid in the working circuit	[69-]
47h-41/22	. . Gearing systems consisting of a plurality of hydrokinetic units operating alternatively, e.g. made effective or ineffective by filling or emptying or by mechanical clutches	[69-]
47h-41/24	. Details	[69-]
47h-41/26	. . Shape of runner blades or channels with respect to function	[69-]
47h-41/28	. . with respect to manufacture, e.g. blade attachment	[69-]
47h-41/30	. . relating to venting, lubrication, cooling, circulation of the cooling medium	[69-]
47h-41/32	. Selection of working fluids (chemical aspects, see the relevant classes)	[69-]
47h-43/00	Other fluid gearing, e.g. with oscillating input or output	[69-]
47h-45/00	Combinations of fluid gearings for conveying rotary motion with couplings or clutches (47h-41/22 takes precedence)	[69-]
	Note:	[69-]
	Clutches for varying working conditions in fluid torque-converters are regarded as a part of the latter.	[69-]
47h-45/02	. with mechanical clutches for bridging a fluid gearing of the hydrokinetic type	[69-]
47h-47/00	Combinations of mechanical gearing with fluid gearing	[69-]
47h-47/02	. the fluid gearing being of the volumetric type	[69-]
47h-47/04	. . the mechanical gearing being of the type with members having orbital motion	[69-]
47h-47/06	. the fluid gearing being of the hydrokinetic type	[69-]
47h-47/08	. . the mechanical gearing being of the type with members having orbital motion	[69-]
47h-49/00	Other gearing	[69-]

Details of gearing or mechanisms (of screw-and-nut gearing 47h-25/00; of fluid gearing 47h-39/00 to 47h-43/00; shafts, Bowden mechanisms, cranks, eccentrics, bearings, pivotal connections, crossheads, connecting-rods 47b; chains, belts 47d; piston-rods 47f2-7/00) [69-]

47h-51/00	Levers	[69-]
47h-51/02	. adjustable	[69-]
47h-53/00	Cams; Non-rotary cams; Cam-followers, e.g. rollers	[69-]
47h-53/02	. Single-track cams for single-revolution cycles; Camshafts with such cams	[69-]
47h-53/04	. . Adjustable cams	[69-]
47h-53/06	. Cam-followers (47h-53/08 takes precedence)	[69-]
47h-53/08	. Multi-track cams, e.g. for cycles consisting of several revolutions; Cam-followers specially adapted for such cams	[69-]
47h-55/00	Elements with teeth or friction surfaces for conveying motion; Worms; Pulleys; Sheaves (pulley-blocks 35c-3/04)	[69-]
47h-55/02	. Toothed members; Worms	[69-]
47h-55/04	. . Toothed wheels (worm wheels 47h-55/22; chain wheels 47h-55/30)	[69-]
47h-55/06	. . . Uses of materials or of treatments of material	[69-]
47h-55/08	. . . Profiling	[69-]
47h-55/10	. . . Constructively simple tooth shapes, e.g. shaped as pins, as balls	[69-]
47h-55/12	. . . with body or rim assembled out of detachable parts	[69-]
47h-55/14	. . . Construction providing resilience or vibration-damping (47h-55/06 takes precedence; resilient coupling of wheel or wheel-rim with shaft 47c-3/50, 47c-3/80)	[69-]
47h-55/16	. . . . relating to teeth only	[69-]
47h-55/18	. . . Special devices for taking-up backlash	[69-]
47h-55/20	. . . . for bevel gears	[69-]
47h-55/22	. . for transmissions with crossing shafts, especially worms, worm-gears (bevel gears, crown wheels, helical gears 47h-55/04)	[69-]
47h-55/24	. . . Special devices for taking up backlash	[69-]
47h-55/26	. . Racks	[69-]
47h-55/28	. . . Special devices for taking up backlash	[69-]
47h-55/30	. . Chain wheels (specially adapted for cycles 63k)	[69-]
47h-55/32	. Friction members (friction surfaces 47c-69/00)	[69-]
47h-55/34	. . Non-adjustable friction discs	[69-]
47h-55/36	. . Pulleys (with features essential for adjustment 47h-55/52)	[69-]
47h-55/38	. . . Means or measures for increasing adhesion (in general 47c-69/00)	[69-]
47h-55/40	. . . with spokes (47h-55/48 takes precedence)	[69-]
47h-55/42	. . . Laminated pulleys	[69-]
47h-55/44	. . . Sheet-metal pulleys	[69-]
47h-55/46	. . . Split pulleys	[69-]
47h-55/48	. . . manufactured exclusively or in part of wood or other non-metallic material (47h-55/38, 47h-55/42, 47h-55/46 take precedence)	[69-]
47h-55/50	. . . Features essential to rope pulleys	[69-]
47h-55/52	. . Pulleys or friction discs of adjustable construction	[69-]
47h-55/54	. . . of which the bearing parts are radially adjustable	[69-]
47h-55/56	. . . of which the bearing parts are relatively axially adjustable	[69-]
47h-57/00	General details of gearing	[69-]
47h-57/02	. Gear-boxes; Mounting gearing therein	[69-]
47h-57/04	. Features relating to lubrication or cooling	[69-]
47h-57/05	. . of chains (for conveyers 81e)	[69-]
47h-57/06	. Means for preventing the actuation of speed-changing or reversing mechanism in unfavourable conditions	[69-]
47h-57/08	. of gearings with members having orbital motion	[69-]
47h-57/10	. . Braking arrangements	[69-]

