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EPI MANUAL CODES

Introduction

This User Manual is intended to assist users of the Electrical Patents Index (EPI) Service in making the best use of the classification and indexing (Manual Coding) scheme which Thomson Reuters applies to electrical and electronic patents.

Background

Electrical Patents Index (EPI) was introduced in 1980 to provide an improved patent information alerting service for users whose interests lie in the electrical field, and (from 2006) the mechanical transportation field, and (from 2012) the mechanical packaging field.

Coverage is arranged in seven sections (Q, S-X), each dealing with a fairly broad range of subject matter. Within these sections are the EPI classes, fifty in total, which provide a more precise breakdown of material (see Appendix 4 for details). Associated with each class is a set of Manual Codes applied by Thomson Reuters technical staff to allow detailed retrieval.

These codes, which have been assigned since the start of the EPI Service (Update 198018), form a hierarchical indexing system, mainly intended as an online retrieval tool. Originally based, in part, on the International Patent Classification (IPC), the EPI Manual Codes numbered approximately 1,900 when introduced and have been revised 14 times with the latest revision (2013) now including over 12,000 EPI Manual Codes to give a finer subject matter breakdown to improve retrieval.

The revisions to the Manual Code, carried out in consultation with engineering customers, have the purpose of reflecting changes in technology, and continuing to develop an alternative technical viewpoint to that of the International Patent Classification.

Format of Manual Codes

Manual Codes are structured so that an increase in the number of characters represents a finer subject matter breakdown.

For the 1992 revision, the permissible maximum length of manual codes was increased to ten characters (including the hyphen), the possible formats being shown below:

ANN	*EPI Class*
ANN-A	*Generic Manual Code*
ANN-ANN	*Sub-group*
ANN-ANNA	*Sub-group division*
ANN-ANNAN	*Full Manual Code*
ANN-ANNANA	*(9 or 10 digits)*

The class to which a Manual Code belongs is indicated by the characters preceding the hyphen, thus the codes are always sub-divisions of their related EPI Class. It should be noted that leading zeros are used to preserve the correct hierarchy. The shortest possible Manual Code is thus of five characters length (e.g. S01-A).

Criteria for Assigning Manual Codes

Manual Codes are intended to highlight the novel aspects of an invention and are therefore normally assigned according to the claimed novelty. In addition, depending on either the electrical content of the invention itself, or its intended use, codes are applied to indicate the application of an invention. (For a fuller explanation of these criteria see Appendix 2).

It should be noted that Manual Codes are frequently used in combination to represent a particular topic, so that some subjects may be routinely assigned two or three Manual Codes.

Documents Assigned Manual Codes

Manual Codes are currently assigned to all Basic patents in EPI. Prior to Update 199510, EPI classes were assigned to title-only entries, except those for Chinese and Japanese patents, which were fully coded.

Transportation Codes

Mechanical transportation Q11-Q25 codes have been applied to all patent documents from 200601 and are applied to highlight mechanical application or patents with mechanical novelty.

The Q codes are designed to be used in conjunction with one another in the same way as the electrical manual codes are assigned, and they may also be applied in conjunction with the electrical manual codes when appropriate.

Q11-Q25 codes will be applied to cover the core transportation areas such as vehicles in general, trains, ships and aircraft.

Mechanical Q codes will also be applied in two other areas: namely, Q5 (Engines; pumps; compressors, fluid pressure actuators) and Q6 (Engineering elements), either when

(i) The patent is in a transportation technology (indicated by the presence of the Q11-Q25 class) and the Q5 and Q6 code provides a more detailed breakdown of the patent novelty than any of the Q11-Q25 codes applied; or

(ii) The patent has an unspecified application, though one that could be of use in the transportation field, e.g. a novel piston for an internal combustion engine of unspecified application.

Packaging Codes

Mechanical packaging Q3* codes have been applied to all patent documents from 201201 and are applied to highlight mechanical application or patents with mechanical novelty. The Q3* codes are designed to be used in conjunction with one another in the same way as the electrical manual codes are assigned, and they may also be applied in conjunction with the electrical manual codes when appropriate.

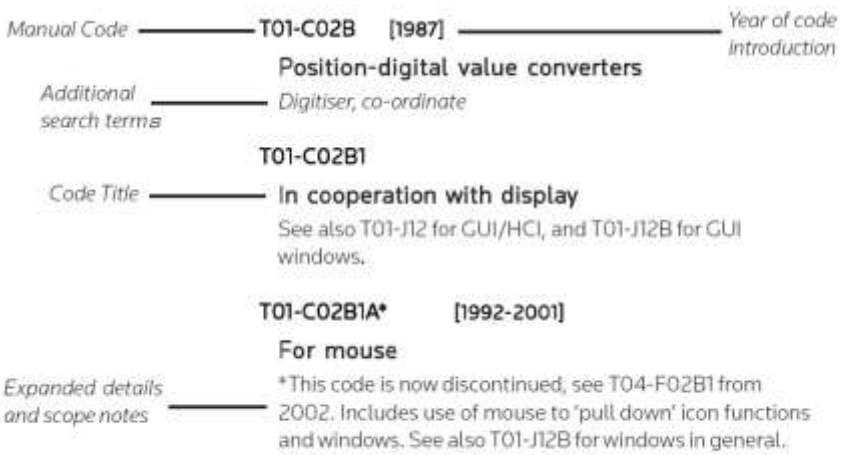
Layout of the Manual

The manual is arranged in three sections.

Parts 1 & 2

Codes in the seven sections Q, S-X are listed in alphanumeric order with details including the code definition, scope notes and associated search terms. For codes introduced post-1980 the year of introduction is indicated.

An annotated example of a typical entry in the manual is shown below:



Part 3

This comprises an overall keyword index to Parts 1 & 2 of the manual, with 6 appendices as follows:

1 Brief Summary of EPI Subject Matter Coverage

2 Subject Index highlighting EPI Manual Coding Criteria

3 IPC - EPI Manual Code Approximate Concordance

4 Concise Guide to EPI and Mechanical Transportation Classification

5 Nanotechnology: Quick reference guide listing all Chemistry, Life Sciences and Engineering manual codes relating to Nanotechnology industries

6 Green Technology: Quick reference guide listing all Chemistry, Life Sciences and Engineering manual codes relating to Green technology

Code Heading and Definition

In this new edition, many of the code descriptors have been re-worded and expanded to include details on how the code is applied and to provide references to other Manual Codes which might be of interest to the searcher for retrieval purposes.

Additional Search Terms

Additional terms immediately follow most code definitions. These comprise individual terms or groups of terms which might assist users in devising search strategies. The terms have been derived intellectually by Thomson Reuters coders aided by online searches to determine the most frequently occurring terms in titles of records to which the code has been assigned.

In order to enhance retrieval, the searcher may also wish to use terms of interest in the code title definition itself and in the accompanying scope notes. In addition, terms appearing against higher level codes in the hierarchy may be employed, e.g.

V06-M07

Magnetic circuits

Magnets, magnetic poles, cores, yokes, tooth, slots, laminations

V06-M07A [1987]

Stator

V06-M07B [1987]

Rotor

In this example, users interested in stators for small electrical machines (V06-M07A) should consider terms of interest (e.g. cores, laminations) under the broader code V06-M07, where terms equally applicable to both sub-divisions are listed.

It should be stressed that the lists of search terms are not comprehensive and users may find it necessary to use additional terms.

Year of Introduction

The year of implementation of codes added after the initial introduction of EPI in 1980 is indicated in parentheses immediately alongside the code, e.g. [1987], indicates the code was introduced from the start of 1987. If such a code is not a subdivision of an existing code, then the code to be searched in order to retrieve earlier records is given in parentheses following the code heading. If no year is shown alongside a code, this indicates the code was applied from the start of EPI, i.e. Update 198018.

In a few cases, revision of the Manual Codes has resulted in a particular code or code group being discontinued. These codes, which are indicated in the manual by an asterisk (*) following the code, remain valid for records prior to the year of revision.

Keyword Index

Part 3 of the EPI Manual comprises an alphabetical index of the key terms appearing in the definition and associated with each Manual Code, together with the corresponding code. This index is used to guide the user to the correct code(s) in Parts 1 & 2 of the manual, where in order to ensure correct retrieval the user should always consult the full definition for the code including any scope notes. To avoid ambiguity, the terms appearing in the index are mainly derived from the code definition and only a few of the additional search terms are indexed.

IPC – Manual Code Relationship

An IPC-to-Manual Code concordance at generic Manual Code level is provided at the end of this manual. It should be noted that the concordance cannot be guaranteed and since the codes are intellectually applied, other codes may be assigned as appropriate according to the technical content of the patent.

Please note: The concordance has not been revised fully to date to take care of IPC changes brought about by the introduction of IPC version 8 and above.

Online Searching of Manual Codes

All Manual Codes are searchable in the Derwent World Patents Index® online files.

Retrieval may be enhanced, depending on the scope of a Manual Code and the desired search, by combining it with other search terms, such as title/abstract words, title terms, IPCs, patentee names etc. These terms may be used to restrict the Manual Code to items of particular interest or to ensure full retrieval by defining the subject matter by use of other terms in addition to the Manual Codes. For additional information on online searching, please consult the relevant Thomson Reuters Online User Guides for each of the hosts.

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Q1 Vehicles in General

Q11: Wheels, Tyres, Connections

From 2006, manual codes have been assigned for all mechanical details of vehicle wheels, tyres and connections.

Q11-A

Wheels; Wheel assemblies

Includes novel aspects of vehicle wheels, including emergency space saver and spare wheels. This code can also be applied when the wheel assembly as a whole is being claimed and when no specific components of the wheel assembly are novel.

Wheelend assembly

Q11-A01

Spoked wheels

Includes wheels with separable/replaceable spokes, nipples etc., such as bicycle wheels.

Q11-A02

Disc wheels

Includes wheels with single disc body, e.g. cast alloy wheels (with or without cut-outs to simulate spokes), and pressed steel disc wheels.

Q11-A03

Rims

Q11-A04

Hubs

Includes hub bearing assemblies - see also Q62-G for more detail.

Q11-A05

Axles

Includes all axle details including quick release bicycle wheel axles.

Q11-A06

Wheel bearings

Also see Q62-G for specific bearing types.

Tapered roller bearings

Q11-A07

Wheel covers

Includes covers for decorative or aerodynamic purposes.

Hub cap

Q11-A08

Castors

Q11-A15

Traction increasing equipment

Includes mechanical devices for increasing friction between wheel and the ground.

Q11-A15A

Lugs, spikes, snow chains etc.

Includes tyres with built-in or attachable spikes or chains removably fastenable to tyres.

Q11-A15B

Applying traction increasing material, e.g. sand

Dispensing of particulate material such as sand in front of tyre path.

Q11-A17

Rail engaging arrangements

Includes wheels with flanged edges for engaging rails. See Q19-R02 for vehicles usable on road/rail, and possibly Q21 for railway vehicles per se.

Q11-A19

Wheel-axle combinations, e.g. wheel sets

Includes overall novel wheel/axle combination, e.g. the whole rear axle/wheel assembly used on a commercial lorry (also see Q19-C02).

Q11-A20

Wheel nuts/fastening elements

Includes wheel nuts and bolts and anti-theft locking wheel nuts (see also Q61-A codes). Also includes quick release wheel fastening elements.

Spinner, skewer

Q11-A28

Wheel manufacture/ assembly/disassembly apparatus

Includes equipment for manufacturing and assembling/dismantling wheels, such as metal presses and casting equipment or jigs for enabling manual building of spoked wheels. For apparatus for (de)mounting wheel onto vehicle also see Q16-A02.

Q11-A30

Other wheel details

Q11-B

Tyres

Q11-B01

Tyre type

Q11-B01A

Inflatable tyres

Can be used to highlight the fact that the tyre construction is applicable to a pneumatic tyre.

Q11-B01A1

Inner tubes

Q11-B01A3

Emergency or restricted use tyres

Includes tyres that can be temporarily used in a damaged or deflated condition, e.g. using additional inflatable or non-inflatable supporting elements.

Q11-B01A3A

Run-flat tyres

Includes run-flat arrangements, e.g. by enabling folding of tyre side wall (see also Q11-B05).

Q11-B01A5

Folding tyres

See Q19-A01 for folding bicycle tyres, and e.g. Q11-B03 for Kevlar (RTM) beads per se.

Q11-B01H

Heavy duty tyres

Includes tyres used in general heavy duty applications. Can be used in conjunction with Q19 codes to further specify the type of heavy duty vehicle involved.

Q11-B01S

Solid tyres

Includes solid rubber tyres and tyres with a solid, e.g. foam material, insert.

Q11-B01X

Other tyre types

Q11-B02

Valves

See also Q66 codes for valves per se.

Q11-B03

Beads

Includes beads and other similar ply overlap arrangements for enabling tyre to seat on and be retained in wheel rim.

Q11-B04

Reinforcements or ply arrangements

Includes cross ply, reinforcing cords, layers, inlays etc.

Q11-B05

Tyre sidewalls

Includes grooves and rib markings or coloured inlays, e.g. white walls.

Q11-B06

Tread bands, patterns and anti-skid inserts

Includes tread patterns, anti-skid inserts vulcanised into tyre and wear indicators.

Q11-B15

Emergency/puncture repair arrangements

Includes emergency use accessories such as tyre sealant sprays to temporarily repair tyre until it can be properly fixed/changed.

Q11-B20

Tyre manufacture, mounting and inspection

Includes all mechanical aspects of tyre manufacture such as vulcanising, or equipment for mounting of tyres on wheels (also see Q16-A02) or inspecting tyres. Also includes equipment for balancing wheels and associated balance weights (see also S02-J05 for static or dynamic balance testing per se).

Q11-B30

Other tyre details

Includes wheel tape used to cover spoke nipples to protect inner tube (see also Q19-A for bicycles). Also includes novel tyre materials and rubber compositions (see also relevant polymer section A indexing).

Q11-C

Connections

Includes assemblies between e.g. towing and towed vehicles.

Q11-C01

Traction couplings or hitches

Includes ball and socket hitches or bolt/shackle type hitches mounted on **towing** vehicle. For power take offs (PTOs) per se, e.g. used on agricultural tractors, see also Q19-G and Q13-C instead. Also includes fifth wheel traction couplings used on articulated lorries (see also Q19-C02). For electrical aspects such as 7pin electrics, see X22-X01A and V04-D codes instead.

Tractor-trailer

Q11-C02

Draw gear or towing devices

Includes e.g. V or Y shaped tubular frameworks and hitch arrangements forming part of **towed** vehicle. Also includes towing chains or ropes, and safety arrangements such as stabiliser bars fixed to towed vehicle for limiting sway of e.g. towed trailer/caravan.

Q11-C05

Fittings to facilitate pushing

Q11-C07

Gangways for coupled vehicles

Includes removable walkways between vehicles, e.g. between lorry cab and trailer.

Q11-C09

Other connection details

Includes damping arrangements for limiting vibration etc. between towing vehicle and towed assembly/trailer.

Q12: Suspension

From 2006 Q12 covers all mechanical details of vehicle suspension systems. Prior to the introduction of Q12 manual codes in 2006, the Q12 class covered vehicle suspensions, heating, doors and screens.

Q12-A

Rigid suspensions; Rigid connection between axle and frame

Q12-B

Resilient suspensions

Includes independent resilient suspension for single wheels and resilient suspension for wheel sets or axles with inter-related movement, e.g. live axles.

Q12-B01

Spring arrangements

Q12-B01A

Leaf

Q12-B01B

Coil

Q12-B01C

Torsion bar springs

Q12-B01D

Rubber springs

Includes elastomers.

Q12-B01E

Fluid springs

Includes hydraulic and air springs.

Q12-B01F

Combination of different spring types

Includes suspensions e.g. employing both coil springs and air springs.

Q12-B02

Vibration dampers; Shock absorbers

Damper

Q12-B02A

Mechanical damper

Includes coil springs used to provide a damping function.

Q12-B02B

Fluid damper

Includes hydraulic, pneumatic and quasi-fluid, i.e. having powdered medium, dampers.

Q12-B02C [2008]

Torsion damper

Includes torsional damping arrangements.

Q12-B02D [2008]

Rubber damper

Includes elastic material, e.g. rubber or elastomer dampers.

Q12-B03

Spring/damper combinations

Includes coil-over dampers. This code can be used in conjunction with other Q12-B codes to highlight the type of springs and dampers being used.

Racing car, sports car

Q12-B04

Spring/damper characteristic adjustment; Vehicle ride height control

Includes control of air pressure within air springs. Also includes arrangements for adjusting caster/camber and toe-in/toe-out of vehicle wheels (see also Q12-B07 for suspension adjustment linkages per se).

Height control

Q12-B06

Mountings; Brackets

Includes suspension mounting arrangements such as bushes and brackets.

Nylon, poly, bush

Q12-B07

Suspension connections/linkages

Includes Panhard rods, Watt linkages, trailing arms, wishbones etc. Also includes upper and lower ball joints.

Double wishbones, outboard, inboard

Q12-B09

Roll/stability control arrangements

Includes mechanical anti-roll bars per se.

Stabiliser

Q12-B15

Lubrication arrangements

Oil, grease, nipple

Q12-X

Other suspension details

Q13: Powertain/transmission, systems and their control

From 2006 Q13 covers all mechanical details of vehicle powertrains, transmission systems and their control. Prior to the introduction of Q13 manual codes in 2006, the Q13 class covered vehicle transmissions and controls, including propulsion unit mounting arrangements and fuel tanks.

Q13-A

Powertrain/Transmission systems and their control

For electrical aspects of transmission systems used in electric vehicles or motor vehicles, respectively see X21-A02A and X22-G codes only.

Q13-A01

Transmission type

Q13-A01A

Automatic transmission

Includes transmissions where gears are changed under load, so that power continues to be transmitted to drive wheels while shifting. Includes sun and planet gears, planet carriers etc.

Q13-A01A1

Double clutch transmission

Includes transmissions using two multiplate clutches arranged on drive side with next gear being preselected in transmission unit not currently transmitting power.

Q13-A01C

Continuously variable transmission (CVT)

Includes e.g. mechanical belt wrap transmissions.

Toroidal transmission

Q13-A01E

Semi-automatic

Includes manual transmissions where clutch is electronically disengaged during gear shifting, avoiding the need for a driver's clutch pedal.

Paddleshift, clutchless

Q13-A01M

Manual transmission

Includes gearing and synchronisers, e.g. used to allow collar and gear to make frictional contact before dog teeth make contact to avoid the need for double declutching.

Synchromesh

Q13-A01X

Other transmission types

Includes derailleur type transmission assemblies used on bicycles (see also Q19-A).

Q13-A02

Torque converter

Includes fluid coupling type torque converters used in multi-speed and automatic transmissions and lockup clutches used to lock the two halves of the converter together to eliminate slippage when the converter is up to speed. Also see Q13-A01A for automatic transmissions per se.

Hydrodynamic torque converter

Q13-A03

Clutch

Includes both wet and dry plate friction clutches. Also includes mechanical lock-up clutches used in e.g. torque converters (see also Q13-A02). Also includes clutch release bearings (see also Q62-G codes) and clutch pressure plates. Also includes flywheels (see also Q63-E02B) including dual mass flywheels prior to 2012. From 2012 flywheels are transferred to Q13-A04. Also see Q17-N for vibration reduction per se.

Q13-A04 [2012]

Flywheels

Includes mechanical details of all flywheels including dual mass flywheels (see also Q63-E02B). For vibration reduction per se see Q17-N.

Q13-A05

Retarder

Includes hydrodynamic retarders, including primary retarders fitted on drive input side, e.g. for low speed braking of buses, and secondary retarders fitted on drive output side, e.g. for higher speed or downhill braking of trucks.

Q13-A07

Drive shafts

Includes prop shafts and half shafts. Also includes constant velocity joints and other connections (see also Q63-A codes).

CV joint, universal joint

Q13-A09

Differentials

Includes open and limited slip differentials (See Q13-A11 for 4WD diff locks). See also Q13-A11 for mechanical Torsen (RTM) differentials or viscous couplings used in all wheel drive off-road vehicles.

LSD, open, diff, plate, Torsen (RTM), viscous coupling, final drive unit, bevel gears

Q13-A11

All wheel drive

Includes both permanent and disengageable all wheel drive and four wheel drive systems. Includes viscous couplings, transfer cases and lockable differentials (see also Q13-A09). For electrical aspects of four or all wheel drive systems see X22-G05 instead, and for systems using intelligent brake application see X22-C02 codes.

AWD, 4WD, four-wheel drive, all-terrain, transfer case, Torsen (RTM) lock, viscous coupling, high-low range

Q13-A15

Cranks

Pedal arm

Q13-A16

Pedals

SPD, clipless

Q13-A17 [2008]

Chainrings and sprockets

Includes toothed chainrings and sprockets e.g. for bicycle (see also Q19-A).

Q13-A18

Chains/belts

Includes endless chains and belts.

Q13-A20

Lubrication arrangements

Includes oil seals and drain plugs e.g. for gearboxes or differentials.

Q13-A22

Cooling arrangements

Includes transmission oil coolers.

Q13-A24 [2007]

Gearing

Includes mechanical aspects of transmission gearing and gearboxes. See Q64-C for further details of gearing in general.

Q13-A26 [2008]

Mountings

Includes gearbox, differential, drive train mounting arrangements and transmission noise control arrangements (see also Q17-N for noise reduction in general).

Bracket, rubber, bush

Q13-A30

Other transmission hardware

Q13-B

Powertrain/Transmission control arrangements

Includes gear levers per se and gear knobs. Also includes clutch control levers e.g. used on motorcycle (see also Q19-B) and mechanical/hydraulic clutch activation arrangements and clutch pedals.

Control

Q13-C

Auxiliary drives, e.g. from PTO, driven wheel

Includes power take-offs used on e.g. agricultural tractors (see also Q19-G). For mechanical aspects of hitches per se, see Q11-C01.

Q13-X

Other transmission details

Includes transaxles, i.e. where gearbox and differential etc. are combined into one unit.

Q14: Vehicle Accessories

From 2006 Q14 covers all mechanical vehicle accessories. See X22-J instead for electrical vehicle accessories. Prior to the introduction of Q14 manual codes in 2006, the Q14 class covered electric propulsion and seating.

Q14-A

Seats; Saddles

Q14-A01 [2007]

Child seats

Includes removable child seats, and child seats and booster cushions that are integral with vehicle seats.

ISOFIX

Q14-B

Beds

Q14-C

Safety devices

For electrical aspects, see X22-J11 for general passenger safety devices.

Q14-C01

Safety belts; Body harnesses

See X22-J03B codes only for electrical aspects of seat belts.

Seatbelt

Q14-C02

Inflatable occupant restraints

Includes inflatable airbags, knee bolsters and side/curtain airbags. See X22-J07 only for electrical aspects of airbags.

SRS

Q14-C02A [2008]

For protecting specific occupant

The codes below are used to highlight whether a specific occupant is being protected. For e.g. curtain airbags designed to protect all vehicle occupants then no Q14-C02A codes need be applied.

Q14-C02A1 [2008]

For protecting driver

Q14-C02A2 [2008]

For protecting front seat passenger

Q14-C02A3 [2008]

For protecting rear seat passengers

Q14-C02C [2008]

Specific inflatable restraint types

These codes can be applied to highlight specific types of inflatable occupant restraint.

Q14-C02C1 [2008]

Inflatable knee bolster

Q14-C02C2 [2008]

Side/curtain airbag

Q14-C02C3 [2008]

Dashboard/steering wheel mounted airbag

Q14-C02C4 [2008]

Roof mounted airbag

Q14-C03

Visual signalling, e.g. reflectors

Includes optical signalling devices such as reflectors and e.g. posts mounted on bumper to highlight corner of vehicle for assisting parking or collision prevention. For reflectors built into vehicle light see X22-B and X26-D01A codes only.

Q14-C04

Audible signalling, e.g. horns

Includes mechanical devices only. See X22-B03H and W05 codes for electrical aspects of vehicle horns.

Q14-C05

Portable emergency signal devices

For portable illuminated signalling devices see X22-B03E and T07-X and possibly X26 or W05 codes only.

Warning triangle

Q14-C06

Crash bars, crash pads

See also Q19-A or Q19-B for bicycles and motorcycles respectively. Also includes side impact protection bars (also see Q17-A06 for doors). Includes flip-up rollover bars used in cabriolet vehicles (also see Q19-S).

Q14-C07

Stabilisers

Includes stabilisers used when learning to ride a bicycle (see also Q19-A). Also includes stabilisers and grounding members for construction vehicles (see also Q19-E). For suspension system stabiliser/anti-roll bars see Q12-B09 instead.

Q14-C15

Pedestrian safety systems

includes passive systems such as pedestrian friendly bonnets or deformable bumpers (see also Q17-A12).

Q14-C16 [2008]

Vehicle specific clothing

Can be used for all mechanical aspects of vehicle specific clothing, including bicycle and motorcycle helmets, safety shoes and jackets with protective inserts.

Q14-C20

Other safety devices

Includes collision responsive collapsible steering columns (see also Q18-B01D5).

Q14-D

Anti-glare equipment; Sun shades; Visors; Curtains; Screens

For electrical aspects such as electrochromic window glass, see X22-X05.

Q14-E

Mirrors

See X22-J04 only for electrical aspects of vehicle mirrors.

Rear-view

Q14-F

Luggage/item storage arrangements

Q14-F01

Interior compartments/fittings

Q14-F02

Exterior fittings/racks e.g. for luggage/sports equipment

Includes panniers and cycle carriers. Also includes removable racks for carrying other equipment such as canoes. See Q15 codes for vehicles specifically designed to carry specific loads.

Q14-G

Sidecars; Forecars

Also see Q19-B for motorcycles per se.

Motorcycle

Q14-H

Anti-theft arrangements

Includes steering column lock, steering wheel lock, locking wheel nuts (see also Q11-A15) and other mechanical anti-theft assemblies.

Q14-H01

Locks

Includes vehicle door lock assemblies. For electrical aspects of vehicle door locks see X22-D01 codes.

Q14-I

Steps, e.g. running boards

Includes lift arrangements, e.g. for disabled person. For disabled person aids used on disabled person-specific vehicles such as invalid carriages, see Q15-B13 also.

Q14-J

Stands

Includes on and off-board supports and holders and parking cycles (see also Q19-A). See X22-J20 for electrical details of cycle stands and supports for parking purposes, as well as T05 codes for parking fee charging details.

Q14-K

Mudguards; Chain guards; Weather guards

Includes bicycle mudguards (see also Q19-A) and waterproof car covers used when vehicle is parked to protect the whole vehicle or e.g. windscreen from frost.

Q14-L

Sanitation devices

Includes toilets and washing facilities. Also includes sewage and waste storage.

Q14-M

Heating/ventilating/air-conditioning systems

Includes mechanical aspects such as ducting and air directing nozzles. For electrical aspects see X22-J02 codes.

Q14-N

Windscreen wipers/washers

Includes all aspects of windscreen/window cleaning such as windscreen wiper blades, screen washers, windscreen scraper/sponge etc. For electrical aspects of vehicle windscreen wipers/washers see X22-J01.

Q14-P [2012]

Footrests

Includes foot rest for supporting passenger's/driver's feet.

Q14-R [2013]

Vehicle license plate

Includes mechanical details of vehicle number plates. See Q14-C03 also for novel reflectors and X22-B05 for illuminated number plates.

Q14-X

Other vehicle accessories

Includes removable aftermarket car mats. See Q17-A10 instead for permanent fixings and fixed interior trim/carpets. Also includes kitchen equipment used in caravan or camper van (see also Q19-F01 and Q19-F02 respectively).

Kitchen; kitchen sinks/worktops/equipment storage; cooker

Q15: Transporting Special Loads

From 2006 manual codes have been applied to cover all mechanical arrangements for transporting special loads. Prior to 2006, the Q15 class covered these aspects.

Q15-A

Vehicles for transporting special loads and modified to facilitate loading/unloading/consolidating

Q15-A01

Using tipping movement of load supporting surface

Includes dump trucks and tipper lorries (see also Q19-E for construction vehicles per se).

Q15-A02

Using endless chains and belts

Includes use of cargo (un)loading conveyor belts.

Q15-A03

Using screw conveyors

Includes used of screw conveyors e.g. to unload particulate material.

Q15-A04

Using loading ramp

Includes use of cargo bed that can be raised to an inclined position to assist unloading.

Q15-A05

Using loading platform

Q15-A06

Using cranes

Q15-A07

Using rollers

Q15-A08

Using vibrators or fluid in direct contact with load

See also V06-D for vibration generators, and X22 for electrical aspects of cargo handling arrangements.

Q15-A15

Other loading/unloading arrangements

Q15-B

Vehicle adapted to transport special loads

Also see Q19-C codes for further vehicle applications, e.g. Q19-C for commercial vehicles per se.

Q15-B01

For transporting prefabricated buildings

Includes vehicles or trailers specifically for transporting mobile homes.

Q15-B02

For transporting money or other valuables

Includes armoured cars.

Q15-B03

For transporting reels

Includes vehicle for transporting large cable or wire drums.

Q15-B04

For transporting animals/meat

Includes lorries or trailers for transporting live animals such as pigs, sheep or cows, or processed meat.

Q15-B05

For transporting refrigerated goods

Includes refrigerated lorries (see also Q19-C02). See also X27 for refrigeration systems per se.

Q15-B06

For transporting bottles

Q15-B07

Vehicle/crane transporter

Includes car transporter lorries.

Q15-B08

Tanker vehicles

Includes tanker lorries carrying fluids such as petrol, milk or chemicals.

Q15-B09

Spraying vehicles

Q15-B10

Vehicles with living accommodation

For caravans and mobile homes or camper vans per se, see Q19-F01 and Q19-F02 codes respectively.

Q15-B11

For transporting mixed concrete

Also see Q19-E for construction vehicles per se.

Concrete mixer

Q15-B12

For carrying long loads

Q15-B13

For transporting persons

Includes wheelchair lifting arrangements and other vehicle fittings specifically designed to adapt vehicle for solely transporting disabled persons, e.g. invalid carriages. For disabled person aids/accessories such as wheelchair lifts used on conventional vehicles see Q14-I instead. See Q19-H03 for ambulances per se. Electrical aspects of e.g. disabled person aids can be coded in X22-X and S05-K codes.

Q15-B30

Other vehicle adaptations/modifications

Includes vehicles specifically designed to carry other loads such as gas tanks/cylinders.

Q15-C

On-board weighing arrangements

Also see S02-D codes for weighing per se, and X22-X06K for electrical on-board vehicle weighing arrangements.

Q15-D

Securing of loads

Includes novel straps and tie-down assemblies for specific loads. Includes tarpaulins for covering lorry trailers (see also Q19-C02 and Q19-J) to prevent load from spilling.

Q15-X

Other vehicles predominantly for carrying specific loads

Q16: Vehicle servicing, maintenance, cleaning equipment, Vehicle design and manufacture

From 2006 Q16 covers all mechanical details of vehicle servicing, maintenance and cleaning equipment as well as vehicle design and manufacture. Prior to the introduction of Q16 manual codes in 2006, the Q16 class covered vehicle lighting and signalling. See X22-B codes for electrical details of lighting and signalling, and Q14-C03 and Q14-C04 codes for mechanical details of vehicle signalling. When a more specific code exists elsewhere, then Q16 codes are not required. For example, a wheel manufacturing apparatus can be adequately covered in Q11-A28 and does not require the application of a Q16-D code.

Q16-A

Vehicle servicing/maintenance/cleaning equipment

Q16-A01

Vehicle cleaning apparatus

See X25-H09C for electrical aspects of car washers.

Q16-A02

Servicing/repairing equipment

Includes all equipment/methods for servicing, maintaining and repairing vehicles. For electrical aspects of vehicle servicing equipment, see e.g. X22-X16. For off-board wheel balancer see S02-J codes and Q11-B20.

Q16-A03

Vehicle supporting/lifting/manoeuvring apparatus

See X25-F05 codes for electrical aspects of e.g. vehicle engine hoists or drive-on ramps.

Axle stands, jack

Q16-D

Vehicle design/manufacture/assembly

This code is used to highlight a vehicle manufacturing aspect that cannot be covered elsewhere. For vehicle tyre manufacture see Q11-B20 instead. See T01 codes for electrical CAD/CAM systems.

Q16-D01 [2007]

Vehicle manufacture/assembly

See X25-X14 only for electrical aspects of industrial manufacturing/assembly equipment, and X25-F01 codes for e.g. conveyors per se.

Q16-D01A [2007]

Production line assembly equipment

Q16-D09 [2007]

Vehicle design

See T01 codes for electrical CAD/CAM systems.

Q16-R

Vehicle salvaging; recycling

See X25-W04 for electrical aspects of vehicle/material recycling.

Q16-X

Other vehicle servicing/manufacturing equipment not provided for

Q17: Vehicle construction, Fittings, Propulsion arrangements

From 2006 Q17 covers all mechanical details of vehicle construction, fittings and propulsion arangements. Prior to the introduction of Q17 manual codes in 2006, the Q17 class covered vehicle parts and fittings as well as servicing. See Q16-A02 instead of mechanical aspects of vehicle servicing or X22-X16 and X22-A16 for electrical aspects of vehicle/engine servicing. For mechanical details of vehicle engines also see Q51 codes.

Q17-A

Vehicle construction

Q17-A01

Under structures; Chassis; Subframe; Connections

Includes tubular spaceframe constructions. Also includes passenger protection arrangements such as crumple zones built into the chassis.

Q17-A02

Superstructures; Superstructure sub units and connections

Includes side panels, door pillars, fixed roofs, floors etc.

Q17-A03

Combined superstructure and frame; Monocoque

Includes monocoques used in racing cars (see also Q19-F03).

Q17-A04

Cycle frames

Includes frames and forks used in cycles and motorcycles. Also See Q19-A for cycles, Q19-B for motorcycles and Q12 codes for novel details of suspension forks or rear suspension units.

Q17-A05

Streamlining arrangements

Includes spoilers and other valances or wind deflectors. For electrical aspects of exterior fittings such as speed responsive spoilers, see X22-X05 only.

Q17-A06

Doors; bonnets; tailgates

Includes mechanical aspects of openings such as doors, boots and bonnets. Gas struts are also coded in Q63-E01D for fluid springs. For electrical aspects such as electric sliding doors or electric door locks, instead see X22-X05 and X22-D01 codes respectively. Also includes side impact beams (see also Q14-C06 for crash bars per se).

Q17-A07

Windows

Includes window glass per se and mechanical winders for raising and lowering windows. See X22-H codes only for electrical aspects of power windows.

Q17-A08

Sunroof; Removable roof panels; Convertible soft top roof

For electrical aspects see X22-J08 only.

Targa top, roadster

Q17-A09

Sealing arrangements

Includes rubber seals and other water-proofing arrangements.

Drainage channel, sealing strip.

Q17-A10

Body finishing arrangements

Includes decorative trim elements such as external rubbing strips, all interior trim, and liners and covers for load compartments such as pick-up truck load beds. For car weatherproof covers used when vehicle is parked see Q14-K instead.

Q17-A11

Dashboard; Instrumentation

Includes plastic dashboard mouldings, mountings and clips. See X22-E only for electrical aspects of vehicle dashboards/instrumentation, and S02 codes for dials/displays.

Q17-A12

Exterior fittings; Bumpers

Includes bullbars and A-frames mounted on front of off-road vehicle.

Q17-A13

Spare wheel stowing, holding or mounting arrangements

Q17-A14

Endless track arrangements

Includes e.g. tank and bulldozer Caterpillar (RTM) tracks (see also Q19-D and Q19-E codes for military and construction vehicles per se). Also see Q19-X for unspecified type tracked vehicles.

Q17-A15

Air cushion vehicle equipment

See also Q19-R01 for air cushion vehicles per se. Includes inflatable skirts. Also see Q24 codes for hovercraft per se.

Hovercraft

Q17-A20

Other vehicle constructions/fittings

Q17-E

Propulsion arrangements

This code can be applied to highlight motor vehicle engine application, especially novel internal details of internal combustion engines such as pistons (Q51-A03B), crankshafts (Q51-A03E) etc., though Q51 codes are the primary codes used to highlight novel internal combustion engines details per se. For novel engine parts that bolt onto the engine such as exhaust systems and intake manifolds see Q17-E09 or Q17-E15 instead. For electrical aspects of vehicle engines see X22-A codes only.

Q17-E01

Engine mounting arrangements

Includes mechanical engine mountings(see also Q51-X). Mechanical vibration reduction mountings can also be coded in Q17-N. For electrically controlled vibration reducing engine mountings see X22-A12 only.

Bush

Q17-E02

Engine cooling arrangements

Includes radiators per se. For electrical aspects of engine cooling, such as electric water pumps, see X22-A10 only.

Water, cooling, antifreeze

Q17-E03

Engine lubricating arrangements

Includes e.g. sumps and oil pick up pipes. See X22-A18 for electrical oil pumps etc.

Oil

Q17-E04

Fuel supply arrangements; Fuel tanks

Includes tanks for storing petrol, diesel, hydrogen etc. For electrical fuel supply arrangements see X22-A02 codes and X22-A03A codes for corresponding control details.

Fuel, tank, carburettor

Q17-E05

Propulsion unit control arrangements

Includes e.g. throttle cables, accelerator pedals, hand controls etc. For electrical aspects such as electronic throttle controls and electric pedal details see X22-A03B and X22-X12 codes instead.

Control

Q17-E09 **[2009]**

Exhaust systems

Includes novel primaries, collectors and silencers of motor vehicle exhaust systems. See also Q51-J codes for IC engine exhausts per se. See X22-A07 for electrical aspects of vehicle exhaust systems.

Q17-E15

Other propulsion details

Includes engine heating/warming arrangements (see also Q51-L), e.g. using diverted exhaust gas. From 2009 novel mechanical aspects of vehicle exhaust systems have been transferred to Q51-E09.

Q17-N

Noise/Vibration/Harshness reduction arrangements

Includes all mechanical aspects associated with reducing noise, vibration and harshness within vehicle, such as use of sound deadening materials. This can be used in conjunction with other Q codes as appropriate, e.g. with Q12 for suspension based NVH reduction. For electrical NVH aspects see the relevant X22 codes such as X22-G03N for transmission based NVH reduction, X22-X08 for general passenger compartment noise reduction and X22-A12 for engine noise/vibration reduction. See Q51-J01 instead for vehicle exhaust silencers.

NVH

Q17-X

Other vehicle construction; fittings, Propulsion arrangements not provided for

Q18: Brake systems, Steering systems, Control

From 2006 Q18 covers all mechanical details of vehicle brake and steering systems and their control. Prior to the introduction of Q18 manual codes in 2006, the Q18 class only covered brake control systems. See X22-C02/X22-C05 codes for electrical details of vehicle braking and steering systems.

Q18-A

Braking systems; Control

For electrical aspects of braking systems, see X22-C02 codes only.

Q18-A01

Braking system components

These codes are applied to highlight specific novel components of the braking system, such as novel brake discs per se (Q18-A01A). If the braking system as a whole is novel, rather than a specific individual part of it, then apply Q18-A03 codes instead, e.g. Q18-A03A for novel disc brake assemblies.

Q18-A01A

Discs

Includes novel brake discs per se.

Q18-A01B

Drums

Includes novel brake drums per se.

Q18-A01C

Pads and shoes

Includes novel brake pads and shoes and their materials.

Q18-A01D

Callipers

Includes novel hydraulic brake callipers and mechanical cable operated callipers.

4-pot, V, side-pull, cantilever

Q18-A01E

Cylinders/reservoirs, e.g. master cylinder

Q18-A01F

Valves

Q18-A01G

Brake force control

Includes brake bias valves (also see Q18-A01E). Includes all systems and methods for adjusting braking force. See X22-C02C for electrical brake pressure control systems.

Q18-A01H [2013]

General brake hydraulics

Includes general hydraulic aspects of vehicle brakes such as brake pipes, hoses, hydraulic lines, clips etc.

Q18-A01J [2007]

Air brakes

Includes e.g. air compressor arrangements for compressing air used in brakes of heavy vehicle such as truck (see also Q19-C02). For novel reciprocating air compressors see also Q55-A.

Q18-A01P [2007]

Parking brakes

Includes mechanical details of hand brakes or foot actuated parking brakes. See also Q18-A07 codes for novel details of the parking brake actuating arrangement per se.

Q18-A01X

Other brake system components

Q18-A03

Brake assemblies

These codes are **only** applied when the brake system as a whole is novel. For individual novel brake system components such as discs or callipers see the relevant Q18-A01 codes only.

Q18-A03A

Disc brake assemblies

Q18-A03B

Drum brake assemblies

Q18-A03C

Brake assemblies with braking member acting on periphery of drum or wheel rim etc.

Includes bicycle cantilever brakes (see also Q19-A).

Q18-A03P

Brake systems controlled by back-pedalling

Includes hub brakes and brakes built into bicycle (see also Q19-A) transmission utilising e.g. disks, drums, contacting coaxial cones, or expanding brake bushings, that are actuated upon back-pedalling, See Q63-B05 for freewheels and free-wheel clutches.

Q18-A03X

Other brake assemblies

Q18-A05

Brake cooling arrangements

Q18-A07

Brake action initiating devices

Includes mechanical driver actuated devices. For electrical aspects of brake actuation devices see X22-X12 and X22-C02 codes.

Q18-A07A

Foot control

Includes brake pedal per se and after-market alloy drilled pedal pads or rubber covers. See X22-X12 only for electrical aspects of brake pedals.

Foot pedal

Q18-A07B

Hand control (e.g. brake lever)

Includes brake levers (also see Q19-A for bicycles and Q19-B for motorcycles).

Q18-A07C

Automatic brake initiation

For electrical aspects of automatic brake initiation see X22-C02D codes only.

Q18-A10

Portable wheel chocks

Includes portable chocks e.g. for preventing vehicle from moving during servicing or wheel changing.

Q18-A15

Brake safety devices; Monitoring

Includes mechanical aspects of e.g. brake safety such as brake pad wear indicators (see also Q18-A01C).

Q18-A30

Other brake systems

Includes deployable braking parachutes. Also includes exhaust braking, e.g. used on diesel-engined trucks (see also Q19-C02 and Q51-D03) for sustained slowing down long hills, to prevent overheating of mechanical friction brakes (also see Q51-J07 for exhaust systems per se).

Q18-B

Steering systems; Control

For electrical aspects of steering systems, see X22-C05 codes only.

Q18-B01

Steering controls

For electrical aspects of steering wheels, see X22-C05C codes only.

Q18-B01A

Hand wheels; Steering wheel

Includes steering wheels per se and covering elements. See Also Q14-C02 for steering wheel mounted airbags.

Q18-B01B

Hand levers

Q18-B01C

Handlebars; Grips; Stems

Includes handlebars, grips, stems, bar-ends etc. (also see Q19-A for bicycles and Q19-B for motorcycles per se).

Q18-B01D

Steering column

Includes column per se.

Q18-B01D1

Rake/reach adjustment mechanisms

Includes telescopic and tiltable steering columns to enable adjustment of driving position.

Q18-B01D3

Clamps

Includes steering column mounting clamps.

Q18-B01D5 [2008]

Collapsible steering column

Includes steering columns designed to collapse during vehicle collision for safety purposes (see also Q14-C20 for driver safety).

Q18-B01X

Other steering controls

Q18-B02

Steering gears/racks

Includes steering racks and associated pinion gears.

Q18-B02A

Mechanical type

Includes steering arrangements utilising a mechanical rack/gear arrangement. If hydraulic power assistance is also used see Q18-B06C as well.

Q18-B02B

Hydraulic type

Includes systems using hydraulic piston/cylinder assemblies instead of a mechanical rack arrangement to displace steering arms. Also see Q18-B06C for hydraulic power steering.

Q18-B03

Steering linkages; Stub axles or their mounting

Includes universal joints, e.g. for interconnecting upper and lower steering columns, and tie rod ends.

Q18-B06

Power assisted steering systems

For electrical power assisted steering systems see X22-C05A codes only.

Q18-B06A

Mechanical, e.g. using power take-off

Q18-B06C

Fluid

Includes hydraulic power assistance.

Q18-B07

Automatic steering control arrangements

For electrical automatic steering systems see X22-C05B only.

Q18-B09

Other deflectable wheel steering apparatus

Includes passive four wheel steering (4WS) systems (see X22-C05A1 only for electrical 4WS systems).

Q18-B12

Steering non-deflectable wheels, i.e. endless tracks

Includes steering of tracked vehicles. (also see Q19-D for military tanks and Q19-E for bulldozers).

Q18-B15

Other steering arrangements not provided for

Includes other steering devices such as steerable skis for snow mobiles (see Also Q19-F04).

Q19: Vehicle applications

From 2006 Q19 covers vehicle applications. Prior to the introduction of Q19 manual codes in 2006, the Q19 class only covered air-cushion vehicles. From 2006, see Q19-R01 and Q24-P10 for air-cushion vehicles such as hovercraft.