47i	Sammansatta finmekaniska konstruktionselement som inte omfattas av speciella klasser	[52-69]
47i-1	Lagringsanordningar för finmekaniska kraftöverföringar (som maskinelement 47b; för mätinstrument i allmänhet 42d-1/01; för elektriska maskiner 21d1-47; för elektriska småmaskiner 21d1-9 – 21d1-12; för gyroskop 47c-25/51; för urverk 83a-48)	[52-69]
47i-2	Mekanismer för grovinställning och fininställning (för högfrequensapparater 21a4-70)	[52-69]
47i-3	Styrmekanismer för rätlinjig rörelse; Styrordningar för rörliga delar (som maskinelement 47b, 47h-1; för mätinstrument, allmänt 42d-1/01)	[52-69]
47i-4	Förbindningar; Fasthållningsorgan; Spärrorgan (förbindningar som maskinelement 47a; spärrorgan som maskinelement 47h-4; förbindningar för elektriska ledningar 21c-20 – 21c-27)	[52-69]
47i-5	Rörelseöverföringsmekanismer (kopplingar för kraftöverföring, allmänt 47c; transmissionsanordningar, allmänt 47h; för elektriska anordningar 21d1-47)	[52-69]
47i-6	Visaranordningar; Avläsningsanordningar (för radioapparater 21a4-70; för mätinstrument 42d-2/01; för fjärrindikeringsapparater, signalapparater eller kommandoapparater 74b-74; för elektriska ur 83b)	[52-69]
47i-7	Andra sammansatta finmekaniska konstruktionselement som inte omfattas av andra grupper	[52-69]

47i	(IPC: G12B) Details of instruments, or comparable details of other apparatus, not otherwise provided for	[69-]
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Notes:	[69-]
(1) This subclass includes only details which are not restricted to measuring instruments or to any other apparatus covered by a single class. Details which are covered by any other subclass are classified in the relevant subclass. In particular, details which are restricted to measuring instruments are covered by the relevant subclass of class 42.	
(2) Constructional details restricted to electric apparatus, e.g. casings, screenings, are covered by class 21.	
	[69-]

47i-1/00	Sensitive elements capable of producing movement or displacement for purposes not limited to measurement; Associated transmission mechanisms therefor	[69-]
47i-1/02	. Compound strips or plates, e.g. bimetallic	[69-]
47i-1/04	. Hollow bodies having parts which are deformable or displaceable under pressure, e.g. Bourdon tube, bellows (bellows in general 47f2-3/00)	[69-]
47i-3/00	Details of movements not otherwise provided for (damping of shock or vibrations in general 47a3; avoiding out-of-balance forces 47a3-15/00; testing balance 42k)	[69-]
47i-3/02	. Caging of movements, i.e. locking of movements when not in use	[69-]
47i-3/04	. Suspensions (bearings 47b)	[69-]
47i-3/06	. Reducing effects of friction, e.g. by vibration (by lubrication 47e)	[69-]
47i-3/08	. Damping of movements, e.g. to promote rapid non-oscillatory movement to a final reading	[69-]
47i-3/10	. . using eddy currents	[69-]
47i-5/00	Adjusting position or attitude, e.g. level, of instruments or other apparatus, or of parts thereof (levels per se 42c-24); Compensating for the effects of tilting or acceleration, e.g. for optical apparatus	[69-]
47i-7/00	Compensating for the effects of temperature (by cooling 47i-15/00)	[69-]
47i-9/00	Housing or supporting of instruments or other apparatus	[69-]
47i-9/02	. Casings; Housings; Cabinets (sealing arrangements for transmission members 47f2, particularly 47f2-15/50)	[69-]
47i-9/04	. . Details, e.g. cover	[69-]