Q19-A

Cycles

Includes bicycles, unicycles, tricycles, tandems, recumbent cycles. For electrical aspects or accessories for bicycles, see X22-P01 only.

Q19-B

Motorcycles; Scooters; Mopeds

See X22-P02 only for electrical aspects of motorcycles.

Q19-C

Commercial vehicles

See X22-P05 codes only for electrical aspects of commercial vehicles.

Q19-C01

Bus/Coach

See X22-P05A for electrical aspects of buses and coaches.

Q19-C02

Lorry/Truck

Includes tractor-trailer over-the-highway vehicles. See X22-P05B for electrical aspects of lorries.

Articulated lorry, HGV

Q19-C03

Taxi

See X22-P05C for electrical aspects of taxis.

Q19-C04

Refuse collecting vehicle

See X22-P05X for electrical aspects of dust carts.

Q19-C05

Snow removing vehicle; Snow plough; Road cleaning vehicles

See X25-U05 for electrical aspects of road cleaning and X22-P05X e.g. for snow ploughs.

Road sweeper

Q19-C06

Forklift truck

See X25-F05A and X21-A01B or X22-P05F for electrical aspects of forklift trucks.

Q19-C07

Hearse

Q19-C09

Other commercial vehicles

Includes milk floats, pick-up trucks and commercial vans.

Q19-D

Military vehicles

Includes tanks, armoured personnel carriers etc. See W07 and possibly X22-P06 for electrical aspects of military vehicles.

Q19-E

Construction vehicles

Includes bulldozers, excavators and cranes. See X25-U (construction), X25-D01 (earth mover) and X22-P07 for electrical aspects. For unspecified use tracked vehicles see Q19-X instead.

Q19-F

Recreational vehicles

Includes MPVs (multipurpose vehicles), SUVs (sports utility vehicles), people carriers and quad bikes. See X22-P08 for electrical aspects of recreational vehicles.

RV

Q19-F01

Caravan; Trailer tent

Q19-F02

Camper van; Motorhome

For equipment adapting vehicle to provide living or sleeping accommodation see Q15-B10.

Q19-F03

Racing/sports cars; Go-carts

See Q22-C instead for children's push-along go-karts.

Q19-F04

Snow mobile

For sledges see Q22-C01 instead.

Q19-G

Agricultural vehicles

Includes tractors, combine harvesters and agricultural implements. See X22-P09/X22-X11 and X25-N codes for electrical aspects of agricultural vehicles per se.

Q19-H

Emergency vehicles

See X22-P10 only for electrical aspects of emergency vehicles.

Q19-H01

Police car

Q19-H02

Fire engine

Q19-H03

Ambulance

Q19-J

Trailers

See also Q19-C02 for articulated lorry trailers. For electrical aspects of trailers see X22-P11 only.

Q19-P

Electric vehicle

Only mechanical aspects of electric vehicles are coded here. See the electrical X21 codes only, when the novelty is electrical in nature.

Q19-Q

Hybrid vehicle

Only includes mechanical aspects of hybrid vehicles.

Q19-Q01

Hybrid-electric

Includes series/parallel/mixed hybrid-electric and hybrid-fuel cell vehicles. See X22-P04 and X21-A01D codes only for hybrid electric vehicles where the novelty is electrical in nature.

Q19-Q05

Hybrid-mechanical

Includes hybrid-flywheel and hybrid-pneumatic vehicles.

Q19-R

Convertible vehicles (usable on/in different terrain)

Q19-R01

Amphibious vehicles; Air cushion vehicles, e.g. for transporting heavy loads over small distances

Includes hovercraft type vehicles. Also see Q24-P10 and Q24-P30 for mechanical aspects for marine hovercraft and amphibious vessels respectively, or W06-C codes for electrical aspects.

Q19-R02

Vehicles usable on road/rail

Includes motor vehicles with outriggers to allow travel on railway track. Also see Q21 for mechanical railway details, or X22-X and X23-A codes for electrical aspects.

Q19-R03

Vehicles convertible into aircraft

Also see Q25 for mechanical aspects of aircraft, or W06-B codes for electrical aspects.

Q19-R09

Other convertible vehicles usable in or on different media

Q19-S [2007]

Soft top/cabriolet vehicles

Includes vehicles that have a softtop roof or a foldable hard roof, e.g. on coupe/convertible cars. See also Q17-A08 for novel convertible roofs per se. See Q14-C06 for flip-up rollover bars used cabriolet vehicles.

Q19-X

Other vehicle types

Includes unspecified use tracked vehicles (see Q17-A14 for endless track arrangements per se).

Q2 Special Vehicles

Q21: Railways

From 2006 manual codes have been assigned for all mechanical railway details. For electrical aspects of railways see X23 codes instead.

Q21-A

Railway track arrangements/construction

Q21-A01

Track construction per se

Includes mechanical aspects such as track rails and sleepers per se. Also includes track maintenance assemblies and maintenance vehicles. For track inspection, see Q21-C03I instead.

Q21-A02

Railway stops fixed to permanent way; Track brakes; Sand tracks; Buffers

Q21-A03

Stations; Station equipment

Includes platform doors, turnstiles etc. See X23-A09A for electrical offboard/station aspects.

Q21-A04

Track/station based equipment for transferring passengers, articles or freight to or from train

Includes gangplank and ramp assemblies. For train mounted aspects, see Q21-J06 and Q21-J07 codes instead.

Q21-A05

Track based rail or wheel flange lubrication devices

Q21-A06

Turntables; Traversers

Q21-A07

Shunting or short distance haulage devices

Q21-A08

Track mounted derailers; Apparatus for placing vehicles on track

Includes portable or fixed track mounted jacks and hoists for lifting rail cars. For train mounted lifting apparatus see Q21-M03 instead.

Q21-A12 [2010]

Bridges and tunnels

(Q21-A15)

Includes constructional details of railway bridges and tunnels.

Viaduct

Q21-A15

Other railway track arrangements

Q21-B

Railway type

Q21-B01

Elevated railway

See also Q21-B02 for monorail systems.

Q21-B01A

With suspended vehicles

Q21-B01B

Without suspended vehicles

Q21-B02

Monorail

See also Q21-B01 for elevated monorail systems.

Q21-B03

Rope/cable railways

Includes aerial runways. See also Q21-C01D1 for novel traction arrangements utilising cables, ropes or chains.

Q21-B03A

Tramway or funicular system

Includes tramways or funiculars using rigid tracks and cable or chain traction. For trams per se see Q21-C03G instead. For novel cable/chain traction assemblies see Q21-C01D1 also.

Q21-B03B

Power-and-free systems

Includes overhead systems with suspended vehicles that can be engaged with drive train when powered or disengaged when in free unpowered or stopped mode. For power and free conveyors see Q35 class or X25-F codes if electrical.

Q21-B03C

Ski lift, sleigh lift or trackless systems with guided towing cables only

Q21-B04

Rack railway

Q21-B05

Sliding or levitation systems

Q21-B05A

Magnetic suspension arrangements

See X23-A01A4 and X12-C codes for electrical aspects of magnetic levitation systems and electro- and super-conducting magnets per se.

Q21-B06

Underground railways

Also see Q21-A codes for constructional details of underground railway tunnels, platforms, stations etc.

Subway, metro

Q21-B09

Other railway types

Includes tunnel systems. Also see Q35 class for e.g. pneumatic tube conveying arrangements or X25-F codes for electrical conveying systems.

Q21-C

Locomotive/motor railcar type

These codes are applied to classify the locomotive type when the novelty being coded is mechanical. If the novelty is electrical in nature then see X23 and other EPI codes instead.

Q21-C01

Type of propulsion for locomotive or railcar

Q21-C01A

Steam locomotives or railcars

Q21-C01B

Electric locomotives or railcars

Q21-C01C

IC engined or gas turbine engined locomotives or motor railcars

See also Q21-C01B for diesel-electric locomotives.

Q21-C01D

Other propulsion systems for locomotives or motor railcars (e.g. with propulsion devices between or alongside rails, e.g. pneumatic systems.

Q21-C01D1

Tractive effort applied to cables or chains

See also Q21-B03 codes for e.g. funiculars.

Q21-C01D2

Tractive effort applied to racks

Q21-C01D3

Tractive effort applied or supplied by aerodynamic force or fluid reaction

Q21-C03

Type of carriage or wagon

These codes are intended to highlight specific types carriage or wagon construction.

Q21-C03A

Passenger carriages

This code is mainly applied when the novelty relates to the carriage superstructure itself or fittings such as windows, doors or bulkheads etc. permanently mounted to/inside the carriage. Novel accessories such as seats used in a passenger carriage are not normally included here (see Q21-J03).

Q21-C03B

Wagons or vans

Includes freight wagons.

Q21-C03C

Tank wagons or carrying fluent materials

Includes tankers for carrying liquids.

Q21-C03D

Hopper cars

Includes e.g. wagons for carrying particulate material with dispensing openings at bottom of wagon.

Q21-C03E

Tipping wagons

Q21-C03F

Mine cars

See X25-D02 for electrical aspects of mining vehicles.

Q21-C03G

Tramway vehicles

The code is applied for novel trams per se. For cable/rope driven tram or funicular railways in general see Q21-B03A instead.

Q21-C03H

Buffer cars

Q21-C03I

Railway inspection trolleys

Includes all types of railway inspection vehicles. For novel track maintenance vehicles, also see Q21-A01.

Q21-C03X

Other railway vehicles

Includes rail vehicles convertible for use on road (see also Q19-R02).

Q21-D

Rail vehicle construction; fittings; Underframes; Suspension; Transmissions

Q21-D01

Superstructures

Includes wall panels, floors, bulkheads and roofs etc. For movable roof assemblies see Q21-D17 instead.

Q21-D02

Underframes; Chassis

Q21-D03

Bogies

Includes wheel/axle assemblies fastened to chassis.

Q21-D04

Connections between underframes and bogies, e.g. to allow relative movement

Includes suspension arrangements. See X23-A01C for electrical aspects of railway suspension systems.

Q21-D05

Adjustment of wheel axles or bogies when rounding curves

Includes e.g. passive carriage tilt control. See X23-A01C for railway train active suspension/carriage tilt control. Also includes arrangements for adjusting orientation/steering of wheels e.g. when rounding bend to reduce wheel flange and rail head wear.

Q21-D06

Axle boxes and their mounting

Includes wheel bearing arrangements inside axle box.

Q21-D07

Lubrication assembly for axle box

Includes lubrication arrangements and oil sumps for axle box wheel bearings.

Q21-D08

Arrangements to allow use on tracks of different width

Includes systems for adjusting wheel spacing to allow train to run on different gauge tracks.

Q21-D09

Derailment preventing equipment

Q21-D10

Rail engaging elements, e.g. wheels or balls

Includes wheels and other assemblies for engaging tracks, overhead rails etc.

Q21-D10A [2007]

Traction increasing equipment

Includes dispensing of particulate material such as sand under train wheels on railway track to increase grip. See Q21-F09 also, if sand is dispensed specifically to improve braking.

Q21-D11

Wheel guards; Bumpers; Obstruction removers

Q21-D12

Couplings; Draught or buffering appliances

Q21-D12A

Couplings

Includes couplings between carriages.

Q21-D12B

Draw gear

Q21-D12C

Buffers

Q21-D13

Transmission systems

Includes power transmission arrangements.
Drive shaft, gearing

Q21-D14

Aerodynamic modifications to reduce air resistance

Includes spoilers and other wind deflectors, especially for high speed trains.

Q21-D15

Doors

Q21-D16

Windows

Q21-D17

Movable roofs; Covers; Tarpaulins

For fixed roofs see Q21-D01 for novel train superstructures.

Q21-D25

Other rail vehicle constructions, fittings

Includes constructions/fittings designed for safety purposes, such as fire resistant bulkheads (see also Q21-D01). Accessories such as fire extinguishers are included in Q21-J09 only.

Q21-F

Brake systems

See X23-A01B for electrical braking systems. Q18-A codes may also need to be applied when they provide a more detailed breakdown of the brake system.

Q21-F01

Braking arrangements acting on wheels

Q21-F02

Brakes with braking members co-operating with track

Q21-F03

Hydrostatic, hydrodynamic or aerodynamic brakes

Includes air brakes.

Q21-F04

Brake wear compensating mechanisms

Includes mechanical adjusters to compensate for brake pad wear.

Q21-F05

Brake actuation mechanisms

Includes brake actuating levers.

Q21-F09

Other braking arrangements

Q21-J

Rail vehicle accessories

See X23-A13 for electrical train accessories. Other Q14 codes may also need to be applied when a more detailed breakdown exists.

Q21-J01

Sleeping accommodation; Beds

See X27-A03 for electrical aspects of furniture per se.

Q21-J02

Heating; cooling; ventilating; air-conditioning

Includes mechanical ducting and vents.

Q21-J03

Seats

Q21-J04

Sanitation arrangements

Includes toilets and washing facilities.

Q21-J05

Steps

Includes all train mounted arrangements for assisting boarding of passengers such as fixed or movable steps, or wheelchair lifting or ramp assemblies etc.

Q21-J06

Cargo/luggage loading and unloading arrangements

Includes cargo loading ramps and hoists. For platform based cargo/passenger handling, see Q21-A04 instead.

Q21-J07

Cargo/luggage storing/securing arrangements

Includes cargo storage compartments and restraining devices such as luggage nets or straps.

Q21-J08 **[2007]**

Railway safety systems

Includes systems for evacuating passengers from train during emergency and e.g. glass hammers mounted inside train. Also includes fire fighting equipment such as fire extinguishers. See Q21-D05 for train constructional features designed specifically for safety purposes such as fire-resistant bulkheads.

Fire-extinguisher, emergency, safety, escape slide, escape hatch

Q21-J09

Other rail vehicle accessories

Includes any other rail vehicle accessories that can not be coded elsewhere.

Q21-M

Locomotive servicing/maintenance; Cleaning; Train/track design and manufacture

For track maintenance equipment see Q21-A01 instead. Track inspection vehicles are coded in Q21-C03l only.

Q21-M01

Train cleaning apparatus

Includes equipment for washing the exterior of the train or train specific equipment for cleaning the inside of the train.

Q21-M02

Locomotive servicing equipment, e.g. filling locomotive with water or sand

Includes water columns and coal bunkers (see also Q21-C01A for steam locomotives).

Q21-M03

Rail vehicle mounted locomotive supporting/lifting/manoeuvring apparatus (e.g. breakdown recovery train)

Includes train mounted cranes for manoeuvring train after derailment or accident. For track mounted equipment such as cranes and jack assemblies, see Q21-A08 instead.

Q21-M05

Train design/manufacture/assembly/refurbishment

See e.g. T01 codes for computer/CAD/CAM systems for train design and manufacture.

Q21-M09

Other locomotive servicing/manufacturing equipment not provided for

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Q21-N [2007]

Noise/Vibration/Harshness reduction arrangements

Includes all aspects of reducing noise, vibration or harshness on-board railway train, and also offboard aspects such as track mounted arrangements for reducing noise from passing train (see also Q21-A15).

Q21-S

Safety and signalling equipment

For electrical aspects of railway safety or signalling see X23-B codes.

Q21-S01

Points and signalling

See X23-B03 for electrical aspects of points and signals and their operation.

Q21-S01A

Points and scotch blocks and their operating devices

Includes locking mechanisms for points.

Q21-S01C

Signals and their operating devices

For warning signals used at level crossing to warn motorists, see Q21-S07C.

Q21-S01C1

Visible signals

Includes flags, semaphores and reflectors. See X23-B03 for electrical/illuminated signals.

Q21-S01C2

Audible signals

Includes pneumatic horns.

Q21-S01C3

Signalling indicators on train

Q21-S01E

Arrangement for interlocking between points and signals

See X23-B04A codes for electrical interlocking between points and signals.

Q21-S05

Train traffic control; Track/station blocking

Includes arrangements for dividing track into block sections so that multiple trains are not present in a signal block, to reduce the risk of collisions. See X23-B04C for electrical aspects of track/station blocking.

Anticollision

Q21-S05A

For controlling traffic in one direction only

One-way

Q21-S05C

For controlling traffic in two directions over same pair of rails

Includes e.g. using token system, tablets, staffs etc.

One-way

Q21-S07

Safety systems for rail/road crossing traffic

See X23-B05A and maybe T07-B05A for electrical aspects of railway crossing systems.

Q21-S07A

Guards; Gates

Includes mechanical gates and barriers per se.

Q21-S07B

Operation of gates

Includes actuating arrangements for opening and closing gates/barriers.

Q21-S07C

Warning devices for road traffic

See T07-A05A for electrical aspects of railway crossing road traffic warning systems.

Q21-X

Other locomotive aspects

Includes locomotive aspects that are not covered elsewhere.

Q22: Hand/Foot/Animal Drawn Vehicles

From 2006 Q22 covers all mechanical details of hand/foot and animal drawn vehicles such as carts, wheelchairs, sledges and horse-drawn carriages. Prior to the introduction of Q22 manual codes in 2006, the Q22 class covered hand and motor vehicles which included carts, sledges, steering systems/controls, vehicle under/super structures, trailers and vehicle design, manufacture and (dis)assembly.

Q22-A

Hand carts

Q22-A01

With single axis carrying transport wheels

Includes wheelbarrows.

Q22-A02

With more than one axis carrying transport wheels

Includes four-wheeled barrows and mechanical aspects of shopping trolleys (see X25-F05A for electrical aspects of shopping trolleys).

Q22-A03

Accessories for hand carts

Includes handle grips and brakes.

Q22-B

Carriages for children; Perambulators

Pram, pushchair

Q22-B01

With single wheel axis

Q22-B02

With more than one wheel axis

Includes three and four wheeled, twin axle pushchairs.

Q22-B03

Accessories for children's carriages/perambulators

Includes luggage racks, bottle holders etc.

Q22-C

Other hand propelled vehicles

Includes unpowered children's go-karts.

Q22-C01

Sledges/ice boats

Toboggan

Q22-C02

Wheelchairs

See S05-G02A for electrical aspects of wheelchairs, and X21-A01A and S05-K01 for electrical aspects of mobility vehicles.

Q22-C03 [2007]

Accessories for other hand propelled vehicles

Includes seats, handles, foot rests, etc.

Q22-D

Land vehicles drawn by animals

Includes e.g. horse-drawn carts.

Sulky

Q22-M [2007]

Foot propelled vehicles

Includes stand on scooters and skateboard type devices propelled by user's feet. See W04-X codes for electrical aspects of toy skateboards. See Q19-A instead for bicycles and P36 for novel roller skates or ice skates.

Q22-X [2007]

Other carts/carriages/vehicles

Includes stand on scooters and skateboard type devices

Q24: Ship;, Waterborne Vessels; Related Equipment

From 2006 manual codes have been assigned for all mechanical ship, waterborne vessel and port details. For electrical aspects of ships see W06-C codes instead.

Q24-A
Ship construction; Fittings

Q24-A01
Hulls

Q24-A01A
Hydrodynamic or hydrostatic features
Includes e.g. hydrofoils and hydroplanes. Also includes shock-wave/drag reducing bow assembly.

Q24-A01B
Hull shell

Q24-A01C
Frames

Q24-A01D
Keels
Includes permanently fixed, non-movable keels.

Q24-A01D1
Movable/drop keels/centre boards
See Q24-E05A instead for movable rudders.

Q24-A01E
Stern posts

Q24-A01G
Stems

Q24-A01H
Decks
Includes flooring.

Q24-A01I
Bulkheads
Also see Q24-B09H for watertight arrangements for bulkheads.

Q24-A01J
Gratings

Q24-A01K
Panellings; Linings

Q24-A01L
Reinforcements for carrying localised loads

Q24-A01M
Collapsible; foldable; inflatable hulls
Includes inflatable dinghy hull assemblies.

Q24-A01N
Ballasting; Self-bailing equipment; Scuppers
Includes bilge pumps.

Q24-A01P
Multiple hull arrangements
Includes catamaran twin hull and trimaran triple hull arrangements.

Q24-A01X [2007]
Other hull details

Q24-A03
Windows; Doors; Ports

Q24-A03A
Windows; Port holes

Q24-A03B
Doors

Q24-A03C
Ports; Hatches

Q24-A05

Superstructures; Masts

Includes conning towers. See W06-A codes for radar installations and W02 codes for radio masts etc.

Q24-A15

Other ship construction; fittings

Q24-B

Ship accessories

Includes mechanical aspects of shipboard lighting and signalling (see also X26 for lighting per se).

Q24-B01

Passenger/crew accommodating arrangements; Cabins; Galleys

Q24-B01A

Furniture – vessel specific

Includes furniture specifically designed for marine/ship application, such as seats and beds etc.

Q24-B01C

Sanitation arrangements

Q24-B01C1

Toilets

Q24-B01C2

Washing facilities; Showers

See X27-A02A4 for electrical aspects of showers and wash basins, and X27-E03A for electrical aspects of water heating.

Q24-B02

Load accommodating arrangements

Q24-B02A

Load accommodating compartments

Includes e.g. movable/detachable decks, and storage tanks.

Q24-B02C

Ship-board load handling arrangements

Includes e.g. derricks, cranes, winches, chutes, cableways, conveyors for loading/unloading.

Q24-B02E [2007]

Ship-board passenger handling arrangements

Includes ship-mounted extendable gang planks or platforms lowerable into the water or onto dry land to aid boarding or alighting of vessel. For shore mounted passenger handling arrangements see Q24-R03 instead.

Q24-B03

Heating; Ventilating; Air-conditioning

Includes mechanical aspects only. See W06-C01C5 for electrical aspects of HVAC systems.

Duct, vent

Q24-B05

Instrumentation

Includes e.g. mechanical gauges, periscopes. See S02 codes for further details of instrumentation per se, and W06-B01B codes for electrical instrumentation details.

Q24-B07

Desalination plants – fresh water production

Q24-B09

Emergency/safety equipment

Includes shipboard safety devices. For personal equipment such as life jackets and life rings, see Q24-X01A.

Q24-B09A

Fire fighting equipment

Q24-B09C

Life boat equipment

Q24-B09C1

Fastening or storage on deck

Q24-B09C2

Deployment devices

Includes e.g. hoists, davits, winches.

Q24-B09E

Apparatus to control vessel attitude

Includes equipment to decrease roll, pitch or like unwanted vessel movement. Includes arrangements to reduce the risk of capsizing or sinking.

Q24-B09E1

By improving stability

Includes use of e.g. ballast tanks

Q24-B09E3

By improving buoyancy

Includes use of e.g. buoyancy chambers.

Q24-B09G

Anti-collision arrangements, e.g. feelers

Q24-B09H

Watertight arrangements

Includes e.g. watertight doors/bulkheads (see also Q24-A03B and Q24-A01l respectively).

Q24-B09X [2007]

Other safety/emergency equipment/systems

Includes emergency escape equipment such as escape shaft in vessel, e.g. between sunken vessel and rescue vessel.

Q24-B10

Waste water/Sewage treatment plants

See Q24-B01C for sanitation and toilet systems per se.

Q24-B99 [2010]

Other ship accessories

Q24-C

Tying-up; anchoring, towing/pushing equipment

Q24-C01

Mooring equipment

For mooring against jetty, pier or other vessel.

Q24-C02

Anchoring arrangements

E.g. when using ground-engaging anchor

Q24-C02A

Anchors

Q24-C03

Boat hooks

Q24-C04

Towing/pushing equipment

Q24-C05

Ancillaries, e.g. chains; ropes; clamps; bollards; fairleads; hawsers

Includes ancillaries used for e.g. mooring, anchoring or tying up. Includes fenders used to protect side of ship's hull.

Q24-E

Marine propulsion and steering

Q24-E01

Propulsive elements

These codes describe the type of propulsion used on the ship and are only applied when the type of propulsion system has some bearing on the novelty.

Q24-E01A

Directly acting on water

Includes water jet propulsion (see Q24-P21 for jet-skis).

Q24-E01A1

Of rotary type

Q24-E01A1A

Propellers

Includes propellers per se and propeller driven vessels when the propulsion aspect is important.

Q24-E01A1C

Paddle wheels

Paddle steamer

Q24-E01A3

Of non-rotary type, e.g. flaps

Includes oars (see also Q24-E01G for muscle power).

Q24-E01C

Directly acting on air (e.g. for hovercraft)

Also see Q24-P10 for hovercraft per se, and Q24-P30 for swamp boats having large propeller acting on air.

Q24-E01E

Directly acted on by wind (e.g. sails, Magnus effect)

Includes sails per se. See Q24-A05 for masts per se.

Q24-E01G

Using muscle power

Includes use of e.g. oars, movable thwarts, foot rests, sculls.

Q24-E01X

Using other means

Includes e.g. using water currents, e.g. tidal flow, or direct engagement with water bed.

Q24-E02

Propulsion power plant

This code describes the type of propulsion used on the ship and are generally only applied when the type of propulsion has some bearing on the novelty.

Q24-E02A

Using internal combustion engines

Q24-E02A1

Outboard motors

Q24-E02A3

Inboard motors

Q24-E02B

Using external combustion engine, e.g. gas turbine

For gas turbine engines per se, see also Q52 codes.

Q24-E02C

Using steam

Q24-E02C1

Using steam turbine

Q24-E02C3

Using positive displacement steam engine

Q24-E02D

Using hydraulic fluid motor

Q24-E02E

Using nuclear energy

Q24-E02F

Using land vehicle supported on vessel

Q24-E02G

Using land based animal/vehicle, e.g. horse

Q24-E02M [2008]

Fuel supply arrangements

Includes fuel tanks and associated pipework. For IC engine and gas turbine engine fuel supply aspects see Q51-H01 and Q52-C codes respectively.

Q24-E02X [2007]

Other propulsion power plant

Q24-E03

Transmission systems

Includes novel drive trains.

Q24-E03A

Gearing

Q24-E03C

Clutch

Q24-E03E

Drive shafts; propeller shafts; shaft tubes; seals etc.

Q24-E05

Steering arrangements

Q24-E05A

Steering by rudders

Includes rudder and tiller assemblies per se.

Q24-E05C

Steering by propulsive elements

Includes systems changing direction of propeller shaft.

Q24-E05E

Steering/slowing by extensible flaps

Q24-E05G

Steering by deflecting propeller slipstream

Includes rudder type elements in propeller slipstream.

Q24-E05X

Other steering arrangements

Q24-M

Military equipment

See W07 codes for electrical aspects of military equipment and W06-C codes for electrical aspects of ships. See Q24-P30 for military vessel application.

Q24-M01

Offensive equipment

Q24-M01A

Guns and missile launchers

See W07-E05 for electrical aspects of weapons launching systems. Also includes torpedo launchers.

Q24-M01B

Mine and depth charge launchers

Q24-M01E

Ammunition stores and handlers

Q24-M03

Defensive equipment

Includes e.g. camouflage. For electrical aspects of active camouflage see W07-F03 instead.

Q24-M03A

Mine sweeping/clearing

E.g. using towed mechanical cables. For electrical aspects of mine detection/sweeping/clearing see e.g. W07-F05 and W06-C codes instead.

Q24-N [2007]

Noise/Vibration /Harshness reduction arrangements

Includes all ship-board arrangements for reducing noise, vibration or harshness, e.g. use of sound-deadening material.

Q24-P

Vessels or floating structures adapted for special purposes

Q24-P01

Pipe laying vessels

Q24-P02

Cable laying vessels

Q24-P03

Ice breakers

Q24-P04

Fishing vessels

Includes small fishing boats and large commercial trawlers.

Q24-P05

Barges or lighters

Q24-P06

Environmental vessels, e.g. for collecting pollution from open water

Includes vessels adapted to clear up or contain environmental disasters such as oil spillages.

Q24-P07

For transporting marine vessels

Q24-P08

Floating buildings, drilling platforms, workshops

Includes floating vessels normally designed to be static at a fixed location.

Q24-P09

Canal boat

Q24-P10

Waterborne air cushion vehicle

Includes hovercraft.

Q24-P11

Submarines; submersible craft

Semi-submersible

Q24-P12

Flying vessels

Includes airfoil boats and ground effect craft. See Q25-P04 for flying boats and sea planes.

Q24-P13

Military vessels

Includes e.g. aircraft carriers, destroyers, frigates. For electrical aspects of military ships see W06-C and W07 codes respectively.

Q24-P14

Ferries

Q24-P15

Tugs

Q24-P16

Light ships

Q24-P17

Pontoons

See Q24-R15 instead for ground-engaging piers/jetties.

Inflatable

Q24-P18

Buoys

See W06-C07 or W06-C09 for electrical aspects of port-side buoys or buoys out at see.

Q24-P19

Rafts

Q24-P20

Canoes; Kayaks

Q24-P21

Sports/pleasure equipment, e.g. surfboards, sailboards, water skis

Includes all recreational vessels such as small recreational boats (see also Q24-P22 for sailing boats), personal watercraft, jet-skis, surfboards etc.

Boogie board, kite surfing, sail board

Q24-P22 [2010]

Sailing boats

Includes all sail powered vessels such as sailing boats and yachts. See Q24-E01E for sail arrangements per se.

Q24-P24 [2008]

Tanker vessels

(Q24-P30)

Includes marine vessels that transport fluids such as crude oil, water, fuels etc.

Q24-P25 [2007]

Commercial vessels

(Q24-P30)

Includes general non-specific commercial ships. Use other Q25-P codes instead when a more specific commercial vessel is specified.

Q24-P28 [2007]

Emergency services vessels

(Q24-P30)

Includes coastguard vessels, police boats, fire tenders etc. For lifeboats and lifeboat equipment on-board e.g. ferry, see Q24-B09C (and Q24-P14 for ferry) also.

Q24-P30

Other special purpose vessels

Includes swamp boats and amphibious vessels (see also Q19-R01).

Q24-R

Port, harbour, marina equipment

Q24-R01

Dry-docks

Q24-R02

Vessel launching/hauling-out

Includes slipways and boat hoists

Q24-R03

Passenger handling equipment

Includes steps and other dockside passenger handling equipment.

Q24-R05

Load/vehicle handling equipment

Includes vehicle loading ramps.

Q24-R09

Marine craft servicing and maintenance equipment

See W06-C07 for electrical aspects of ship maintenance.

Q24-R10

Cleaning equipment

Includes hull scrapers.

Q24-R15

Other ground/port based equipment

Includes piers and jetties (see also Q21-P17 for inflatable jetties/pontoons).

Q24-X

Other waterborne vessel details and related equipment

Q24-X01

Life saving in the water

Q24-X01A

Life jackets; Vests; Buoyancy aids; Rings

Q24-X01B

Shark screens; Nets

Q24-X04

Diving equipment

Q24-X05

Ship/boat manufacture

See W06-C08 for electrical aspects of ship manufacture. See Q51-M or Q52-M respectively for manufacture of IC and gas turbine engines used in ships.

Q24-X06

Salvaging equipment

Q24-X07

Ship design and testing

Includes e.g. using towing tanks or model basins for designing. See T01 codes for computerised (CAD) ship design.

Q24-X11

Boat trailers; other over-land boat transportation devices

See also Q19-J for trailers per se. For vehicles specifically designed to carry specific loads such as vehicles or boats, see Q15-B07.

Q25: Aircraft; Aviation; Cosmonautics

From 2006 manual codes have been assigned for all mechanical aircraft, aviation and cosmonautic details. See Q25-S for cosmonautics per se and Q25-X for non-specific aircraft/spacecraft systems such as aircraft/spacecraft manufacture (Q25-X05). For electrical aspects of aircraft and space vehicles see W06-B codes instead.

Q25-A
Aircraft construction; Fittings

Q25-A01
Fuselages
Includes aircraft body construction and interior trim. Includes nose cones.

Q25-A01A
Air frames
Includes fuselage subframes/chassis.

Q25-A01C
Decks
Includes flooring.

Q25-A01E
Bulkheads

Q25-A01G
Skins; panels; linings; insulation

Q25-A02
Wings

Q25-A02A
Ribs; spars; stringers

Q25-A02C
Skins; panels

Q25-A03
Windows; doors; hatches

Q25-A03A
Windows

Q25-A03A1
Blinds

Q25-A03C
Doors

Q25-A03E
Hatches

Q25-A04
Stabilising/aerodynamic surfaces
Includes tail planes; nose planes; fins; nacelles. For control surfaces per se, such as moveable flaps and rudders, see Q25-C05 codes instead. For nose cones per se, see Q25-A01 instead.

Q25-A05
Undercarriages; alighting gear

Q25-A05A
Wheels assemblies
Includes aircraft wheels and tyres. For novel tyres etc. see also Q11 codes for a more detailed breakdown.

Q25-A05B
Skis; runners

Q25-A05C
Float assemblies
Includes buoyant floats for landing on water. See also Q25-P04 for sea planes per se.

Q25-A05F
Air cushion alighting gear

Q25-A05G* [2006-2007]
Arrestor hooks, e.g. for use on aircraft carrier
*This code is now discontinued and transferred to Q25-A07G. Q25-A05G remains searchable for patents from 200601-200682. Includes all arrangements for slowing or stopping aircraft, including air brake parachutes.

Q25-A07 [2007]

Brake systems

Includes mechanical brake system components such as novel brake pad friction materials.

Q25-A07A [2007]

Air brakes

Includes deployable air-brake parachutes.

Q25-A07G [2007]

Arrestor gear/hooks, e.g. for use on aircraft carrier

Includes hydraulic arrestor gear cooperating with arrestor hook for stopping military aircraft (see also Q25-P13) on board aircraft carrier. See Q25-A05G prior to 200701.

Q25-A07X [2007]

Other braking systems

Q25-B

Aircraft accessories

Includes aircraft lighting/signalling.

Q25-B01

Passenger/crew accommodating arrangements; Cabins; Galleys

Includes mechanical aspects of kitchen equipment, e.g. food carts. Also includes retractable steps to assist boarding of crew/passengers.

Q25-B01A

Furniture – aircraft specific

Includes e.g. aircraft specific tables, trays and seats, including ejector seats (see also Q25-M for military aircraft).

Q25-B01C

Sanitation arrangements

Includes waste water and sewage processing systems.

Q25-B01C1

Toilets

Q25-B01C2

Washing facilities; Showers

Q25-B02

Load accommodating arrangements

Q25-B02A

Load accommodating compartments/decks

Includes luggage and cargo holds and passenger compartment overhead storage compartments.

Q25-B02C

Aircraft-board load handling arrangements

Includes e.g. derricks, cranes, winches, chutes, cableways and conveyors for loading/unloading. See Q25-R05 for airport based load handling equipment.

Q25-B03

Heating; Ventilating; Air-conditioning

Includes ducting etc. For electrical aspects of HVAC systems used in aircraft, see W06-B01C5 instead.

Q25-B04

De-icing arrangements

Includes e.g. using ducted hot gas. For electrical de-icing arrangements see W06-B01C4 and X25-B codes for electrical heating per se.

Q25-B05

Instrumentation (mechanical aspects)

For electrical aspects of aircraft instrumentation see W06-B01B and S02 codes.

Q25-B09

On-board safety/emergency equipment

See W06-B01C8 for on-board electrical security systems e.g. to prevent hi-jacking.

Q25-B09A

Fire fighting equipment

Includes fire blankets and extinguishers used on-board aircraft.

Q25-B09C

Emergency oxygen supplies

See W06-B01C9 for electrical aspects of emergency oxygen supply systems.

Q25-B09E

Escape slides (and other emergency exit arrangements)

Includes inflatable emergency slides. See also Q25-B01A for ejector seats.

Q25-B09G

Parachutes

Q25-B15

Other aircraft accessories

E.g. includes dropping, releasing articles and liquids, e.g. to fight forest fire or for crop spraying (see X25-X05 and X25-N01B respectively for electrical aspects of fire-fighting and crop spraying).

Q25-C

Aircraft propulsion and steering; attitude/altitude control

Q25-C01

Propulsive elements

These codes describe the type of propulsive elements being used and are generally only applied when the type of propulsive elements has some bearing on novelty.

Q25-C01A

Directly acting on air

Q25-C01A1

Rotary propellers

See also Q25-C02B for turboprop external combustion engine propulsion. Also includes helicopter rotors (also see Q25-C05C if rotor control surface positioning/feathering is detailed).

Turboprop

Q25-C01A3

Of non-rotary type, e.g. flappable wings

Also see Q25-P03 for ornithopters per se.

Q25-C01E

Directly acted on by wind

Includes e.g. hang glider canopy.

Q25-C01G

Using muscle power

Includes use of pedal power.

Q25-C01X

Using other means

Q25-C02

Propulsion power plant

These codes describe the type of propulsion used on the aircraft and are generally only applied when the type of aircraft propulsion has some bearing on the novelty.

Q25-C02A

Using internal combustion engines

Q25-C02B

Using external combustion engine

For gas turbine engines per se, see also Q52 codes.

Gas turbine, RAMJET, SCRAMJET, turbojet, turboprop

Q25-C02G

Using land based animal/vehicle

Includes e.g. using vehicle to tow glider during take-off.

Q25-C02M [2007]

Fuel supply arrangements

Includes fuel tanks and associated pipework. For gas turbine engine fuel supply aspects see Q52-C codes. Also includes mechanical aspects associated with in-flight refuelling.

Q25-C02X [2007]

Other propulsion power plant

Q25-C03

Transmission systems

Q25-C03A

Gearing

Q25-C03C

Clutch

Includes novel drive trains.

Q25-C03E

Drive shafts; propeller shafts etc.

Q25-C05

Steering/attitude/altitude control arrangements; stabilisation

Q25-C05A

By rudders

Q25-C05C

By flaps/control surfaces

Includes aerodynamic control surfaces and their control, e.g. flaps in aircraft wings.

Q25-C05E

By propulsion plant

Includes use of e.g. tiltable turbine engines to achieve steering/attitude control.

Q25-C05G

Aircraft stabilisation

Includes e.g. transferring fuel to adjust trim, or ballast supply/discharge.

Q25-C05H

Influencing air flow over aircraft surfaces

Includes boundary-layer flow control, and e.g. use of slots, ducts, porous or rough surfaces, magnus effect of shock wave generators to adjust air flow over aircraft surfaces. For use of flaps and other movable control surfaces to adjust air flow, see Q25-C05C instead, and for fixed aerodynamic assemblies such as tail or nose planes, see Q25-A04 instead.

Q25-M

Military equipment

Respectively see W07 and W06-B codes for electrical aspects of military equipment and aircraft per se. Includes both offensive and defensive equipment. See Q25-P30 instead for military aircraft applications per se.

Q25-N [2007]

Noise/Vibration /Harshness reduction arrangements

Includes all aircraft-board arrangements for reducing noise, vibration or harshness, including use of sound deadening material.

Q25-P

Aircraft adapted for special purposes

Q25-P01

Lighter-than-air aircraft

Q25-P01A

Airship

Q25-P01B

Balloon

Q25-P02

Rotorcraft; Helicopter

Q25-P03

Ornithopter

Includes aircraft utilising a wing flapping motion.

Q25-P04

Sea plane

Includes amphibious aircraft and flying boats. Flying ground effect aircraft are coded in Q24-P12 only.

Q25-P05

Glider

Q25-P06

Microlight

Q25-P07

Hang-glider

Q25-P08

VTOL (Vertical-take-off and landing) aircraft

Q25-P09

Kites

Q25-P10

Convertible aircraft

Includes e.g. motor vehicle convertible into aircraft (see also Q19-R03).

Q25-P13 [2007]

Military aircraft

For mechanical military equipment used onboard aircraft, see Q25-M. See W07 and W06-B codes for electrical aspects of military aircraft.

Q25-P15 [2007]

Unmanned aerial vehicles

Includes mechanical aspects of UAVs and micro UAVs used for geophysical surveying or military reconnaissance, imaging etc.

Q25-P25 [2007]

Commercial aircraft

(Q25-P30)

Includes general non-specific commercial aircraft.

Q25-P30

Other special purpose aircraft

Q25-R

Airport, ground or aircraft carrier equipment

Q25-R01

Aircraft storage; Hangars

Includes moorings for airships.

Q25-R02

Airfield/runway construction

Includes airfield construction methods and e.g. mechanical aspects of runway lighting (also see W06-B02E and X26).

Q25-R03

Passenger handling equipment

Includes steps and aircraft stands.

Q25-R05

Load handling equipment

See Q25-B02 codes for aircraft mounted load handling equipment.

Q25-R07

Aircraft launching/towing gear; Arresting gear

Q25-R09

Aircraft servicing and maintenance equipment

Q25-R10

Cleaning equipment

Q25-R15

Other ground/aircraft carrier based equipment

Q25-S

Space/cosmonautic vehicles/equipment

See W06-B03 instead for electrical aspects of space/cosmonautic vehicles. These codes are used in isolation and are not intended to be used in conjunction with other Q25 codes, except Q25-X codes for non-specific aircraft/spacecraft systems and equipment.

Q25-S01

Cosmonautic vehicle type

Q25-S01A

Artificial satellites; Space stations

For satellite communication systems per se, see W02-C03B1 codes only.

Q25-S01B

Space shuttles

Q25-S01C

Space rockets

Q25-S01D

Extraterrestrial vehicles

Moon buggy

Q25-S02

Navigation and position control

Includes e.g. using jets, gyros, inertia, Earth's magnetic field, gravity gradient.

Q25-S03

Instrumentation

Includes mechanical aspects. See S02 for instrumentation in general and W06-B01B for electrical aspects of aircraft instrumentation.

Q25-S04

Propulsion systems

Includes solid rocket boosters (see also Q52-B03 for rocket engines per se).

Q25-S05

Life support equipment

Includes mechanical aspects of heating and air-conditioning equipment.

Q25-S06

Protection/safety/emergency devices

Includes systems for protecting the space craft per se. For astronaut protecting space suits see Q25-X01 only.

Q25-S06A

Protection against radiation

Q25-S06B

Protection against meteorites/foreign bodies

Q25-S06C

Thermal protection

Includes mechanical heat shields and tiles. Also includes thermal insulation on spacecraft to protect astronauts from extreme temperatures.

Q25-S07

Crew/passenger accommodation

Q25-S07A

Sanitation arrangements

Q25-S08

Systems for re-entry into Earth's atmosphere; retarding/landing devices

Includes parachutes, space capsules.

Q25-S09

Coupling/separating equipment

Includes docking equipment. Also includes couplings between vehicles or parts of them, e.g. between separable rocket stages or between solid rocket booster and space shuttle.

Q25-S10

Ground equipment

Includes rocket launching tower.

Q25-S11 [2007]

Load accommodating arrangements

Includes cargo bays and storage compartments, as well as load handling arrangements such as arms used to launch satellites. See W06-B03 and X25-F or X25-A03E codes for electrical aspects of load handling/manipulating equipment.

Q25-S15

Other space/cosmonautic equipment

Q25-X

Other aircraft/cosmonautic details and related equipment

Q25-X01

Flying suits; Space suits

Q25-X03

Parachute training equipment

Q25-X04

Astronaut training equipment; Simulators

Q25-X05

Aircraft/spacecraft manufacture

Includes both aircraft and spacecraft manufacturing systems, and (dis)assembly equipment and methods. See W06-B08 for electrical aspects of aircraft or spacecraft manufacture. See Q51-M or Q52-M respectively for manufacture of IC and gas turbine engines used in aircraft.

Q25-X07

Aircraft design and testing

E.g. using wind tunnels.

Q3 Conveying, Packaging, Storing

Q3 manual codes have been applied from 2012 to primarily allow mechanical details of packages and packaging equipment to be highlighted.

Q31: Packaging processes and equipment

From 2012 Q31 has been redefined to cover codes that are intended to highlight the equipment/methods etc. used for packaging/labelling material/goods during primary and secondary packaging. The type of container/bottle being filled/labelled/closed etc., as well as the container material can be specified by assigning Q32 and Q33 codes, respectively. The type of product being packaged/bottled can also be highlighted by the assignment of Q34 codes. For novel details of the actual container/bottle or its closure see Q32 codes instead. Details of transit packaging are coded under Q32-T. Prior to 2012 Q31 remains searchable for packaging and labelling in general.

Q31-A

Packaging, Liquid Handling

Packaging/packing/bottling details with electrical content are coded under X25-F03A codes.

Q31-A01

Packaging equipment, methods and control

Q31-A01A

Filling, bottling

Includes filling by gravity flow, rotary feeders (screw and centrifugal type feeders), vibratory feeders, pressure, pneumatic means, e.g. suction, etc. Also includes equipment for assisting filling, such as funnels or nozzles for introducing the articles or materials into containers. Also includes details for feeding blanks to the filling machine, for opening container, e.g. box or bag, and maintaining it in position during filling. Electrical details of Filling/bottling plant and processes are coded in X25-F03A1

Canning, tinning

Q31-A01A1

Filling, bottling equipment and apparatus

Q31-A01A3

Filling, bottling methods, processes and control

Q31-A01B

Closing and sealing packages or bottles

Details of Modified-Atmosphere Packaging (MAP) equipment and processes, such as gas flushing and compensated vacuum that re-balance gases inside the package to e.g. reduce levels of oxygen and to replace gases with Nitrogen or CO2, are coded under Q31-A01B1A and Q31-A01B3A, respectively.

MAP, vacuum packaging

Q31-A01B1

Closing and sealing equipment and apparatus

Q31-A01B1A

MAP and Vacuum equipment and apparatus

Q31-A01B3

Closing and sealing methods, processes and control

Q31-A01B3A

MAP and Vacuum methods, processes and control

Q31-A01C

Opening packages/bottles

Q31-A01C1

Opening equipment and apparatus

Includes manual and powered opening devices, such as can openers and slotted keys. Bottle and can openers with electrical content are also coded under X27-B04.

Corkscrew, bottle opener, can/tin opener, churchkey

Q31-A01C3

Opening methods, processes and control

Q31-A01E

Wrapping/bundling

Includes details for orientating the articles, e.g. cigarettes, filled bottles, biscuits, before being placed in crates, boxes, etc.

Q31-A01E1

Wrapping

Q31-A01E1A

Wrapping equipment and apparatus

Q31-A01E1B

Wrapping methods, processes and control

Q31-A01E2

Bundling

Includes details for placing bottles in crates.

Banding, strapping, bale

Q31-A01E2A

Bundling equipment and apparatus

Q31-A01E2B

Bundling methods, processes and control

Q31-A02

Unpacking/emptying equipment, methods and control

For dispensing measured amounts of liquid, see Q31-A03 instead.

Q31-A02A

Unpacking/emptying equipment and apparatus

Q31-A02B

Unpacking/emptying methods, processes and control

Q31-A03

Dispensing equipment, methods and control

Includes details for dispensing a liquid into a recipient, such as a spirit measure attached to a bottle of spirit, device for dispensing beverages on draught or for dispensing beverages in bottles. Details of containers with removable pouring/dispensing arrangements, such as spout, spray pump, are coded under Q32-D06C only, and details of packaging with integral dispensing arrangements are coded under Q32-D06B only. Dispensing equipment, method and control details with electrical content is coded under X25-F03B. Dispensers for domestic alcoholic beverages with electrical content are coded under X27-X02. Bottling in general is coded in Q31-A0A codes only.

Spirit measure, bar optic

Q31-A03A

Liquid/semiliquid transfer equipment, methods and control

Includes transfer of liquids from storage containers or reservoirs into vehicles or portable containers.

Q31-A03B

Solid/particulates/powder transfer equipment, methods and control

Includes transfer of particulates from storage containers or reservoirs into vehicles or portable containers.

Q31-A05

Cleaning/sterilising equipment, methods and control

Includes devices and methods for cleaning or sterilising cans/tins, bottles, etc., including concurrent cleaning and filling of cans/tins, bottles, etc.

Autoclave, pasteurisation

Q31-A99

Other packaging equipment, methods and control

Q31-B

Labelling; Tagging

Labelling/tagging equipment and methods with electrical content, including labels and tags per se, are coded under X25-F03A3C.

Q31-B01

Labelling equipment and methods

Q31-B01A

Labelling equipment and apparatus

Q31-B01B

Labelling methods, processes and control

Q31-B02

Labels

Includes labels directly glued on a container, such as adhesive labels, wraparound labels, etc. Also includes labels attached to a container using e.g. a string, ribbon or elastic, such as swing tag labels. Also includes cardboard sleeves. Details of labels for tracking/tracing the packaging are also coded under Q32-D03A.

Q31-B02A

Food labelling regulations and standards

Q31-C

Manufacturing details

Includes manufacturing details of packaging plant as well as manufacture of packaging containers/bottles themselves. Q31-C should be used in conjunction with other Q32 codes to highlight the type of container or closure being manufactured, e.g. bottle, jar, lid, etc. Also see section A for novel polymer details such as A12-P for packaging applications and A11-B/C for details of forming, molding and heat sealing of polymers. Also see section L01 for manufacture of glass items such as L01-L06 for packaging applications as well as e.g. L01-E for manufacturing hollow containers. Includes manufacturing details of external and internal packaging elements.

Q31-R

Recycling details

Includes recycling details of containers, lids/caps and transit packaging. Electrical details of recycling are coded under X25-W04.

Q32: Container/Closure Types, Special packaging features and Transit packaging

From 2012 Q32 has been redefined to cover container and closure types and special features of containers/packaging. Q32 codes should be used in conjunction with Q31, Q33 and Q34 codes as appropriate. Manufacturing and recycling details are covered by Q31-C and Q31-R, respectively. Prior to 2012 Q32 remains searchable for containers in general.

Q32-A

Container Type

These codes are used to highlight the type of container that is either novel per se or used in the packaging/bottling system/method.

Q32-A01
Bottles

Q32-A02
Ampoules

Q32-A03
Cartons

Q32-A04
Jars

Q32-A05
Tins/Cans

Q32-A05A
Aerosol containers

Q32-A05B
Drums; Tanks

Q32-A05C
Casks; Barrels

Q32-A08
Boxes; Crates

Q32-A09
Trays

Q32-A10
Baskets

Q32-A15
Sacks; Bags; Pouches; Envelopes
Includes plastic compost bags and paper bags.

Q32-A15A
Reclosable/resealable
Includes resealable freezer bags and other airtight bags.
Re-sealable, air-tight, zip (RTM)

Q32-A16
Collapsible tubes
Includes tubes for toothpaste or ointment.

Q32-A17
Blister packaging; Skin packaging

Q32-A18
Wrapping films; Film laminates; Shrink packaging

Q32-A18A
Shrink packaging; Shrink wraps/films
For shrink wrapping of multiple packages, e.g. for transportation see Q32-T01C instead.

Q32-A99
Other container types

Q32-B

Container or bottle construction

Details of transit packaging elements, such as corner protectors, air pillows or polystyrene peanuts, are coded under Q32-T codes only.

Q32-B01
Walls
Includes lines of weakness to facilitate the opening of the container.

Q32-B02

Partitions/dividers

Q32-B03

Reinforcements; strengthening arrangements

Q32-B04

Foldable; erectable containers

Includes containers formed from blanks such as cardboard boxes (see also Q32-A08 and Q33-C).

Q32-B05

Collapsible containers

Includes containers that can be collapsed when not storing product.

Q32-B06

Handles; carrying aids

Q32-B99

Other constructional details

Includes lining, drip catcher, internal/external coating and inspection window.

Q32-C

Lids/Caps

These codes are intended to highlight the type/construction of the actual closure/lid etc. for the package itself.

Q32-C01

Removable lids/caps

Q32-C01A

Threaded

Screw cap, pushdown & turn cap

Q32-C01B

Snap-action

Includes push-on caps.

Q32-C01D

Deformable/breakable

Includes deformable ring pulls as well as lids with integrated pull tabs for food cans/tins that do not require a can opener. Also includes crown caps used on beer bottles and closures with lines of weakness designed to be broken. Stay tabs for beverage cans are coded under Q32-C02 only.

Crown cap, crown seal, pull-off bottle cap, ring-pull, tape tab, tear strip, tearable wire

Q32-C01G

Bungs and corks

Includes rubber or plastic stoppers and corks for wine bottles. Wine bottle foils or capsules are coded under Q32-D11 instead. Includes closures arranged within necks or pouring openings or in discharge apertures.

Q32-C01H

Films and seals

Includes lidding films used to form a sealed layer on yogurts, margarine tubs, packs of delicatessen, etc. Also includes disc-like seals for bottle opening. For novel seals used in re-sealable bags also see Q32-A15A.

Aluminium foil liner/gasket

Q32-C01X

Other removable closures

Q32-C02

Non-removable closures/lids/caps

Includes lids that are hinged or slidable and remain attached to container whether open or closed, such as stay tabs for beverage cans.

Stay-on-tab

Q32-C99

Other closure details

Includes details to prevent idle rotation of the cap (to prevent gravity from rotating the cap downwards when contents are discharged from the container).

Anti-fogging lid

Q32-D

Special packaging features

Q32-D01

Packaging providing special environment

Includes packaging keeping goods at specific temperature, pressure, moisture level, or oxygen level, or using fungicides, antimicrobials and nanocomposites for longer shelf life, etc. Includes moisture absorbers, e.g. desiccants, oxygen scavengers/absorbers, and the use of thermochromic inks to indicate a change in temperature.

Insulation, sterile

Q32-D01A

Modified atmosphere packaging (MAP)

Includes "breathable" films used in equilibrium modified atmosphere packaging that passively control the atmoshpere inside the package to prolong the life of the packaged goods.

Vacuum packaging, EMAP

Q32-D01C

Barriers

Includes gas barriers, e.g. oxygen barriers, moisture barriers and bacterial barriers.

Q32-D01X

Other packaging providing special environment

Includes corrosion inhibitors.

Q32-D02

Self-heating/self-cooling packaging

Includes active packaging to heat food without external heat source or power, typically using an exothermic chemical reaction, esp. for military ready-to-eat meals.

Also colling contents using endothermic reaction.

Q32-D03

Safety features

Q32-D03A

Trackable/traceable packaging

RFID details per se, including constructional details, are coded by T04-K codes only, and electrical details of goods tracking are coded by X25-F11. This code is used to cover attachment details of e.g. RFID chip to the packaging. Also includes codes used in the food industry e.g. 'family farm codes' on meat products so consumers can learn the location of the farm where e.g. chickens, cows, etc were raised, and in the medical industry to avoid drug counterfeiting. If the codes are printed on/attached to the label, also include Q31-B02. Also includes special labels dedicated to barcodes. Details of barcodes per se, barcode writing and reading are coded under T04-C02, T04-A02B and T04-A03B1, respectively.

Trace code

Q32-D03B

Tamper resistant; preventing unauthorised removal/refilling; Anti-counterfeit features

Includes child resistant caps, and valves used for preventing refilling of containers.

Tamperproof

Q32-D03C

Tamper evident

Includes pop-up caps on jam jars and breakable seals across cap/lid.

Wax seal

Q32-D03X

Other safety features

Q32-D05

Containers storing two or more different products

Includes containers with internal partitions or multi-compartment containers for storing 2 or more samples of the same product or two or more different products. Also see Q32-B02 for novel partitions/dividers used in containers.

Q32-D06

Dispensing features

This code is used in conjunction with Q34-A and Q34-B to highlight the type of product dispensed, e.g. liquid/semiliquid or solid/particulates.
Equipment/method/control details for dispensing contents into a container, e.g. for dispensing beverages in bottles, are coded under Q31-A03 only.

Q32-D06A

Controlled/metered dose

Includes details for dispensing a controlled quantity, such as for nasal sprays or inhalers. This code can be used in conjunction with Q32-D06B or Q32-D06C to specify whether the dispenser is removable or integrated within the container.

Spirit measure, bar optic

Q32-D06B

Containers with integral dispensing arrangements

Includes containers with built-in dispensing arrangements. Spouts etc. that can be removably attached to the container, e.g. screwed on spouts, are coded under Q32-D06C only. Ring-pulls, stay tabs and ring pull type removable tin tops are coded In Q32-C instead.

Q32-D06C

Containers with removable pouring/dispensing arrangement

Includes lids with spouts, e.g. screw on spouts. If spout is integrated within the container, see Q32-D06B instead. Includes screw-on (see also Q32-C01A) sport caps for drinks bottles with lift/flip up top to allow drinking.

Spray pump

Q32-D06D

Preventing loss of cap/lid

Includes pull-off caps that are fixed to closure by tether.

Q32-D07

Closures/lids/caps with means for preventing re-filling

Includes containers with single-use closures such as one-way valves or closures that are destroyed upon opening.

Q32-D08

Closures/lids/caps with means for pressure application

Includes wire arrangement for applying pressure to cork used on champagne bottles.

Q32-D11

Decorative features

Includes wine bottle foils or capsules, as well as wax seals.

Q32-D12

Protective features; Secondary covers

Includes secondary covers used to protect main closure from e.g. dirt, such as plastic caps covering drinking spout (see also Q32-D06) or sports cap for bottle (see also Q32-A01).

Dust, dirt, contamination, protection

Q32-T

Transit Packaging

These codes are intended to highlight package accessories, e.g. straps, wrappers, cardboard edges to be fitted to outside of package to protect it during shipment etc.

Q32-T01

External packaging elements

Q32-T01A

Plugs, Sleeves, Caps for protecting/bundling of articles

Includes protectors for screw threads, corner protectors, and end caps.

Q32-T01B

Flexible elongated elements

Includes straps.

Q32-T01C

Wrappers or flexible covers and wrapping machines

Q32-T01D

Pallets and palletizing equipment

Q32-T02

Internal packaging elements

Includes partitions and inner packaging pieces used to separate, cushion, suspend and fill irregular spaces within a container. Includes chips or peanuts made of polystyrene or recycled products, air pillows, foam packaging such as expanded polystyrene foam, polyethylene foam or polyurethane foam, and corrugated board.

Partitions or dividers placed inside a container for separating 2 or more products stored in the same container are coded under Q32-B02 and Q32-D05 only.

Air pouches, bubble wrap (RTM), encapsulated air plastic sheeting, EPS, foam-in-place, kraft paper, loose fill, PE, PU

Q33: Packaging container and closure materials

From 2012 Q33 has been redefined to highlight the material the container or closure is made of. Q33 codes should be used with Q31, Q32 and Q34 as appropriate. Prior to 2012 Q33 remains searchable for closures in general.

Q33-A

Glass

Q33-B

Plastic; polymer; polystyrene; thermocol

Q33-C

Paper; card; cardboard

Q33-C01

Treated paper, card and cardboard

Includes foil-lined containers for e.g. fruit juices.

Q33-D

Metal

Includes aluminium foil.

Q33-E

Wood

Q33-F

Ceramic; Earthenware

Q33-G

Microwaveable packaging

Includes food packaging specially made for use in a microwave. Includes metalized film (metalized polyethylene, polypropylene, PET) or metalized cardboard (so called crisping sleeve) used as a subset for cooking in a microwave oven, to help make food crisp and brown.

See also X27-C01 for microwave cookware.

Q33-H

Cloth; Fabric

Includes details of packaging made from terry cloth, linen, cotton, fleece, microfibers, etc.

Q33-J

Green/sustainable packaging

Q33-J01

Biodegradable packaging

Includes compostable packaging.

Q33-J02

Made from renewable sources

Includes packaging made from renewable sources such as corn starch, sugarcanes, and tapioca products including roots, chips or starch. Also includes packaging made from recycled materials.

PLA, Polylactide, Poly(lactic) acid, pea starch, bioplastic, PHB

Q33-J03

Recyclable packaging; Reuseable packaging

This code includes packaging made from recyclable materials that can be used again after processing (e.g. made of glass, metal, card and paper). Also includes packaging that can be cleaned and reused, e.g. milk bottles. Packaging made from recycled materials is coded under Q33-J02 only. Details of edible packaging are coded under Q33-J04 only.

Q33-J04

Edible packaging

Q33-J05

Reduced/minimal packaging

This codes includes packaging made using minimal materials, leading to reduced layers of packaging, lower mass (product to packaging ratio), lower volume, etc.

Q33-J06

Energy efficient packaging

Includes packaging with low carbon footprint and/or using renewable energy.

Q33-J99

Other environmental aspects of packaging

Q33-X

Other packaging container/closure material

Q34: Types of goods packaged, bottled, bound, labelled, unpacked

From 2012 Q34 has been redefined to highlight the type of product being packaged/bottled etc. and should be used in conjunction with other Q31-Q33 codes as appropriate. Prior to 2012 Q34 remains searchable for packaging elements/types in general (now covered in general by Q32).

Q34-A

Fluent solids; Powders; Dry particulates

This code is used in conjunction with other Q34 codes as appropriate.

Q34-B

Liquids/semiliquids

This code is used in conjunction with other Q34 codes as appropriate.

Paste

Q34-C

Food for human consumption

These codes can be used in conjunction with Q34-A and Q34-B to indicate whether the food product is a liquid or a solid.

Q34-C01

Meats; Poultry; Fish

Q34-C01A

Raw meats/poultry/fish

Includes packaging of meat mince, sausages, and marinated raw meats/poultry/fish.

Bacon

Q34-C01B

Processed meats/poultry/fish

Includes packaging of all smoked, cured and cooked meat products, including salamis, pates and hams. Ready meals made using meat, poultry and/or fish are also coded under Q34-C08A. Packaging of mince, sausages and marinated uncooked meats are coded under Q34-C01A only.

Delicatessen, fish pastes, sardines

Q34-C02

Vegetables; Fruits; Produce

Includes packaging of fresh and processed vegetables/fruits/etc, including pre-cut salads, diced carrots, peeled potatoes, tinned tomatoes, fruit compotes, etc.

Q34-C02A

Vegetables

Beans, soya, legumes, peanuts, garlic

Q34-C02B

Fruits

Includes packaging of dried fruits.

Raisins, fruit purees, fruit salads, olives

Q34-C02C

Nuts and seeds

Pecan, almond, cashew, sesame

Q34-C02X

Other vegetables/fruits/produce

Q34-C03

Cereals

Includes packaging of grains, rice, flour, breakfast cereals, etc.

Q34-C04

Dairy

Includes packaging of fresh and processed dairy products, such as milkshakes, powdered eggs, etc.

Q34-C04A

Milk; Yoghurt

Includes packaging of cream, ice cream, butter, milkshakes, etc. Also includes packaging of lactose-free milk.

Powdered milk, UHT milk, buttermilk, baby milk

Q34-C04B

Eggs

Dried eggs

Q34-C04C

Cheese

Q34-C04X

Other dairy products

Q34-C05

Bakery; Confectionery; Pasta

Includes packaging of breads, cakes, biscuits, pasta, crisps and sweets.

Cookies, spaghetti, macaroni, rice, candies

Q34-C06

Condiments; Sauces; Sugars; Oils

Q34-C06A

Herbs; Spices

Includes packaging of fresh, frozen and dried herbs. Herb pastes, such as basil or coriander pastes, are coded under both Q34-C06A and Q34-C06B. Packaging of mustard is coded under Q34-C06B only.

Q34-C06B

Sauces; Soups; Pastes

Includes packaging of pasta sauces, curry pastes, sauce pouches, mayonnaise, tomato sauce, etc. Herb pastes, such as basil or coriander pastes, are coded under both Q34-C06A and Q34-C06B.

Tomato puree, dry sauce mix, mustard, marinade

Q34-C06C

Oils; Vinegars

Includes packaging of cooking oils, such as olive oil, sunflower oil. Also includes packaging of salad dressing.

Vinaigrette

Q34-C06D

Sugar and sweeteners

Includes packaging of sugar cubes, loose sugar, syrups, but also sugar substitutes/artificial sweeteners.

Caramel

Q34-C07

Drinks and beverages

This code does not include milk packaging, which is coded under Q34-C04A only.

Q34-C07A

Water and soft drinks

Includes packaging of still/sparkling water, fruit juices, squashes and concentrates.

Cordial

Q34-C07B

Tea and coffee

Includes packaging of ground and instant coffee, coffee beans, coffee machine pods, one-cup coffee filters, syrups (chicory), loose tea, tea bags and chocolate drinks. Also includes packaging of filter papers used in coffee makers.

Q34-C07C

Alcoholic drinks

Beer, wine, whiskey

Q34-C08

Specialty foods and meals

Q34-C08A

Whole or partially prepared meals

Includes meal kits, and marinated uncooked meats.

Sushi

Q34-C08B

Baby foods

Includes packaging of powdered milk, long-life milk, food pouches, etc. Packaging of milk products is also coded under Q34-C04A.

Q34-C08C

Food supplements and vitamins

Includes packaging of slimming milkshakes.

Q34-C08D

Parental and enteral feeding

Q34-D

Food for animal consumption and supplements

Q34-D01

Animal food

Includes packaging of pet food or livestock feed.

Fodder, pet treats

Q34-D02

Animal supplements/health products

Includes packaging of vitamins, cod liver oil, animal grooming products, etc. Also includes packaging of animal health products, such flea products, ointments, etc. These are also coded under Q34-J01 for pharmaceuticals.

Q34-E

Textiles; Clothing; Garments; Shoes

Q34-F

Paper; Sheets; Magazines; Newspapers

Includes packaging details of toilet paper. Also coded under Q34-J03.

Q34-G

Building/construction materials

Includes packaging for tiles, bricks, windows, glass panels/sheets, etc. Also includes packaging for waste materials from building sites, such as rubbles. Packaging for asbestos is also coded under Q34-H99.

Q34-H

Hazardous materials

Corrosive materials

Q34-H01

Chemicals

Q34-H02

Fuels

Petroleum

Q34-H03

Hospital waste/Bio-hazards

Q34-H04

Nuclear materials/Radioactive waste

Rods

Q34-H99

Other hazardous materials

Asbestos, explosive materials, ammunitions, refrigerant, paint, poison, dead organisms/creatures

Q34-J

Pharmaceuticals; Medical; Cosmetics; Cleaning products

Q34-J01

Pharmaceuticals

Includes packaging of pharmaceuticals for internal and external usage. Includes packaging of food supplements, such as vitamins. Packaging of meal replacements and diet products, such as slimming milkshakes or soups, are coded under Q34-C08C only.

Medicine, tablets, ointment, inhaler, flea products

Q34-J02

Medical

Includes packaging of medical instruments such as needles, dressings, etc. Special carriers for e.g. human organs with integrated cooling systems are also coded under Q32-D01. Packaging of tablets and medicines are coded under Q34-J01 only.

LifePort®, sterile bandages

Q34-J03

Cosmetics; Toiletries

Packaging details of toilet paper is also coded under Q34-F.

Soap, shampoo, toothpaste, make-up, razor blades

Q34-J04

Cleaning products

Does not include packaging of toiletries; these are coded under Q34-J03 only.

Cleaning wipes, cleaning foam, washing up liquid, clothes conditioner

Q34-K

Vehicle parts; Tyres; Machine parts; Tools

Q34-K01

Vehicle parts; Tyres

Includes packaging details of parts for cars, airplanes, boats, trains, bikes, etc.

Q34-K02

Machine parts; Tools

Includes packaging of gardening equipment, and welding electrodes.

Q34-L

Tobacco products

Includes packaging of cigarettes, cigars, pipes etc. Includes packaging of filters and cigarette papers.

Cigarillos, blunt, corona, kretek, tobacco pouch, cigarette holder

Q34-M

Electrical/electronic equipment/parts

Q34-M01

White goods and kitchen appliances

Washing machine, microwave, cooker, blender, coffee maker, toaster, fridge

Q34-M02

Electronic goods

Includes packaging of musical instruments, toys and sport equipment with electrical content, e.g. keyboards, battery-operated toys. Packaging of musical instruments, toys and sport equipment are also coded under Q34-T.

LCD, television, game consoles

Q34-M99

Other electrical/electronic equipment/parts

Includes packaging of electrical beauty products (electric razors, massagers, etc), batteries, lightbulbs and tubes.

Q34-N

Household/domestic

Includes packaging of non-electrical items, such as crockery, furniture, cleaning accessories (e.g. cleaning mops, cloths, washing gloves, etc). Packaging of kitchen appliances, white goods (washing machines, microwaves, etc) and electrical beauty products is coded under Q34-M codes only.

Watch, jewellery

Q34-T

Musical instruments; Toys; Sport

Packaging of musical instruments, toys and sport equipment with electrical content, e.g. keyboards, battery-operated toys, game consoles, are also coded under Q34-M02.

Q34-X

Other specific goods

Includes packaging for plants, flower bulbs and seeds.

Q35: Refuse Collection; Conveyors

From 2012 manual codes have been assigned for all mechanical details of refuse collection and conveyors.

Q35-A

Refuse Collection

Q35-A01

Refuse receptacles

Includes cleaning/sterilizing equipment integrated with the refuse receptacle. Details of cleaning/sterilizing equipment including electrical details are coded under X25-H09.

Bin bag, dustbin, wheelie bin, dumpster

Q35-A02

Vehicles to collect refuse

Details of e.g. vehicle gears, motors, etc, are also coded under Q19. Includes details of front loaders, rear loaders and compactors. Includes cleaning/sterilizing equipment integrated with the vehicle. Details of cleaning/sterilizing equipment including electrical details are coded under X25-H09.

Garbage truck, trash/dump truck, grapple truck, bin wagon, dustcart, dustbin lorry, garbage scow

Q35-A99

Other refuse collection details

Q35-B

Conveyors

Includes details of belts, gears, chutes, safety equipment, etc. Also includes lubricating and cleaning/sterilizing equipment. Details of cleaning/sterilizing equipment including electrical details are coded under X25-H09. Electrical details of conveyors, including control details, are coded under X25-F01 codes only. Details of elevators, escalators, lifts or moving walkways are coded under Q38-A only.

Roller conveyor

Q36: Handling Thin Materials

From 2012 manual codes have been assigned for all mechanical details of thin material handling.

Q36-A

Handling of piles

Carpets, curduroy, velvet

Q36-B

Handling of webs

Continuous sheets of metal, paper

Q36-C

Handling of thin materials

Fabric

Q36-D

Handling of filamentary materials

Cable, string, wool

Q36-E

General handling

Includes details of delivering or advancing articles from a machine, collating articles, storing materials on e.g. reels, spindles, bobbins, etc, adjusting tension in material, driving gear, recirculation system, securing material to cores, etc. This code can be used in conjunction with other Q36 codes to specify the type of thin materials handled.

Q37: Container Traffic (Pre-1984 Only)

Q38: Hoisting; Lifting; Hauling

From 2012 manual codes have been assigned for all mechanical details of hoisting, lifting and hauling.

Q38-A

Elevators, escalators, lifts, moving walkways

Details of conveyors are coded under Q35-B only. Electrical details of elevators, escalators, lifts and moving walkways, including control details, are coded under X25-F04 codes only.

Goods lift

Q38-B

Cranes, capstans, winches or tackles and other lifting, hauling devices not covered by other sections

Details of cranes, winches, etc, with electrical content are coded under X25-F05 codes.

Hoist

Q39: Liquid handling, saddlery, upholstery

*This class is now discontinued. Liquid handling has been transferred to Q31, saddlery has been transferred to P36 and upholstery has been transferred to P27. Q39 remains searchable for records prior to 2012.

Q5 Engines, Pumps, Compressors, Fluid Pressure Actuators

Q51: Internal Combustion Engines; Reciprocating Engines; Rotary Engines

From 2006 Q51 covers all mechanical details of positive displacement combustion engines. Prior to the introduction of Q51 manual codes in 2006, the Q51 class covered machines and engines in general including positive displacement engines, steam engines/turbines, engine valves, cooling, lubrication and silencing. Also see Q17-E for vehicle internal combustion engine propulsion arrangements. For electrical aspects of motor vehicle engines see X22-A codes only.

Q51-A

Reciprocating positive displacement engines

Q51-A01

Engine type

These codes are normally applied when the engine type has a direct bearing on the novelty.

Q51-A01A

With single cylinder

Q51-A01B

With multiple cylinders

This code is only applied when it is especially important to highlight the fact that an engine has multiple cylinders, or when the whole multi-cylinder engine is being claimed and further Q51 codes might not be applied. It is normally assumed that an engine will have multiple cylinders unless otherwise specified. Includes, in-line 4, V5, straight/V6, V8, W10, V12 etc. engines.

Q51-A01C

With multiple pistons in same cylinder

Q51-A01D

With movable cylinders

Q51-A01E

With precombustion chambers

Q51-A01G [2007]

With variable compression ratio

Includes engines with arrangements for varying the compression ratio in use.

Q51-A01J [2007]

Two-stroke

Includes IC engines operating in two-stroke cycle, e.g. for moped (see also Q19-B).

Q51-A03

Component parts

Q51-A03A

Cylinders; Cylinder heads

See Q51-D for valves. Includes precombustion chambers per se (see also Q51-A01E).

Q51-A03B

Pistons

Includes pistons with charge flow guides, i.e. scoops in piston head for swirl control.

Swirl control

Q51-A03C

Seals; Gaskets; Piston rings

Includes oil control rings.

Q51-A03D

Casings; Crankcases; Cam/rocker covers

Q51-A03E

Piston to output shaft connections; Connecting rods

Includes con rods connecting pistons to drive shaft. For connections from drive shaft to other transmission shafts or wheels, see Q62 codes. Includes crankshafts per se.

Q51-A03X [2007]

Other reciprocating engine components

Q51-B

Rotary or oscillating piston engines

Q51-B01

Rotary combustion engines

Includes four-stroke, Otto cycle Wankel engines.

Q51-B01A

With single rotor

Q51-B01B

With multiple rotors

Q51-B03

Component parts

Q51-B03C

Rotor seals

Q51-B03E

Connections between piston and casing

Includes drive arrangements for cooperating members, e.g. for rotary piston and casing.

Q51-B05

Oscillating piston engines

See Q53-C for fluid driven oscillating piston engines.

Q51-C

Gas-driven positive displacement engines

See Q53-A instead for positive displacement engines driven by liquid.

Q51-C01

Open cycle hot gas positive displacement engines; Steam engines

Includes reciprocating steam engines. See Q52 instead for non-positive displacement steam turbines. This code can be used in conjunction with other Q51 codes as appropriate, e.g. Q51-A03B for steam engine pistons.

Q51-C02

Closed cycle hot gas positive displacement engines

I.e. positive displacement engines that are operated by expansion and contraction of a mass of working gas that is heated and cooled. See X25-X08 for electrical aspects of Stirling engines.

Closed cycle, heat, cool, Stirling engine

Q51-C05 [2007]

Air/gas driven positive displacement engines

Includes IC engines driven by compressed air supply and not involving combustion.

Q51-D

Engine/fuel type

See X22-A20 for electrical aspects of vehicle engine/fuel types.

Q51-D01

Petrol/gasoline

This code is not routinely assigned, since engines are assumed to be petrol unless otherwise stated.

Q51-D03

Diesel

Q51-D05

Mixed fuels

Includes engines running on dual fuels such as petrol/alcohol or diesel/LPG.

Q51-D07

Single unconventional fuel

Includes engines running on e.g. alcohol or bio-fuels.

Q51-D07A

Gaseous fuel

Using LPG, natural gas, hydrogen.

Q51-D07C

Bio-fuel; Alcohol

Includes engines running on free fatty acid methyl ester (bio-diesel) or alcohol such as methanol or ethanol.

Q51-E

Valve gear; Valve drive arrangements

Includes 4-valve drives for IC engines. For electrical aspects of vehicle engine intake/exhaust valve gear see X22-A11 and X22-A03G codes instead.

Q51-E01

Lift valves; Poppet valves

Includes valve guides.

Q51-E02

Gate or sliding valves

See also Q51-A01J for reed valves used in two-stroke internal combustion engines.

Q51-E03

Rotary or oscillating valve gear

Q51-E04

Steam engine valve gear

Q51-E05

Valve drive arrangements; Valve adjustment/control; Cam control

Includes hydraulic valve clearance adjusters for motor vehicle engines.

Hydraulic lash adjusters

Q51-E05A

Camshafts; Cams; Eccentrics

Q51-E05B

Tappets; Pushrods; Rocking arms etc.

Q51-E09

Other valve gear

Q51-F

Lubrication

See X22-A10 for electrical aspects of vehicle engine lubrication, such as electric oil pumps. For oil pressure monitoring for motor vehicle engines, see X22-E01C.

Q51-F01

Pressure lubrication

Q51-F02

Mixed with fuel and/or air

Two-stroke

Q51-F03

Breathing/ventilating

Includes crankcase breathing and cam cover breathing. Includes feeding of crankcase or cam cover air and any entrained oil back into induction system or to oil catch tank/filter.

Q51-F05 **[2007]**

Oil filters

Q51-G

Cooling

See Q51-H05A for turbocharger intercooling.

Q51-G01

Air cooling

Includes forced air feeding, i.e. fans.

Q51-G02

Liquid cooling

Q51-H

Charge feed i.e. fuel or air supply

For electrical fuel/air supply aspects of motor vehicle engines see X22-A02 and X22-A03 codes instead.

Q51-H01

Fuel feed

For electrical vehicle fuel pumps and fuel control see X22-A02D and X22-A03A codes respectively. See Q17-E04 for vehicle engine fuel supply.

Q51-H01A

Carburettion (carburettors)

See X22-A02C for electrical aspects of IC engine carburettors.

Q51-H01B

Fuel injection

Includes fuel systems using compressed air or mechanical control. Can also be applied to highlight novel mechanical aspects of EM fuel injection valves (also see X22-A02A codes for electrical fuel injection apparatus). See X22-A03A1 codes only for electric fuel injection control.

Q51-H01B1

Common rail arrangement

For electrical aspects of common rail injection systems see X22-A02A3.

Q51-H01C

Fuel pump

E.g. using compressed air or mechanically controlled fuel injection pump. See X22-A02D for electric fuel pumps and X22-A03A3 for electric fuel pump control. Includes gear pumps and rotary vane type pumps.

Q51-H01D

Fuel pressure regulator

Includes pressure relief valves.

Q51-H01F

Fuel filter

See X22-A02B for electrical aspects of fuel filters.

Q51-H01G

Fuel treatment

Includes e.g. fuel additive arrangements or water injection.

Q51-H01X

Other fuel systems

Includes fuel lines, hoses and pipework. Includes fuel heating arrangements. See X22-A02B for electrical fuel heaters. Also includes fuel cooling (see also Q51-G).

Q51-H02 [2010]

Fuel vapour recovery

(Q51-H01X)

Includes mechanical details of fuel vapour recovery systems. See X22-A02E instead for electrical details of fuel vapour recovery systems.

Q51-H05

Air intake systems

See X22-A03B for electrical aspects of air intake systems/throttles.

Q51-H05A

Supercharging; Turbocharging

Respectively see X22-A14 and X22-A03C for electrical aspects of motor vehicle super/turbo chargers and their control. Includes intercoolers.

Q51-H05C

Throttle valve

Intake air control valves.

Q51-H05E

Intake flow swirl/turbulisation control

Includes mechanical arrangements for promoting mixing of air and fuel, e.g. using scoops in piston head (see also Q51-A03B).

Q51-H05F [2007]

Air filters

Includes disposable paper air intake filters and reusable foam filters.

Q51-I

Ignition systems

Includes ignition systems using e.g. application of direct heat, incandescence, friction, pyrophoric or catalytic ignition. See X22-A01 codes for electrical ignition systems.

Q51-J

Exhaust systems; Pollution control

See X22-A07and X22-A03J for electrical aspects of vehicle exhaust/emissions control systems. Also includes exhaust braking, e.g. for diesel engined truck (see also Q18-A30).

Q51-J01

Silencing systems

Includes use of resonance, sound absorbing materials or baffles. For electrical aspects of engine noise reduction see X22-A12 (including active noise suppression - possibly see W04-V07 also).

Q51-J02

Exhaust gas cleaning systems

See X22-A07 or X22-A03J for electrical aspects of motor vehicle engine exhaust gas cleaning and pollution control. See X22-A05 and S03-E codes for vehicle exhaust gas sensors per se.

Q51-J02A

Exhaust gas filters

Includes e.g. diesel particulate filters (see also Q51-D03).

Q51-J02B

Catalytic cleaning; Catalytic converters

Includes catalyst materials and catalytic converters, construction. For electrical aspects see X22-A07 only.

Q51-J02C

Inertial or centrifugal separators

Q51-J02D

Secondary air/fluid supply

For electrical aspects of secondary air control used in motor vehicle exhausts, see X22-A03L.

Q51-J02E [2008]

Exhaust gas recirculation

Includes mechanical aspects of exhaust gas recirculation arrangements. See X22-A07 for electrical aspects of EGR or X22-A03A2C for EGR control.

Q51-J02F [2010]

Exhaust heat recovery

Includes recovery of heat of vehicle exhaust e.g. for passenger compartment heating. For electrical details of exhaust recovery systems see X22-A17.

Q51-J07 [2007]

Exhaust braking

Includes exhaust brakes and exhaust brake control, e.g. used for slowing diesel-engined truck (see also Q19-C02 for trucks and Q51-D03 for diesel engines) when travelling down long hill, to avoid overheating mechanical friction brakes. Also see Q18-A30 for exhaust braking prior to 2007. See X22-A03B5 and/or X22-A09 instead for electrical aspects of vehicle exhaust/engine braking.

Q51-K

Starting systems

For motor vehicle IC engine electrical starting see X22-A08, or X22-A04 for electric starter motors per se. Also see relevant X11 and X13 codes for motor hardware and control respectively.

Q51-K01

Using muscle power

E.g. using hand cranks, pull cords and motorcycle kickstarts (see also Q19-B).

Q51-K02

Using mechanical power storage

E.g. using springs or inertia.

Q51-K03

Using auxiliary engines

Q51-K09

Other starting arrangements

Includes e.g. using explosive cartridges.

Q51-L [2007]

Engine heating/warming apparatus/method

Includes use of exhaust gas heat to warm engine/coolant. See X22-A15 for electrical details of engine warming.

(Q51-X)

Q51-M [2007]

Engine manufacture/assembly/disassembly

Includes manufacturing and assembly aspects of engine and engine components, not specifically for transportation applications such as motor vehicle, boat, aircraft - see relevant Q17 (with Q16-D), Q24 and Q25 codes respectively.

Q51-N [2010]

Noise, vibration and harshness reduction

See also Q17-N and Q17-E codes for mechanical details of motor vehicle engine noise reduction. See X22-A12 for electrical details of vehicle engine noise and vibration reduction.

Q51-X

Other engine details

Includes IC engine details not already covered, such as engine mountings (also see Q17-E01 for vehicle engine mountings).

Q52: Reaction Engines; External Combustion; Gas Turbines; Rockets

From 2006 Q52 covers all mechanical details of non-positive displacement combustion engines such as turbine and rocket engines. Prior to the introduction of Q52 manual codes in 2006, the Q52 class covered both positive displacement and non-positive displacement engines/turbines and their control. For power generation gas turbines see X11-C01, for aircraft gas turbines engines see W06-B01 codes and for electrical aspects of gas turbines used in land vehicle propulsion see X22-P03.

Q52-A

Gas/steam turbine engines

See Q25-C02B for aircraft gas turbine engines per se.

Q52-A01

Turbine engine type

Q52-A01A [2007]

Turbojet engines

Q52-A01C [2006]

Turbofan engines

Q52-A01E [2007]

Turboprop engines

Q52-A01S [2007]

Steam turbines

Includes non-positive displacement steam turbines. See X11 codes for power generation steam turbines, and see Q51-C01 instead for reciprocating piston steam engines.

Q52-A01X [2007]

Other turbine engines

Q52-A02

Component parts

Q52-A02A

Rotor and stator

Includes manufacturing methods. Includes rotor and stator blades.

Q52-A02B

Combustion chamber

Includes charge flow guidance and cooling.

Q52-A02C

Nozzles, Nacelles

Also see Q25-A04 for aircraft engine nacelles per se.

Q52-A02D

Afterburner

Q52-A03

Intake/exhaust configuration; Intake heating/cooling

Includes air intake ducts and lips etc.

Q52-B

Non-turbine reaction engines

Q52-B01

Pulse jet

Includes pulse jet engine where gaseous fuel/air mixture is combusted in pulses to generate propulsive effort which is a reaction to the rearward flow of hot gases.

Pulsejet, deflagration

Q52-B01A [2007]

Pulse detonation engines

Includes pulse wave detonation engines that detonate fuel rather than deflagrate it.

PDE, PWDE, deflagration-to-detonation transition, DDT, high speed, high altitude, supersonic, hypersonic

Q52-B02

Ram jet

Q52-B03

Rocket engines

Includes solid fuel engine constructions. Also see Q25-S04 for spacecraft propulsion systems per se.

Q52-B04

Composite pulse, ram, rocket engine combinations

Includes composite pulse, ram, rocket engines. Also includes hybrid pulse detonation engines capable of operating in air-breathing and rocket modes.

Q52-C

Fuel supply systems

Also see P25-C02B for aircraft jet engines and their fuel supply per se.

Q52-C01

Fuel heating

Q52-C02

Fuel supply control

See W06-B01A5 for aircraft engine electrical fuel supply.

Q52-C03

Fuel injection

Q52-C09 [2007]

Other fuel supply aspects

Q52-D

Starting systems

Includes fluid or mechanical drives e.g. using cartridges or starter turbines.

Q52-E

Ignition systems

See W06-B01C9 for electrical ignition systems for aircraft turbine engines.

Q52-F

Lubrication

Q52-G [2007]

Engine cooling

Includes overall cooling of gas turbine/external combustion engines. For gas turbine intake charge air cooling see Q52-A03 instead.

Q52-M [2007]

Engine manufacture/assembly/disassembly

Includes manufacturing/assembly/disassembly aspects of gas turbine engines. For manufacture of aircraft or ship gas turbine engines also see Q25-C02B and Q24-E02B respectively (and possibly Q25-X05 or Q24-X05 for aircraft and marine vessel manufacture per se).

Q52-X

Other engine details

Q53: Positive Displacement Fluid Engines (i.e. driven by fluid)

From 2006 Q53 covers all mechanical details of positive displacement fluid engines (i.e. driven by fluid). Prior to the introduction of Q53 manual codes in 2006, the Q53 class covered jet engines and fuel supply systems.

Q53-A

Reciprocating piston fluid engines

See Q51-A codes for positive displacement reciprocating engines driven by gas.

Q53-B

Rotary piston fluid engines

See Q51-B codes for positive displacement engines driven by gas.

Q53-C

Oscillating piston engines

See Q51-B05 for oscillating piston engines driven by gas.

Q53-G

Component parts

Includes valve gear, pistons, cylinders seals.

Q53-X

Other positive displacement fluid engines/machines

Q54: Non-positive Displacement Fluid Engines (i.e. driven by fluid); Miscellaneous Motors and Machines for Producing Mechanical Power/Thrust

From 2006 Q54 covers all mechanical details of non-positive displacement fluid engines (i.e. driven by fluid). Prior to the introduction of Q54 manual codes in 2006, the Q54 class covered starting and ignition systems. See Q51-K, Q51-I and Q52-D, Q52-E for starting and ignition systems for positive and non-positive displacement engines respectively.

Q54-A

Water turbines

Prior to 2007, this code was used for impulse engines having transportation interest. From 2007 this code has been expanded to cover all water turbines.

Q54-A01 [2007]

Impulse turbines

(Q54-A)

Includes turbines that use nozzles to change water's potential energy into kinetic energy, with resulting high velocity water jet made to impinge upon curved turbine blades which reverse the flow, with the resulting change of momentum or "impulse" causing a drive force on the blades. Mainly used in very high head applications.

Q54-A05 [2007]

Reaction turbines

(Q54-B)

Includes turbines that are encased or fully submerged and are acted upon by water which changes pressure as it moves through the turbine and gives up its energy. Mainly used in low and medium head applications.

Q54-B* [2006-2007]

Reaction type engines

*This code is now discontinued and transferred to Q54-A05 from 200701. Includes e.g. Francis turbines, propeller turbines and Kaplan turbines. See Q51-C02 for closed cycle turbine engines driven by gaseous medium.

Q54-C

Friction type engines

Using non-bladed rotors, e.g. serrated.

Q54-D

Endless chain type engines/machines

Q54-E

Spring motors

Q54-F

Gravity and inertia motors

Includes flywheel energy storage.

Q54-G

Producing mechanical energy from wind, i.e. wind motors

For wind turbines used to generate electrical power, see X15-B instead.

Q54-H

Producing mechanical energy from geothermal or solar energy

Q54-I

Producing mechanical energy from muscle power

Includes treadmills or horse mills.

Q54-X

Other non-positive displacement fluid engines/machines; other mechanical energy systems

Includes perpetua mobilia using hydrostatic thrust, or using liquid flow, e.g. swinging flap type. Also includes ocean thermal energy conversion, using pressure or thermal differences, etc. Also see X15 codes for non-fossil fuel electricity generation.

Q55: Positive Displacement Fluid Machines/Pumps/Compressors (i.e. for driving fluid)

From 2006 Q55 covers all mechanical details of positive displacement fluid machines/pumps/compressors (i.e. for driving fluid). Prior to the introduction of Q55 manual codes in 2006, the Q55 class covered machines and engines for liquids.

Q55-A

Reciprocating piston fluid machines

Includes reciprocating piston positive displacement pumps and compressors.

Q55-B

Rotary piston fluid machines

Includes rotary piston positive displacement pumps and compressors.

Q55-C

Oscillating piston fluid machines

Includes oscillating piston positive displacement pumps and compressors.

Q55-D

Diaphragm operated fluid machines

Includes diaphragm operated positive displacement pumps and compressors.

Q55-E [2007]

Scroll fluid machines

(Q55-X)

Includes positive displacement scroll compressors or scroll pumps using fixed and orbiting archimedean spiral scrolls.

Q55-G

Component parts

Includes valves, seals, rotors, casings.