47i-9/06	. . . Metal casings	[69-]
47i-9/08	. Supports; Devices for carrying	[69-]
47i-9/10	. . Instrument boards; Panels; Desks; Racks; Frameworks	[69-]
47i-11/00	Indicating elements; Illumination thereof	[69-]
47i-11/02	. Scales; Dials	[69-]
47i-11/04	. Pointers; Setting-mechanisms therefor	[69-]
47i-13/00	Calibrating of instruments and apparatus (calibrating of measuring instruments 42)	[69-]
47i-15/00	Cooling (by refrigeration, e.g. circulation of refrigerated fluid, 17c; heat-exchange or heat-transfer details of general application 17e, 17f)	[69-]
47i-15/02	. by closed-cycle fluid-circulating systems	[69-]
47i-15/04	. by currents of fluid, e.g. air, in open cycle	[69-]
47i-15/06	. by contact with heat-absorbing or radiating masses, e.g. heat-sink	[69-]
47i-17/00	Screening (insulation or other protection of buildings 37a; emergency protection of apparatus in general 47a4-7/00; in connection with acoustic waves 42g-1/10; in connection with nuclear radiation 21g)	[69-]
	Note:	[69-]
	This group covers	
	(a) the protection of instruments or other apparatus from external radiation or other influences,	
	(b) the prevention of the emission of undesirable radiation or other influences by instruments or other apparatus.	[69-]
47i-17/02	. from electric or magnetic fields, e.g. radio waves	[69-]
47i-17/04	. from visible, ultra-violet, or infra-red light (screening of lighting devices 4a, 4b; optical filters 42h-34/08)	[69-]
47i-17/06	. from heat (47i-17/04 takes precedence; cooling 47i-15/00)	[69-]
47i-17/08	. from influences producing mechanical damage, e.g. caused by blast, by external object, by person (47i-17/02 to 47i-17/06 take precedence)	[69-]
47k	Frammatning, styrning, förvaring eller uppsamling, t.ex. upplindning, av trådformigt, repformigt, kabelformigt, slangformigt, bandformigt eller banformigt gods (specialutföranden på specialklasserna)	[61-]
47k-1/00	Frammatning av godset i längdriktningen	[61-]
47k-1/02	. Kontinuerlig frammatning	[61-]
47k-1/04	. Stegvis frammatning	[61-]
47k-1/06	. Utjämning av olikformig frammatning	[61-]
47k-1/08	. Avbrytning av frammatningen	[61-]
47k-3/00	Styrning av godset	[61-]
47k-3/02	. Synkron frammatning av två eller flera band e.d.	[61-]
47k-3/04	. Reglering av dragspänningen	[61-]
47k-3/06	. Uppsamling med stegvis tillförsel av godset (uppsamling eller förvaring av flexibelt gods allmänt 47k-5/00)	[61-]
47k-3/08	. Förbindning av godsets ändar	[61-]
47k-3/10	. Övervakning av godset	[61-]
47k-5/00	Uppsamling, t.ex. upplindning eller avläggning, av godset	[61-]
47k-5/02	. Upplindning på bärare, t.ex. spolar eller trummor	[61-]
47k-5/04	. . Fästande av godset vid lindningsbärare	[61-]
47k-5/06	. . Lägesriktig tillförsel; Kantskydd	[61-]
47k-5/08	. . Utformning av lindningsbärare	[61-]
47k-5/10	. . Lagring, fästning, avlyftning eller utbyte av lindningsbärare; Kapning av godset vid utbyte av lindningsbärare (förbindning av ändarna 47k-3/08)	[61-]
47k-5/12	. Avlindning	[61-]
47k-5/14	. Omlindning	[61-]

- 47k-5/16 . Upplindning utan lindningsbärare genom drivning på lindningens omkrets med hjälp av valsar eller band [61-]
- 47k-5/18 . Upplindning i roterande eller stillastående behållare med eller utan kärna, med eller utan lägganordning [61-]
- 47k-5/20 . Annan uppsamling, t.ex. avläggning i slingor [61-]
- 47k-7/00** **Upprepad rörelse, t.ex. utläggning och intagning av kablar, slangar e.d. i samband med rörliga förbrukare, t.ex. fortskaffningsmedel, lyftanordningar eller verktygsmaskiner** (frammatning av böjligt gods i allmänhet 47k-1/00) [61-]
- 47k-7/02 . Utlägningsanordningar [61-]
- 47k-7/04 . Intagningsanordningar [61-]
- 47k-9/00** **Uppsamling eller förvaring av kablar, slangar e.d. på rörliga förbrukare** (uppsamling av långsträckt, böjligt gods i allmänhet 47k-5/00) [61-]
- 47k-9/02 . på trummor eller i behållare [61-]
- 47k-9/04 . i lösa eller spända slingor [61-]