Q55-X

Other positive displacement fluid machines

Q56: Non-positive Displacement Fluid Machines/Pumps/Compression (i.e. for driving fluid)

From 2006 Q56 covers all mechanical details of non-positive displacement fluid machines/pumps/compressors (i.e. for driving fluid). Prior to the introduction of Q56 manual codes in 2006, the Q56 class covered pumps.

Q56-A

Radial flow fluid machines

Includes centrifugal pumps and helic-centrifugal pumps or compressors.

Q56-B

Axial flow machines

Includes e.g. non-positive displacement screw type pumps. For scroll pumps/compressors see Q54-E instead.

Q56-C

Fluid machines pumping fluid by direct contact of another fluid or using inertia of fluids to be pumped

Q56-C01

Jet pumps

Includes pumps in which fluid flow is induced by pressure drop caused by velocity of another fluid flow.

Q56-C02

Diffusion pumps

Q56-D

Siphons

Q56-G

Component parts

Includes shafts, bearings, rotors, casings, cooling strainers, cavitation reducers used in pumps or compressors.

Q56-X

Other non-positive displacement machines/pumps/compressors

Includes e.g. hydraulic rams.

Q57: Fluid Pressure Actuators; Hydraulic/Pneumatics in General

From 2006 manual codes have been assigned for all mechanical details of fluid pressure actuators and hydraulics/pneumatics in general.

Q57-A

Telemotors; with movement proportional to pump output

Q57-B

Servomotors; with position of output conforming to input

Q57-C

Combined servo and telemotors

Q57-D

Pyrotechnic actuators

For motor vehicle safety systems such as vehicle airbags, see Q14-C02 only.

Q57-E

Component parts

Includes valve gear, guide vanes etc. used in fluid pressure actuators or hydraulics in general.

Q57-X

Other fluid pressure actuators and fluid dynamic control aspects

Includes general devices for influencing the flow of fluids.

Q6 Engineering Elements

Q61: Fastening Elements; Connections

E.g. for securing machine parts together. Includes both male (bolt) and female (nut) fastenings. These codes are normally only applied when the fastening itself is novel.

Q61-A

Threaded fasteners

Q61-A01

Nuts

For lock nuts see also Q61-A07A.

Female

Q61-A03

Bolts

For torque limiting break bolts see also Q61-A07C,

Male

Q61-A05

Screws

Q61-A07

Special purpose fastener action

Q61-A07A

Locking fasteners

Includes nylon insert locknuts (see also Q61-A01).

Q61-A07C

Torque limiting

Includes e.g. break bolts (see also Q61-A03).

Q61-A07E

Self tapping

Includes self tapping screws (see also Q61-A05).

Q61-B

Friction grip fasteners

Includes clamps, clips and shrinkage connections.

Q61-C

Key type connections

Includes bayonet connections.

Q61-D

Rivet connections

Includes peel type rivets and rivnuts (also see Q61-A01).

Q61-E

Nails, staples. Dowels

Includes dowel and plug type connections that are inserted or screwed into hole, with e.g. expanding bodies or tabs engaging hole or gripping reverse side of wall.

Wall plug, Rawlplug (RTM)

Q61-F

Anti-tamper connections

Includes snap off fastener head that snaps off when predetermined tightening torque is reached to leave behind shaped anti-tamper head.

Q61-G

Deformable connections

Includes e.g. split pins.

Q61-H

Washers; Lock washers, Spring washers

Q61-R [2007]

Fastener installation tools

(Q61-X)

Includes tools used to install or remove fastening elements used in transportation applications such as mechanical compressed air driven rivet guns used in aircraft manufacture (see also Q25-X05). This code can be used in conjunction with other Q61 codes to specify the type of fastening being installed/removed.

Q61-X

Other fastening elements

Includes hooks and eyes, suction cups etc.

Q62: Shafts and Bearings

Q62-A
Flexible shafts

Q62-A01
For conveying rotary movement

Q62-A02
For conveying sliding movement

Q62-B
Rigid shafts

Q62-B01
Crankshafts
See Q19-A and Q13-A15 for cycle cranks.

Q62-B02
Eccentric shafts (including camshafts)
See Q51-E05A for motor vehicle internal combustion engine camshafts.

Q62-B03
Adjustable cranks

Q62-C
Rigid connections, fixed joints

Q62-D
Pivots, pivotal connections
Includes ball joints, trunnions, crank pins.

Q62-G
Bearings
Includes bearing elements and their races. Also includes hydrodynamic bearings.

Q62-G01
Sliding contact bearings
Includes plain bearings e.g. used as crankshaft and connecting rod bearings in motor vehicle piston engines. See also Q51-A03E for crankshafts and con rods per se. Includes nylon self-lubricating bearings and fluid film bearings using a film of lubricant between sliding surfaces.
Bushing, babbit, journal bearing

Q62-G02
Rolling contact bearings
Anti-friction bearings

Q62-G02A
Ball bearings
Includes bearings e.g. used to support a shaft or pulley. They can handle both axial and radial loads, though are usually used when the loading is fairly small.

Q62-G02A1
Ball thrust bearings
Includes ball bearings subjected to axial thrust loading, such as those used in bar stools or Lazy Susan (RTM) turntables. These cannot handle much radial load.

Q62-G02C
Roller bearings
Includes roller bearings used in conveyors where heavy radially loads need to be supported. Also includes needle roller bearings having small diameter cylinders designed to fit into tight spaces.

Q62-G02C1
Tapered roller bearings
Includes motor vehicle wheel bearings subject to axial (cornering force) and radial (vehicle weight) loads. They are usually mounted in pairs facing opposite directions so that they can handle thrust in both directions.

Q62-G02C3

Roller thrust bearings

Includes bearings used in gearsets such as those found in car transmissions between gears, and between the housing and the rotating shafts. These are suitable for handling large axial/thrust loads.

Q62-G02E

Giant bearings

Includes giant (1.5m diameter) ball bearings used under buildings to provide earthquake protection, or giant roller bearings used to move very heavy objects (also see Q62-G02A and Q62-G02C respectively)

Q62-G03

Magnetic bearings

Includes magnetic bearings used in high speed applications such as flywheel energy storage systems, where the flywheel rotating in excess of 50000 rpm can float on a magnetic field created by the bearing.

Q62-G04

Elastic bearings

Q62-G05

Combination bearings

Q62-G07

Bearing play adjustment

Q62-G09

Cooling and lubricating arrangements

Q62-M

Manufacturing arrangements for shafts or bearings

For electrical metal grinding operations see X25-A03C2.

Q62-X

Other shaft or bearing aspects not provided for

Includes mountings, housings, caps, covers.

Q63: Couplings; Clutches; Brakes; Springs; Dampers

Q63-A
Couplings for transmitting rotary motion

Q63-A01
For connecting shafts
Includes universal joints and CV (constant velocity) joints.

Q63-A02
Controlled movement coupling e.g. elastic couplings

Q63-A03
Slip; Yielding; Impulse couplings
Includes couplings that permit relative rotational movement between the connected parts during drive; couplings that slip on overload and couplings that alternately accelerate/decelerate driven member.

Q63-A04
Fluid couplings

Q63-A05
Hose couplings including quick acting/release couplings

Q63-B
Clutches
For motor vehicle clutches see Q13-A03, and for electrical aspects of vehicle powertrain hardware see X22-G01.

Q63-B01
Interengaging clutches
I.e. clutches with interengaging parts.

Q63-B02
Friction clutches
Includes wedge action clutches and wet and dry plate friction clutches.

Q63-B03
Fluid actuated clutches; Fluid transmission clutches
Includes hydraulically actuated clutches. See Q13-A03 for motor vehicle clutches.

Q63-B04
Mechanically operated clutches
Includes cable actuation arrangements.

Q63-B05
Freewheel clutches, freewheels

Q63-B06
Multiple/combination clutches

Q63-B09
Other clutch details

Q63-D
Brakes
For vehicle brakes see Q18-A codes only. For electrical aspects of brakes or brake wear indicators see X22-C02 and X22-E02A respectively.

Q63-D01
Drum brakes
See Q18-A01B for motor vehicle brake drums.

Q63-D01A
Fluid actuated drum brakes

Q63-D01B
Mechanically actuated drum brakes

Q63-D01E
Drum brake components
Includes drums, brake shoes.

Q63-D02
Disc brakes
See Q18-A01A for motor vehicle brake discs.

Q63-D02A
Fluid actuated disc brakes

Q63-D02B

Mechanically actuated disc brakes

For electrically actuated motor vehicle parking brake see X22-C02A.

Q63-D02E

Disc brake components

Includes discs, brake pads, callipers.

Q63-D03

Band brakes

Q63-D03A

Fluid actuated band brakes

Q63-D03B

Mechanically actuated band brakes

Q63-D03E

Band brake components

Includes wear surfaces and adjusters.

Q63-D09 [2007]

Other brake details

Q63-E

Springs; Shock absorbers; Dampers

See Q12-B codes for motor vehicle suspension spring/damper arrangements. See X22-M instead for electrical aspects of motor vehicle suspensions.

Q63-E01

Springs

See Q12-B01 for motor vehicle suspension spring arrangements.

Q63-E01A

Coil springs

Q63-E01B

Leaf springs

Q63-E01C

Cup springs

Q63-E01D

Fluid springs

Q63-E01E

Magnetic springs

Q63-E01F

Torsion springs

Q63-E01G

Elastic members e.g. elastomers

Q63-E01X

Other springs

Q63-E02

Shock absorbers; Dampers; Vibration suppression

See Q12-B02 for motor vehicle suspension dampers arrangements. For electrical aspects of vehicle dampers, including ride height control see X22-M codes.

Q63-E02A

Using damping fluid

Q63-E02B

Using damping mass/inertia

Includes flywheels, counterweights.

Q63-E02C

Using friction

Q63-E02D [2008]

Elastic dampers

Includes rubber and elastic material dampers.

Q63-E02E [2008]

Magnetic dampers

Includes magnetic fluid dampers.

Q63-E02G

Shock absorber/damper components

Includes seals, oil ports, split rings etc.

Q63-E02X

Other shock absorbers/dampers

Includes torsion dampers.

Q63-E05

Spring/damper combinations

Includes coil over dampers. Also see Q19-F03 for racing car independent coil over dampers.

Q64: Belts, Chains, Gearing

Q64-A
Driving belts
Includes IC engine timing belt (see also Q51-E05), and belt tensioning arrangements.
Cambelt, timing belt

Q64-A01
V-belts

Q64-A02
Ropes or cables

Q64-A03
Belt fastening and tensioning arrangements
Includes turnbuckles, clamps and belt tensioning arrangements (see Q51-E for IC engine timing belt tensioning arrangements).

Q64-A04
Pulleys

Q64-B
Chains

Q64-B01
Driving chains
Includes IC engine timing chain (see also Q51-E05).

Q64-B02
Hauling chain

Q64-B03
Chain fastening arrangements
Includes links, shackles, hooks.

Q64-B04
Sprockets

Q64-C
Gearing

Q64-C01
Mechanical gearing
Includes toothed gearing, helical gearing, ball or roller gearing.

Q64-C01A
Cams, cam followers

Q64-C01B
Toothed members; Worms

Q64-C01C
Friction members
Includes friction discs and pulleys.

Q64-C01L
Lubrication/cooling arrangements

Q64-C03
Fluid gearing

Q64-C05
Gearing control
Includes gear levers per se. For electrical aspects of motor vehicle transmission control see X22-G03 codes.

Q64-C09 [2007]
Other gearing details

Q64-D
Transmission linkages
Includes cam transmissions, wobble plate transmissions.

Q65: Pistons, Cylinders, Packing

These codes are not applied when other specific transportation related codes can be applied. For example, a novel cylinder used in an internal combustion engine can be coded in Q51-A03A, and does not require application of a Q65-B code.

Q65-A

Pistons; Plungers

See Q51-A03B only for pistons used in internal combustion engines.

Q65-B

Cylinders

Includes running faces and cylinder liners.

Q65-C* [2006-2007]

Pressure vessels

*This code is now discontinued. From 20070101 pressure vessels used for transportation purposes have been coded in Q69-B01 instead.

Q65-D

Seals Packing

Includes piston rings.

Q65-X

Other piston, cylinder and seal details

Q66: Valves; Taps; Cocks; Vents

For electrical aspects of mechanical valves see X25-L01 codes. See Q51-E only for valve gear used in internal combustion engine.

Q66-A

Lift valves

Includes cut-off apparatus with closure members having component of their opening/closing motion perpendicular to closing faces.

Q66-B

Gate or sliding valves

Includes cut-off apparatus with closure members having a sliding movement along the seat for opening and closing.

Reed valve

Q66-C

Diaphragm valves

Includes cut off apparatus with closure member deformed but not moved bodily.

Q66-D

Rotary valves

Q66-E

Multiway valves; Mixing valves and fittings incorporating them

Q66-F

Valve construction

Q66-F01

Valve members; Valve seats; Seals

Q66-F02

Valve housings; Casings

Q66-J

Valve actuation arrangements

Includes use of floats. See X25-L01A and V02-E02A1 for electromagnetically actuated solenoid valves.

Q66-P

Functional valve types

Q66-P01

Check valves

Q66-P02

Safety valves; Equalising valves

Q66-P03

Vent valves

Includes venting or aerating arrangements.

Q66-P04

Fluid delivery valves

Needle valve

Q66-X

Other valve/vent/tap details

Q67: Pipes; Joints; Fittings

For electrical aspects of large scale pipelines see X25-Y02.

Q67-A

Pipes; Hoses

see Q18-A01X for vehicle brakes pipes/hoses per se.

Q67-A01

Rigid pipes

Includes copper pipes.

Q67-A02

Flexible pipes

Includes rubber hoses.

Q67-A03

Pipelaying and repair

Includes pipe cleaning (See X25-H09 and X25-Y02 for electrical aspects).

Q67-B

Pipe connections; Joints and Seals

Q67-B01

Pipe connectors/joints

includes quick acting connectors, i.e. quick release/fastening, compression joints etc.

Q67-B02

Seals

Includes rubber seals and gaskets.

Q67-C

Pipe accessories

Includes e.g. pipe supports and holders such as hose clips.

Q67-X

Other pipeline details

Q68: Other Engineering Elements

Q68-A

Frames; Casings; Beds, Supports

Q68-A01

Frames; Casings

From 2007 the scope of this code has been expanded to include all frames or casings e.g. for reciprocating or rotary engines, e.g. to facilitate engine assembly (see also Q51-M). From 2007 portable frames are specifically coded in Q68-A01A.

Q68-A01A [2007]

Portable frames

Includes wheeled frames. For trolley jacks etc., also see Q16-A03.

Q68-A02

Beds

Includes mounting of engines on foundations, e.g. for test purposes.

Q68-A03

Stands; Trestles; Supports

Includes mounting of engines on foundations, e.g. for test purposes.

Q68-L [2007]

General lubrication systems

Includes generally applicable lubrication systems. For specific lubrication systems such as IC engine lubrication, vehicle transmission lubrication or vehicle suspension lubrication systems instead see Q51-F, Q13-A20 and Q12-B15 codes respectively.

Q68-S [2007]

General safety devices

Includes generally applicable safety devices such as safety guards or screens or other systems e.g. requiring the use of both hands.

Q69: Storing/Distributing Gas/Liquid

Q69-A

Variable capacity gas holders

Q69-B

Fixed capacity gas holders

For motor vehicle hydrogen/natural gas etc. fuel tanks see Q17-E04 only.

Q69-B01

Pressure vessels

Includes pressurised vehicle fuel tanks, e.g. containing LPG. See also Q69-B for fixed capacity fuel tanks.

Q69-B02

Vessels not under pressure

Q69-C

Vessel filling method or apparatus

Q69-D

Vessel discharging method or apparatus

Q69-E

Pipeline systems

Section S:

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S01 Electrical Instruments

This section is restricted to measurements of electrical properties and values. It does not include other methods such as optical inspection of electrical and electronic apparatus, for which codes for the device under test, together with the appropriate code, in e.g. S03, should be used.

S01-A

Current and volt meters with pointer display

Does not include those used to display other measured variables e.g. on vehicle dashboard. (For details of pointer displays in measurement see S02-K06A. For vehicle dashboard instrumentation see S02-K06X and X22-E codes.)

Ammeter, coil, moving coil

S01-B

Integrating power or current meters

Includes meters with electromechanical and electronic integration, e.g. kilowatt-hour meter. See S01-D02 for instantaneous power measurement. See also X12-H04 codes.

Hour, watt, energy, utility, disc, security

S01-B01 [1992]

Remote meter reading

Includes monitoring of meter per se. See also S02-K08A. See also X12-H04A.

S01-B03 [1997]

Digital electricity meters

(S01-B)

S01-B05 [1992]

Protection against tampering

See also T05-H06 for coin, token, or card-freed systems. Includes local or remote indication of tampering.

Security, anti-fraud

S01-C

Instruments displaying waveforms or digital values

Transient

S01-C01

Cathode ray oscilloscopes

See V05-D codes for details of CRTs per se.

Oscillograph, CRO, vertical, trigger, horizontal, storage, vector

S01-C09

Other instruments displaying waveforms or digital values

Includes instruments with other display types.

S01-D

Measuring electric variables

S01-D01

Currents or voltages

S01-D01A

Functions of currents or voltages

Amplitude, average

S01-D01A1 [1983]

Effective values

Includes r.m.s values.

Root mean square

S01-D01A3 [1992]

Peak detection

Maximum, hold, Sample and hold

S01-D01A9 [1992]

Other functions of currents or voltages

S01-D01B

Indicating presence or sign

Polarity, offset, comparator

S01-D01B1

Indicating presence

S01-D01B5

Thresholding

Includes indication of zero-crossing point of ac waveform.

Level reference, hysteresis

S01-D01C

Using ac/dc,current/pulse conversion, etc.

A-D and D-A converters per se are covered by U21-A codes.

S01-D01C1 [1983]

Dc to ac, digital

S01-D01C1A [1992]

Dc-ac

Includes chopper circuit. See U24-G01A1 and U24-G02E for instrumentation chopper amplification circuits.

S01-D01C1B [1992]

Digital

S01-D01C5 [1983]

Ac to dc

Rectifier, bridge, detector, full-wave rectifier

S01-D01D [1992]

'Indirect' measurement techniques

Includes non-contact measurement techniques and those involving transformation into non-electric quantity.

S01-D01D1 [1992]

Using inductive or magnetic measurement

Clamp ammeter

S01-D01D1A [1992]

Using current transformer

See also V02-G01B and X12-C01, respectively for low and high power transformers per se.

Core, coil, primary, secondary, phase

S01-D01D3 [1992]

Using electrostatic effects

Includes capacitive measurement, CVTs, etc.

S01-D01D5 [1992]

Using optical transformation

See also V07-K for light property such as polarisation varying in proportion to electric quantity.

Pockel's effect, Electrochromic, Faraday rotation

S01-D01D7 [1992]

Using particle beam

Includes measurement using e.g. electron beam probing circuit, and also measurement by deflection of beam. See also V05-F01 codes and V05-F08B.

S01-D01D9 [1992]

Other indirect current/voltage measurements

S01-D01X

Other current/voltage measurements

S01-D02

Power, power factor or energy

Includes instantaneous power measurement. Integrating meters are covered by S01-B Includes measurement of RF power (with S01-H05).

Thermocouple, heating effect, remote indication

S01-D03

Frequency; analysing frequency spectra

S01-D03A

By conversion to amplitude or phase shift

Resonance, tuned circuit, integrato,. frequency to voltage converter

S01-D03B

By pulse counting

Clock, gate, digital frequency meter, bit rate

S01-D03C

Analysing frequency spectra

S01-D03C1 [1992]

Frequency sweeping appts.

Includes 'spectrum analyser' and panoramic receivers. Measurement receivers per se are covered by W02-G03 codes, monitoring of transmission systems in general by W02-C05 codes and band scanning by U25-J01 codes.

S01-D03C3 [1992]

Fourier analysis

See T01-J04B for implementation by data processing circuitry.

S01-D03C5 [1992]

Distortion and harmonic content measurement

THD, total, distortion factor meter, nonlinear

S01-D03C9 [1992]

Other frequency spectra analysis

S01-D03X

Other frequency aspects

S01-D04

Phase angle between voltages and currents

See U23-C for phase comparator per se.

Lissajous figure

S01-D05

LCR and impedance based measurements

Codes in this section relate to the measurement of impedances per se (S01-D05B), resistance (S01- D05B1), impedance related measurements such as reflection coefficient (S01-D05B5), four terminal network characteristics (S01- D05C), and measurement of inductance, capacitance, quality factor etc (S01-D05A codes). For bridge measurements see S01-F01 also. For high-frequency measurement use S01-H05 also. For measurements on passive components, use S01-G12 codes also.

S01-D05A

Inductance, capacitance, Q factor, loss factor, dielectric constant

AC bridge

S01-D05A1 [1992]

Inductance measurement

Self, mutual

S01-D05A3 [1992]

Capacitance and dielectric constant measurement

Permittivity

S01-D05A5 [1992]

Quality/loss factor measurement

Tan delta, loss angle, Q-factor, dissipation factor

S01-D05B

Resistance and reflection based measurements

Includes general measurement of impedance. Measurement of resistance, or predominantly resistive impedance, is covered by S02-D05B1.

S01-D05B1 [1992]

Resistance measurement

S01-D05B5 [1992]

Reflection-based measurements

For measurements on antenna feeder e.g. VSWR, gain etc, see W02-B08A1 also.

Reflectometer, time domain

S01-D05B5A [1992]

Characterising circuit

Includes e.g. scattering parameter measurements.

S-parameter

S01-D05B9 [1992]

Other 2-pole measurements

S01-D05C
4-pole characteristics
Includes measurement of 4-terminal network characteristics such as phase or amplitude as a function of frequency. Nyquist diagram, Bode plot, etc.
Gain, gain-bandwidth, stability, roll-off

S01-D06
Pulse characteristics (individual pulses)
Measurement and monitoring of pulse trains are covered by U22-D03.
Duration, rise-time, fall-time, overshoot

S01-D07 [1992]
Electric and electromagnetic fields
(S01-D09)
Measurement of magnetic field strength is covered by S01-E01 codes.

S01-D07A [1992]
Electrostatic fields
Includes measurement of point charges. See also S01-H02 for high voltage applications.

S01-D07A1 [1997]
Using optical techniques

S01-D07B [1992]
Electromagnetic fields
See also S01-H05 for RF field strength measurements.

S01-D07B1 [1992]
Antenna radiation diagram
See also S01-G08A5 and W02-B08A1.

S01-D07B3 [1997]
Using optical techniques

S01-D08 [1992]
Modulation and noise
(S01-D09)

S01-D08A [1992]
Modulation index or depth
See also S01-G08A1 and W02-G01 for transmitter testing. Modulators per se are coded in U23.
Cross-modulation, AM, FM, frequency, deviation, sideband

S01-D08B [1992]
Noise power; noise figure
See also S01-G08A3 and W02-G03 codes for receiver testing.
S-N, signal-to-noise, ratio

S01-D08B1 [1997]
For electronic amplifier
(S01-D08B)
See U24 codes

S01-D08B3 [1997]
For optical amplifier
(S01-D08B)
See also S02-J04A1C and V07-K01C.

S01-D09
Other electrical variable measurements
Includes measurement of turns ratio and number of turns. (See also V02/X12).
Piezoelectric

S01-E
Measuring magnetic variables
Resonance, free induction decay signal coil, NMR, field, nuclear, echo, spin echo, magnetometer, magnetise, Hall-effect, flow

S01-E01
Direction/ magnitude of magnetic field/ flux
Gradiometer, permanent

S01-E01A [1992]
Using superconductive quantum interferometer
See also U14-F02B.

S01-E01A1 [1997]

DC squid

(S01-E01A)

S01-E01A3 [1997]

RF squid

(S01-E01A)

S01-E01B [1992]

Using galvano-magnetic devices

Includes use of Hall-effect devices.

S01-E01B1 [1992]

Detector device per se

See also U12-B01A for Hall-effect devices.

S01-E01C [1992]

Using magneto-optical devices

Includes use of Faraday effect devices. See also V07-K03.

S01-E01C1 [1992]

Detector device per se

S01-E01D [2005]

Using magnetoresistive devices

S01-E01D1 [2005]

Device per se

S01-E01X [1992]

Other magnetic variable measurement (including magnetostrictive)

S01-E02

Magnetic properties

S01-E02A [1992]

Quantised spin properties

See S03-C02F and S03-E07 codes. S01-J02 code is used for cooling arrangements.

S01-E02A1 [1997]

NMR

(S01-E02A)

S01-E02A1A [1997]

Sample handling

(S01-E02A)

Includes spinning mechanism.

S01-E02A2 [1997]

MRI

(S01-E02A)

S01-E02A2A [1997]

Image enhancement

(S01-E02A)

Includes artefact suppression. See S05-D02B2 for medical application. See S03-E09X for contrast agents.

S01-E02A3 [1997]

Nuclear Quadrupole Resonance

NQR

S01-E02A4 [1997]

ESR/EPR

(S01-E02A)

spin, paramagnetic, resonance, electron

S01-E02A8 [1997]

Quantised spin measuring device details

(S01-E02A)

Refers to all devices within the scope of S01-E02A.

S01-E02A8A [1997]

Coils and waveguides

(S01-E02A)

Includes coils for RF excitation and detection. Does NOT include coils for generating magnetic fields, e.g. gradient coils. For coils generating magnetic fields, see S01-E02A8E.

Also includes antennae. See also V02-F01G and X12-C codes.

S01-E02A8C [1997]

Signal and image processing

(S01-E02A)

See T01-J04B for use of Fast Fourier Transform.

Fourier Transform

S01-E02A8E [1997]

Magnets

(S01-E02A)

Includes coils for generating magnetic fields, e.g. gradient coils, electromagnets. See also V02-E codes.

Electromagnetic, superconducting

S01-E02A8P [2005]

Pulse sequences

Covers methods and apparatus which control the timing, shape and duration of the RF pulses.

S01-E02A8Q [2005]

Control & operation

Covers all systems for operation and control of NMR equipment other than RF pulses.

S01-E02A8X [1997]

Other quantised spin properties measuring device details

(S01-E02A)

S01-E02A9 [1997]

Other quantised spin properties

(S01-E02A)

S01-E02X [1997]

Other magnetic properties

(S01-E02)

See S03-E11 for investigation of materials using magnetic variables.

Ferromagnetic, eddy, susceptibility, coercivity, excitation, permeability

S01-F

Measurements involving comparison with a reference

Ratio, standard

S01-F01

Ac or dc bridges

See S01-D05 also for appropriate measurement.

Resistance, capacitance, inductance, Wheatstone, transformer

S01-F01A [1992]

With transducer forming part of bridge

Includes Wheatstone bridge circuit with resistance strain gauge e.g. for force measurement (see also S02-F01C), or weighing (see also S02-D01B).

S01-F09

Other reference measurements

Polarity

S01-G

Testing electric properties; locating electric faults

See general scope note for S01 section.

S01-G01

Electronic circuits

Covers measurements at nodes of circuits which may be discrete or integrated.

S01-G01A

Digital circuits

Includes logic tester/analyser.

VLSI, integrated, IC, ROM, EEPROM

S01-G01A1 [1992]

Testing integrated circuits

Measurements on IC regarded as functional block are covered by S01-G02B. Includes use of electron beam probe techniques (see also S01-D01D7), and boundary scan testing (see also S01-G01A5). For on-chip test circuits, see U11-F01D2, U13-C07 also.

S01-G01A3 [1992]

Testing modules or cards

S01-G01A5 [1992]

Logic analyser

S01-G01A9 [1992]

Other digital circuit testing

S01-G01B

Printed circuit boards

See V04-R06 codes.

Contact, mount, probe, pin, PCB

S01-G01B1 [1987]

Bare PCB i.e. before component mounting

Tracks, continuity, short circuit

S01-G01B3 [1987]

Assembled PCB, including ATE

See S01-H03 codes for probe details.

Suction, board positioning, 'bed-of-nails', component

S01-G01C [1992]

Analogue circuits

S01-G01C1 [1992]

Analogue integrated circuits

See note for S01-G01A1.

S01-G01C3 [1992]

Analogue circuit modules

S01-G01C9 [1992]

Other analogue circuit testing

S01-G01D [2006]

Using external optical/ thermal/ other stimulation

Includes measurement where circuit is stimulated by external energy to induce voltage/current/ resistance change, which is then used for failure detection/ testing operation of circuit. For any subsequent non-contact measurement of voltages/currents, see also S01-D01D.

EBIC, OBIC, OBIRCH, voltage contrast

S01-G02

Tubes and semiconductor devices and display panels

Characteristic, curve, acceptance test

S01-G02A [1992]

Tubes

See also V05-L07E1 codes and X26-A03 for tube and discharge lamp testing respectively.

Valve, CRT

S01-G02B [1992]

Semiconductor devices

Codes in this section are used to denote testing of a semiconductor device as a "functional block" or "black box". See S01-G01A1 and S01-G01C1 for testing involving measurement of voltages and currents within the circuit itself.

Note, also includes unspecified electrical testing of semiconductor devices.

Bipolar, unipolar, FET, MOS, CMOS, integrated circuit, IC, transistor, thyristor, SCR, triac, diac, diode, rectifier, varactor

S01-G02B1 [1992]

At wafer or die level

See U11-F01D codes also.

Defect, fault, mark, identify

S01-G02B5 [1992]

Completed (encapsulated) device

See also U11-F01C codes.

IC, integrated circuit, transistor, SCR, triac, diac, diode, rectifier, varactor

S01-G02C [2006]

Display panels

Electrical measurements relating to display panels, e.g. LCD, PDP, FED, and associated circuitry. See also S02-J04A3A for LCD testing

S01-G03

Materials, for dielectric strength or breakdown voltage

Includes arc detection in general.

HV, discharge, withstand, tracking, arcing, insulator

S01-G04

Testing for short circuits, discontinuity and leakage

Cable core identifier, plug/socket connection tester, continuity tester

S01-G04A [1992]

Short circuit and leakage

S01-G04A1 [1992]

Short circuit

S01-G04A5 [1992]

Leakage

S01-G04A5A [1992]

With preset threshold

S01-G04C [1992]

Checking continuity

S01-G04C1 [1992]

Without resistance measurement

S01-G04C5 [1992]

With resistance measurement

S01-G04C5A [1992]

With pre-set threshold

S01-G05

Locating faults in cables or networks

Used for 'installed' cables and transmission lines. See also X12-G01C for power cables W02-C01D for communication cables.

Telecommunication, break point, capacitance

S01-G06 [1983]

Batteries

See X16-H also which includes non-electric testing, e.g. of specific gravity, not coded in S01-G06.

Charge, terminal, accumulator, ampere-hour, capacity

S01-G06A [1992]

Measurement of remaining battery capacity

Reserve, residual, discharge

S01-G07 [1983]

Electrical machines

See V06-M11 and X11-J codes also.

Winding, coil, phase, rotating, rotor, stator, motor, generator, dynamo, alternator, dynamoelectric

S01-G08 [1992]

Radio equipment and related systems

(S01-G09)

See also W02-C05 and W02-G, and also relevant S01-D codes for specific electrical measurement aspect, e.g. from S01-D07 and S01-D08.

S01-G08A [1992]

Testing methods for equipment

The codes in this section are used when the method of testing is intended for a specific type of equipment.

S01-G08A1 [1992]

Transmitters, repeaters

S01-G08A3 [1992]

Receivers

S01-G08A5 [1992]

Antennae

S01-G08A9 [1992]

Other equipment testing

S01-G08B [1992]

Equipment for testing

The codes in this section are used when the novelty resides in the test equipment itself.

S01-G08B1 [1992]

Signal sources

Includes signal generators, noise generators, etc.

S01-G08B3 [1992]

Equipment with measuring facility

Includes e.g. RF power meter, noise-measuring receiver etc.

S01-G08B5 [1992]

Screening arrangements

Includes e.g. RF Faraday cage. See also S01-J02.

S01-G08B9 [1992]

Other radio test equipment

S01-G08C [1992]

Electromagnetic compatability testing

See S01-D08B for noise figure measurements and S01-G08B5 for Faraday cage measurements. Covers tolerance of circuits to EM interference and output interference of device to other devices (e.g. effect of electric motor on TV).

EMC

S01-G09

Other electrical property tests

S01-G10 [1992]

Switches and switchgear

(S01-G09)

Includes circuit breaker and relay testing. See also V03 and X13 codes.

Contact, contactor, breaker, relay, reed

S01-G12 [1992]

Passive components

Use with S01-D05 codes as appropriate, e.g. for measurement of resistance of an inductor, search S01-D05B1 and S01-G12E5.

S01-G12A [1992]

Resistors

See V01-A04H1 (or X12-A if power type) also.

S01-G12C [1992]

Capacitors

See also V01-B01G7C (electrolytic), V01-B04C (non-electrolytic), or X12-B (power capacitors).

S01-G12E [1992]

Inductive components

See also V02-H codes for low power components and X12-C01D3.

S01-G12E1 [1992]

Transformers

S01-G12E5 [1992]

Coils

S01-G13 [2011]

Insulators

Testing of all electrical insulators.

S01-G14 [2006]

Wires or cables

See also relevant X12-G codes.

S01-H

Electrical instrument details (general)

Non-electric, or non-specifically electric, instrument details are covered by S01-J codes.

S01-H01 [1983]

Testing, calibrating and compensation

Reference, standard, setting-up, compare, monitor, self-check

S01-H01A [1992]

Compensation

Includes compensation for e.g. noise effects, temperature variation etc. See also S02-K02 codes for compensation aspects of measurement systems in general.

S01-H01A1

Noise reduction

(S01-H01A)

S01-H01B [2005]

Testing

S01-H01C [2005]

Calibration

S01-H02 [1983]

For high voltage/current networks

HV, power line

S01-H03 [1983]

Probes, contacts

PCB

S01-H03A [1992]

Multiple probe arrangement

Includes probe board, pin network, 'bed-of-nails' etc. See also S01-G01B for measurements on PCBs.

Integrated circuit, IC, wafer, circuit board, card, automatic test equipment, ATE

S01-H03B [1992]

Single probe

Includes probe for e.g. multimeter, or oscilloscope.

Test prod, clip, alligator, crocodile

S01-H04 [1997]

Multimeters

(S01-H09)

S01-H05 [1987]

For high-frequency measurements

Use with other codes where HF effects dictate measurement techniques. NMR and MRI are no longer coded in this section, see relevant S01-E02 codes.

Microwave, probe, RF, capacitance, inductance, skin effect, leakage

S01-H07 [1992]

Processor-controlled instrument

Includes computer control of operation. See also T01-J08A.

S01-H07A [1992]

Interfacing and remote control

Includes data transfer arrangement for multiple instrument systems. See T01-J08A and T01-C/T01-H codes also.

S01-H09 [1992]

Other electrical instrument details

From 2009 power supply for instrumentation are coded in S01-J04 instead.

S01-J

Instrument details (classes S01 to S03)

Codes in this section relate to non-electrical and electrical instruments.

S01-J01

Housing

Housings for electrical equipment in general are covered by V04-S codes.

Meter, lock, seal, case, wall, tamper, access, hinge, cover, enclosure

S01-J02

Indicating elements, cooling, screening

See S03-A04 for cooling arrangement for optical measuring instruments.

Shielding, set-up, adjustment, standard, reference

S01-J02A [1992]

Indicating elements

Scale, meter, printer, display, read-out

S01-J02C [2005]

Cooling, screening

S01-J03 [2006]

Instrument manufacture

Includes all manufacturing of instrumentation included in S01, S02 or S03 classes. Search with apparatus or method codes in addition to this code for specific instrumentation manufacturing details.

S01-J04 [2009]

Power supply

Includes power supply for all instrumentation devices in S01, S02 and S03.

Voltage source, current source

S01-J09

Other instrument details (incl. vibration dampening)

Includes supports, arrangements adjusting position or attitude, compensating for effects of tilting.

Mount, vibration, isolation

S02 Engineering Instrumentation

S02-A

Measuring, dimensions, angles, areas, contours, roughness

Codes in this section are applied in the hierarchy according to the primary method of measurement, e.g. a Vernier calliper using an electrical transducer to produce reading on a display would be coded under mechanical measurement.

S02-A01

Mechanical measurement

Slide, scale

S02-A01A

Rules, micrometers, wheels

Tape, mark, edge

S02-A01B

Gauges (e.g. feeler-pin or thread gauges)

Caliper, feeler, probe, dial, tool, vernier

S02-A01C

Measuring arrangements, (for)

Position, configuration, curve, displacement, distance, dimension, height, shape

S02-A01C1

Diameter

Radius, circle

S02-A01C2

Length, width, thickness

S02-A01C3

Spacing, depth, contour

S02-A01C4

Angles, alignment, position, area

Includes measuring orientation.

S02-A01C5

Roughness, deformation

Surface, flat, smooth

S02-A01X

Other mechanical measurements

S02-A02

Electrical or magnetic measuring arrangements, (for)

Transducer, position

S02-A02A

Diameter, spacing

Distance, displacement, gap, radius

S02-A02B

Thickness of sheet or coating

Capacitance, magnetic, eddy current, film

S02-A02C

Length, width or thickness

S02-A02D

Deformation

Strain gauge, distortion

S02-A02E

Depth, contour

Curve, profile

S02-A02F

Angles, alignment, position

Includes measuring orientation.

S02-A02G [1997]

Roughness

(S02-A02X)

Smooth, surface

S02-A02X

Other electrical or magnetic measuring arrangements

Includes area.

Surface, cross-section

S02-A03

Optical measurement

Note - codes in this section cover disclosures where light is the primary means of measurement irrespective of subsequent treatment or processing, such as in CCTV system.

Beam, laser, reflect, grating

S02-A03A

Interferometers

S02-A03B

Measuring arrangements, (for)

S02-A03B1

Thickness of sheet, diameter, coating

Radius, circle

S02-A03B2

Length, width, thickness, spacing

Distance, displacement

S02-A03B3

Deformation, depth or contour

Profile, curve, strain, irregularity, undulation

S02-A03B4

Angles, alignment, position

Includes measurement of orientation, tapers or optical axes alignment.

3D position

S02-A03B5

Area, roughness

Flat, smooth, surface, cross-section

S02-A04

Measuring arrangements using fluids

Inclination, liquid, spirit-level, bubble, pneumatic, hydraulic, air, gas

S02-A05

Measuring using radiation, sound

S02-A05A [1983]

Radiation

Includes dimensional measurements using e.g. electron microscope.

S02-A05A1 [1997]

Using microwaves

(S02-A05A)

Includes use of terahertz radiation.

S02-A05A3 [1997]

Using atomic or nuclear radiation

(S02-A05A)

Includes electrons, X-rays, gamma radiation etc.

X-ray, gamma ray

S02-A05B [1983]

Sound

See W06-A05 for sonar systems, S03-E08 or S05-D03 for materials testing or medical systems respectively.

Ultrasonic, echo, propagation time, round-trip

S02-A05B1* [1997-2001]

Diameter

(S02-A05B)

*This code is now discontinued and transferred to S02-A05C1 from 200201, but remains searchable and valid for records from 1997 to 2001.

S02-A05B2* [1997-2001]

Length, width, thickness

(S02-A05B)

*This code is now discontinued and transferred to S02-A05C2 from 200201, but remains searchable and valid for records from 1997 to 2001.

S02-A05B3* [1997-2001]

Deformation, depth, contour

(S02-A05B)

*This code is now discontinued and transferred to S02-A05C3 from 200201, but remains searchable and valid for records from 1997 to 2001.

S02-A05B4* [1997-2001]

Angles, alignment, position

(S02-A05B)

*This code is now discontinued and transferred to S02-A05C4 from 200201, but remains searchable and valid for records from 1997 to 2001.

S02-A05B5* [1997-2001]

Area, roughness

(S02-A05B)

*This code is now discontinued and transferred to S02-A05C5 from 200201, but remains searchable and valid for records from 1997 to 2001.

S02-A05B9* [1997-2001]

Other dimensional measurement using sound

(S02-A05B)

*This code is now discontinued and transferred to S02-A05C1 from 200201, but remains searchable and valid for records from 1997 to 2001.

S02-A05C [2002]

Measuring arrangements, (for)

Codes in this section are used with S02-A05A or S02-A05B codes to specify what is being measured.

S02-A05C1 [2002]

Thickness of sheet, diameter, coating

Radius, circle

S02-A05C2 [2002]

Length, width, thickness, gap, spacing

S02-A05C3 [2002]

Deformation, depth, contour

S02-A05C4 [2002]

Angles, alignment, position

Includes measurement of orientation.

S02-A05C5 [2002]

Area, roughness

S02-A05C9 [2002]

Other dimensional measurement using radiation, sound

S02-A06 [1992]

Coordinate and position measurement

The emphasis is on relative measurement to any arbitrary coordinate system, e.g. Cartesian or Polar, rather than absolute measurement.

S02-A06A [1992]

Coordinates

S02-A06A1 [1992]

Mechanical

S02-A06A2 [1992]

Electrical/magnetic

S02-A06A3 [1992]

Optical

S02-A06A9 [1992]

Other coordinate type measurement

S02-A06C [1992]

Position

For determining location in space rather than orientation.

S02-A06X [1992]

Other relative measurement

S02-A07 [1992]

Calibration, compensation and testing

S02-A08 [1992]

Combination of measuring methods

Codes in this section are used to indicate the use of one or more than one method from the preceding groups, e.g. electrical and optical measurement, or where the primary method of measurement is unclear.

S02-A08A [1992]

Thickness of sheet, diameter

S02-A08B [1992]

Length, width, spacing

S02-A08C [1992]

Deformation, depth or contour

S02-A08D [1992]

Angles, alignment, position

Includes measurement of axes, tapers, orientation etc.

S02-A08E [1992]

Area, roughness

S02-A08X [1992]

Other combined measuring

S02-A09

Other measuring arrangements

S02-B

Surveying and navigation

Position, scan, infrared, IR, laser optical

S02-B01

Measuring distances in line of sight; optical rangefinders

See W06-A06 for laser 'radar' systems. Rangefinders for photographic cameras are also coded in S06-B01A.

Range, light, beam, modulate, reflect, camera

S02-B01A [2005]

Large scale position and location measurement

Includes mining and pipeline machinery position location. Does not include RADAR, GPS systems (see W06).

S02-B02

Measuring height, distances transverse to line of sight; levelling between separated points, surveyors' levels; tracing profiles

S02-B02A [2005]

Measuring altitude

(S02-B02)

S02-B03

Measuring inclination

Level, spirit, liquid, bubble, inclinometer, clinometer, angle, plumb, bob, slope, slant, gradient, grade

S02-B04

Photographic surveying; open-water surveying

Includes electronic imaging surveillance from e.g. orbiting space vehicle. Electrical aspects of photographic cameras are covered by S06-B codes, video cameras by W04-M01 codes.

Photogrammetric, aerial, aircraft, satellite, map, plane, sea

S02-B05

Measuring angles (incl. theodolites; sextants)

Angular, axis

S02-B05A [2005]

Measuring attitude and orientation

S02-B06

Compasses

Electrical aspects of compasses are also coded in W06-A09.

Magnetic, magnetometer, elevation, azimuth, pole, vehicle

S02-B07

Gyroscopes

See also W06-A07 for electric/electro-optical details.

Gyro, rotating, angular, rate, axis

S02-B07A [1992]

With electric transducer

Coriolis, vibration

S02-B07B [1992]

Using optical effects.

Includes Ring Laser Gyroscopes and optical fiber gyroscopes. See V08-A01A1 for Ring Laser Gyroscopes and V08-A codes for laser details. See V07-N01 or optical fiber gyroscopes specifically and V07-K codes for light control aspects.

Fiber-optic, Sagnac effect, RLG, beam, relativistic, counter-propagating

S02-B08

Navigational techniques

See also W06-A codes. For systems specifically for aircraft, ships and land vehicles, see also W06-B01B1, W06-C01B and X22-E06 codes respectively.

Road, display, indicate, route, map, moving map, update, coordinate

S02-B08A [1997]

Using radio

(S02-B08)

S02-B08C [1997]

Satellite

(S02-B08)

See W06-A03A for Global positioning System. X22-E06B covers GPS as applied to vehicle navigation.

GPS, Global Positioning System, NAVSTAR

S02-B08E [1997]

Display and indication aspects

(S02-B08)

For novel visual display aspects see S02-K04C; for audio output, see S02-K04A and possibly also W04-V for speech synthesis; for haptic output, see S02-K04D.

S02-B08G [1997]

Computer/processor

(S02-B08)

Includes software. See also T01-J06B codes.

S02-B08X [2005]

Other navigation techniques

(S02-B08)

Includes inertial and dead reckoning techniques.

S02-B09

Other surveying/ navigation

Includes electrical aspects of telescopes.

S02-B10 [1992]

Testing and calibrating of surveying/navigation equipment

(S02-B09)

S02-B11 [1992]

Instrument combinations

(S02-B09)

Includes measurement of two or more variables.

S02-B12 [1992]

Distance recording devices

(S02-B09)

S02-B12A [1992]

For vehicles

Includes odometers. For electrical aspects see also X22. (Tachographs are coded in T05-G01 and X22-E05).

Hodometer, tachometer

S02-B12B [1992]

Non-vehicle travel recorder

Includes pedometers.

S02-C

Measuring vol., vol. flow, mass flow or liq. level; metering by vol.

Meter, water, air, gas, fluid

S02-C01

Continuous volume/mass flow meters

Pressure, valve, pipe, rate, fuel, transducers

S02-C01A

Mechanical

S02-C01A1

Using rotating vanes; using pressure/pressure difference measurement

Wheel, turbine, blade, Bernoulli, Venturi

S02-C01A9

Other mechanical flow measurement (incl. dynamic effects)

Vortex, float, swirl, Karman

S02-C01B

Using electric, magnetic, wave propagation or thermal effect

S02-C01B1 [1983]

Wave effects

Ultrasonic, Doppler, blood, velocity, acoustic, sonic, sound, medical

S02-C01B4 [1983]

Electric or magnetic effects

Electromagnet, coil

S02-C01B7 [1983]

Thermal effects

Engine, IC, intake, heat

S02-C01B7A [1997]

Device per se

(S02-C01B7)

S02-C01B7C [1997]

Circuitry

(S02-C01B7)

S02-C01F [1992]

Mass flow meters

(S02-C01X)

Includes Coriolis flow meters.

S02-C01F1 [1997]

Air mass flow sensors

(S02-C01F)

S02-C01X

Other flow meters

Includes using camera to image fluid to determine flowrate.

S02-C02

Discontinuous volume flow meters, water and gas meters

Chamber, piston

S02-C02A [1997]

Water meter

(S02-C02)

Includes water meters using continuous flow measurement techniques.

S02-C02A1 [1997]

Protection against tampering

(S02-C02)

S02-C02C [1997]

Gas meter

(S02-C02)

Includes gas meters using continuous flow measurement techniques.

S02-C02C1 [1997]

Protection against tampering

(S02-C02)

S02-C03

Other vol. flow measurement (incl. compound meters, measuring relative flow)

Fuel, engine, IC

S02-C04

Dispensers

Dose, pump, chamber, container, drink, supply

S02-C04A

With expanding or contracting measuring chambers

Piston, stroke

S02-C04B

With moving measuring chambers

S02-C04C

With stationary measuring chambers

Optic

S02-C04X

Other dispensers

S02-C05

Measuring volume, capacity; measuring-vessels

Cup

S02-C06

Level indicating

Tank, fuel, depth, gauge, height

S02-C06A

By floats

Switch, magnet, reed

S02-C06A1 [1992]

Operating electrical switch or transducer

S02-C06A1A [1992]

Operating switch

S02-C06A1B [1992]

Operating transducer

Covers arrangements with proportional output, e.g. resistance wiper blade.

S02-C06A5 [1992]

Non-electric system

S02-C06B

By measuring weight or pressure

S02-C06C

By measuring variation of electrical properties of sensor

This code and its subdivisions are used for cases in which the substance being monitored directly modifies the electrical property concerned. See S02-C06A codes for float-operated systems.

Probe, electrode, resonance, oscillator

S02-C06C1 [1992]

Resistive system

S02-C06C1A [1992]

Combined with heater

S02-C06C3 [1992]

Capacitive system

S02-C06C9 [1992]

Other sensor properties (e.g. inductive)

Inductance

S02-C06D

Using wave propagation effects

Refraction, reflection, diffraction, interference

S02-C06D1 [1992]

Using optical frequencies (em)

Light, IR

S02-C06D3 [1992]

Using sonic or ultrasonic radiation

Echo

S02-C06D5 [1992]

Using radio frequencies (em)

For radar-type systems search with W06-A04H8.

Microwave, RF

S02-C06D9 [1992]

Other wave propagation level sensing

S02-C06X

Other level indicating

Includes dip-sticks and observable marks or scales on transparent vessel. Also includes level indicating using measurement of temperature.

S02-C07

Testing, calibrating and compensation aspects of S02-C equipment

S02-D

Weighing

Scale, load, platform

S02-D01

Weighing appts.

S02-D01A

Balances

Beam, pan

S02-D01B

Using elastic materials

Strain, gauge, spring, extension

S02-D01X

Other weighing appts. details

Includes magnetic, electrostatic or fluid action balancing.

Liquid, hydraulic

S02-D02

Weighing appts. for special purposes

S02-D02A

Weighing continuous stream of material

Includes measurement of weight of material e.g. on conveyer belt.

Flow, grain, granular, powder, fluid

S02-D02B

Weighing batches

Check, automatic discharge

S02-D02C

Weighing sheets, wires, fluids, livestock, vehicles (e.g. aircraft), weighing during motion

Platform, weighbridge

S02-D02D [1992]

Price-indicating balance

Includes weighing at point-of-sale (see also T05-L01 codes).

S02-D02X

Other weighing appts. for special purposes.

Includes appts. for incorporation in vehicles and appts. for weighing people.

S02-D03

Indicating/recording weight

Display, calculate, label, printer

S02-D09

Other weighing aspects

Includes compensation, calibration and testing of weighing equipment, as well as details of weighing appts, e.g. bearings, beams.

S02-E

Measurement of mechanical vibrations

Includes measurement of sound intensity.

S02-E01

Vibration measurement methods

Includes measuring reverberation time, propagation velocity, resonant frequency or sound impedance.

Acoustic, sound, transducer, speed

S02-E02

Vibration detectors

Includes detectors in fluids, radiation-sensitive detectors; detecting capacitance or reluctance change.

Piezoelectric, magnetostrictive, optical, fiber-optic

S02-E09

Other measurement of mechanical vibrations

S02-F

Measuring force, torque, work, mechanical power or efficiency, fluid pressure or vacuum

S02-F01

Measuring force

Load, thrust

S02-F01A

Hydraulically/pneumatically; by deformation of gauges; by counter-balancing

S02-F01B

Using variations in vibration freq., magnetic properties, capacitance or inductance

Magnetostrictive, resonance, oscillator

S02-F01C

Using electrical resistance strain gauges

Includes piezoresistive devices.

Load cell

S02-F01E [1997]

Piezoelectric

(S02-F01X)

S02-F01G [1997]

Optical

(S02-F01X)

S02-F01X

Other force measurement (including stress measurement)

S02-F02

Measuring torque, work, mechanical power or efficiency

Motor, engine, brake, dynamometer, generator

S02-F03

Applications and methods of measuring force

S02-F03A

Linear force, tension

Includes e.g. muscular force, ski binding release force, tension in ropes, belts etc.

S02-F03B

Torque, mechanical power, work

Includes, e.g. axial thrust in shaft, vehicle power, several components of force, torque on nut, testing brakes, force applied to control members, e.g. brake pedal, steering input etc.

Torque wrench, robot, manipulator, brake pedal force, steering input

S02-F03X

Testing, compensation and calibration; other

S02-F04

Measuring fluid pressure or vacuum

Gas, air, liquid

S02-F04A

Measuring pressure mechanically (using)

S02-F04A1

Flexible tube- or bellows type gauges

Bourdon

S02-F04A2

Flexible diaphragm- or capsule type gauges

Membrane, plate

S02-F04A9

Other mechanical fluid pressure measurement (incl. piston or liquid-column gauges)

Manometer

S02-F04B

Measuring pressure electrically or magnetically (incl. electrical or magnetic indication of mechanical sensor displacements) (using)

Transducer

S02-F04B1

Potentiometers, strain gauges, piezo-resistances

Resistor, extension

S02-F04B2

Piezoelectric devices; variations in inductance, capacitance, magnetic properties; movement of magnets; electrokinetic cells

Electrode, resonance, plate

S02-F04B3 [1992]

Semiconductor transducer

See also U12-B03E.

S02-F04C

Measuring pressure differences, several pressures, inflation pressures

Includes measurement of tyre pressure. See S02-F04E for remote indication and X22-E02 for on-board electric systems.

Differential, vehicle, remote

S02-F04C1 [1997]

Pressure differences

(S02-F04C)

S02-F04C1A [1997]

Inflation pressures

(S02-F04C)

S02-F04C2 [2005]

Blood pressure

(S02-F04C)

S02-F04C3 [1997]

Several pressures

(S02-F04C)

S02-F04C3A [1997]

Partial pressures

(S02-F04C)

See also S03-E03 if achieved electrochemically.

S02-F04D

Vacuum gauges; measuring rapid changes in pressure; engine energy or work indicators

S02-F04D1 [1997]

Vacuum gauges

(S02-F04D)

See also V05-K03 for ionisation pressure gauges, e.g. Penning gauges.

Pirani, Penning

S02-F04D3 [1997]

Measuring rapid changes in pressure

(S02-F04D)

S02-F04D3A [1997]

Knock detection

(S02-F04D)

See also S02-J01A for IC engine testing and X22-A05A for IC engine pre-ignition detector. Includes knock detection by means other than using pressure measurement.

Misfire

S02-F04E

Protection against overload or environment; temperature compensation

S02-F04F

Testing, calibration and compensation

Does not include temperature compensation, see S02-F04E.

S02-F04J [1992]

Optical techniques

Optical fiber, polarisation, birefringent

S02-F04X

Other pressure measurement

S02-G

Measuring speed, acceleration or shock

S02-G01

Linear or angular velocity

Rotating, wheel, vehicle, shaft, speedometer

S02-G01A

Optically

Includes angular velocity measurement using optical gyroscope.

Laser, light, gyro, beam, ring

S02-G01B

Electrically or magnetically

Generator, tacho, pulse, frequency

S02-G01B1

Measuring angular velocity

Does **not** include measurement of angular velocity using electric gyroscope; see S02-G01X.

S02-G01B1A* [1992-2004]

With fixed sensor

*This code is now discontinued, but remains searchable and valid for records from 1992 to 2004.

S02-G01B1B* [1992-2004]

With moving sensor

*This code is now discontinued, but remains searchable and valid for records from 1992 to 2004.

S02-G01B2 [2005]

Measuring linear velocity

S02-G01B9

Other electrical or magnetic velocity measurement

S02-G01D [1997]

Doppler effect methods

(S02-G01)

See also W06-A04A2 (RF radar), W06-A05 (sonic/ultrasonic techniques) and W06-A06 (optical techniques). S02-G02X covers Doppler methods for measuring speed of fluids.

S02-G01X

Other (incl. mechanically)

Includes determination of time to travel fixed distance and measurement of angular velocity using electric gyroscope.

Gyroscope, vibration, Coriolis

S02-G02

Speed of fluids, or bodies relative to fluids (by)

Flow, gas, wind, anemometer, liquid

S02-G02A

Measuring electric or thermal variable affected by the flow

Heat, bridge, cooling, hot-wire

S02-G02B

Measuring fluid force or pressure differences

Pitot tube

S02-G02X

Other measurement of speed of fluids, or bodies relative to fluids (incl. swirl flowmeter)

Ultrasonic, Doppler, vortex, acoustic

S02-G03

Acceleration or shock

Inertia, force, accelerometer

S02-G07 [1992]

Calibration, compensation and testing

(S02-G09)

S02-G07A [1992]

Calibration

S02-G07C [1992]

Compensation aspects

S02-G07E [1992]

Testing

S02-G09

Apparatus details and other speed-related measurement aspects

Includes constructional details of measuring devices.

S02-H

Indicating/recording movement or direction of movement

Includes analysis of trajectories.

Range, motion analysis, golf swing

S02-J

Testing machines, structures or appts.

Model, simulate

S02-J01

Engines

S02-J01A [1983]

IC engines

Fuel-consumption, cylinder, pressure, injection, Diesel, valve, speed, knock

S02-J01A1 [1997]

For aircraft

(S02-J01A)

Includes piston engines.

S02-J01C [1992]

Gas turbine engines

S02-J01C1 [1997]

For aircraft

(S02-J01C)

Includes turbo-prop engines and ram jets. See W06-B01B5 for onboard testing of aircraft engines.

Bypass ratio, turbofan, compressor, afterburn

S02-J01E [1992]

Steam turbines

See X11-A01X for steam turbine testing where steam turbine is specifically for electricity generation.

S02-J01F [2005]

Rocket motors and ion propulsion

(S02-J01X)

S02-J01X [1992]

Other engine types

S02-J02

Vehicles

Includes all vehicle types: aerospace, automotive and locomotive, etc.

Wheel, track, roll, balance, transmission

S02-J02A

Tyre performance, suspension, steering, wheels

Surface, road, tread, hold, grip, angle, toe-in, shock absorber

S02-J02B [1992]

Braking

S02-J02E [1992]

Electrical system

See also S01-G01 for electrical test appts. See X22 codes for tests on vehicle electrical systems.

S02-J02F [1992]

Crash/impact testing

S02-J02F1 [1992]

Crash dummy

Anthropomorphic

S02-J02X

Other vehicle tests (includes testing vehicle transmission)

Alignment, body

S02-J03

Machine parts

Friction, drag

S02-J03A [1983]

Gearing, transmission, bearings

Shaft, tooth, torque, differential, ball race

S02-J03X [1992]
Other testing of machine parts

S02-J04
Optical appts. (also optical testing)
Beam, image, reflect, pattern, scan, objective, focal-length, mirror

S02-J04A [1992]
Testing of optical apparatus

S02-J04A1 [1992]
Testing optical fiber and other guide structures

S02-J04A1A [1997]
Testing optical fiber
(S02-J04A1)
See V07-J also.

S02-J04A1C [1997]
Testing optical amplifiers
(S02-J04A1)
Includes optical fiber amplifiers. See also S01-D08B3 and V07-K01C.

S02-J04A1X [1997]
Testing other guide structures
(S02-J04A1)

S02-J04A3 [1997]
Testing liquid crystals
(S02-J04A9)
See also U14-K01A8.
Nematic, cholesteric

S02-J04A3A [1997]
Testing LCDs
(S02-J04A9)
See also U11-F01F and/or U11-F01D and U14-K01A8.

S02-J04A5 [1992]
Testing and measuring lenses and lens systems

S02-J04A9 [1992]
Testing other optical appts.
Prism, grating

S02-J04B [1992]
Specific optical appts.

S02-J04B1 [1992]
Microscope

S02-J04B3 [1992]
Fiberscopes and endoscopes
See also V07 codes for novel fiber-optic aspects. See also S05-D04 codes for medical applications, V07-N02 for optical fiber details and S06-B09 for photographic attachments. See W04-M01 for video camera equipment.

S02-J04B3A [1997]
Fiberscope
(S02-J04B3)

S02-J04B3C [1997]
Endoscope
(S02-J04B3)

S02-J04B9 [1992]
Other optical appts.

S02-J05
Static or dynamic balance
Rotor, rotating, motor, weight, bearing, moment of inertia and dynamic balance/unbalance sensor

S02-J06
Investigating fluid-tightness
Leak, pipe, seal, pressure, air-tight, gas, hermetic, vacuum

S02-J06A
By detecting leakage fluid

S02-J06A1 [1992]
Electrically

S02-J06A3 [1992]
Acoustic or ultrasonic detection

S02-J06A5 [1992]

Using tracer substance

Radioactive, dye, fluorescent

S02-J06A7 [2006]

Optical detection

Includes using camera, spectrometer. Prior to 2007, covered by S02-J06A9.

S02-J06A9 [1992]

Other leakage fluid detection methods

Liquid, bubble, submerged, immersion testing

S02-J06B

By measuring fluid loss/gain rate

Flow rate, pressure drop

S02-J06X

Other fluid tightness investigation

S02-J07

Aerodynamic or hydrodynamic testing

Electrical aspects of aircraft and ship testing are also coded in W06-B05 and W06-C05 respectively.

Flow, pressure, wind tunnel, aircraft, ship, tank, wave generator

S02-J08

Vibration or shock testing of structures

Impact, dynamic, oscillating

S02-J09

Other testing of machines, structures or appts.

S02-J10 [1992]

Investigating elasticity of structures

(S02-J09)

Extension, strain, stress, Young's modulus

S02-K

Indicating or recording – general

S02-K01

Appts. indicating/recording function of variable, e.g. r.m.s., mean

Integrate, meter, data analysis, plotting best straight line, form factor, statistical methods, standard deviation, median, average, mean, least squares, regression

S02-K02

Appts. with compensating correcting/protection features

S02-K02A [1992]

Compensation/correction for transducer characteristics

Includes linearising.

Linearity, law

S02-K02B [1992]

Compensation/correction for ambient variations

Includes compensation for variation of temperature.

Pressure

S02-K02B1 [1997]

Temperature compensation

(S02-K02B)

S02-K02B3 [1997]

Pressure compensation

(S02-K02B)

S02-K02B9 [1997]

Other environmental compensations

(S02-K02B)

S02-K02C [1992]

Protection

Includes protection from overload, excess signal level, etc.

S02-K02D [1992]

Noise reduction

S02-K02X [1992]

Other aspects of compensation, correcting and protection

S02-K03

Transferring or converting sensor output

Transducer, encode, analogue-digital, A-D

S02-K03A

Electrically or magnetically

S02-K03A1

Influencing current/voltage capacitively or electrodynamically

S02-K03A1A [1992]

Electrodynamically

Tachodynamo

S02-K03A1C [1992]

Capacitively

S02-K03A2

Influencing current/voltage resistively or inductively

S02-K03A2A [1992]

Resistively

Potentiometer

S02-K03A2C [1992]

Inductively

LVDT, coil, movable armature

S02-K03A5 [1992]

Using magnetic effects

(S02-K03A9)

S02-K03A5A [1992]

Magnetoresistance

S02-K03A5C [1992]

Magnetostriction

S02-K03A5E [1992]

Hall effect

S02-K03A5F [1997]

Magneto-optical

(S02-K03A, S02-K03B)

S02-K03A5X [1992]

Other magnetic effects

S02-K03A9

Other electrical or magnetic transfer

S02-K03B

Optically

Light, fiber, fiber-optic, reflect, beam, intensity, interferometer, laser

S02-K03B1 [1992]

Using fiber optics

See also V07-K10 codes.

S02-K03B9 [1992]

Other optical transference or conversion

S02-K03X

Other (incl. using fluid or mechanically)

Covers use of piezoelectric transducer.

Pressure

S02-K04

Indicating measured values

Alarm

S02-K04A [1992]

Audible indication

S02-K04C [1992]

Visible indication

Display, LED, LCD

S02-K04G [1992]

Indicating threshold value

S02-K04D [2006]

Haptic indication

Prior to 2007, covered by S02-K04X. See W05-A01A1 for general haptic annunciators and alarms.

Tactile feedback, vibrating indicator

S02-K04X [1992]

Other measured value indication

S02-K05

Recording measured values

Includes memory details, pen recorders, line printers etc. See T04-G for line printer details.

Plot, position, writing, print, mark, paper, platen, X-Y, graphical

S02-K06

Component parts of recording/indicating appts.

Line printers are only included when specifically for printing measured values. See T04-G codes for line printer details.

S02-K06A

Scales, dials, pointers

Instrument, display, indicia, markings

S02-K06B

Recording elements

Print, ink, paper, mark

S02-K06B1

Electric, magnetic, heated, optical, perforating elements

Electrode, beam, dot matrix, electrocardiogram

S02-K06B2

Ink transfer recording elements

S02-K06X

Other component parts of recording/indicating appts.

Includes vehicle dashboard instrumentation; see also X22-E codes.

S02-K07 [1992]

Testing and calibration

(S02-K09)

S02-K07A [2005]

Testing

(S02-K07)

S02-K07B [2005]

Calibration

(S02-K07)

S02-K08 [1992]

Remote reading; tariff metering

(S02-K09)

S02-K08A [1992]

Remote reading

See also S02-K08B for remote reading of e.g. gas, water (S02-C02 codes also), or electricity meters (S01-B01 also), and W05-D codes, e.g. W05-D04A5 for radio link or W05-D07G if for vehicles, which cover telemetry in general.

S02-K08B [1992]

Tariff metering appts.

S02-K09

Other indicating or recording

Monitoring

S03 Scientific Instrumentation

S03-A

Measuring optical radiation (IR, visible and UV)

See also S03-E04 for appts. having provision for investigating material sample. Measurement performed on laser beam is also coded in V08-A06. Includes black body radiation source.

S03-A01

Photometry

S03-A01A

By comparison with reference light or electric value

S03-A01B

Using electric radiation detectors

Includes meters/sensors for measuring and/or detecting a light source, e.g. infrared detectors. See also U12-A02 codes.

Laser power meter

S03-A01B1 [1997]

Photovoltaic

(S03-A01B)

See also U12-A02A2 and X15-A02A codes.

Photodiode, bandgap, depletion region, space charge, solar cell

S03-A01B3 [1997]

Capacitive

(S03-A01B)

Includes ferroelectric devices. For discrete ferroelectric devices, see V01-B02B9. For integrated ferroelectric devices, see also U12 codes, e.g. U12-C02F for capacitor and U12-D02A7 for transistor.

S03-A01B5 [1997]

Photoresistive

(S03-A01B)

See also U12-A02B1.

Photoconductive

S03-A01B7 [1997]

Array of detectors

(S03-A01B)

See U13-A01X for focal plane array and W04-M01B5 for producing video image with optical radiation, and W04-M01E1A for producing video image with infrared radiation.

Mosaic

S03-A01B9 [1997]

Other electric radiation detectors

(S03-A01B)

PMT, photomultiplier

S03-A01X

Other photometry aspects

Includes measuring e.g. visually, chemically etc., also general details.

S03-A02

Spectrometry; colorimetry; polarimeters

See S03-E04 codes for more details.

Spectroscope

S03-A02A

Generating spectrum e.g. by prism or diffraction grating; measuring line intensity

Wavelength

S03-A02A1 [1997]

Monochromators

(S03-A02A)

S03-A02B

Absorption, double-beam, flicker or Raman spectrometry

S03-A02C

Colorimetry; polarimeters

See also S03-E04B5.

Colour, filter, polarise, Nessler tube, polarisation, birefringence, refractive index

S03-A02F [1997]

Interferometric spectrometers

(S03-A02X)

Includes Fourier Transform spectrometers, e.g. FTIR spectrometer. For novel aspects of the interferometer, see S02-A03A. See T01-J04B1 for novel computing aspects of the Fourier Transform.

Golay detector

S03-A02X

Other spectral measurements

Includes atomic emission spectrometers (See also S03-E04D3) and spectroradiometers.

S03-A03

Pyrometry and IR temperature measurement

Infrared, temperature, pyrometer, pyroelectric, heat-sensing, remote, bolometer, actinometer

S03-A04 [1997]

Cooling arrangements for optical instruments

(S01-J02)

Covers all devices within the context of S03-A and S03-E04. Covers cooling arrangements for IR detectors. See S01-J02 for cooling arrangements for other measuring instruments.

Dewar

S03-A05 [1992]

Calibration/testing of optical instruments and compensation aspects

(S02-K02, S02-K09)

S03-A05A [1992]

Testing of optical instruments

S03-A05C [1992]

Calibration of optical instruments

S03-A05E [1992]

Compensation aspects of optical instruments

S03-A09

Other optical measurements

Measuring optical phase difference, degree of coherence, optical wavelength, velocity of light.

Interferometer, phase

S03-B

Thermometers and calorimeters

Covers temperature and heat quantity measurements.

S03-B01

Thermometers

Medical thermometers with electrical content are also coded in S05-D01E.

Fuse, catalyst

S03-B01A

Thermoelectric

Thermocouple, junction, Seebeck

S03-B01B

Linear resistance e.g. platinum resistance thermometer

Resistor, film, wire

S03-B01C

Other electric/magnetic type

Includes e.g. using semiconductor pn junction, crystal resonator frequency, thermal noise of resistance or conductor. Also includes measurement by unspecified electric transducer.

S03-B01D

Integrating or differentiating expansion or contraction e.g. mercury thermometer

Bimetal, alcohol, maximum-minimum

S03-B01E

Adaptations and novel measurements for specific purposes

Includes novel measurement of temperature where sensor is of unspecified type or unimportant.

S03-B01E1 [1992]

For aggressive environments

S03-B01E9 [1992]

Other adaptations of thermometers for specific purposes

S03-B01F [1983]

Thermistors

Thermistors per se are also coded in V01-A02A.

Resistor, PTC, NTC, positive, negative, temperature coefficient

S03-B01G [1992]

Optical

(S03-B01X)

Covers aspects where there is modification of some optical property, eg polarisation state or refractive index. Thermometers using colour changes, e.g. of liquid crystals or chemical indicators, are covered by S03-B01X. Pyrometry is covered by S03-A03.

Fiber-optic

S03-B01H [1992]

Testing, calibrating and compensation

(S03-B01X)

S03-B01H1 [1992]

Testing of thermometers

S03-B01H3 [1992]

Calibration of thermometers

S03-B01H5 [1992]

Compensation aspects of thermometers

S03-B01K [1992]

Display of temperature

(S02-K04, S03-B01)

S03-B01X

Other thermometers

Includes e.g. casings, measuring temp. using acoustic effect or colour change of liquid crystal/chemical indicator.

Ultrasonic, thermochromic

S03-B02

Calorimeters

Heat quantity measurement. Includes electrical measurement for domestic heating system - also X27-E01A. Also includes calibration, testing and compensation of calorimeters. Calorimetry for investigation of sample properties is coded in S03-E01C.

Flow, thermal flux

S03-C

Geophysics

Includes non-geophysical applications such as detecting presence of objects, e.g. using light barrier (S03-C08). (See also S03-C06). Well logging apparatus with electrical content is also coded in X25-E02.

S03-C01

Seismology, seismic/acoustic prospecting

Seismic, exploration, log, prospecting, reflect, surveying, oil, gas

S03-C01A

Generating seismic waves

Vibration, piston, generator, hydraulic, shear, explosive charge, pneumatic cannon

S03-C01B

Detecting, transmission, or recording of seismic signals

Also includes transmitting seismic signals to recording apparatus (see also W05-D codes, e.g. mud pulse telemetry W05-D06M1). Towed hydrophone arrays are covered by S03-C01C1.

Geophone

S03-C01C

For water-covered areas; for well logging

S03-C01C1 [1983]

For water-covered areas

Marine, streamer, tow, hydrophone

S03-C01C5 [1983]

For well-logging

Borehole, formation, downhole

S03-C01X

Other seismology, seismic/acoustic prospecting (incl. processing seismic data)

S03-C02

Electric, magnetic, em prospecting, measuring earth's magnetic field

Well-logging appts. is coded under respective prospecting type.

S03-C02A [1983]

With electric current

Electrode, probe, resistor

S03-C02B [1983]

With magnetic/electric field

Includes measuring Earth's magnetic field and proximity sensors. For weapon detection at airports, see also S03-C06 and W06-B02A1.

Coil, resonance, oscillator, pipe-finder, metal detector, magnetotelluric, terrestrial

S03-C02F [1997]

Using quantised spin properties

(S03-C02X)

S03-C02F1 [1997]

NMR

(S03-C02X)

For NMR details per se, see S01-E02A1 and S03-E07C.

S03-C02F3 [1997]

MRI

(S03-C02X)

For MRI per se, see S01-E02A2 and S03-E07A.

S03-C02F5 [1997]

Nuclear Quadrupole Resonance

(S03-C02X)

NQR

S03-C02F9 [1997]

Using other quantised spin properties phenomena

(S03-C02X)

ESR, EPR

S03-C02X [1983]

Other electric, magnetic, em prospecting (incl. electromagnetic prospecting methods)

Antenna, borehole, RF, microwave

S03-C03

Prospecting using nuclear radiation

Gamma, neutron, x-ray

S03-C04

Gravimetric or other prospecting; measuring gravitational field/waves

Gravity

S03-C04A [1997]

Optical prospecting

(S03-C04)

Includes thermal prospecting. Does **NOT** include light barriers (see S03-C08 codes).

Thermal

S03-C05 [1992]

Geophysical natural disaster prediction and detection

(S03-C09)

Includes e.g. earthquake, volcano and landslide prediction and detection techniques. See also S03-C01 codes for seismic detection apparatus per se. See W05-B08 codes for natural disaster alarm systems.

S03-C06 [1997]

Detecting presence of person or object

This code is used to differentiate between prospecting and presence detection and is technology non-specific. It will thus almost always be combined with another (usually S03-C) code: e.g. detecting presence of contraband using Nuclear Magnetic Resonance would be coded as S03-C02F1 and S03-C06. Includes also baggage inspection at airport (See also W06-B02A5) and pipeline detection (see also X25-Y02). See W05-B and W05-C for alarms in general.

Drugs, Narcotics, Explosives

S03-C07 [2005]

For non-seismic well-logging or open water prospecting

These codes are used to differentiate between well-logging, open water prospecting or presence detection and are technology non-specific. Thus, they will almost always be combined with other (usually S03-C) codes. For seismic well-logging or open water prospecting, see S03-C01C codes.

S03-C07A [2005]

Non-seismic well-logging

S03-C07B [2005]

Non-seismic open water prospecting

S03-C08 [1992]

Light barriers

(S03-C09)

Packaged semiconductor light transmitting and receiving devices for light barriers are coded in U12-A02C2. Optical intruder detection is covered by W05-B01C2 codes.

Machine-operator protection

S03-C08A [1992]

Construction details

S03-C08C [1992]

Circuitry

S03-C09

Other geophysics

Includes mechanical well diameter measurement.

S03-C10 [1997]

Testing, calibrating and compensation aspects of geophysics devices

(S03-C09)

Includes testing of geophones. For geophones per se, see S03-C01B codes.

S03-D

Meteorology

Includes weather houses, sunshine duration measurement, rainfall or precipitation gauges, windspeed.

Atmosphere, pollution, pressure, precipitation, rain, satellite, balloon, probe, ionospheric sounding

S03-D01 [1992]

Wind speed and direction gauges

See also S02-G02 for anemometer details.

S03-D02 [1992]

Detection of precipitation

S03-D02A [1992]

Measuring rainfall

Precipitation, gauge

S03-D02B [1992]

Detecting presence of rain, snow or ice

S03-D02B1 [1992]

For non-meteorological application

Includes detection for automatic actuation of vehicle windscreen wipers (See also X22-J01).

S03-D03 [1992]

Atmospheric pressure measurements

Fluid pressure measurements are covered by S02-F04 codes.

S03-D04 [1992]

Air temperature

Thermometers are covered by S03-B01 codes.

S03-D05 [1992]

Weather prediction systems, weather forecasting

Includes weather satellite and weather radar systems. See W06-A04H2 for weather radar, S02-B04 for satellite surveying of the earth.

S03-D06 [1992]

Pollution, fall-out measurements

Includes all environmental pollution measurement, e.g. marine, fresh water, air, soil, etc. For air quality per se, see S03-E14N codes.

S03-D09 [1992]

Other meteorology

Includes detection of atmospheric measurements for non-meteorological applications, and meteorological data processing. Also includes lightning strike detectors.

S03-E

Investigating physical or chemicals properties of materials: methods and appts.

Electrical apparatus for medical purposes is also coded in S05-C if in-vitro, or S05-D01G/S05-D01L if in-vivo. Electrical exhaust sensors for internal combustion engines are also coded in X22-A05B.

S03-E01

Thermal (by investigating)

S03-E01A

Changes of state or phase; sintering; coefft. of expansion: thermal conductivity

Using melting or boiling points, distillation, sublimation, expansion, thermal conductivity.

S03-E01B

Moisture content; flash-point, explosibility; presence of flaws

Includes e.g. psychrometry, dew point, humidity, hygrometry

S03-E01B1 [1997]

Thermal cycling

(S03-E01B)

Includes thermal test chambers for PCBs and integrated circuits. See also V04-R06 codes for PCB testing and U11-F01G for burn-in testing of integrated circuits. Includes thermal cycling of test pieces, such as might be carried out in a metallurgy laboratory. If the material under test is subjected, additionally, to a load, see also S03-F02B for time varying load and S03-F02C for fixed load.

Temperature excursion, PCB, semiconductor device, integrated circuit, coupon

S03-E01B3 [1997]

Flaw detection

(S03-E01B)

Includes detection of flaws using infra-red radiation. For flaw detection using visible or ultraviolet radiation, see S03-E04F2.

defect

S03-E01C

Calorimetry

Includes e.g. combustion. Calorimeters per se are in S03-B02.

S03-E01E [1992]

Emissivity determination and differential thermal analysis

Includes acoustic thermography. For detecting flaws, see also S03-E01B3.

S03-E01X

Other thermal investigation

S03-E02

Electrical (by investigation)

Moist, liquid, flow, humidity

S03-E02A

Resistance of solid absorbing or reacting with fluid

Includes e.g. semiconductor gas sensor.

Oxide, metal, film, moist, humidity, resistor, bridge, oxygen, semiconductor

S03-E02B

Resistance of liquid or electrically heated body in material

Catalyst

S03-E02C

Capacitance

Dielectric

S03-E02C1 [1997]

Moisture detection

(S03-E02C)

S03-E02C3 [1997]

Flaw or contamination detection

(S03-E02C)

S03-E02C5 [1997]

Capacitance spectroscopy

(S03-E02C)

Includes Deep Level Transient Spectroscopy, TSCAP and Admittance Spectroscopy. For measurements on semiconductor materials, see U11-F01A codes. For measurements on devices, see U11-F01C codes.

DLTS, deep level, impurity, trap, lifetime

S03-E02D [1992]

Impedance

S03-E02F [1992]

Using tunnel current and analagous effects

(S03-E02X)

Includes all scanning probe microscope types and all adaptations for measurement, e.g. measurement of electric or magnetic fields, photon excitation, capacitance and ionic conductance, in addition to other relevant instrumentation codes.

See also V05-F for novel microscope and manufacturing details and S02-A codes for novel cantilever displacement measurement.

For optical scanning tunnelling or near-field optical microscopes with tunnel current type probes, see additionally S02-J04B1 and S03-E04R.

Does NOT include use of scanning probe technology for patterning techniques or recording - see V05-F05D and relevant T03-C and U11 codes.

SPM, magnetic force, MFM, SNOM, shear-force microscopy

S03-E02F1 [1997]

Scanning tunnelling microscopes

(S03-E02F)

STM

S03-E02F3 [1997]

Atomic force microscopes

(S03-E02F)

AFM

S03-E02X

Other electrical investigation

Includes e.g. measuring Q-factor change on oscillating piezoelectric crystal resonator caused by deposition (see also S03-E12), investigating breakdown voltage (see also S01-G03), electrostatics.

S03-E03

Electrochemical

For ion sensor FET see U12-D02A also.

Chemical

S03-E03A
Measuring deposition or liberation from electrolyte e.g. coulometric titration
Electrolytic, coulometer, titration, Karl Fischer

S03-E03B
Measuring currents/voltages in voltaic cells

S03-E03B1
Due to effects at electrodes; e.g. potentiometric titration
Includes vehicle lambda probes.
Fuel, air, engine, exhaust

S03-E03B2
Due to effects in the electrolyte; concentration cells
Includes electrochemical pH sensors. See also S03-F10. For non-electrochemical pH detection, see relevant S03-E04 and E09 codes, as well as S03-F10.
pH sensor

S03-E03B9
Other measuring currents/voltages in voltaic cells

S03-E03C
Containers, electrodes, membranes, partitions
Includes CHEMFETS, ISFETs and integrated circuits using these transducers (also coded in U12-D02A and U12-B03E for discrete devices, and U13-D02 for integrated circuit structure). Also includes electrolyte.

S03-E03C1 [1997]
Biosensors
(S03-E03C)
See also S03-E14H codes.
Membrane

S03-E03E [1992]
Electrophoresis
(S03-E03X)
Includes isoelectronic focussing. For detectors to identify substances separated by electrophoresis, see S03-E09C7 codes.
Separation, gel, macromolecular, protein

S03-E03X
Other electrochemical investigation
Prior to 2005, included non-electrochemical pH measurement. After 2005, see S03-F10 only.

S03-E04
Optical (by investigating)
See also S03-A02 codes.
Photometer, light, centrifuge

S03-E04A
Colour; spectral properties
Spectroscope, colour

S03-E04A1
Using photoelectric detection

S03-E04A4 [1992]
Measurement using radiation at two wavelengths
Includes measurement of blood oxygen content using catheter (S05-D01G).

S03-E04A5 [1992]
Wavelength dependent absorption
(S03-E04A9)
Includes atomic absorption spectrometers. See also S03-A02 codes.

S03-E04A5A [1992]
With light modulation
Includes photoacoustic absorption spectroscopy.
PAS

S03-E04A5B [1997]
Infrared spectroscopy
(S03-E04A5)

S03-E04A5E [1997]

Visible/utraviolet spectroscopy

(S03-E04A5)

UV, electronic transition, Hund's rules

S03-E04A5G [1997]

Gaseous phase

(S03-E04A5)

"Gaseous phase" refers to the phase to which the radiation is applied. Includes, therefore, atomic absorption spectrometers. This code will nearly always be combined with at least one other

S03-E04A5 code.

S03-E04A5L [1997]

Liquid phase

(S03-E04A5)

"Liquid phase" refers to the phase to which the radiation is applied. This code will nearly always be combined with at least one other S03-E04A5 code.

S03-E04A5S [1997]

Solid phase

(S03-E04A5)

"Solid phase" refers to the phase to which the radiation is applied. Includes Attenuated Total Reflectance Spectroscopy. This code will nearly always be combined with at least one other S03-E04A5 code.

ATR

S03-E04A9

Other spectral properties

S03-E04B

Reflection, refraction, transmission; dichroism; phase- or polarisation affecting properties

S03-E04B1

Transmission; specular reflectivity

S03-E04B1A [1992]

Transmission

Includes non-dispersive gas analysis. Includes measurement by splitting light source into two paths, one for reference/control, one for test sample, and measuring relative absorption.

Turbidity, densitometer

S03-E04B1B [1992]

Specular reflectivity

S03-E04B5 [1983]

Refraction; phase; interference; dichroism; polarisation; diffraction

Polarise, refractometer, interferometer, ellipsometer, measuring refractive index

S03-E04B5A [2005]

Surface plasmon resonance

(S03-E04B5)

S03-E04C

Scattering, diffuse reflection

Includes Rayleigh and Tyndall scattering. Also includes Optical Time Domain Reflectrometry (from 1992; previously coded in S03-E04B1).

OTDR

S03-E04C1

In moving fluid; e.g. smoke detection

See W05-B02A1 also for smoke detecting fire alarm using scattering effects.

Suspension, particle, fire alarm, turbidity

S03-E04C2

In material in container

S03-E04C3 [1997]

Optical computerised tomography

OCT, optical coherence tomography

S03-E04D

Optical, electrical, mechanical or thermal excitation

Fluorescent, atomise, plasma, flame, photothermal, phosphorescence

S03-E04D1 [1992]

Raman scattering

S03-E04D3 [1997]

Atomic emission spectrometer

(S03-E04D)

S03-E04D3A [1997]

Inductively coupled

(S03-E04D)

S03-E04E

Chemiluminescence; bioluminescence; observing effect on chemical indicator

React, luminescent, reagent

S03-E04F

Jewels; detecting flaws or contamination

See T04-D for automated visual inspection techniques. For systems using IR detection of thermal images S03-E01B takes precedence.

Inspect, reflect, semiconductor, mask, pcb, printed circuit board, recognition, visual, comparison

S03-E04F1 [1992]

Detecting contamination or impurities

S03-E04F2 [1992]

Flaw detection

S03-E04F3 [1992]

Optical examination of jewels

Gem, cut, facet

S03-E04G

Moving sheets

Paper, newspaper

S03-E04H

Moving fluids or granular solids

S03-E04J [1997]

On-line measurements

Covers arrangements for use in a production line/manufacturing environment (see also X25 codes). S03-E04J will nearly always be combined with at least one other S03-E04 code.

S03-E04P [1992]

Calibration/compensation/testing of optical measurement system

(S02-K02, S02-K09)

S03-E04R [1992]

Optical microscopy

(S03-E04X)

See also S02-J04B1 for microscope appts.

S03-E04R1 [2006]

Confocal Microscopy

Includes laser scanning microscopy. See also S03-E04D/E04E if used with fluorescent staining methods.

S03-E04T [1997]

Using Fourier Analysis

Includes use of Fast Fourier Transform (see also T01-J04B). This code will nearly always be combined with at least one other S03-E04 code.

FFT

S03-E04X

Imaging and other optical investigation

Includes cuvettes, automatic optical analysis apparatus (with S03-E15 codes), forming picture using TV camera.

S03-E05

Using microwaves

Includes microwave spectrometry. Also includes general terahertz radiation investigation. For terahertz imaging, see S03-E05E.

Dipole moment, moment of inertia, gas phase, terahertz radiation

S03-E05A [1997]

Moisture detection

(S03-E05)

S03-E05C [1997]

Flaw detection

(S03-E05)

Defect

S03-E05E [2005]

Terahertz radiation imaging

(S03-E05)

S03-E06

Using e.g. X-rays, neutrons, electrons

Includes use of ionizing or particle radiation for determining properties of a sample, e.g. patient x-ray diagnosis or scanning electron microscopy. For measurement of ionizing radiation intensity per se (x-ray, gamma ray, alpha, beta etc.), particle behaviour or electron beam current density, see S03-G codes.

Medical apparatus is also coded in S05-D codes. For luggage check see also S03-C03, S03-C06 and W06-B02A. Measurement of radioactive emission from sample injected into human body, e.g. scintography is not included (see S03-G02B3). Control of X-ray equipment in general is covered by V05-E02 codes. Includes use of gamma rays.

Tube, beam, radiate, radioactive

S03-E06A

Measuring absorption

S03-E06A1 [1992]

Flaw detection

S03-E06A3 [1997]

Moisture detection

(S03-E06)

S03-E06B

Forming picture

Scan, tomography, scintillation, display, phosphor, stimulable sheet

S03-E06B1 [1992]

Microscopes

See also V05-F codes for electron, ion and X-ray microscopes. Prior to 2005, included tunnelling microscopes - now only coded in S03-E02F codes.

SEM, TEM, STEM

S03-E06B3 [1992]

Electronic imaging

Includes use of e.g. video camera systems responsive to radiation, and stimulable-sheet phosphor imaging (see also S05-D02A5C for medical X-ray stimulable-sheet system and S06-K codes for aspects analogous to facsimile, especially S06-K99G).

S03-E06B3A [2005]

Computer tomography

S03-E06B5 [1992]

Photographic recording

S03-E06B9 [1992]

Other image-forming methods

S03-E06C

Diffracting, reflecting, scattering e.g. back-scattering radiation

Crystal structure, Compton

S03-E06C1 [1992]

Flaw detection

S03-E06D

By measuring secondary emission, e.g. X-ray fluorescence

Does not include fluoroscopy.

Auger electrons, photoelectric effect, x-ray spectrometer

S03-E06D1 [2005]

Flaw detection

S03-E06H [1992]

Details of apparatus

S03-E06H1 [1992]

Radiation source

Includes control, e.g. source intensity control, dosage etc. For source positioning see S03-E06H4.

S03-E06H2 [2006]

Detector positioning

See S03-E06H5 codes for novel detection system per se.

S03-E06H3 [1992]

Specimen positioning

S03-E06H4 [2005]

Source positioning

S03-E06H5 [1992]

Detection system

Includes e.g. cassettes.

S03-E06H5A [2005]

Semiconductor detectors

For measurement of ionizing radiation intensity using semiconductor detectors, see S03-G02B2G.

S03-E06H5B [2005]

Scintillation detectors

For measurement of ionizing radiation intensity using scintillation detectors see S03-G02B1.

S03-E06H5C [2005]

Stimulable sheet phosphors

For novel stimulable sheet phosphors per se, see V05-M01C1. For novel stimulable phosphor read-out systems, see S06-K99G and other S06-K codes as appropriate.

S03-E06H5D [2005]

Video systems

For novel X-ray video systems per se, see W04-M codes.

S03-E06H7 [1992]

Shielding, protection

S03-E06H9 [1992]

Other appts. details

S03-E06X

Other uses of X-rays, neutrons, electrons

S03-E07

NMR, EPR or other spin effects

See S01-E02A codes. S03-C02F is used when the purpose is prospecting, together with S03-C06 if for contraband or intruder detection. For static and gradient field coils, see also X12-C and V02-F01G respectively and for coils in general see S01-E02A8A. For medical apparatus, see also S05-D02B codes.

Spin echo, tomography, axis

S03-E07A [1992]

MRI

See also S01-E02A2 codes. Contrast agents are coded in S03-E09X also.

S03-E07C [1997]

NMR

(S03-E07)

Includes NMR spectroscopy. See also S01-E02A1 codes.

Nuclear Magnetic Resonance

S03-E07E [1997]

ESR/EPR

(S03-E07)

See also S01-E02A4.

Electron spin resonance, paramagnetic, klystron

S03-E07G [1997]

Nuclear Quadrupole Resonance

(S03-E07)

See also S01-E02A3. For contraband detection, see also S03-C02F5, and S03-C06 codes.

NQR

S03-E07X [1997]

Other quantised spin measurements

(S03-E07)

See also S01-E02A9.

Cyclotron resonance

S03-E08

Using sonic or ultrasonic vibrations

Includes vibrations which may be induced acoustically, thermally, optically, magnetically etc., but detected using acoustic apparatus. For photo-acoustic spectroscopy where optical radiation is detected, see S03-E04A5A. For ultrasound generating transducers, see V06-V01N. For ultrasound "measurement" transducers, see V06-V04G codes. See S02-A05B codes for acoustic dimension measurement. For medical imaging see also S05-D03 codes and V06-V04K for transducers for specifically medical use.

Transducer, piezoelectric

S03-E08A

Flaw detection

Includes acoustic emission techniques, e.g. where a material is subjected to a mechanical stress and the acoustic output detected by a microphone. See S03-F02B and S03-F02C for tensile testing per se.

Crack, inspect, material, pipe, weld, nondestructive testing

S03-E08C [1992]

Specific property

Covers investigation of a specific physical property by measurement of sonic or ultrasonic vibration. Includes e.g. analysing fluids; measuring attenuation, speed, density, frequency spectrum to characterise medium.

S03-E08E [1997]

Imaging

(S03-E08,S03-E08A)

E.g. using visualisation of interior, using Barkhausen effect.

S03-E08G [1992]

Acoustic microscopes

Covers acoustic microscopes per se.

S03-E08X

Other sonic or ultrasonic measurements

Includes construction details of ultrasonic equipment, e.g. probes and arrangements for orientation - see also V06.

Measuring deposition on crystal resonator using variation in Q-factor or impedance is not included - see S03-E02X.

S03-E09

Chemical methods

S03-E09A

Precipitation; absorption, adsorption

S03-E09B

Ion-exchange; catalysis; combustion

Catalyst

S03-E09C

By chromatography e.g. column, plate

Gel, injection, flow, needle, capillary, vaporise

S03-E09C1 [1983]

Gas chromatography

S03-E09C3 [1992]

Thin layer chromatography

S03-E09C5 [1983]

Liq. and ion exchange chromatography

S03-E09C7 [1997]

Chromatography and electrophoresis detectors

(S03-E09C)

From 2006, this code covers detectors to identify substances separated by electrophoresis. Electrophoresis per se is covered in S03-E03E.

S03-E09C7A [1997]

Optical

(S03-E09C)

See also S03-A01B codes.

S03-E09C7B [1997]

Mass spectrometric

(S03-E09C, S03-E10A)

For mass spectrometers, see S03-E10A and V05-J01 codes.

GCMS

S03-E09C7C [1997]

Thermal conductivity

(S03-E01A, S03-E09C)

For thermal conductivity measurements per se, see S03-E01A.

Katharometer

S03-E09C7D [1997]

Ionisation

(S03-E09C)

Includes flame ionisation and photo-ionisation detectors.

S03-E09C7E [1997]

Electron capture

(S03-E09C, S03-E03)

S03-E09C7F [1997]

Electrochemical

(S03-E09C)

For electrochemical sensors generally see S03-E03 codes.

S03-E09C7X [1997]

Other chromatography detectors

(S03-E09C)

S03-E09D

Titration, micro-analysis

Karl Fischer, sample, end-point

S03-E09E

Chemical indicators

Reagent, strip, colour, chart, compare

S03-E09F [2005]

Immunoassay techniques and biological indicators

Includes all novel reagents and techniques. See also S03-E04D and S03-E04E for fluorescence detection and observation techniques. For radiopharmaceutical immunoassay indicators, see also S03-G02B9.

For microarray and biochip techniques, see also S03-H01 codes.

Prior to 2005 coded in S03-E14H4.

Antibody, assay, antigen, binding, ligand, fluorophore, monoclonal, conjugate

S03-E09X

Other chemical investigation methods

Includes contrast agents for MRI (see S03-E07A also).

S03-E10

Investigating ionisation of gases or electric discharges

S03-E10A [1992]

For mass spectrometer or spectrograph

See also V05-J01 codes.

Ionise, smoke detector

S03-E10A1 [1997]

Using magnetic sectors

(S03-E01A)

S03-E10A1A [1997]

Double focussing mass spectrometers

(S03-E10A)

Nier-Johnson, Mattauch-Herzog

S03-E10A2 [1997]

Tandem mass spectrometers

(S03-E10A)

MS/MS, GCMS

S03-E10A3 [1997]

Time-of-flight mass spectrometers

(S03-E10A)

Includes e.g. ion mobility spectrometers. Also includes Coaxial Impact Collision Ion Scattering Spectrometer.

TOF, GCMS, CAICISS

S03-E10A4 [1997]

Secondary Ion Mass Spectrometers

(S03-E10A)

Includes spark source mass spectrometry and ion scattering spectrometry. For ESCA, Auger spectroscopy, electron microprobe see S03-E06D; for low energy electron diffraction, see S03-E06C.

SIMS, duoplasmatron, SSMS, ISS

S03-E10A5 [1997]

Quadrupole mass analysers

(S03-E10A)

Includes ion trap mass spectrometers.

GCMS

S03-E10A6 [1997]

Inductively coupled mass spectrometers

(S03-E10A)

ICP

S03-E10A7 [1997]

Ion Cyclotron Resonance Mass Spectrometers

(S03-E10A)

Includes Fourier Transform Mass Spectrometers.

ICR, FTMS

S03-E10A8 [2002]

MALDI/SELDI mass spectrometers

(S03-E10A)

For mass spectrometers with matrix assisted laser desorption ionisation source. See V05-J01E for novel ionising arrangements.

Matrix assisted laser desorption ionisation, surface enhanced laser desorption ionisation

S03-E10B [2005]

Energy spectrometers

S03-E10C [1992]

Investigating discharges per se

Includes, e.g. plasma processing endpoint detection through plasma colour change.

S03-E11

Investigating magnetic variables

Flux, Hall, diamagnetic, paramagnetic

S03-E11A [1983]

Flaw detection (incl. eddy current)

Surface, inspect, fault, crack, weld, nondestructive testing

S03-E11C [1992]

Specific property

Covers measurement of a specific physical property using investigation of magnetic variables, e.g. using saturation of remanence to investigate mechanical hardness (mechanical testing of hardness in general is covered by S03-F02A).

S03-E11C1 [1997]

Contamination detection

Debris

S03-E11X [1992]

Other magnetic variable investigation

S03-E12

Analysing by weighing; by measuring pressure/volume of gas

Balance, vapour pressure, gas sorption, adsorption, absorption

S03-E12A [1992]

By analysing weight/ by weighing

Includes gravimetric analysis.

S03-E12B [1992]

Specific weight determination

S03-E12C [2005]

By measuring pressure/volume of gas

(S03-E12)

S03-E13

Sampling; specimen preparation

S03-E13A

Sampling solids

Microtome, cut, slide

S03-E13B

Sampling liquid or fluent material

Also includes sampling of granular solids, e.g. sand, flour, salt etc.

Flow, sand, flour, water, liquid

S03-E13B1

Dippers, dredgers, suction or ejector devices

Pipette

S03-E13B2

Intake at several levels; splitting samples; flowing or falling material sampling

S03-E13B9

Other sampling liquid or fluent material

Includes sampling of suspensions from liquids, gases or other fluent materials, e.g. exhaust gas particulate sampling.

Aerosol

S03-E13C

Sampling gases

S03-E13D

Preparing specimens for investigation

Centrifuge, filter, separate, freeze

S03-E13D1 [1992]

For automatic analysers

See S03-E15 codes also. Includes preparation of many samples from one original which will be subjected to different test procedures.

S03-E13F [2006]

Sample holders, carriers or storage systems

Includes e.g. microscope slides, sample refrigerators, cuvettes, novel instrumentation-type glassware, e.g. test tube, petri dish. Note that general laboratory glassware is not included.

S03-E14

Investigation methods (for)

Codes in this section are used when testing methods or appts. are specifically intended for investigation of the material or substance concerned. Depending on the scope of the invention, codes for a specific testing method may also be assigned.

S03-E14A

Food, Pharmaceuticals and Cosmetics

S03-E14A1 [1992]

Drugs, medicines, pharmaceuticals

Electrical aspects of pharmaceuticals manufacture are covered by X25-P02. See also S05-C05.

Capsule, tablet

S03-E14A2 [2005]

Food and drink

Milk, meat, tobacco, alcohol

S03-E14A3 [2005]

Cosmetics

S03-E14B

Water

See X25-H03 for electrical aspects of water and sewage treatment.

Sea, waste, effluent, pollution, process

S03-E14C

Metals

Electrical aspects of metallurgy are covered by X25-Q codes, and of working metals by X25-A codes, e.g. X25-A01 (casting).

Melt, cast, metallurgy, phase, assay

S03-E14C1 [1992]

Testing metallic electrodes

For electrodes per se, see S03-E03.

S03-E14C3 [1997]

Alloys

(S03-E14C)

S03-E14C3A [1997]

Steel

(S03-E14C)

See X25-Q01 for electrical aspects of steel manufacture.

S03-E14C3X [1997]

Other alloys

(S03-E14C)

Brass, solder, bronze

S03-E14D

Concrete, glass, ceramics, refractories, resins, plastics, rubber, leather, wood

Asphalt, chalcogenide

S03-E14D1 [1983]

Concrete

Cement, strength, setting

S03-E14D4 [1983]

Glass, ceramics, refractories

Electrical aspects of glass working are covered by X25-A05.

S03-E14D7 [1983]

Resins, plastics, rubber, leather, wood

Electrical aspects of plastics working are covered by X25-A06, of rubber working by X25-A07.

S03-E14E

Fuels, explosives; soil

S03-E14E1 [1992]

Fuels

Includes crude oil and oil-derived fuels, as well as coal, natural gas etc. Oils for lubrication are covered by S03-E14F.

Gas, liquid, hydrocarbon, crude, refine, LNG, LPG

S03-E14E3 [1992]

Explosives

Blasting, detonate, pressure

S03-E14E7 [1992]

Soil

Rock, core, sample, groundwater recharge

S03-E14F

Oils, viscous liquids; paints; inks

Includes lubricating oils. Fuel oils are covered by S03-E14E1.

Lubricate, flow

S03-E14G

Paper; textiles

See X25-T codes for electrical aspects of paper and textile manufacture.

Sheet, fabric, web, yarn, fiber, pulp

S03-E14H

Biological material

For electrical aspects of biological material investigation see S05-C codes also where medical application stated.

Medical, clinical, forensic, diagnose

S03-E14H1

Blood

Coagulate, plasma, platelet, cell count

S03-E14H2 [2005]

Biological fluids

(S03-E14H9)

Includes urine, semen etc.

S03-E14H3 **[2005]**

Nucleic acids

(S03-E14H)

Includes general DNA/RNA sequencing and tests for specific gene sequences, where there are no specific details. Where novel reagents are claimed, see also S03-E09F.

For microarray or biochip technology see also S03-H01A codes.

S03-E14H4* **[1983-2004]**

Immunoassay

*This code is now discontinued and transferred to S03-E09F, but remains searchable and valid for records from 1983-2004.

Antibody, assay, antigen, monoclonal, conjugate, bonding, HIV, AIDS, hepatitis

S03-E14H5 **[1992]**

Enzymes, proteins and amino acids

(S03-E14H9)

S03-E14H6 **[1992]**

Tissue samples

(S03-E14H9)

S03-E14H9

Other biological material

Breath

S03-E14J **[1992]**

Plants

S03-E14L **[1992]**

Chemical and biological warfare agents

Includes detection. See S03-E09 for chemical detection techniques, S03-C06 for luggage or mail inspection methods or S03-H01 for lab-on-chip or biochip technology.

For electrical aspects of chemical or biological warfare detection see W07-F01 also.

S03-E14M **[1992]**

Herbicides, pesticides

S03-E14N **[1992]**

Air quality

Covers air quality, e.g. in workplace, hospitals and home. See S03-D06 also for pollution monitoring.

Breathable, pollution, contaminant

S03-E14N1 **[1997]**

In buildings

(S03-E14N)

S03-E14N3 **[1997]**

Clean room

(S03-E14N)

See U11-C15B for clean room used in semiconductor manufacture and T03-A02B9 for clean room used in magnetic record carrier manufacture.

Semiconductor, impurity

S03-E14N9 **[1997]**

Other air quality measurements

(S03-E14N)

S03-E14P **[1997]**

Gas sensor

See S03-E02A and S03-E03 for electrical and electrochemical gas sensors respectively.

S03-E14P1 **[1997]**

For combustion products

Carbon monoxide, sulphur dioxide, nitrogen dioxide

S03-E14P3 **[1997]**

For chemical reaction products

S03-E14P9 **[1997]**

Gas sensor for other products

S03-E14R **[2006]**

Flame/ combustion detector

Includes methods/ apparatus for detection of flames or combustion, e.g. for fire alarm (see also W05), or industrial/domestic combustion equipment (see also X25-X13/ X27-G02). For pyrometric detection, see also S03-A03; for optical detection, e.g. UV, see S03-E04 codes.

S03-E14X

Other

Dust

S03-E15 [1992]

Automatic analysis equipment

Codes in this section are used with other S03-E codes depending on the specific nature of the equipment. For example use S03-E15 and S03-E14H codes for automatic biological material analysis apparatus.

S03-E15A [1992]

Control

For computer control aspects see e.g. T01-J08A.

S03-F

Investigation of physical or chemical properties of materials: specific properties

S03-F01

Density

Densimeter

S03-F01A

By immersion of objects in fluids; from transmission of radiation; by measuring pressure differences

Displacement, ultrasonic

S03-F01X

Other density measurement

S03-F02

Mechanical strength

S03-F02A

Hardness

Load, indent, ball, bearing, Vickers, Rockwell, Mohs

S03-F02B

Resistance to wear or heat; machinability; cutting ability

Includes applying time varying (cyclic) loading. If the sample is also subjected to temperature excursions, the code S03-E01B1 is additionally applied.

Abrasion, tool, bearing, erosion

S03-F02C

By applying steady tension or compression

If, in addition to steady tension or compression, the sample is subjected to temperature excursions, the code S03-E01B1 is also applied.

Tensile, stress, strain, fatigue

S03-F02D

By steady bending, twisting or shearing

Torque, shaft, flexure, axis

S03-F02E

By applying impulsive forces

Impact, shock, frequency

S03-F02X

Other mechanical strength measurement (incl. ductility, twisting and coiling properties)

S03-F03

Flow properties

Includes viscometers.

Fluid, liquid, viscosity, thixotropic, Poiseuille's formula, Stokes' law, Ostwald, Newtonian fluid

S03-F03A

By moving body in material

E.g. rising or falling speed, rotary bodies, rotational, damping effect.

Vibratory viscometer

S03-F03X

Other flow properties

Includes measuring flow of material e.g. through capillary tube.

Rheometer

S03-F04

Diffusion effects; surface or boundary effects

Includes e.g. measurement of wettability.

Surface tension, Ficks law, solder wettability

S03-F05

Particle size; sedimentation of suspensions

For blood, see S03-E14H1 also, and S05-C01 if electrical appts. is involved.

S03-F05A [1992]

Sedimentation

S03-F05C [1992]

Particle size

Includes cytometry.

S03-F06

Concentration of suspensions; permeability, pore-volume or surface area of porous materials

S03-F06A [1983]

Concentration of suspensions

Aerosol, Colloid, Emulsions, Slurry

S03-F06B [1983]

Permeability, pore-volume or surface area of porous materials

Pressure, osmosis, porosity, filter, gas-mask, respirator

S03-F06C [1992]

Particle counters

Includes cytometry.

S03-F07

Weather-, light- and corrosion resistance

S03-F08

Coefficient of friction; adhesion

Surface, adhesives

S03-F09

Moisture content (incl. hydrometers); detecting flaws or contamination

Includes measurement of moisture e.g. mechanically, but **not** measurement using capacitance, microwaves or radiation absorption; for these cases see S03-E02C1, S03-E05A, S03-E06A3 respectively.

S03-F09A [2005]

General moisture detection

S03-F09B [2005]

General flaw detection

S03-F09C [2006]

General contamination detection

Prior to 2007, covered by S03-F09B.

S03-F10 [2005]

pH measurement

(S03-E03X)

See also S03-E03B2 for electrochemical methods, and S03-E09E and S03-E04E for chemical indicators. Prior to 200501, non-electrochemical pH measurement was coded in S03-E03X.

S03-F20

Other physical or chemical properties

For sampling devices see S03-E13 codes.

S03-G

Measurement of nuclear or X-radiation

Codes in this section are concerned with novel methods and equipment for measuring radiation per se. For measurement on materials using radiation see S03-E06 codes, and for object detection/prospecting see S03-C codes, e.g. S03-C03.

Beta, gamma, particle, radioactive

S03-G01

Recording/ processing movements of particles, measuring neutron radiation

Includes processing or analysis of tracks. Neutron dosimetry is also in S03-G02A.

Track

S03-G01A [1992]

Recording/ processing movements of particles

Wilson cloud chamber, bubble, scintillation, track

S03-G01C [1992]

Measuring neutron radiation

S03-G01X [1992]

Other recording/ processing movements of particles, measuring neutron radiation

S03-G02

Measuring nuclear or X-radiation

S03-G02A

Dosimeters; integrating detectors

Includes e.g. chemical, photographic, luminescent dosimetry, and arrangements integrating the output of an electrical detector.

Thermoluminescent, expose, film badge, TLD

S03-G02B

Measuring intensity

Codes in this section are used for particular radiation detection arrangements.

Count, camera, discriminate

S03-G02B1

Scintillation detectors

S03-G02B2

Counting-tubes, ionisation chambers; Cerenkov, semiconductor, resistance or secondary emission detectors

For tube type detectors see V05-H also.

S03-G02B2A [1992]

Counting tube (e.g. Geiger-Muller)

S03-G02B2C [1992]

Ionisation chamber

S03-G02B2E [1992]

Secondary emission detector

S03-G02B2G [1992]

Semiconductor detector

See U12-A03 also.

S03-G02B3 [1997]

Nuclear imaging

(S03-G02B)

Covers all cases where a radiopharmaceutical is injected into the patient, e.g. in Positron Emission Tomography or Single Photon Emission Computed Tomography. See also S05-D02C. See U22-D02C for coincidence circuit for PET apparatus.

See S03-E06B codes for imaging using externally applied radiation, e.g. X-ray tomography.

SPECT, PET, Gamma camera, Anger camera, Compton camera

S03-G02B9

Other nuclear radiation intensity measurement

Includes radioactive immunoassay techniques - see also S03-E09F.

Image, phosphor, scan, sheet

S03-G02C

Beam position/section; spatial/spectral distribution; polarisation, absorption cross section; half-life

S03-G02C1 [1992]

Beam measurements

Covers position or section measurements.

Faraday cup

S03-G02C1A [1992]

Beam polarisation

S03-G02C1C [1992]

Cross section

Beam area, absorption, barn

S03-G02C3 [1992]

Radiation spectrometers

Includes, e.g. X-ray or Mössbauer spectrometers. Note: This code is reserved for analysing nuclear radiation for the purest of reasons, e.g. at a nuclear power station or a nuclear research institute.

Using nuclear radiation (X-rays, neutrons, gamma rays etc.) to analyse material properties is covered by S03-E06 codes, e.g. S03-E06D.

S03-G02C5 [1992]

Half life measurements

Decay

S03-G05 [1992]

Calibration, testing and compensation aspects

S03-H [2005]

General scientific instrumentation technology details

These codes can be used with S01 and S02 instrumentation types, except for the S03-H03 codes. For testing, calibration or compensation, see relevant sections in S01 and S02.

S03-H01 [2005]

Lab on Chip and Microarray technology

These codes are used in combination with other S03 codes to denote specific technology types. For general automatic analysis equipment, see S03-E15. See also U13-D04 codes for semiconductor based technology. For instrumentation using electrochemical techniques, see S03-E03 codes.

LOC, Lab-on-chip

S03-H01A [2005]

Microarrays and Biochips

(S03-E15)

See relevant S03 codes for detection type. See S03-E09F for Immunoassay techniques. Prior to 2005, see S03-E15.

DNA Chip, Protein Chip, Gene ChipTM

S03-H01B [2005]

Microfluidic instrumentation

S03-H02 [2005]

Micro/nanometre scale instrumentation

See also V06 codes for micro and nano-scale actuators/motors/sensors and U12-B03F codes for MEMS/NEMS technology in general.

S03-H02A [2005]

Micrometre scale instrumentation

In general, covers instrumentation technology involving manipulation or manufacture at a scale of greater than 0.1 microns.

S03-H02B [2005]

Nanometre scale instrumentation

In general, covers instrumentation technology involving manipulation or manufacture beneath 0.1 microns, or 100 nanometres.

S03-H03 [2005]

Testing, compensation and calibration

These codes are used to indicate general testing, calibration or compensation for S03 equipment. Note that some areas of S03 already have testing, calibration and compensation codes. Where these codes already exist, they take precedence over S03-H03, e.g. S03-A05 codes, S03-C10 and S03-E04P. Prior to 2005, see S02-K and S01-J02.

S03-H03A [2005]

Testing

S03-H03B [2005]

Compensation

S03-H03C [2005]

Calibration

S04 Clocks and Timers

All aspects of clocks and watches are included, whether electrical or not.

S04-A

Mechanical aspects of clocks and watches

S04-A01

Drive, geartrains, escapements, balances etc.

Includes clutch mechanisms, weights, chains, mainsprings etc.

Gear, wheel, pendulum, movement, pivot, adjust

S04-A02

Time indication

Hour, rotating, analogue, face, indicia, minute

S04-A02A

Hands, dials, drums

Sundials are in S04-A09 only.

Face, disc, display, timepiece, concentric, ring

S04-A02B

Day, date, tide or local time indicators

Calendar, display, zone, disc, window, world, month, ring, year

S04-A02X

Other (time indication)

Includes illumination, striking, alarms, ringing, etc.

Bell, chime, light

S04-A03

Winding; setting

Including clutch wheel and locking bar mechanisms.

Adjust, hand, spring, compress, pushbutton

S04-A04

Cases, glasses

Display, window

S04-A04A

Constructions

Includes watch straps and clock stands.

Ring, seal, mount, housing, plastics, body, face, frame

S04-A04A1 [1992]

Anti-magnetic shielding

S04-A04A2 [1992]

Water-proofing

S04-A04B

Materials and manufacture

Glass, metal, titanium, alloy, nitride, aluminium, carbide, coating, deposit, film, jewel, bind

S04-A05

Frameworks, bearings, calipers

Plate, metal, plastics, rotor, spring, wheel

S04-A09

Other (mechanical aspects)

Includes combination of timepieces with other measuring instruments. Metronomes, sundials, hourglasses and other gravitational timepieces.

Dial, display, compass, magnetic

S04-B

Electrical aspects of clocks and watches

S04-B01 [1983]

Power supplies; electrical winding; motor driven time indication

Inverter, voltage, capacitor, control

S04-B01A [1983]

Power supplies; electrical winding

For batteries see X16, for solar cells see X15-A02, U12-A02A codes.

S04-B01B [1983]

Motor driven time indication

For stepper motors see also V06-M05. For motor control see also V06-N codes, e.g. V06-N01.

Rotor, drive, stator, pulse, synchronous, pole, circuit, current, analogue, switch, gear, magnetic

S04-B02

Oscillators

S04-B02A

Balances, pendulums, tuning forks

Drive, movement, spring

S04-B02B

Quartz

Crystal, piezoelectric, resonance, trimmer

S04-B02X

Other (oscillators)

Includes laser and maser oscillators (see also V08-A01A and V08-B) and atomic clocks. Time and frequency standards are also coded in S04-C09.

Beam

S04-B03

Timing chains; setting

Includes drive blocking and radio transmission aspects.

Display, counter, divider, memory, digital, microprocessor

S04-B04

Electronic displays

S04-B04A [1992]

Electro-optic displays

Includes lamps, LEDs, LCDs etc.

Digital, liquid, indicate, segment, analogue, calendar, date

S04-B05

Acoustical time indication; alarms

For combined radio/alarm appts. see also W03-G03A. Piezoelectric devices, buzzers etc. are in V06 also.

Signal, sound, frequency, tone

S04-B05A [1992]

Musical animation

Nursery

S04-B06

Master slave clocks and radio controlled setting

Radio and line transmission details of timing signals, drive mechanisms, pulse transmission systems etc.

Signal, control, circuit, receive, adjust, phase, reference, standard time signal, MSF, WWV, DCF-77

S04-B07 [1992]

Braille clock

Blind

S04-B08 [1992]

Motion clock, e.g. cuckoo or movable drum

S04-B09

Other (Electrical aspects)

Includes casings and manufacture for electronic timepieces. Clocks/watches integral with gaming, cooking, medical etc. devices. All aspects of circuitry specifically for timepieces.

Memory, radio, dial

S04-C

Timers

Circuit, control, automatic, program

S04-C01

Time switches

If switch details are claimed, then see V03-C08 also. For cooking appliances see X27-C. For washing/drying appliances see X27-D.

Cam, set, circuit, domestic, drive, mechanism, contact, rotating, washing, cycle

S04-C02

Timer clocks

For cooking appliances see also X27-C. For audio/video appts. see also T03, W03, W04.

Switch, set, interval, select

S04-C02A [1992]

Including time indicator or alarm

S04-C02X [1992]

Other (timer clocks)

S04-C03

Measuring unknown time intervals

For sports equipment see W04-X. Includes stopwatches.

Counter, period, start-stop, elapsed, oscillator, hand, second

S04-C03A [1992]

Measuring methods and equipment per se

S04-C03C [1992]

Applications

S04-C03C1 [1992]

Measuring electronic signals and pulse duration

See also S01-D06.

S04-C03C2 [1992]

Measuring duration of activities, operations, and events

See T05-G for specific monitoring of vehicles, machines, etc.

S04-C03X [1992]

Other (time interval measurements)

S04-C07 [1992]

Colour change time indication, e.g. for perishable goods

S04-C09

Other (timer aspects)

Includes time and frequency standards (see also S04-B02X) and also electronic metronomes and hour-glass type timers. For clocks using gravitational effects see S04-A09 also.

Frequency, standard, atomic, resonance, select, interval, program, pulse, stabilised, adjust, microprocessor, molecular, oscillator, count, delay

S04-D

Watchmakers' tools

Includes tweezers, eyepieces, measuring and calibrating appts., and relevant electronic test gear.

S04-E [1992]

Time recording

Includes e.g. time clock for employees.

S05 Electrical Medical Equipment

Electrical aspects only are included, except for documents with A61N IPC, which guarantees inclusion whether electrical or not.

S05-A

Therapy

For treatment of abnormal cells/tissues etc. using non- or minimally invasive equipment, e.g. electrotherapy, magnetotherapy, radiation therapy, ultrasound therapy etc. See S05-B codes for corresponding surgical equipment, and S05-D codes for measurement of bioelectric currents.

Condition, treat, beauty, patient

S05-A01

Heart pacemakers, and defibrillators

Includes all aspects of electrical cardiovascular stimulation.

Cardiac, sense, implant, lead, pulse, atrium, control, tissue, ventricle, physiological, time

S05-A01A [1992]

Pacemakers

Includes general heart stimulation arrangements.

S05-A01A [1992]

Demand pacemakers

Includes pacemakers controlled by physiological parameter e.g. heart biopotential.

S05-A01A5 [1992]

Programming and control aspects

Includes programmed control of pacemakers, e.g. using stored program. See T01-J06A for data processing in medical applications.

S05-A01A5A [1997]

Remote programming and control

(S05-A01A5)

Includes arrangements for programming and controlling operation from external source, e.g. for modifying version of control program.

S05-A01B [1997]

Defibrillators

(S05-A01)

Can be used for both internal and external defibrillators.

S05-A01C [1997]

Power supplies and storage

(S05-A01)

Includes power supplies and storage for all implanted heart therapy equipment, and charge storage arrangements for defibrillators. See U24 codes for power supplies in general, and X16 codes for power storage aspects.

S05-A02

Electrodes and connecting leads

Includes any apparatus attached to or through skin for purpose of applying electric field or current. If current application is also claimed then see also S05-A04.

Contact, lead, connect, conducting, implant, stimulating, flexible

S05-A02A [1997]

For stimulation of heart

(S05-A02)

Covers electrodes used in conjunction with pacemaker or defibrillator.

S05-A02B [1997]

For stimulation of nervous system

(S05-A02)

Covers electrodes used to apply current to muscles or nervous system for e.g. pain relief, i.e. TENS.

S05-A03

Radiation/Ultrasonic therapy (including magnetic fields)

Including optical, magnetic, X-ray irradiation, and protection from undesirable radiation.

Frequency, hyperthermia, beam, electromagnet, isotope

S05-A03A [1983]

Optical radiation (including IR, UV and Laser)

Laser apparatus is in V08 also. For UV and sun-ray lamp apparatus see X27-A02A2 also. Lamps per se are also in X26. Radiation therapy using visible light is in S05-A03A9 only.

Ultraviolet, tan, lamp, cooling, lens, sun, beam

S05-A03A1 [1997]

Infrared

(S05-A03A)

Includes application of heat from Infrared source. See also S05-A05B for heat therapy in general.

S05-A03A2 [1997]

Laser

(S05-A03A)

Includes laser for cosmetic use, e.g. laser hair and tattoo removal.

S05-A03A3 [1997]

Ultraviolet

(S05-A03A)

S05-A03A9 [1997]

Other light, including visible light spectrum

(S05-A03)

S05-A03B [1997]

Electric fields

(S05-A03)

Includes application of static electricity and electric fields.

S05-A03C [1997]

Sonic or ultrasonic therapy

(S05-A03)

See S05-B02 for ultrasonic surgical equipment e.g. lithotripsy, and S05-A05 for massage using ultrasound. Infra-sonic can also be coded here. For Music therapy see S05-A09.

S05-A03D [1997]

Microwave

(S05-A03)

See X25 for microwave heating.

S05-A03E [1997]

Magnetic fields

(S05-A03)

Includes all aspects of magnetotherapy e.g. using magnetic fields produced by coils or permanent magnets, applied externally, or internally using implanted elements.

S05-A03E1 [2002]

Magnetotherapy

(S05-A03)

Includes use of permanent magnets, e.g. traditional Chinese medicine.

S05-A03E2 [2002]

Electromagnetic Therapy

S05-A03F [1997]

Using X-Rays

(S05-A03)

See S05-D02 codes for X-Ray diagnostic equipment.

S05-A03X [1997]

Other radiation

(S05-A03)

Includes Gamma-ray therapy and particle irradiation therapy.

Brachytherapy

S05-A04 [1983]

Applying currents

(S05-A09)

Electrodes per se are also in S05-A02. Includes all aspects of nerve, muscle and skin stimulation for e.g. pain relief, i.e. transcutaneous electrical nerve stimulation, and also depilation.

Pulse, frequency, implant, HF, muscle, regulate, ECT, TENS, depilation

S05-A04A [1992]

Iontophoresis

See also S05-J02 for administering drugs through the skin.

S05-A05 [1983]

Physical therapy, massage, acupuncture

(S05-A09, S05-X)

Not steam baths, saunas, etc. These are coded under S05-A09 and X27-E03A1 only. Includes massagers using ultrasound. See W04-X01A for sports training equipment. See X27-A02A2 for massage/vibrators.

Exercise, cycle, treadmill, vibration, heat, limb, movement, mechanical

S05-A05A [1997]

Artificial respiration and cardiac assistance

(S05-A05)

For cardiac assistance and respiratory aids using e.g. heart massage, pumping and applied pressure etc. Applying electric currents for heart stimulation is coded in S05-A01. Respiratory aids using e.g. gas or air are coded in S05-G02E.

Pump, squeeze, pressure, cardiac wrap/harness

S05-A05B [2002]

Heat and cooling therapy

Therapy using direct application of heat. Also includes therapy using cooling techniques.

S05-A05C [2005]

Massage

Massage details for domestic items, such as beds, chairs, beauty treatment, etc. are also coded under X27-A02A2.

S05-A05D [2005]

Acupuncture

S05-A05E [2007]

Physical therapy

S05-A07 [1992]

Eye exercise, strengthening defective eye muscles

Optical

S05-A09

Other (e.g. speech therapy, relaxation therapy)

Includes electrical aspects of e.g. aromatherapy and homeopathy, steam baths, saunas etc., audio relaxation, deaf/dumb speech therapy, insomnia curing apparatus, air cleaners and filters.

S05-A10 [2006]

Patient positioning for therapy

Used for cases where the novelty is in the positioning of a patient rather than in the therapeutic device itself.

S05-B

Surgery

Surgical instruments, devices and equipment. See S05-A codes for therapeutic equipment. Anaesthesia apparatus is in S05-L. Diagnostic endoscopes are in S05-D04.

Instrument, shock, wave, tissue, pressure, coagulate, incision, cut, cauterisation

S05-B01 [1992]

Using laser, IR, or UV

Includes all aspects of laser surgery.

Light, optical, beam, focus

S05-B02 [1992]

Using sonic or ultrasonic equipment

Includes extracorporeal shock-wave lithotripsy e.g. using ultrasonic waves. See V06 for details of ultrasonic transducers.

Lithotripsy, stone, concretion

S05-B03 [1992]

Using mechanical or electrical equipment

Includes electrosurgical apparatus and electrosurgical cauterisation instruments.

S05-B04 [1992]

Monitoring during surgery

From 2006, S05-B04 codes cover monitoring during the complete surgery, including the patient (S05-B04B), the surgical instruments (S05-B04A1) and the surgical procedure per se (S05-B04A).

S05-B04A [1997]

Monitoring of surgical apparatus/procedure

For monitoring status of surgical equipment during surgery, e.g. temperature of cauterisation appts., power used by ablation appts. etc. From 2006, also includes monitoring progress of surgical procedure itself, e.g. amount of tissue removed, status of tissue surrounding operation site etc. Also includes intra-operative imaging appts/methods.

S05-B04A1 [2006]

Monitoring location of surgical instruments

(S05-B09)

Includes equipment for tracking the location of surgical instruments inserted into patient, and monitoring location of instruments in the operating theatre, e.g. instrument tags, swab counters etc. Prior to 2006 coded in S05-B04A.

Tagging, swab

S05-B04B [2006]

Monitoring patient during surgery

For monitoring vital signs, etc. of patient during surgery. Prior to 2006 coded in S05-B04.

S05-B05 [1997]

Endoscopic surgery

(S05-B09)

Includes apparatus for keyhole surgery. See S05-D04 for diagnostic endoscopes.

S05-B06 [2002]

Cryosurgery

Cryogenics

S05-B07 [2005]

Remote control and Automated/Robotic surgical systems

S05-B09 [1992]

Other (Surgical equipment)

Irrigation

S05-C

Medical analysis of biological materials

These codes cover electrical aspects only. See S03-E13 codes for sampling, S03-E14H codes for specific sample types and other relevant S03 codes for specific testing techniques.

Sample, cell, liquid, microscope, measure

S05-C01

Blood

See also S03-E14H1. Breathalysers are in S05-C09. Covers in-vitro testing.

Flow, fluid, monitor, test, coagulate, corpuscle

S05-C02 [1997]

Biological fluids

(S05-C09)

For analysis of content of biological fluids i.e. urine, semen etc. See also S03-E14H2.

Urine

S05-C03 [1997]

Biological tissues

(S05-C09)

In-vitro analysis of tissue samples for detection of abnormal cells from e.g. biopsy. See also S03-E14H6.

Biopsy, culture, cell

S05-C05 [1992]

For testing medicine, drugs

See also S03-E14A1.

S05-C09

Other (analysis of biological materials)

Includes breathalysers (see also S03-E14H9) and electrical DNA analysis (see also S03-E14H3).

Measure, chamber, fluid, test, assay, electrophoresis, DNA, ultrasonic

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S05-D

Electrical diagnosis

S05-D01

Measuring and recording systems

For indicating and recording in general see also S02-K.

Electrode, data, display, monitor, physiological, process, image, probe, transducer

S05-D01A

For bioelectric currents

Including measuring neurological and nerve stimulation, electrodes, physiological testing and encephalographic apparatus.

Conducting, potential, brain, EEG, physiological

S05-D01A1 [1983]

Electrocardiographs

ECG, EKG, signal, cardiac, heart, lead, tachycardia, bradycardia, fibrillation, QRS complex

S05-D01A1A [1997]

Electrodes

(S05-D01A1)

Includes electrodes adapted for ECG measurements e.g. scalp, chest etc.

Scalp, foetal monitoring, cardiography

S05-D01A2 [1997]

Neurological currents and signals

(S05-D01A)

Includes measurement of neurological bioelectric currents and signals e.g. electroencephalography, electromyography, magnetoencephalography etc.

EMG, EEG, MEG, squid

S05-D01A2A [1997]

Electrodes

(S05-D01A)

Electrodes for detecting bioelectric signals other than ECG, i.e. EEG, EMG e.g. needle electrodes.

S05-D01B

For heart rate, blood pressure

Pressure measuring devices are also in S02-F04 codes for flow measuring see also S02-C. Includes vein and artery wall thickness and blockage measurement.

Catheter, pulse, ultrasonic

S05-D01B1 [1983]

Blood pressure or flow

Sphygmomanometer, Korotkoff, cuff, Doppler, fluid, electroarteriograph

S05-D01B1A [1997]

Blood pressure

(S05-D01B1)

S05-D01B1B [1997]

Blood flow

(S05-D01B1)

Includes measurements of blood flow velocity and cardiac output.

Tracer, thermo-dilution, catheter

S05-D01B5 [1983]

Heart rate, pulse

Measuring or recording pulse. See S05-A05 for exercise.

Cardiac, frequency, stethoscope

S05-D01C

For lungs, body shape, or movement

S05-D01C1 [1983]

Lungs and respiration

Includes all aspects of breathing, exhaled air gas content and volume measurement.

See S05-C09 for breathalysing for e.g. alcohol or drug content.

Pressure, expire, inhale

S05-D01C5 [1983]

Body shape or movement

Detecting, measuring or recording systems for testing shape, size and movement of body parts; e.g. bone and muscle strength and dimension measurements.

Position, limb, gait, posture

S05-D01C5A [1992]

Measurements for non-medical purposes

Includes fingerprint identification, driver alertness sensors and determining eye movements for use in controlling aircraft, etc.

Gaze

S05-D01D

Using electric currents or magnetic fields

Includes all aspects of electrical current, voltage, and frequency measurement not covered elsewhere in S05-D01. NMR diagnosis is in S05-D02B only. From 2006, audiometering is coded under S05-D01D2 only.

Electrode, sense, frequency, tone, ear, generator, skin, polygraph

S05-D01D1 [1997]

Body impedance measurements

(S05-D01D)

S05-D01D2 [2006]

Audiometering

Hearing test

S05-D01E [1992]

For body temperature measurement

Thermometer

S05-D01F [1992]

For reflex and reaction measurement

S05-D01G [1992]

In-vivo blood composition measurement

Includes in-vivo measurements of blood characteristics e.g. blood gas concentration, pH value etc.

Oximeter

S05-D01H [1992]

Stethoscopes

Instruments for auscultation. See V06 for acoustic transducers.

S05-D01J [1997]

Tissue, bone content and properties measurement

(S05-D01C5)

Includes measurement of bone density, bone mineral content, water, fat content and properties such as tissue elasticity etc. See S05-D01G for in-vivo blood composition measurement.

Bone marrow, bone mineral

S05-D01K [2005]

Internal Pressure Measurement

Blood pressure measurement is coded in S05-D01B1A only, and Intraocular pressure measurement is coded in S05-D05 only.

Cystometer

S05-D01L [2006]

In-vivo fluid measurement

This code is for in-vivo measurement of bodily fluids other than blood. Includes spinal fluid, stomach acid, urine, sperm etc. For in-vivo blood measurement, see S05-D01G only.

spinal fluid, stomach acid, urine, sperm

S05-D01X

Other (Psychotechnics)

Includes pain threshold sensing.

Psychotechnics, mental state

S05-D02

Radiation diagnosis

See S03-E06 codes for analysis by radiation in general. See S05-A codes for therapeutic equipment using radiation e.g. X-Rays. For nuclear or X-radiation measurement see also S03-G02 codes. Video cameras/signal generation - see also W04-M01F.

Image, phosphor, stimulable sheet, light, radiographic, read-out, tomography, scintillation

S05-D02A

Using X-rays

Radiographic, support, dental, image, source

S05-D02A1 [1983]

Tomography

Computer, source, beam, CAT, CT, project

S05-D02A3 [1983]

Generating X-rays; protection

Includes equipment for protection from radiation and safety aspects. See V05-E codes for X-ray tubes and control in general.

Voltage, beam, source, anode, radiographic, cathode

S05-D02A5 [1983]

Recording; analysing

Film, light, video, intensify, radiate, radiographic, display, ray, cassette

S05-D02A5A [1992]

Photographic

Electrical aspects of film cartridge and developing apparatus are also coded in S06.

S05-D02A5B [1992]

Video

For X-ray TV system see also W04-M01F, and V05-D for tube aspects.

Fluoroscopy, feature

S05-D02A5C [1992]

Stimulable sheet phosphor

See also S06-K99G and S03-E06B3. See also V05-M01C codes for image storage screens.

S05-D02A5D [2002]

Other detectors

Includes, for example, photon detectors.

S05-D02A5E [1992]

Processing of recorded image

Includes all aspects of processing recorded X-ray image for e.g. storage, enhancement, analysis, enlargement, rotation etc. See T01-J10 codes for image processing using digital computers, and T01-J06A for data processing systems for medical applications.

S05-D02A6 [1992]

X-ray table, positioning

S05-D02A6A [1997]

Positioning X-ray source

S05-D02A6B [1997]

Positioning X-ray detector

S05-D02A7 [2006]

X-ray contrast media

See also S03-E09X for contrast agents.

S05-D02B [1992]

NMR diagnosis

(S05-D02X)

S05-D02B1 [1992]

NMR equipment, magnet, RF pulse generator

See also S01-E02A and S03-E07 codes for MRI/NMR measurements in general.

S05-D02B2 [1992]

Image processing, analysing

Includes processing of recorded image for e.g. enhancement, enlargement, analysis etc. See T01-J10 codes for image processing, and T01-J06A for medical data processing systems.

S05-D02B3 [1992]

MRI contrast media

See also S03-E09X for contrast agents.

S05-D02B4 [2006]

Adaptations for MRI compatability

Adaptations to electrical medical appts. for use in MRI environment or for mitigating unwanted effects due to MRI procedures, e.g. shielding for implanted devices.

S05-D02C [1992]

Using nuclear radiation

Covers cases in which radiopharmaceutical is injected into patient. Includes gamma camera, SPECT and PET. See also S03-G02B3.

S05-D02E [1992]

Patient table, patient positioning

Operating tables specifically for scanning are in S05-D02E only, not S05-G.

S05-D02X

Other (radiation diagnosis, e.g. optical)

Includes use of radiation e.g. thermal, optical, microwave radiation for investigating physical or chemical properties. Includes lamp, laser, UV, Infrared equipment.

Resonance, radiate, spin, echo, frequency phase, IR, UV, light

S05-D03

Ultrasonic diagnosis

See S03-E08 codes for sonic and ultrasonic testing in general.

Ultrasound, image, linear scan, sector scan, echo, frequency, probe, acoustic, tissue, blood

S05-D03A [1992]

Transducers

Includes general transducer aspects. See also V06.

Piezoelectric

S05-D03A1 [1992]

Device details

Acoustic, ultrasonic diagnostic transducers, magnetostrictive, electrostrictive, crystal, ceramic

S05-D03A2 [1992]

Arrangements of transducers

Includes transducer arrangements for transmission and reception of ultrasonic waves, e.g. array.

Ultrasonic transducer array

S05-D03B [1992]

Equipment other than transducers

S05-D03C [2006]

Ultrasound contrast media

See also S03-E09X for contrast agents.

S05-D03E [1992]

Image processing and analysing

For processing recorded image for e.g. enhancement, storage and analysis. See T01-J10 for image processing in general, and T01-J06A for medical data processing systems.

S05-D04 [1983]

Endoscopes

(S05-D09)

For endoscopic surgical equipment see S05-B05. See also S02-J04B3C and V07-N02 for optical fiber details.

Light, optical fiber, image, illuminate, reflect, laser, arthroscope, laparoscope, colonoscope

S05-D04A [1997]

Control aspects

(S05-D04)

Covers arrangements for controlling movement and positioning of endoscopes within body.

Endoscope positioning, endoscope control

S05-D04B [1997]

Imaging aspects

(S05-D04)

Includes equipment for capturing image of internal organs/cavities, e.g. video camera, CCD, ultrasound etc. See W04-M01 codes for video camera equipment.

S05-D05 [1992]

Eye testing, examination

(S05-D09)

Includes all arrangements for examining the eye for diagnostic purposes; e.g. determining cornea shape, examining eye fundus, measuring cornea curvature, intraocular pressure measurement, testing astigmatism, glaucoma etc. Detecting eye movements for controlling e.g. photographic camera, aircraft etc. is coded in S05-D01C5A.

Intraocular pressure, cornea, astigmatism, ophthalmoscope, ophthalmic, eye photography, gonioscope, glaucoma, patient chair

S05-D06 [1997]

Diagnostic information systems

Includes computer systems designed to aid in patient diagnosis e.g. expert systems and diagnostic databases. See T01-J16A for expert systems in general, and T01-J06A1 for medical information systems.

Information system, medical diagnostic database, medical expert system

S05-D06A [2005]

Telediagnosis

Includes systems for patient diagnosis where patient and medical expert are in different geographical locations e.g. where patient's image, measurements etc. are transferred via internet, wireless telephone. N.B. This code is used for initial diagnosis of the patient only. For everyday monitoring of patients from remote locations, see S05-G02B2A.

S05-D07 [1997]

Diagnostic displays and monitors

Includes equipment for displaying diagnostic information, e.g. radiation images. See T04-H for visual display units, W05-E codes for general display arrangements, and W03 for television displays.

Terminal, monitoring, diagnostic display

S05-D08 [2005]

General diagnostic processing

S05-D08A [2005]

General image processing

Can be applied either when type of image isn't mentioned or when it isn't important.

S05-D08B [2005]

General data processing

Can be applied either when type of data isn't mentioned or when it isn't important.

S05-D09

Other electrical diagnosis

Including aspects of diagnosis associated with pregnancy e.g. conception, sex and ovulation determination. Includes measurements associated with nutritional management systems, e.g. diet planners, calorie counters.

Foetus, ovulation, gender, conception

S05-E

Dentistry

Electric toothbrushes are covered by X27-A02A3A only. For sterilising apparatus see also S05-G. Anaesthesia is also in S05-L.

Optical, motor, handpiece, tooth, grip, x-ray

S05-E01 [1992]

Dental surgery apparatus

S05-E02 [1992]

Peripherals. e.g. lamp or chair

Light

S05-E03 [1997]

Diagnostic equipment and measurement e.g. X-rays

(S05-E)

Includes all electrical equipment for dental diagnosis and measurement. Includes initial electrical measurements for dental prosthetics design. See S05-D02 for radiation diagnosis in general.

S05-F [1983]

Prostheses

Implant, artificial, larynx, nerve, stimulating, tactile

S05-F01 [1992]

Hearing aids

Includes only implanted hearing aids.(See W04-Y codes for all aspects of implanted and non-implanted hearing aids).

Ear, cochlea, deaf, sound

S05-F02 [1992]

Internal incontinence device

S05-F03 [1992]

Arm or leg prostheses

Limb

S05-F04 [1992]

Artificial heart pump

Includes permanent artificial hearts only. Blood pumping and treatment circuits for use during surgery, and therapy e.g. dialysis, are coded in S05-H. Heart pacemakers are coded in S05-A01A codes only. Heart pump motors are also coded in X25-L03A.

S05-F05 [1997]

Artificial aids for eyesight

Corneal implant, artificial eyes, contact lens

S05-F09 [1992]

Other (prostheses)

S05-G [1983]

Sterilising; hospital equipment

(S05-X)

For dentistry equipment see S05-E also.

S05-G01 [1992]

Sterilising

Includes electrical equipment for sterilising or disinfecting medical equipment only. For non-medical sterilisation or disinfection see X27.

S05-G01A [1992]

Using mechanical cleaning, or chemicals

Includes ultrasonic vibrations and disinfectant.

S05-G01B [1992]

Using heat, radiation, or electricity

Sterilisation using hot gases, plasma or microwave radiation etc.

Ultraviolet, microwave, hot gas, steam

S05-G02 [1992]

Hospital equipment

Includes equipment for transporting patients, operating theatre equipment, incubators, ambulance equipment, patient monitoring and life support systems. Also includes equipment for doctor surgeries, dentists, etc.

S05-G02A [1992]

For moving patients (includes wheelchairs)

Electric wheelchairs may also be coded as electric vehicles in X21, depending on claimed content.

Stretcher, trolley

S05-G02B [1992]

Beds, nursing equipment

Monitor

S05-G02B1 [1997]

Patient beds

(S05-G02B)

Includes beds configured for medical use; e.g. with adjustable frame, patient lifting apparatus, tiltable axes etc.

S05-G02B2 [1997]

Patient monitoring

(S05-G02B)

Includes monitoring equipment for use by nurses for observation and long-term monitoring of e.g. unconscious patients in intensive care unit, ward etc. to determine change in condition, e.g. heart attack.

ITU, patient monitor

S05-G02B2A [1997]

Monitoring patients from remote location

(S05-G02B)

Includes equipment for monitoring patients at home.

S05-G02B2B [1997]

Portable hospital equipment

Includes monitoring equipment for use in e.g. ambulance and equipment which may be carried easily by a person.

Ambulance equipment, portable patient monitor

S05-G02B3 [1997]

Life support systems

S05-G02B3A [2002]

Incubators for infants

S05-G02C [1992]

Operating theatre equipment

Operating tables specifically for radiation diagnosis go in S05-D02E only.

S05-G02D [1992]

Nurse call systems

See also W05-A, and W01-C04 codes for intercoms.

S05-G02E [1997]

Respiratory aids using gas

(S05-G02)

Includes devices for assisting respiratory system using gas, e.g. ventilators, inhalators etc., and monitoring mixture of supplied gas. See S05-A05A for assistance of respiration by e.g. mechanical/electrical means. See S05-D01C1 for aspects of breathing, exhaled air gas content and volume measurement.

Ventilator, breathing aid, inhalator

S05-G02F [2006]

Tissue and fluid extraction equipment

Electrical novelty in equipment used to withdraw fluids and tissue, e.g. for testing, therapy.

S05-G02G [1992]

Medical IT systems

See also relevant T01 codes for computing aspects.

S05-G02G1 [1997]

Patient's medical records

(S05-G02G)

For patient record storage and administration in e.g. hospital. See T01-J05B for database aspects.

Electronic patient record, EPR

S05-G02G2 [1997]

Health care administration

(S05-G02G)

Includes health administration and insurance processing systems. See T01-J05A2 for administration using computers in general.

Health care scheduling, health insurance, health cover

S05-G02G3 [2005]

Data transfer/storage methods and apparatus

(S05-G02G)

Includes all aspects of data transfer between medical equipment, from equipment to central database or from remote location to medical centre. Includes encryption, image compression, access control, network or database details, etc.

S05-G02G4 [2006]

Treatment planning systems

This code is used for systems such as radiotherapy planning systems, wherein for example the size, shape and location of a tumour are used to calculate the most effective positioning and intensity of X-ray generators. Can be used with S05-A or S05-B codes if system is integral with therapeutic or surgical apparatus.

S05-G02G9 [2005]

Other medical IT systems methods/apparatus

(S05-G02G)

Includes medical surveys, population screening etc.

S05-G02X [2012]

Other hospital equipment

Includes special equipment used in hospital bathrooms, such as baths for patients with lower body bone fractures or whole body bone fractures. Includes equipment used outside hospitals, e.g. at doctor surgeries, etc. Equipment, e.g. lamps, chairs, etc. used in dental surgeries are coded under S05-E02 only.

Gynaecological lamp

S05-H [1983]

Dialysis; pumping

(S05-X)

Permanent artificial hearts are coded in S05-F04 only, even if pumping aspects are claimed. Includes all aspects of filtering. Electrical aspects of pumps are also coded in X25-L03A.

Blood, flow, fluid, valve, piston, chamber, hemodialysis, liquid, monitor, kidney

S05-H01 [1997]

Dialysis and blood treatment circuits

(S05-H)

Covers all aspects of blood treatment; blood oxygenators, filtering, artificial kidneys, dialysis systems etc.

Haemofiltration, diafiltration, oxygenator, blood treatment, peritoneal

S05-H02 [1997]

Blood pumping systems

(S05-H)

Transfusion, blood pump, circulatory assistance

S05-J [1983]

Infusion

Includes all electrical aspects of syringes and intravenous fluid administering and control apparatus. For anaesthetic administration control see S05-L also.

Pump, reservoir, drug, valve, volume, deliver, meter, chamber, implant, membrane

S05-J01 [1992]

Fluids

Liquid, flow

S05-J01A [1992]

Monitoring of intravenous fluid delivery

S05-J02 [1992]

Drugs through skin

Delivery of drugs for anaesthesia is coded in S05-L02. See also S05-A04A for iontophoresis.

S05-K [1992]

Aids for handicapped people (e.g. Braille devices)

(S05-X)

Blind, obstacle detection

S05-K01 [1997]

Mobility aids

Invalid vehicle, vehicle access, invalid mobility

S05-L [1992]

Anaesthesia

(S05-X)

S05-L01 [1997]

Gas delivery systems

(S05-L)

S05-L02 [1997]

Intravenous or intramuscular delivery systems

(S05-L)

Local anaesthesia, relaxation, analgesia

S05-M [1992]

Electrical drug storage and dosing

(S05-X)

Manufacturing details of medicines, tablets, etc are not coded under S05-M, but under X25-P02 (electrical details only).

S05-M01 [1997]

Drug delivery systems

(S05-M)

Drug dosing, drug delivery, dispenser

S05-M02 [1997]

Monitoring medication compliance

(S05-M)

Arrangements for indicating time for taking medicine, programmed dispensers, monitoring medicines taken etc.

Regime, pill counter, timer

S05-M03 [1997]

Drug storage systems

(S05-M)

Includes storage facilities for drugs, etc in hospitals, doctors' surgeries.

S05-M04 [1997]

Ventilator systems with medication

(S05-M)

See S05-G02E for respiratory aids e.g. ventilators.

Inhaler

S05-P [1997]

Medical simulation systems

For medical education using training and simulation aids, i.e. for training in medical procedures e.g. surgical, therapeutic, analysis, nursing etc. See W04-W07 for simulator systems, training and demonstration, and T01-J06A for data processing in medicine.

Medical education, medical simulation, medical training

S05-V [2006]

Veterinary

This code is to highlight veterinary application and can be used in conjunction with other S05 codes which highlight novelty. See also X25-N02 codes. Prior to Jan 2007 these were coded in S05-X.

Veterinary

S05-X

Miscellaneous

From 2007, veterinary applications are coded under S05-V only. Includes teaching, transplanting, atomising and enuresis detection. For teaching involving training and simulations aids, see also S05-P.

Air, respiration, valve, flow, patient, infant, pressure, gas

S05-Y [2005]

Additional medical device details

S05-Y01 [2005]

Testing and monitoring of medical equipment and systems

Includes methods and apparatus for alerting an operator when an abnormality occurs in an electrical medical apparatus.

S05-Y02 [2005]

Nano/micro scale medical devices

S05-Y03 [2005]

Implantable medical devices

S05-Y04 [2005]

Ingestible medical devices

S05-Y05 [2006]

Control, monitoring and communication of internal devices

Includes e.g. magnetic control of ingestible devices, remote monitoring of implanted devices etc. Can be used in conjunction with specific device codes. See also W05-D codes for remote control, communication and monitoring apparatus per se.

S06 Printing and Photography

S06-A* [1980-2009]

Electrography, electrophotography, magnetography

*This code is now discontinued, see S06-D to K. Includes electrical and non-electrical aspects.

Copier, copy, image, photocopier

S06-A01* [1980-2009]

Recording members

*This code is now discontinued, see S06-E01.

Layer, charge, conducting, image, surface, acceptor, compound, donor, dope

S06-A01A* [1980-2009]

Photoconductive layers

*This code is now discontinued, see S06-E01A. Includes all types of charge-generating layers and photosensitive paper.

Hydrazone, photoreceiver, accept

S06-A01A1* [1980-2009]

Organic photoconductive layers

*This code is now discontinued, see S06-E01A1.

Cyclic, polycyclic, heterocyclic, quinone

S06-A01A2* [1980-2009]

Inorganic photoconductive layers

*This code is now discontinued, see S06-E01A2.

Amorphous, silicon, selenium, carry, dope, surface, oxide, polycrystaline

S06-A01A3* [1980-2009]

Sensitisers; binding materials

*This code is now discontinued, see S06-E01A3.

Dye, composition, photosensitiser, organic, oxidative potential

S06-A01A4* [2007-2009]

Treatment of recording members

*This code is now discontinued, see S06-E01A4. Includes application of a lubricant to the surface of the drum, etc.

S06-A01A9* [1980-2009]

Other (photoconductive layer aspects)

*This code is now discontinued, see S06-E01A9. Includes aspects of photoconductive belt/drum not covered by other S06 codes.

S06-A01B* [1980-2009]

Carriers; intermediate or cover layers

*This code is now discontinued, see S06-E01B.

Sensitive, image, amorphorous, coating, drum, base layer, protective layer.

S06-A01D* [1997-2009]

Manufacture of recording members for magneto-, electro(photo)-graphy

*This code is now discontinued, see S06-E01C. Includes deposition of layers on drum.

Depositing

S06-A01D1* [1997-2009]

Apparatus used for manufacturing of recording members for magneto-, electro(photo)-graphy

*This code is now discontinued, see S06-E01C1.

S06-A01F* [1997-2009]

Temperature control

*This code is now discontinued, see S06-E01D. For warming up photoconductor layers on drum or belt up to normal working operation temperature.

Heater

S06-A01X* **[1980-2009]**

Other (Recording members)

*This code is now discontinued, see S06-E01X. Includes thermoplastic and photoelectric layers, paper treatment and manufacture, see S06-C02 codes for lithographic plate manufacture.

Image, electrostatic, surface, copy, substrate, polymer

S06-A02* **[1980-2009]**

Sensitising

*This code is now discontinued, see S06-E02.

Electrode, surface, electrostatic

S06-A02A* **[1997-2009]**

Corona charger

*This code is now discontinued, see S06-E02A. Includes all aspects of corona discharge. If corona ring or loop is claimed, then also coded in X12-F04.

Discharge, electrode, grid, scorotron, corotron, dicorotron

S06-A02B* **[1997-2009]**

Contact charger

*This code is now discontinued, see S06-E02B.

Roller, brush

S06-A03* **[1980-2009]**

Exposing

*This code is now discontinued, see S06-D/E03. Includes aspects of platen movement, copying station or unit holding original document, lens/mirror systems and drum and belt drive details.

S06-A03A* **[1983-2009]**

Frame scanning

*This code is now discontinued, see S06-D01A. Includes slit and full frame scanning.

S06-A03B* **[1983-2009]**

Line (i.e. raster) scanning

*This code is now discontinued, see S06-D01B. Raster output scanner

Laser, modulate, polygonal, mirror

S06-A03C* **[1983-2009]**

Synchronisation; changing magnification

*This code is now discontinued, see S06-D10A. Includes all aspects of magnification/reduction lens systems.

Size, variable, enlarge, ratio, paper, select, adjust

S06-A03D* **[1992-2009]**

Optical elements, e.g. lenses

*This code is now discontinued, see S06-D03/E03B

Mirror

S06-A03E* **[1992-2009]**

Light source driver (e.g. biassing)

*This code is now discontinued, see S06-D02A/E03A1.

Illuminate, biassing

S06-A03E1* **[1997-2009]**

Light source per-se

*This code is now discontinued, see S06-D02/E03A. Includes lamps (see also X26) and e.g. laser (see also U12/V08).

Lamp, LED

S06-A03F* **[1992-2009]**

Driving system and construction

*This code is now discontinued, see S06-D04/E03C. Includes mountings for optical system

Glass, feed, position

S06-A03F1* **[1997-2009]**

Document feeder

*This code is now discontinued, see S06-D04B.

Original, sheet, page, contact glass

S06-A03G* **[1992-2009]**

Image reading appt.

*This code is now discontinued, see S06-D. Includes electronic image acquisition scanner, raster input scanner.

Read

S06-A03G1* [1997-2009]

Image sensor

*This code is now discontinued, see S06-D05. Electronic image CCD pick-up element of line type and of matrix type.

CCD

S06-A03G3* [1997-2009]

Determining details of original document

*This code is now discontinued, see S06-D06. Density and size measurement, color, page width/length, see also S02-A03B2 for length/width/thickness measurements.

S06-A03H* [1992-2009]

Magnetographic and non-light exposure

*This code is now discontinued, see S06-D09.

S06-A03X* [1992-2009]

Other (Exposing)

*This code is now discontinued, see S06-D09. Includes thermal and X-ray (electroradiography) exposure.

Electroradiography, X-ray

S06-A04* [1980-2009]

Developing

*This code is now discontinued, see S06-E04. Includes copy density and darkness control and brush or magnetic applicator details

Bias, contrast, replenishment

S06-A04A* [1980-2009]

Using solid developer

*This code is now discontinued, see S06-E04A.

Powder particles

S06-A04A1* [1992-2009]

Dry toner supply and storage e.g. reservoir

*This code is now discontinued, see S06-E04C. Toner supply from container, tank, hopper to developer chamber

S06-A04A1A* [1992-2009]

Toner level detector

*This code is now discontinued, see S06-K07B1.

Refill

S06-A04A1B* [2002-2009]

Toner density detector

*This code is now discontinued, see S06-K07B2.

Refill

S06-A04A2* [1992-2009]

Toner application

*This code is now discontinued, see S06-E04C. Includes application by magnetic brush arrangement, scavangeless.

S06-A04A9* [1992-2009]

Other (using solid developer)

*This code is now discontinued, see S06-E04.

S06-A04B* [1980-2009]

Using liquid developer

*This code is now discontinued, see S06-E04B.

Flow, fluid, suspension

S06-A04C* [1980-2009]

Developer materials

*This code is now discontinued, see S06-E04. Codes in this section cover materials per se and their manufacture only. Includes toner details for electrophotographic facsimile and laser printer.

Compound, particle, cellulose, composition, copolymer, disperse, dry, magnetic

S06-A04C1* [1980-2009]

Powder

*This code is now discontinued, see S06-E04A1.

Charge, resin, binder, component, polymer, coating

S06-A04C2* [1980-2009]

Liquid

*This code is now discontinued, see S06-E04B1.

Suspension, polymer, resin, solvent, acid, aqueous, dispersion

S06-A04C5* [1997-2009]

Manufacture and manufacturing appt.

*This code is now discontinued, see S06-E04D.

S06-A04C9* [1997-2009]

Other (developer materials)

*This code is now discontinued, see S06-E04X.

Cyan, ester, solution, aerosol

S06-A04X* [1997-2009]

Other (developing)

*This code is now discontinued, see S06-E04X. Storing waste toner for disposal.

S06-A05* [1980-2009]

Transferring images

*This code is now discontinued, see S06-E05. Includes removal of recording sheet from drum after transfer.

Surface, receive, separate, contact, dielectric

S06-A05A* [1997-2009]

Corona charger

*This code is now discontinued, see S06-E05A. Includes all aspects of corona discharge. If corona ring or loop is claimed, then also coded in X12-F04.

Discharge

S06-A05A1* [2002-2009]

Corona charger transfer of toner

*This code is now discontinued, see S06-E05A1.

Discharge

S06-A05A2* [2002-2009]

Corona charger separation of paper

*This code is now discontinued, see S06-E05A2.

Discharge

S06-A05B* [1997-2009]

Contact type charger

*This code is now discontinued, see S06-E05B. Transfer roller, blade, belt

S06-A05B1* [2002-2009]

Transfer roller or belt, toner transfer details

*This code is now discontinued, see S06-E05B1.

S06-A05B2* [2002-2009]

Transfer roller or belt, paper separation details

*This code is now discontinued, see S06-E05B2.

S06-A05C* [1997-2009]

Intermediate belt/drum

*This code is now discontinued, see S06-E05C.

S06-A05D* [2008-2009]

Care of transfer appts.

*This code is now discontinued, see S06-E05D. For lubrication of transfer roller, belt, intermediate roller or belt.

Lubricant

S06-A06* [1980-2009]

Fixing

*This code is now discontinued, see S06-E06.

Flash

S06-A06A* [1992-2009]

Heat and pressure application

*This code is now discontinued, see S06-E06A. If heater aspects are claimed see X25-B codes also.

Fuse

S06-A06B* [1992-2009]

Roll and roll driving

*This code is now discontinued, see S06-E06B1. Includes clearing jams in fixing system.

Roller

S06-A06B1* [1997-2009]

Belt and belt driving

*This code is now discontinued, see S06-E06B2.

S06-A06C* [1992-2009]

Fuser oil composition and application

*This code is now discontinued, see S06-E06C.

S06-A06C1* [1992-2009]

Fuser oil composition

*This code is now discontinued, see S06-E06C1.

S06-A06D* [1997-2009]

Lustre control

*This code is now discontinued, see S06-E06D.

Heating, gloss, pre-heating

S06-A06P* [2008-2009]

Pre-fixing

*This code is now discontinued, see S06-E06P. E.g. for reducing the moisture content of the transfer material to increase its rigidity.

S06-A06X* [1992-2009]

Other (fixing)

*This code is now discontinued, see S06-E06X. Cooling

S06-A07* [1980-2009]

Multi-processing stations

*This code is now discontinued, see S06-E. This code is used when the system or process as a whole is claimed rather than any specific aspect.

Processor cartridge

S06-A07A* [1997-2009]

Drive system for several imaging stations

*This code is now discontinued, see S06-E. Driving linked colour stations

S06-A08* [1980-2009]

Using magnetic patterns or thermoplastic layers

*This code is now discontinued, see S06-E07. Includes all aspects of magnetography. Magnetic printer head details may also have T03-A03 codes assigned, depending on content.

Latent, heat, permeable, field, deformation

S06-A09* [1980-2009]

Electrography not using charge patterns

*This code is now discontinued, see S06-E08. Includes electrophoresis.

Polymer, deform, electrostatic, field, impact, magnetic, paper

S06-A10* [1980-2009]

Cleaning, residual charge elimination etc.

*This code is now discontinued, see S06-K06. Includes corona discharge, scrapers, ozone gas removal and charge-unifying drum exposure.

Develop, light, residue, dust, roll, collect, filter

S06-A10A* [1992-2009]

Toner removal

*This code is now discontinued, see S06-K06C. Involves removal of toner.

Surface, brush, lube block

S06-A10A1* [1992-2009]

Using blade

*This code is now discontinued, see S06-K06C1.

Scraper

S06-A10B* [1992-2009]

Charge removal and ozone removal

*This code is now discontinued, see S06-K06B.

Drum, discharge

S06-A10C* [1997-2009]

Returning toner for re-use

*This code is now discontinued, see S06-K06C2.

Recycle

S06-A10D* [2007-2009]

Transfer of toner to collection or waste container

*This code is now discontinued, see S06-K06C3. Covers mechanism for transferring toner to the collection or waste container for later removal and recycling outside the copier.

S06-A10E* [2007-2009]

Removal of other material, e.g. dust

*This code is now discontinued, see S06-K06D. Includes details of air cleaning systems. If cleaned air is expelled outside the copier, see also X27-E01B2 (electrical aspects only).

S06-A11* [1980-2009]

Multicolour systems

*This code is now discontinued, see S06-K01. Used for any aspect of colour system, with other codes as appropriate.

Dye, pigment, tint

S06-A11A* [1992-2009]

Full colour

*This code is now discontinued, see S06-K01A.

Four colour, magenta, cyan, yellow, black

S06-A11B* [1992-2009]

Two colour, highlighting

*This code is now discontinued, see S06-K01B.

Red

S06-A12* [1983-2009]

Sheet handling/feeding

*This code is now discontinued, see S06-K02. Includes all mechanisms for transporting sheet through copier, collators and sorters.

Paper, document, roller, guide, position, side, belt, detect, platen, path

S06-A12A* [1983-2009]

Multicopies; duplex

*This code is now discontinued, see S06-K02A.

Reverse, double, invert

S06-A12B* [1983-2009]

For different paper sizes

*This code is now discontinued, see S06-K02B. For feeding paper of different lengths and thickness.

S06-A12C* [1992-2009]

Collators and sorters

*This code is now discontinued, see S06-K02C. Includes feeding paper containing classified info to a locked tray. Includes paper stores.

Stack, tray

S06-A12D* [2002-2009]

Paper skew detection, skew correction, clearing jams

*This code is now discontinued, see S06-K02D.

S06-A12E* [1997-2009]

Sheet decurling

*This code is now discontinued, see S06-K02E.

S06-A14* [1987-2009]

Control, monitoring, warning devices

*This code is now discontinued, see S06-K07. Includes operating status display (for display control circuitry see T04-H codes), mode selection devices, microprocessor details (see also T01-J codes, e.g. T01-J08A), and recording inhibiting devices.

S06-A14A* **[1992-2009]**

User input and display

*This code is now discontinued, see S06-K07A1. Includes mode selection keys, etc.

Indicate

S06-A14B* **[1992-2009]**

Monitoring and error detection

*This code is now discontinued, see S06-K07B.

Fault, reset

S06-A14C* **[1992-2009]**

Control of copier operation

*This code is now discontinued, see S06-K07A. Covers general details of control system.

S06-A14D* **[1997-2009]**

Power supply control

*This code is now discontinued, see S06-K07A2.

S06-A14E* **[1997-2009]**

Remote monitoring and control

*This code is now discontinued, see S06-K07C1.

Billing

S06-A14F* **[2005-2009]**

Management of confidential/secure documents, e.g. prevention of illegal copying

*This code is now discontinued, see S06-K07A3. Preventing illegal copying of banknotes, securities and private documents, recognising copy prevention marks on documents, output to authorised operator. See also T01/T04 for image processing aspects and T05-J for testing of securities, banknotes, etc.

S06-A15* **[2002-2009]**

Electrophotographic copier rollers

*This code is now discontinued, see S06-K03H. General constructional details of rollers.

S06-A16* **[1987-2009]**

Electronic copier

*This code is now discontinued, see S06-K07.

S06-A16A* **[1992-2009]**

Digital copier, editing copier

*This code is now discontinued, see S06-K07A4. Includes picture processing and modification aspects of otherwise conventional appt.

S06-A16B* **[1992-2009]**

Systems with non-electrophotographic input or output arrangements

*This code is now discontinued, see S06-K99B a together with S06-F/G/H/J codes. Includes systems with CCD sensor input, and thermal output.

S06-A16C* **[1997-2009]**

Systems with electrophotographic and non-electrophotographic output

*This code is now discontinued, see S06-K99B a together with S06-F/G/H/J codes.

S06-A17* **[1997-2009]**

Recycling Systems

*This code is now discontinued, see S06-K04. From 2005 covers all aspects of recycling. See also X25-W04 for electrical aspects of recycling systems in general.

S06-A17A* **[2005-2009]**

Paper Recycling

*This code is now discontinued, see S06-K04A. For removing toner from recording paper to enable re-use of paper.

Paper

S06-A17B* **[2005-2009]**

Toner Recycling

*This code is now discontinued, see S06-K04B together with appropriate S06-E04 codes.

S06-A17C* [2005-2009]

Component Recycling

*This code is now discontinued, see S06-K04C. See also V04/X12 for recycling electrical components.

S06-A18* [1992-2009]

Finishing apparatus

*This code is now discontinued, see S06-K05.

S06-A18A* [1997-2009]

Stapling, binding, paper cutting, paper punching, paper folding

*This code is now discontinued, see S06-K05A. Includes bookbinding/stapling/cutting/punching devices situated inside the copier or separate bookbinding/stapling/cutting/punching machines attached to the copier.

S06-A18B* [2006-2009]

Laminating

*This code is now discontinued, see S06-K05B.

Laminating, protective layer

S06-A18C* [2008-2009]

Shredding

*This code is now discontinued, see S06-K05C. Includes immediate shredding directly after scanning.

S06-A18D* [2008-2009]

Attachment or printing of copy prevention marks to document to prevent forgery

*This code is now discontinued, see S06-K05D. Includes applying a magnetic wire, RFID tag, etc., as part of the printing process. If attaching a RFID tag, see also T04-K codes. Details on watermarking also coded under T01.

S06-A19* [1992-2009]

Construction

*This code is now discontinued, see S06-K03. Includes details of machine casing, framework, etc., and also internal mounting arrangements of components and modules

S06-A19A* [1997-2009]

Paper holders

*This code is now discontinued, see S06-K03B.

Container, storage

S06-A19A1* [1997-2009]

Cassettes

*This code is now discontinued, see S06-K03B1. For holding paper sheets before being fed for copying onto.

Container

S06-A19A2* [1997-2009]

Trays, bins

*This code is now discontinued, see S06-K03B2. For receiving documents or copy paper sheets after copying operation, duplex intermediate tray.

S06-A19B* [1997-2009]

Ventilation & humidifying mechanisms

*This code is now discontinued, see S06-K03C.

Fan

S06-A19C* [1997-2009]

Frames, casings, bearings

*This code is now discontinued, see S06-K03D.

S06-A19D* [2007-2009]

Manufacture and manufacturing apparatus

*This code is now discontinued, see S06-K03E. Covers manufacturing method and apparatus for the manufacture of copier elements.

S06-A19E* [2008-2009]

Packaging for electrography, electrophotography and magnetography

*This code is now discontinued, see V04-X together with S06-K99 codes.

S06-A20* [1980-2009]

Other (electrography, electrophotography, magnetography)

*This code is now discontinued, see S06-E09. Includes forming electrostatic latent image as initial stage in data acquisition for e.g. audio and video systems, e.g. still picture camera with electrostatic latent image production (see also T03 and W04). Includes electrophotographic displays (see W05-E codes also), recycling other than paper and ink, non-copiable documents, etc.

Display, light

S06-B

Photography

Electrical aspects only are included. Video and electronic still-picture cameras are covered by W04-M01 codes.

Image, optical, instant-picture, SLR, disc, roll, cartridge, film

S06-B01

Focussing; indicating

Lens, automatic, adjust, reflect, drive, intensity, light, display

S06-B01A [1983]

Focus detection; rangefinders

Rangefinders combined with surveying navigating appt.. are coded in S02-B01. (See W06-A codes for radar and analogous systems.)

Position, distance, beam, drive, element, IR, infrared, ultrasonic, UV, ultraviolet

S06-B01B [1983]

Lens positioning; indicating

Includes all aspects of positioning motors (see also V06), viewfinder display details and film data marking appt..

Focal, alarm

S06-B01B1 [1992]

Lens positioning, driving

Length, barrel, zoom, correcting focus

S06-B01B2 [1992]

Film data marking

Information, record, print, time, date

S06-B01B2A [1997]

Optically

LED

S06-B01B2B [1997]

Magnetically

Magnetic marking see also T03 codes

Magnetic head

S06-B01C [1997]

Viewfinder display

LCD

S06-B01E [1997]

Eye gaze direction detection

Detects pupil of eye for controlling direction of line for auto-focussing or line of view. See S05-D01C5A for eye ball position detection.

S06-B02

Camera exposure control

Automatic, lens, manual, speed

S06-B02A

Light metering

See also S03-A01 codes.

Intensity, compensate, bright, photometry

S06-B02B

Exposure time and aperture evaluation and setting

Includes evaluation using film speed/sensitivity information.

S06-B02B1 [1997]

Reading data from film/film cartridge

Using pre-set data on film or cartridge to automatically set camera. Reading magnetic marking see T04 and T03 codes also.

DX code

S06-B02B2 [1997]

Aperture/shutter speed setting

Includes manual input for pre-setting aperture size or shutter speed.

S06-B02C

Shutter and aperture control

Includes remote actuation.

Electromagnet, magnet, motor, drive, blade, diaphragm, mechanism, open, time

S06-B02C1 [1992]

Remote actuation

See W05-D04 codes for optical or radio controlled system.

S06-B02C5 [1992]

Actuation using timer delay

See also S04-C01.

S06-B02E [1997]

Camera shake detection/correction

For sensing movement due to user of camera in order to perform compensation e.g. optically using lens or to warn user of excessive movement or to prevent photo-taking operation.

Movement sensing

S06-B03

Flash units

Part of camera, lamps, tubes, reflectors, fittings, and operating circuits are coded in X26 also.

Illuminate, pulse, strobe, gun, trigger, charge, built-in

S06-B03A [1983]

Electronic

Covers discharge tube flash units, xenon discharge tube, capacitor discharge circuit.

Capacitor discharge, xenon lamp

S06-B03A1 [2002]

Pre-light emission

Pre-light emission before discharge of flash to prevent red eye. See only W04-M01H codes if for digital camera.

S06-B03B [1983]

Non-electronic

Covers incandescent lamp flash units.

S06-B04 [1983]

Film processing

Electrical aspects of developing exposed film, exposing photographic paper, scanning negative, developing exposed film and paper. Includes electrical aspects of X-ray film processing. Does not include electrical aspects of film manufacture or details of film material.

Image, colour, print, expose, negative, positive, copy, dark-room

S06-B04A [1983]

Photographic printing appts.

Electrical aspects of printer for wet developing of photographic film or paper to produce photographic print. Control and monitoring of process. For positive or negative scanning to provide digital image to computer and computer output appt. see S06-B06B. For printing from digital camera see also W04 esp. W04-D10, for non-wet printing see T04-G.

Frame, original, scan filter, magnify, reduce, colour output on microfilm

S06-B04A1 [1992]

Copiers using microcapsule sheets

Cylith, cycolour

S06-B04A2 [2005]

Processing exposed film

Electrical aspects of developing, fixing, washing and drying negative.

S06-B04A3 [2005]

Processing developed negatives

Electrical aspects of processing developed negative to produce photographic prints. Enlarging, exposing, rinsing, fixing, washing, drying

S06-B04A5* [1992-2004]

Control and monitoring of printing station

*This code is now discontinued and transferred to S06-B04A2 for film/slide processing, including control and monitoring details and S06-B04A3 for print/slide making, as well as control and monitoring details and modification of exposure based on e.g. negative characteristics.

Correct, auto-exposure, contrast measurement, density

S06-B04B [1983]

Photographic film manufacture

Includes electrical aspects of photographic film manufacture only. See S06-B04A2 for developing exposed film and electrical aspects of chemical, thermal development and S06-B04A3 for developing photographic paper and electrical aspects of chemical, thermal development.

S06-B04C [1997]

Film order processing

Mini-lab, direct plate exposure

S06-B04E [1997]

Photographic film or paper feeding (not in camera)

Convey, feed

S06-B05

Cinematography

Includes cinema equipment and projectors. for motion picture film, telecine machine. Magnetic and video recording are covered by T03 and W04.

Cine, picture, motion, sound, track, record, tape, frame, television, telecine, reel, synchronising, screen

S06-B06 [1983]

Projectors, viewers (incl. microform)

Video projectors are covered by W04-Q01 codes and only coded in S06-B06 if they are either a permanent part of a photographic projector, or intended for use as an overhead projector transparency. For projector synchronisation with audio/video recording appts. see W04-K01 also.

Transparency, cassette, frame

S06-B06A [1992]

Projectors

Display, slide, screen, reel

S06-B06B [1992]

Film scanners and viewers

Scanning positive or negative to provide digital image to computer, printer, self service kiosk etc.

S06-B06C [1992]

Microfilm apparatus

Read, fiche, microfiche

S06-B08 [1983]

Other camera electrics

Includes e.g. motorised control for instant-picture camera, eyepiece lamps, microprocessor control of camera and/or lens etc, mode selection control. Remote control is covered by S06-B02C1.

Control, drive, data, transmission

S06-B08A [1992]

Film winding in camera

Reel, perforation detection

S06-B08B [1997]

Film loading detection

For determining correct cartridge loading and film feed.

S06-B08C [1997]

Power source details

Includes storage compartments for battery and detection of battery voltage level. See also X16 for battery details, if measuring battery level see X16 and S01. See U24 for power supply details.

Battery

S06-B09

Other (photography)

Includes electrical aspects of X-ray photography (processing is also coded in S06-B04 codes).

Radiate, beam, colour, cassette, medical, tomography, photobooth, separate flash units and lighting units, photothermography.

S06-C

Printing

Includes electrical aspects of presses, rotary machines etc. but **not** character and line printers, printers as computer peripherals, which are covered by S06-D to K codes. For textile printing see also X25-T.

Colour, image, scan, picture

S06-C01

Photoelectronic composing; controlling composing machines

Pre-press proofing, colour proofing.

Character, select, text, space, graphic, laser, font, phototypeset, typeset

S06-C02

Plate production; colour separations

Imagesetter, platesetter, computer to plate, electrophotographic plates per se are coded in S06-A01X.

Tone, beam, half, night, pixel, reproduce, lithography, flat-bed scanner, drum, gravure

S06-C02A [1992]

Plate production

S06-C02A1 [2006]

Computer to plate manufacture

Covers all aspects of direct plate manufacture and production from computer original without intermediate stages. See also T01 for computer design aspects.

CTP, computer-to-plate

S06-C02B [1992]

Colour separation

S06-C03

Printing, press control

Control of flexographic, offset lithographic, screen printing, gravure, printing processes, etc.

Machine, plate, rotating, cylinder, sheet, roll, ink, offset, lithography, stencil printer.

S06-C03A [1992]

Control

Control system for plate loading, sheet feeding, wash-up, damping, inking and registering, etc.

S06-C04 [2008]

Media conveying details

Includes electrical details of media, e.g. paper or web, conveying in printer, e.g. offset printer.

S06-C05 [2002]

Print finishing equipment

Novel electrical aspects of sheet/batch collators, folders, booklet makers, binders, perforator, scorer, numberer

Staple, sheet separation, stack, bind, feed

S06-C09

Other (printing)

For textile printing see also X25-T.

S06-D [2010]

Scanning Systems

Previously coded as S06-A03, W02-J01, W02-J02A. Includes aspects of platen movement, copying station or unit holding original document, lens/mirror systems, drum and belt drive details and scanning drive (See also V07-K05). See also U14-H01B for thin film image sensor, U13-A01 and U13-A02 for circuitry and CCD. Details of scanners that are not part of an image forming device (e.g. falt bed scanners) are coded in T04-M only.

S06-D01 [2010]

Scanning Type

S06-D01A [2010]

Frame Scanning

Previously coded as S06-A03A. Includes slit and full frame scanning.

S06-D01B [2010]

Raster/Line Scanning

Previously coded as S06-A03B. Raster output scanner

Laser, modulate, polygonal, mirror

S06-D02 [2010]

Light Source

Previously coded as S06-A03E1. Lamps (see also X26) and e.g. laser (see also U12/V08).

Lamp, LED

S06-D02A [2010]

Light Source Driving

Previously coded as S06-A03E.

Illuminate, biassing

S06-D03 [2010]

Optical Elements

Previously coded as S06-A03D, W02-J01A. See also S06-D01 if specific to type of exposure.

Polygonal

S06-D04 [2010]

Drive System and Construction

Previously coded as S06-A03F, W02-J01B. Includes mountings for optical system. Also V06 codes for motor details.

Glass, feed, position

S06-D04A [2010]

Position detection and adjustment

Previously coded as W02-J01C. Includes control and error compensation of scanning velocity and position.

S06-D04B [2010]

Document feeder in scanning system

Previously coded as S06-A03F1. Feeding of paper through the copier other than through the scanning arrangements are coded under S06-K02

Original, sheet, page, contact glass

S06-D05 [2010]

Sensors

Previously coded as S06-A03G1, W02-J02A1. Electronic image CCD pick-up element of line type and of matrix type.

CCD, photoelectric detector, thin film image sensor, multi-element array

S06-D05A [2010]

Integral reading circuity

Previously coded as W02-J02A1A.

S06-D06 [2010]

Determining details of original document

Previously coded as S06-A03G3. Density and size measurement, color, page width/length, see also S02-A03B2 for length/width/thickness measurements.

S06-D09 [2010]

Non-light exposure

Previously coded as S06-A03H, S06-A03X. Includes thermal and X-ray (electroradiography) exposure.

Electroradiography, X-ray

S06-D10 [2010]

Combined scanning and printing arrangements

S06-D10A [2010]

Synchronising, changing magnification

Previously coded as S06-A03C. If synchronisation with sheet feeding is involved, then S06-K02 codes are also assigned. Includes all aspects of magnification/reduction lens systems.

Size, variable, enlarge, ratio, paper, select, adjust

S06-E [2010]

Electrophotographic Image Production

Previously coded as S06-A, T04-G04, W02-J02B2.

S06-E01 [2010]

Recording members

Previously coded as S06-A01, T04-G04C. Drum driving aspects are coded in S06-E03 codes only. Includes photosenstive paper, photoconductive belt, drum, etc. Toner is coded under S06-E04 only. Constructional details are also coded under S06-K03.

Layer, charge, conducting, image, surface, acceptor, compound, donor, dope, photoconductor, belt

S06-E01A [2010]

Photoconductive layers

Previously coded as S06-A01A. Includes all types of charge-generating layers and photosensitive paper. Also cross reference with T04-G04C for photosensitive materials for optical printer.

Hydrazone, photoreceiver, accept

S06-E01A1 [2010]

Organic

Previously coded as S06-A01A1.

Cyclic, polycyclic, heterocyclic, quinone

S06-E01A2 [2010]

Inorganic

Previously coded as S06-A01A2.

Amorphous, silicon, selenium, carry, dope, surface, oxide, polycrystaline

S06-E01A3 [2010]

Sensitiser; binding materials

Previously coded as S06-A01A3.

Dye, composition, photosensitiser, organic, oxidative potential

S06-E01A4 [2010]

Treatment of recording members

Previously coded as S06-A01A4. Includes application of a lubricant to the surface of the drum, etc.

S06-E01A9 [2010]

Other (photoconductive layer aspects)

Previously coded as S06-A01A9. Includes aspects of photoconductive belt/drum not covered by other S06-E01A codes

S06-E01B [2010]

Carriers; intermediate or cover layers

Previously coded as S06-A01B.

Sensitive, image, amorphorous, coating, drum, base layer, protective layer.

S06-E01C [2010]

Manufacture

Previously coded as S06-A01D. Includes deposition of layers on drum.

Depositing

S06-E01C1 [2010]

Manufacturing apparatus

Previously coded as S06-A01D1.

S06-E01D [2010]

Temperature Control

Previously coded as S06-A01F. For warming up photoconductor layers on drum or belt up to normal working operation temperature. The control aspect is also coded by S06-K07A1. See also X25-B codes for details of electric heating.

Heater

S06-E01X [2010]

Other (recording members)

Previously coded as S06-A01X. Includes thermoplastic and photoelectric layers, paper treatment and manufacture, see S06-C02 codes for lithographic plate manufacture. Electric details of paper manufacture is also coded under X25-T09A.

Image, electrostatic, surface, copy, substrate, polymer

S06-E02 [2010]

Sensitising

Previously coded as S06-A02. Desensitisers for removing residual charge are coded in S06-K06.

Electrode, surface, electrostatic

S06-E02A [2010]

Corona charger

Previously coded as S06-A02A. Includes all aspects of corona discharge. If corona ring or loop is claimed, then also coded in X12-F04.

Discharge, electrode, grid, scorotron, corotron, dicorotron

S06-E02B [2010]

Contact charger

Previously coded as S06-A02B.

Roller, brush

S06-E03 [2010]

Exposure

Previously coded as S06-A03. See also S06-D for combined scanning and printing arrangements

S06-E03A [2010]

Light Source (for exposure)

Previously coded as S06-A03E1, T04-G04B. See X26 for lamp details, for LED heads see also U12-A01A3 or U12-A01A6.

Lamp, LED

S06-E03A1 [2010]

Light Source Driving (for exposure)

Previously coded as S06-A03E.

Illuminate, biassing

S06-E03A2 [2010]

Light source type - LED

Previously coded as W02-J02B2A.

S06-E03A3 [2010]

Light source type - Laser

Previously coded as W02-J02B2B.

S06-E03B [2010]

Optical Elements

Previously coded as S06-A03D, T04-G04A1.

Polygonal, galvanometer

S06-E03C [2010]

Drive System and Construction

Previously coded as S06-A03F, T04-G04A2. Includes mountings for optical system. Details of sheet feeding are coded under S06-K02 codes. See also V06 codes for motor details.

Scan

S06-E03C1 [2010]

Position detection and adjustment

S06-E04 [2010]

Developing

Previously coded as S06-A04. Includes copy density and darkness control and brush or magnetic applicator details. For removal of developer from drum see S06-K06. For colour developer, see also S06-K01 codes. See also S06-K07B1A and S06-K07B1B for level detection and density detection of developing agent respectively. Inkjet inks and thermal ink ribbons are not coded here, but are coded by S06-G04 and S06-H02 respectively.

Bias, contrast, replenishment

S06-E04A [2010]

Using solid developer

Previously coded as S06-A04A.

powder particles

S06-E04A1 [2010]

Composition of solid developer

Previously coded as S06-A04C1.

Charge, resin, binder, component, polymer,

S06-E04B [2010]

Using liquid developer

Previously coded as S06-A04B.

Flow, fluid, suspension

S06-E04B1 [2010]

Composition of liquid developer

Previously coded as S06-A04C2.

Suspension, polymer, resin, solvent, acid, aqueous, dispersion

S06-E04C [2010]

Developer application

Previously coded as S06-A04A2. Includes application by magnetic brush arrangement, scavangeless.

S06-E04D [2010]

Manufacture of developer agent

Previously coded as S06-A04C5.

S06-E04E [2010]

Toner supply and storage

Previously coded as S06-A04A1. Toner supply from container, tank, hopper to developer..

S06-E04X [2010]

Other developing and developer materials

Previously coded as S06-A04C9, S06-A04X.

S06-E05 [2010]

Transferring images

Previously coded as S05-A05. Includes removal of recording sheet from drum after transfer.

Surface, receive, separate, contact, dielectric

S06-E05A [2010]

Corona charger

Previously coded as S06-A05A. Includes all aspects of corona discharge. If corona ring or loop is claimed, then also coded in X12-F04.

Discharge

S06-E05A1 [2010]

Corona charger - transfer of developer

Previously coded as S06-A05A1.

S06-E05A2 [2010]

Corona charger - separation of paper

Previously coded as S06-A05A2.

S06-E05B [2010]

Contact type charger

Previously coded as S05-A05B.

Transfer roller, blade, belt

S06-E05B1 [2010]

Contact type charger - transfer of developer

Previously coded as S06-A05B1.

S06-E05B2 [2010]

Contact type charger - separation of paper

Previously coded as S06-A05B2.

S06-E05C [2010]

Intermediate belt/drum

Previously coded as S06-A05C.

S06-E05D [2010]

Care of transfer apparatus

Previously coded as S06-A05D. For lubrication of transfer roller, belt, intermediate roller or belt.

Lubricant

S06-E06 [2010]

Fixing

Previously coded as S06-A06.

Flash

S06-E06A [2010]

Heat and pressure application

Previously coded as S06-A06A. If heater aspects are claimed see X25-B codes also.

S06-E06B [2010]

Fuser mechanism and driving

S06-E06B1 [2010]

Fuser roller

Previously coded as S06-A06B. See also S06-K03H for constructional details of rollers.

Roller

S06-E06B2 [2010]

Fuser belt

Previously coded as S06-A06B1.

S06-E06C [2010]

Fuser oil

Previously coded as S06-A06C.

S06-E06C1 [2010]

Fuser oil composition

Previously coded as S06-A06C1.

S06-E06D [2010]

Lustre control

Previously coded as S06-A06D.

Heating, gloss, pre-heating

S06-E06P [2010]

Pre-fixing

Previously coded as S06-A06P. E.g. for reducing the moisture content of the transfer material to increase its rigidity.

S06-E06X [2010]

Other fixing details

Previously coded as S06-A06X.

Cooling

S06-E07 [2010]

Using magnetic patterns or thermoplastic layers

Previously coded as S06-A08, T04-G09. Includes all aspects of magnetography. Magnetic printer head details may also have T03-A03 codes assigned, depending on content. Includes magnetic line printers used as computer peripherals.

Latent, heat, permeable, field, deformation

S06-E08 [2010]

Electrography not using charge patterns

Previously coded as S06-A09. Includes electrophoresis.

Polymer, deform, electrostatic, field, impact, magnetic, paper

S06-F [2010]

Impact Image Production

Previously coded as T04-G01. Includes mechanical action. Electromagnet and solenoid drive aspects are coded in V02-E02A also.

Armature, coil

S06-F01 [2010]

Dot Printer

Previously coded as T04-G01A.

Matrix, pin, wire, needle

S06-F02 [2010]

Using Type

Previously coded as T04-G01B. Self contained typewriters are in S06-K99A.

Select, hammer, daisy-wheel, disc, step, font, typeface, golf-ball

S06-F03 [2010]

Ribbon

Previously coded as T04-G01C. Includes printer ribbon re-inking.

Ink, cassette

S06-G [2010]

Ink-Jet Image Production

Previously coded as T04-G02, W02-J02B3.

Liquid, dye, nozzle, resin, water, channel, drop, pressure, reservoir, eject, electrode, pulse

S06-G01 [2010]

Drop-on-demand

Previously coded as T04-G02A.

Thermal ink-jet, bubble, piezoelectric, ultrasound

S06-G02 [2010]

Selective drop deflection

Previously coded as T04-G02B.

Charge, electrode, stream, gutter, continuous

S06-G03 [2010]

Printhead details

Previously coded as T04-G02A1, T04-G02B1, W02-J02B5. Search together with S06-K03 for constructional and manufacturing details. See also S06-G01 or S06-G02 to highlight the type of inkjet system. See also S06-K06A for printhead cleaning. Details of piezoelectric elements for inkjet printheads are also coded under V06-M06D.

S06-G04 [2010]

Inkjet ink

Previously coded as T04-G02C.

S06-G05 [2010]

Recording Media

Previously coded as T04-G02E. Includes media composition and manufacture. Includes pre-print application of liquid (not ink) to paper/ pre-treatment of paper for ink jet printing. See also X25-T09A for electrical details of paper manufacture.

Paper, fabrics, OHP sheet, recording pattern of LCD screen

S06-G06 [2010]

Ink Chamber/Cartridge

Previously coded as T04-G02G. See also S06-K03 for chamber construction. Search together with S06-G03 for combined chamber and printhead details. See also S06-K07B1A and S06-K07B1B for level detection and density detection of inkjet ink respectively.

S06-G06A [2010]

Refilling of ink cartridge

Previously coded as T04-G02F.

S06-G07 [2010]

Post ink application processing

Previously coded as T04-G02H. Includes processes for treating ink after application using e.g. heat or UV light.

S06-G10 [2010]

Applications of ink-jet printing technology

Previously coded as T04-G02J. Covers printing on non-paperlike media, e.g. CD (see also T03). Includes textile printing (see also X25-T04D), 3-D printing and other industrial applications using inkjet technology. Manufacturing LCD screens and filters (see also U14).

S06-H [2010]

Thermal Image Production

Previously coded as T04-G03, W02-J02B1. Includes thermal ink compositions and heat sensitive paper and ribbons. For photo-thermography, see also S06-E04.

Transfer, thermosensitive, resistive elements, thermal transfer ink ribbon

S06-H01 [2010]

Using thermally sensitive paper

Previously coded as T04-G03A.

S06-H01A [2010]

Composition of heat-sensitive layer

Previously coded as T04-G03A1.

S06-H02 [2010]

Using thermal ribbon

Previously coded as T04-G03B. Includes use of thermal transfer sheets.

Cartridge

S06-H02A [2010]

Thermal ink composition

Previously coded as T04-G03B1. Includes composition and manufacture of thermal ink. If colour ink, see also S06-K01. Ink for inkjet printer is only coded under S06-G02C.

Dye

S06-H03 [2010]

Printhead details for thermal printer

Previously coded as T04-G03C. See also S06-K06A for printhead cleaning. For thin-film resistor heads see also U14 codes, e.g. U14-H01B.

S06-J [2010]

Electrode (e.g. electrosensitive/erosive) Image Production

Previously coded as T04-G05.

S06-K [2010]

Image Production Units features

Covers features common to all printer types such as paper feeding and control systems.

S06-K01 [2010]

Colour system

Previously coded as S06-A11, T04-G04, W02-J07. Used for any aspect of colour system, with other codes as appropriate.

Dye, pigment, tint

S06-K01A [2010]

Full colour

Previously coded as S06-A11A.

Colour, magenta, cyan, yellow, black, CMY, CMYB, RGB

S06-K01B [2010]

Two colour, highlighting

Previously coded as S06-A11B.

S06-K02 [2010]

Sheet feeding

Previously coded as S06-A12, T04-G06A, W02-J05A.. Includes all mechanisms for transporting sheet through copier, collators and sorters. For feeding of an original document through a scanner, see S06-D04B only. Constructional details of sheet feeding mechanisms are coded under S06-K03 codes.

Paper roll, paper tray, document holder

S06-K02A [2010]

Multicopies; duplex

Previously coded as S06-A12A.

Reverse, double, invert

S06-K02B [2010]

For different paper size, clearing jams, skew correction

Previously coded as S06-A12B. For feeding paper of different lengths and thickness. Paper skew detection is coded by S06-K02D.

S06-K02C [2010]

Collators and sorters

Previously coded as S06-A12C. Feeding paper containing classified info to a locked tray. See T04-J codes for feeding outside printing unit.

S06-K02D [2010]

Paper skew detection

Previously coded as S06-A12D. Paper skew correction is coded by S06-K02B. For clearing jams in fixing system see also S06-E06.

S06-K02E [2010]

Sheet decurling

Previously coded as S06-A12E.

S06-K03 [2010]

Construction

Previously coded as S06-A19, T04-G11, W02-J05, W02-J06. Includes details of machine casing, framework, etc., and also internal mounting arrangements of components and modules.

S06-K03A [2010]

Carriage/Motor aspects

Previously coded as T04-G06. Includes all carriage systems not coded elsewhere. Constructional details of motors are covered by V06 codes.

S06-K03B [2010]

Paper Holders

Previously coded as S06-A19A.

Container, storage

S06-K03B1 [2010]

Cassettes

Previously coded as S06-A19A1. For holding paper sheets before being fed for copying onto.

S06-K03B2 [2010]

Trays, bins

Previously coded as S06-A19A2. For receiving documents or copy paper sheets after copying operation, duplex intermediate tray

S06-K03C [2010]

Ventilation & humidifying mechanisms

Previously coded as S06-A19B.

Fan

S06-K03D [2010]

Frames, cases, bearing

Previously coded as S06-A19C.

S06-K03E [2010]

Manufacture and manufacturing apparatus

Previously coded as S06-A19D. Covers manufacturing method and apparatus for the manufacture of elements.

S06-K03F [2010]

Connectors, circuitry

Previously coded as W02-J05C.

S06-K03G [2010]

Power supply

Previously coded as W02-J06. Includes mains and battery supplies for all types of units including portable systems. Control aspect of power supplies are coded by S06-K07A2 only. Also includes protection circuits. See U24-D, U24-E, U24-F and U24-X codes.

Surge, overload, back-up

S06-K03H [2010]

Rollers

Previously coded as S06-A15. General constructional details of rollers. See also S06-E05B for transfer roller or S06-E06B1 for fuser roller.

S06-K04 [2010]

Recycling

Previously coded as S06-A17, T04-G11B, W02-J05D. See also X25-W04 for electrical aspects of recycling systems in general.

S06-K04A [2010]

Paper recycling

Previously coded as A06-A17A. For removing toner from recording paper to enable re-use of paper.

S06-K04B [2010]

Recording agents recycling

Previously coded as S06-A17B.

S06-K04C [2010]

Components recycling

Previously coded as S06-A17C. See also V04/X12 for recycling electrical components.

S06-K05 [2010]

Finishing

Previously coded as S06-A18, T04-G06B, W02-J05B. For collators and sorters see S06-K02C.

S06-K05A [2010]

Stapling, binding, cutting, punching, folding

Previously coded as S06-A18A. Includes bookbinding/stapling/cutting/punching devices situated inside the copier or separate bookbinding/stapling/cutting/punching machines attached to the copier.

S06-K05B [2010]

Laminating

Previously coded as S06-A18B.

Laminating, protective layer

S06-K05C [2010]

Shredding

Previously coded as S06-A18C, T04-G06S. Includes immediate shredding directly after scanning/printing.

S06-K05D [2010]

Attachment of anti-copy mark

Previously coded as S06-A18D. Includes applying a magnetic wire, RFID tag, etc., as part of the printing process. If attaching a RFID tag, see also T04-K codes. Detection of copy prevention marks on documents are also coded under S06-K07A3. Details on watermarking also coded under T01.

S06-K06 [2010]

Cleaning/Recording Agent Removal

Previously coded as S06-A10, T04-G02D. Covers mechanism for transferring toner to the collection or waste container for later removal and recycling outside the copier. For details of toner or ink recycling, see S06-K04B.

S06-K06A [2010]

Printhead cleaning

S06-K06B [2010]

Charge and ozone removal

Previously coded as S06-A10B.

Drum, discharge

S06-K06C [2010]

Removing excess developer agent

Previously coded as S06-A10A. Involves removal of toner.

S06-K06C1 [2010]

Using blade

Previously coded as S06-A10A1.

Scraper, doctor blade

S06-K06C2 [2010]

Returning toner / ink for re-use

Previously coded as S06-A10C.

S06-K06C3 [2010]

Transfer of developing agent to waste container

Previously coded as S06-A10D. Covers mechanism for transferring developing agent to the collection or waste container for later removal and recycling outside the printer/copier/facsimile. See S06-K06C2 when the toner is recycled within the copier for immediate re-use. See S06-K04B for details of recording agents recycling.

S06-K06D [2010]

Removing dust, etc. from components

Previously coded as S06-A10E. Includes details of air cleaning systems. If cleaned air is expelled outside the copier, see also X27-E01B2 (electrical aspects only). Constructional details of ventilation and humidifying mechanisms are also coded by S06-K03C.

S06-K07 [2010]

Communication and Control

Previously coded as S06-A14, S06-A16, T04-G10, W02-J03, W02-J08. Includes operating status display (for display control circuitry see T04-H codes), mode selection devices, microprocessor details (see also T01-J codes, e.g. T01-J08A), and recording inhibiting devices. Does not include motors and solenoids for carriage and platen movement.

S06-K07A [2010]

General Control systems

Previously coded as S06-A14C, T04-G10A, W02-J03A7.

S06-K07A1 [2010]

User input and display

Previously coded as S06-A14A, T04-G10A1, W02-J03A4. Includes mode selection keys, etc

Operator warning device, mode setting,

S06-K07A2 [2010]

Power supply control

Previously coded as S06-A14D.

S06-K07A3 [2010]

Management of confidential/secure documents

Previously coded as S06-A14F, T04-G10F, W02-J11. Preventing illegal copying of banknotes, securities and private documents, recognising copy prevention marks on documents, output to authorised operator. See also T01/T04 for image processing aspects and T05-J for testing of securities, banknotes, etc. Attachment of anti-copy mark, e.g. a RFID, is also coded under S06-K05D. Secrecy details during communication, such as transmission data encoding, password, data encryption, etc., are also coded by S06-K07C7.

S06-K07A4 [2010]

Image processing

Previously coded as S06-A16A, W02-J03A1, W02-J03A2. Includes details of digital copiers. See also T01.

Picture signal amplifier, halftone screening, edge enhancement, noise or error suppression

S06-K07A4A [2010]

Compensation for acquisition aspects

Previously coded as W02-J03A1A.

Shading compensation

S06-K07A4B [2010]

Changing magnification, composing and electronic layout control

Previously coded as W02-J03A2A, W02-J03A2B.

S06-K07A4C [2010]

Image outputting

Previously coded as W02-J03A3. Includes systems for generating previews of image before sending (using e.g. a facsimile) or printing. Details of user display is also coded by S06-K07A1.

S06-K07A4D [2010]

Compression/bandwidth reduction

Previously coded as W02-J03B. See U21-A05 codes for coding in general, W04-P01A codes for TV signal compression, and W02-G04A codes for bandwidth reduction in general.

S06-K07A5 [2010]

Copy sheet counting

Previously coded as W02-J03A7A.

S06-K07B [2010]

Monitoring systems

Previously coded as S06-A14B, T04-G10G, W02-J03A5. Covers monitoring systems of the device, monitoring of the communication system is S06-K07C6 only.

S06-K07B1 [2010]

Monitoring of recording agent

refill

S06-K07B1A [2010]

Recording agent level detection

Previously coded as S06-A04A1A.

S06-K07B1B [2010]

Recording agent density detection

Previously coded as S06-A04A1B.

S06-K07C [2010]

Communication

Previously coded as W02-J03C, W02-J08. Includes input-output arrangements, telephone interface and secrecy systems (with W02-L). Search W01-C05B1 and W01-C01H for telephone aspects also. For ISDN aspects see W01-C05B7. For LAN aspects see W01-A06 codes.

S06-K07C1 [2010]

Remote control/monitoring

Previously coded as S06-A14E, T04-G10E. Search together with S06-K07A and S06-K07B codes as applicable.

S06-K07C1A [2010]

Print Job/Queue

Previously coded as T04-G10E1.

S06-K07C2 [2010]

Interfacing

Previously coded as T04-G10C.

S06-K07C2A [2010]

Telephone interfacing

Previously coded as W02-J03C7. Includes combined facsimile-telephone. See W01-C01P4. Also W01-C05B3H.

S06-K07C2B [2010]

Network interfacing

Previously coded as W02-J08A. Includes aspects of printers with built in print server

S06-K07C2C [2010]

ISDN interfacing

Previously coded as W02-J08C. Also W01-C05B7 codes for general aspects of ISDN.

S06-K07C2D [2010]

Computer interfacing

Previously coded as W02-J03C8. See also T01-C03B code.

S06-K07C3 [2010]

Signal processing

Previously coded as W02-J03C1.

S06-K07C4 [2010]

Determining and setting transmission

Previously coded as W02-J03C2. Includes detecting type of receiving station (e.g. G3, G4).

Autodialler, modem

S06-K07C5 [2010]

Reception details

Previously coded as W02-J03C5.

Automatic answering

S06-K07C6 [2010]

Monitoring and error checking

Previously coded as W02-J03C3.

S06-K07C7 [2010]

Secrecy

Previously coded as W02-J03C6. Includes transmission data encoding, password, data encryption. Management of confidential/secure documents are also coded by S06-K07A3.

S06-K99 [2010]

Machine Type

The machine type codes cover the application of a patent for a particular function. Patents that describe multiple applications will not be covered (except MFP).

S06-K99A [2010]

Self contained printing machine

Self contained typewriters, label printers, independent units, hand held printing devices

S06-K99B [2010]

Copier

S06-K99C [2010]

Printer

Printer peripherals for use with a computer.

S06-K99D [2010]

Fax

S06-K99E [2011]

Plotters

Previously coded as T04-H02.

S06-K99F [2010]

Multifunctional peripheral

Includes patents describing the combination of two or more other machine types.

MFP

S06-K99F1 [2010]

Multifunctional peripheral including fax application

Previously coded as W02-J07.

S06-K99G [2010]

Analogous systems

Previously coded as W02-J10. For medical stimulable sheet phosphor systems see also S05-D02A5C. For electronic blackboard (previously coded in W02-J09) see also W04-W05.

S06-K99X [2010]

Other (printer types)

Previously coded as T04-G09. Includes Braille printers,(see S05-K, T04-X for other Braille aspects), electronic pen recorders. Magnetic printers are coded under S06-E07 only.

Section T:

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T01: Digital Computers

T01-A

Mechanical digital computers

Align, calculate, register, interlock

T01-B

Fluid-pressure digital computers

Pneumatic, hydraulic, valve

T01-C

Input/output arrangements

Covers specific input arrangements for transferring data to be processed into a form which is capable of being handled by a computer. See T01-H for information transfer. Peripheral devices per se are in T04. See U21 for electronic switching.

Port

T01-C01

For record carriers (e.g. magnetic tape)

Includes buffering. See T01-C07C1 for smart card interface.

Card, disc, drive, reader, SCSI (small computer system interface), PCAT, SASD

T01-C01A [1997]

To/from DASD

Includes details of all defined standards, e.g. ATA, SATA, SCSI, iSCSI, IDE.

Floppy disc, hard disc, CD-ROM

T01-C01C [1997]

To/from semiconductor memory

See also U14-A codes.

Flash memory

T01-C02

For manual input device

Mechanical switches are coded in V03, and electronic switch details in U21.

Coordinate, enter, key, touch, matrix

T01-C02A [1987]

Keyboard interface

Alphanumeric code generation, key stroke detector

T01-C02A1 [1992]

In co-operation with display

Includes keys used in conjunction with icons or instructions displayed on the screen such as help keys, cursor control keys and function select keys. Details of icons used for program management are coded in T01-J12D.

T01-C02A9 [1992]

Other (optoelectronic keyboard)

Opto-electronic keyboard

T01-C02B [1987]

Position-digital value converters

Digitiser, co-ordinate

T01-C02B1

In cooperation with display

See also T01-J12 for GUI/HCI, and T01-J12B for GUI windows.

T01-C02B1A* [1992-2001]

For mouse

*This code is now discontinued, see T04-F02B1 from 2002. Includes use of mouse to 'pull down' icon functions and windows. See also T01-J12B for windows in general.

T01-C02B1B* [1992-2001]

For joystick

*This code is now discontinued, see T04-F02B3 from 2002. Includes interfaces and code translators for joysticks. See T01-P02 and W04-X02 codes also, if used for computer/arcade games.

T01-C02B1C* [1992-1996]

For light pen

*This code is now discontinued. See T01-C02B1H from 1997-2001 and T04-F02A1 from 2002.

T01-C02B1D* [1992-2001]

Virtual keyboards and touch screens

*This code is now discontinued, see T04-F02A2 from 2002. Includes interfaces and 'key' / position code translation. Also includes finger-operated mouse.

T01-C02B1E* [1997-2001]

Three-dimensional space signal input/output

*This code is now discontinued, see T04-F02B from 2002. Includes virtual reality handsets/sensor, gloves (see W04-V07E codes also).

T01-C02B1G* [1997-2001]

Tracker ball

*This code is now discontinued, see T04-F02B5 from 2002.

T01-C02B1H* [1997-2001]

Pen input

*This code is now discontinued, see T04-F02A1 from 2002. Includes input by inductive or capacitive pen, light pen and touch pen. For pen sensing details, see T04 and U21.

T01-C02B1J* [1997-2001]

Finger-shaped or hand input

*This code is now discontinued, see T04-F02B from 2002. Devices which use relative movement of finger or hand as input to processor.

Thimble

T01-C02B9* [1992-2001]

Other (position-digital value converters)

*This code is now discontinued, see T04-F02B from 2002.

T01-C03

Data exchange with distant stations

Bus, transmit, receive, terminal, link, line receiver

T01-C03A [1992]

Arrangements for interfacing with networks

Transmitting information between computers via communication medium. Including LAN and WAN interfacing details of computer networks. See T01-H07 for inter-computer communication and T01-M02 for multiprocessing structure. For bus arbitration and cycling arrangements see T01-H05B. Also includes computer peripheral network connections, but see also appropriate code for specific peripheral e.g. T01-C05A1.

ARPANET (advanced research project agency network), binding

T01-C03B [1992]

Data communication

Includes telephone interfaces and modems.

RS-232 (Recommended Standard 232), RS-485, RS-422, RS-423

T01-C03C [1997]

Wireless link

Connection between to devices, for connection to peripheral (e.g. printer) see T01-C07C3 instead. Includes, satellite, radio, infra-red, etc. interfaces for accessing a network. See also W01-A06C3 and W01-A06C4.

T01-C03C1 [1997]

Broadcast radio/television signal input

TV card

T01-C04

Output to displays

Video, colour, graphics, character, monitor, colour/intensity

T01-C04A

For CRTs

Monitor, VDU

T01-C04B

For display panels

Matrix, LCD, gas discharge, plasma, hologram

T01-C04C [1997]

LED display
(T01-C04)

T01-C04D [1997]

Display processing
(T01-C04)
Graphics card

T01-C04X

Other
Update, Bitmap

T01-C05

Output to printers (incl. plotters, typewriters)
Character, font, format, graphic, line, text, ink-jet, impact, thermal, X-Y, chart

T01-C05A [1992]

To printer
Ink-jet, impact, thermal, laser

T01-C05A1 [1997]

To/from networked/shared printers

T01-C05B [1992]

To plotter
X-Y, chart

T01-C06 [1992]

Scanning
(T01-C09)
Bar code reading and character recognition, such as OCR, are covered by T04-A03B1 and T04-D04 codes respectively. Hand scanners for computer input are coded in T04-M02. This code is used for computer interfacing details only.
OCR, bar codes

T01-C06A [2012]

To/from networked/shared scanner
Covers the scanners that share with the network
Remote scanner

T01-C07 [1992]

Interconnections (subsystems)
Includes general aspects not specific to interfaced devices such as input/output and data communications. See T01-H05A for I/O controllers and processors, and T01-L09 for physical structures.

T01-C07A [1992]

Asynchronous/Synchronous operation
Covers interfaces characterised by communication mode. See T01-H07B for bus protocol details.
USART (sync/async receiver/transmitter), start-stop bit, flip-flop

T01-C07B [1992]

Fiber optics
Also coded in V07.

T01-C07C [1992]

Interfaces
Includes backplanes, cables, chip carriers and plugboard/card/overlay motherboards. See also T01-L02 and V04 for hardware details, and T01-L09 for wiring and connectors.
Current loop, EIA, interrupt, DMA/program controlled, slave, adaptor card, latch-chip, SCSI

T01-C07C1 [1992]

Smart card reader interface

T01-C07C2 [1992]

Buffers
Includes structure e.g. shift registers, recirculating, and buffer/interface function such as rate control.

T01-C07C3 [1997]

Non-wired connection between peripheral and computer
Includes radio and optical signal transfer between computer and peripheral. Remote control of computer.
Free space, wireless, infrared

T01-C07C4 [1997]

Serial ports, parallel ports, serial-parallel conversion

Centronics (RTM), USB

T01-C07C4A [2005]

Serial interface with additional features

Additional features such as power supply. See also T01-H07, T01-H05B for bus transfer and T01-L01/3 for connector details. See also V04 codes.

USB, universal serial bus interface, hot swap, plug and play, firewire, IEEE 1394, i-link®

T01-C07C5 [1997]

Using standard interfaces or expansion cards

See T01-C11 for expansion cards per se.

T01-C07D [1992]

Topology

Covers wiring arrangements and connections to interface including power arrangements. Includes interface buses and point-to-point connection. See T01-H07A for bus structures.

T01-C08 [1992]

Digital input/output using sampling of analog signals

Analog to digital converter

T01-C08A [1992]

Speech recognition/synthesis input/output

(T01-C09)

See also W04-V codes for sound wave analysis/synthesis, speech to text, text to speech and T01-J18 for speech/audio processing.

Telephone, output, sound

T01-C08B [1997]

Measurement signal input

See also T01-J07A for data acquisition applications.

T01-C09

Other

T01-C10 [1997]

Non-manual human input

(T01-C09)

Includes eye input, foot input and neurological input to computer.

T01-C11 [1997]

PCMCIA cards

See also T04 and U11.

T01-D

Data conversion

See U21-A for coding and code conversion in general.

T01-D01 [1992]

Data encryption and Decryption

Includes private and public key encryption. See W01-A05 codes for data communications aspects.

DES, RSA

T01-D01A [2002]

Encryption algorithm

For encoding a plain text message using number of division using ki dimensional vector on a finite field.

Polynomial, primary number

T01-D02 [1992]

Coding and information theory

Includes data compaction/compression, formal communication models, and non-secret encoding systems. Image compression prior to 1997 - see also T01-J10A1. T01-J10B, now indexed in T01-J10D.

Lempel-Ziv, sliding window, Huffman, holotropic, fractal coding

T01-D02A [2005]

Watermarking

See also T01-J10D for image watermarking and W04 for audio/visual watermarking.

Stenanography

T01-D03 [1992]

Shifting

Includes justifying, scaling and normalising.

T01-D04 [2005]

Data flow speed conversion

Pre 2005 see T01-D09.

T01-D09 [1992]

Other

From 2005 see T01-D04 for data flow speed conversion.

T01-E

Data processing

Instruction, masking, bit manipulation

T01-E01

Sorting, selecting, merging or comparing data

Algorithm, key, routine, sequence generator, word, bit stream manufacture

T01-E01A [1992]

Sorting

Includes grouping data records, rearranging, and re-recording.

Software Boolean logic operation

T01-E01B [1992]

Selecting

Includes special character detection.

T01-E01C [1992]

Comparing

Includes merging.

T01-E02

Computation using only denominational number representation

Digital processing using binary, ternary etc. number systems.

Arithmetic, binary, decimal, exponent, floating-point, integer, logic, mantissa, operand, fixed point, coded decimal

T01-E02A

Adding, subtracting

Addend, carry, even, subtrahend, sum

T01-E02B

Multiplying, dividing

Multiplication, multiplier, product

T01-E02C [1997]

Logic processing

See U21-C for logic circuits.

T01-E02D [1997]

ALU

T01-E02X

Other (incl. evaluating functions)

Approximation, interpolation, complex numbers, logarithm, root, square

T01-E03

Computation using digital non-denominational representation

Integration, differentiation, increment, pulse, proportional, multiplier, divider, P-modulo arithmetic

T01-E04

Comparing digital values; random number generators

See also T01-J15 for chaos modelling.

Pseudo random binary sequence (PRBS), comparator, hashing

T01-E05 [1992]

Novel data processing technology

(T01-E09)

T01-E05A [1992]

Optical/Electro-optical

See also T01-M06D and T02-A03 for analogue optical computing and T02-B for hybrid arrangements. Pure optical, electro-optical components are found in V07-K06.

SLM (spatial light modulators), SLR (spatial light rebroadcasters)

T01-E05B [1992]

Neuronal configurations

Neural networks in general are covered by T01-J16C1. See T02-A04A5 for analog neural networks.

T01-E05C [1992]

Superconducting elements

Superconducting computing systems are covered by T01-M06E. See also U14-F02B.

T01-E05D [1992]

Biocomputer

T01-E05Q [2005]

Quantum Computing

Using quantum theory for processing. Prior to 2005 see T01-E05X. For Quantum processor architecture see T01-M06Q.

T01-E05X [1992]

Other novel data processing technology

T01-E09

Other

T01-F

Program control

Software

T01-F01

Microprogramming

T01-F01A [1987]

Enhancement of operating speed

Includes use of several micro-control devices operating in parallel.

Score boarding

T01-F01B [1992]

Loading

T01-F01B1 [1997]

Firmware microprogramming

See T01-S01A for disclosure of firmware code.

T01-F01C [1992]

Address formation

Includes address formation of next microinstruction selection.

T01-F02

Interrupt, multi-programming, multi-tasking, software interrupts

Covers supporting and keeping track of operations of multiplicity of users who are running numerous concurrent processes.

Access, multi-port, multi-task, request, poll, queuing control

T01-F02A [1992]

Task transfer initiation

Covers multiple task sequencing and selection. Initiating and controlling task operations and use of system resources.

T01-F02A1 [1997]

Interrupt handling/processing

T01-F02B [1992]

Saving or restoring of program or task

Covers program control blocks and multiple register set usage.

T01-F02C [1992]

Task interaction

Includes multiprocessor transaction management protocol and allocation of resources to processes, load balancing and scheduling.

Lock-out avoidance, IPC

T01-F02C1 [1997]

Synchronisation

Multimedia

T01-F02C2 [1997]

Resource allocation

T01-F02C3 [2006]

Multi-thread

The ability of an operating system to execute different parts of a program simultaneously.

T01-F02C4 [2007]

Data transfer between applications

T01-F03

Execution of machine instructions

Fetch, instruction, nodes, pipeline, pre-fetch

T01-F03A [1987]

Address formation of next instruction, branching, access of instruction operand

T01-F03B [1987]

Concurrent instruction execution, pipeline, look-ahead

Low level parallel mechanisms, RISC

T01-F03B1 [1997]

Pipelining

T01-F03C [1997]

Instruction decoding

T01-F04 [1987]

Subprogram execution

(T01-F09)

T01-F05 [1987]

Arrangements for executing specific programs and system management software

(T01-F09)

Includes operating systems, supervisors, executives and monitors.

Debug, edit, execute, state-machine

T01-F05A [1992]

High level language and language processors

Binary Compilers and Assemblers for e.g. operating system compilation. Use of Application Programming Interface (API), Dynamic Link Libraries (DLLs) during program execution. From 2007, for use of API during software development see T01-J20B1, and for Compilers and Assemblers used in software development, see T01-J20B1.

Cobol, Fortran, Pascal, Lisp, C, C++, Java®

T01-F05B [1992]

Booting/initialisation and recovery

(T01-G05A)

Includes reconfiguration, retry, checkpointing and restoring.

Start-up

T01-F05B1 [1997]

Resetting

T01-F05B2 [1997]

Configuring

Boot-up and program loading. Hot configuration. Version management of software e.g. BIOS firmware. For version management of software code see T01-F05F or T01-J20B2 during development. For Installation and/or updating of software involving transmission over network see T01-N02B1E. For network security software updates see T01-N02B3.

Plug and play

T01-F05B3 [1997]

Sleeping and waking, power-up/down, halting

Includes Power Management

T01-F05C [1992]

Interactive support programs

Includes time share control.

T01-F05D [1992]

Job entry system programs

T01-F05E [1992]

Data handling programs and storage management

Includes allocation/deallocation strategies, distributed memories, segmentation, storage hierarchies and swapping. See also T01-E01 and T01-J05B.

BIOS, Kernel, utilities, file management, up/down loading, share seize mechanisms

T01-F05E1 [2008]

Middleware

T01-F05F [2007]

Software version management

T01-F05G [1997]

Operating systems and virtual systems

Machine emulation including network operating systems.

MS-DOS, Unix, OS/2, Novell NetWare, Windows NT, LINIX

T01-F05G3 [1997]

Virtual systems

Includes shells and interfaces created by OS and emulation of terminal types by OS software.

Bourne-shell, utilities

T01-F05G5 [1997]

System management

Includes user privilege set-up; security - see T01-J12C, usage monitoring see - T01-G05C, T01-G11; file management - see T01-F05E.

T01-F05G5A [2006]

Screen savers

T01-F05G7 [2006]

Real time clock

covers updating and management of real time system clock.

T01-F06 [1992]

Program control arrangements

(T01-F09)

Covers program arrangements were instructions are pre-programmed before processing is carried out. See T01-M05 for architecture. Non-numerical controllers per se are covered by T06-A04B. For disclosure of firmware see T01-S01A. See also U21 for logic devices.

PLD, PLC, EEPROM

T01-F07 [1992]

Object based systems

Links, AKO, ISA, object-oriented programming (OOP), object-oriented database (OODB)

T01-F09

Other

T01-G

Error detection/correction; monitoring

Software debug systems are covered by T01-J20.

T01-G01

Using redundancy in data representation

See also U21-A06 for error correction/ detection circuitry, and W01-A01 codes for data transmission aspects.

T01-G01A [1992]

Using checking codes

Error correction words (ECW), Error correction codes (ECC), Hamming distance

T01-G01A1 [1992]

Using parity

T01-G02

Testing hardware during idle time

Includes integrated circuits with on-chip testing circuitry. See also S01-G01A, U11-F01D2, U13-C07, U14-D.

Diagnose, check-bit, routine, sub-routine, program, signature analysis

T01-G02A [1987]

Defective hardware location subsystems

T01-G02A1 [1987]

On integrated circuit

Includes LSSD (level sensitive scan design). See also U13-C07.

T01-G02A2 [1992]

System/field testing

Includes Computer Aided Test (CAT) system comprising of microcomputer/computer to aid testing of processor/CPU based systems or appts. See also T01-J07B for quality control

T01-G02A2A [1992]

Automatic Testing Equipment (ATE)

See also T01-J08F for system test other than processor systems.

T01-G02A2B [1992]

Built in testing

Includes scanpath, signature and boundary analysis.

Built in block operation (BILBO)

T01-G02A2C [1992]

By comparison

Includes comparing with known 'good' cards or appts.; redundancy in registers and comparing results in both; and signature analysis.

Goldcard, Signature analysis

T01-G02A2D [1992]

Test programs and algorithms

Includes software for generating test patterns and/or collecting results and analysing faults. Also software controlling test procedures or appts.

T01-G02B [1992]

Marginal testing

Includes preventative maintenance and safety margins.

T01-G03

Using redundancy in operation or hardware

Redundant processors - see T01-G05B from 1997.

Passive fault masking, active fault masking, backward error recovery, single event upset (SEU) prevention, RAID

T01-G05 [1987]

Fail-safe and monitoring systems

(T01-G09)

Includes appts. for error recovery and monitoring during operation of processor or processing system for reliable operation of hardware or software. See T06-A08 also for control system applications and T01-J20 for software debug and test.

Fail, fail-safe, fault-tolerant

T01-G05A [1987]

Watchdog monitoring / Ensuring proper program flow

Includes halting of operation of all processing within computing system upon detection of error. See also T01-F05B for booting/initialisation and recovery from 1992.

Rollback, halting operation, freeze

T01-G05B [1987]

Using additional processors

Includes redundant processor techniques (see T01-G03 for non-processor redundancy).

T01-G05C [1992]

Monitoring

(T01-G09)

Includes patterns, pulse trains and error processing.

T01-G05C1 [1992]

Recording or statistical evaluation of computer activity

(T01-G09)

T01-G06 [1992]

Logic simulation

(T01-G09)

Includes simulation machine/processor executing logic simulation, and logic models; and several simulation processors working in parallel. See also T01-J15A3 for electrical/electronic circuit emulation in CAD systems; T01-F05G3 for machine emulation.

Event driven, levelised

T01-G06A [1992]

Compiled code

LCC (levelised compiled code)

T01-G06B [1992]

Table driven

Using look-up tables to model logic functions.

T01-G06C [1992]

Hardware accelerators

(T01-G09)

Includes use of hardware for certain functions of simulation in cooperation with software to reduce load on processor to speed up process.

T01-G07 [1992]

Fault simulation

(T01-G09)

Includes introduction of known faults and monitoring/analysing effect such as stuck-at-one and stuck-at-zero techniques.

T01-G07A [1992]

Test sequence generation

Includes test vector compression.

T01-G07X [1992]

Other

T01-G08 [1992]

Computer Diagnostics

(T01-G09)

Includes fault location, file/diagnostic dictionary software, remote diagnostic (see also T01-N codes), fault masking and fault documentation. See T01-J08F for diagnostic of non-computer equipment.

T01-G08A [1997]

Systems support

Includes systems support repository, help system. For AI based expert system support, see also T01-J16A.

T01-G09

Other

From 1992 see T01-J20C for software debug systems; T01-G05C for monitoring of computer systems; T01-G06 for logic simulation systems; T01-G07 for fault simulation systems; and T01-G08 for diagnostic systems.

T01-G11 [1997]

Measurement of non-processing parameters of computer systems

(T01-G05C, T01-G09)

Includes smoke or fire detection (see W05-B02 codes also), alarm generation, power/spike failure in computer systems. See also T01-G05C for processor related monitoring. See T01-J08F for computer testing and monitoring of non-computer equipment.

T01-G11A [1997]

Power supply

Includes measurement and control of external power supply to computer. See T01-L01 for computer power supplies and T01-G05A.

T01-G11B [1997]

Temperature measurement and control

Includes measuring temperature/humidity of computer surroundings to maintain optimum operating conditions. See also T01-G05A.

T01-G11C [1997]

User monitoring e.g. tiredness

Includes measuring muscle tiredness, time of continuous use (see also T01-G05C), harmful screen emissions.

RSI

T01-G11F [2012]

Fan speed measurement and control

Covers measuring the speed of the fan and controlling the speed depends on the CPU usage

T01-G11X [2005]

Other measurement of non-processor parameters

T01-H

Data storage and memory, interconnection, data transfer

See U14-A for semiconductor memories per se, and T03 for data storage and recording by relative movement between head and record carrier.

T01-H01

Interconnections to random access memory, addressing and memory allocation, memory systems and architectures

Harvard architecture

T01-H01A [1987]

Module Addressing Technique

Shadowing, memory allocation table, look ahead addressing

T01-H01B [1987]

Memory storage components, hardware, or use of

Includes data layers, data logging memory cards and cassettes. See T04-K for smart cards per se. See also T01-H01C for unauthorised copying or memory protection (e.g. for disk or ROM). For physical construction of record carriers, see U14 for semiconductor memories and T03 for disks and tapes etc.

T01-H01B1* [1992-2004]

Dynamic recording by relative movement between recording head and storage medium (disk, drum, tape etc.)

*This code is now discontinued. See T01-H01B4, T01-H01B5 and T01-H01B6 from 2005.

File server, disk, drum, tape

T01-H01B1A* [1997-2004]

Storage Arrays

*This code is now discontinued. See T01-H01B7 from 2005.

RAID

T01-H01B2* [1992-2004]

Optical, magneto-optical computer memory

*This code is now discontinued. See T01-H01B4/5/6 from 2005

Hologram, CD-ROM, DVD

T01-H01B3 [1992]

Semiconductor / solid state memory

Includes semiconductor, bubble, capacitor, card, core, and RAM. See also U14-A codes.

RAM, ROM, DRAM, EPROM, EEPROM, flash memory

T01-H01B3A [1992]

Memory card

Search together with other T01-H01B3 codes for type, see also T04-K. for removable memory.

MMC, SD, CF, Memory Stick

T01-H01B3B [2005]

Static Magnetic Memories

Covers solid state magnetic memories.

MRAM

T01-H01B3C [2005]

Static Optical Memories

Covers solid state optical memories.

T01-H01B3D [2006]

Non volatile electronic semiconductors memories

Flash memories, see also T01-H01B3A flash memory cards.

T01-H01B4 [2005]

Dynamic Magnetic

Includes Hard Disks, floppy disks.

T01-H01B5 [2005]

Dynamic Magneto-Optical

Mini-disc

T01-H01B6 [2005]

Dynamic Optical

For CD, CD-ROM, DVD.

T01-H01B6A [2005]

Volume Read e.g. Holographic

For use of media that is read by passing a light beam through (not off) the material such as holographic storage.

T01-H01B7 [2005]

Storage Arrays

Also code under memory type, see also T01-G03 for redundant storage areas, e.g. RAID. See T01-H01B1A prior to 2005.

T01-H01B9 [2005]

Other, inc. all non-semiconductor static memories

T01-H01C [1987]

Memory/Storage Protection Arrangement/method

For data back up/protection see T01-G and T01-F05E.

T01-H01C1* [1992-2005]

Smart card fraud protection

*This code is now discontinued. See T04-K04 from 2006.

T01-H01C2 [1992]

Illegal memory access prevention

T01-H01C3 [1992]

For prevention of memory loss including refresh

See also U14-A03B4A. Prevention of memory loss due to defective memory.

T01-H01C4 [1992]

Other

T01-H01D [1987]

Stacks And Registers

Covers fast-access temporary storage locations within CPU. Dual port memory is covered by T01-H03D from 1992.

T01-H01X [1987]

Other

Includes high performance storage units (HPSU).

BICPU (bimemory independent CPU)

T01-H02* [1987-1991]

Virtual memory, cache stores

*This code is now discontinued. See T01-H03A from 1992.

T01-H03 [1992]

Memory type

(T01-H02, T01-H09)

T01-H03A [1992]

Cache memory, virtual memory and hierarchical memory

Includes use of small, high speed buffer, virtual and hierarchical memories. Includes address translation (see also T01-H01A). Prior to 1992 covered by T01-H02, now discontinued. Network Caching is covered by T01-N01D4 from 2005.

Ageing

T01-H03B [1992]

Associative memory

Includes content addressable and parallel searching.

T01-H03C [1992]

Interleaved memory and mass storage

Includes secondary memory.

Expanded memory unit

T01-H03D [1992]

Sequential access and shared memories

(T01-H09)

Includes common shared bus, multiport, crossbar switching memories (Dual port memory was coded in T01-H01D prior to 1992).

Dual port memory, video RAM

T01-H03X [1992]

Other

Primary

T01-H05 [1987]

Computer peripheral control / General request handling/ Bus Accessing

T01-H05A [1987]

Program control for computer peripherals

See also T03 for data storage controllers for dynamic recording, e.g. T03-A10 codes (magnetic), T03-B08 (optical) and T03-D01E5 (magneto-optical).

Channel processor

T01-H05B [1987]

Handling requests

For interconnection or data transfer. See also W01-A03A for general data communication access systems.

Access

T01-H05B1 [1992]

For access to memory bus

Includes priority.

T01-H05B2 [1992]

For access to input/output bus

Includes polling, interrupt, burst mode, DMA, cycle steal.

T01-H05B3 [1992]

For access to common bus or bus system

Includes centralised access control, request, token, time dependant, slot and contention.

T01-H05B4 [1997]

Local bus systems

(T01-H05B, T01-H05B2, T01-H05B3)

PCI, VL-bus

T01-H07 [1987]

Information transfer / Bus structures

(T01-H09)

Search T01-C03 also for data exchange interfacing with distant stations, and W01-A for digital transmission in general.

T01-H07A [1987]

Bus structures

See also T01-C07D for bus interface.

T01-H07A1 [1992]

Type

Includes common/parallel, plural and variable width/speed buses.

T01-H07A2 [1992]

Control

Includes centralised, decentralised control.

T01-H07A9 [1992]

Other

T01-H07B [1987]

Bus transfer protocols

See W01-A03A also for control of access to transmission path.

Handshaking, synchronous, asynchronous, conversion

T01-H07C* [1992-2001]

Information transfer

(T01-H09)

*This code is now discontinued, see T01-N and W01-A from 2002. Includes computer network management, routing and communication control. See also T01-J08C and W01-A for communication in general. See also T01-C03B for computer interface for communication via modem.

Inter-operability, open systems, GroupWare, CSCW

T01-H07C1* [1992-2001]

Electronic mail

*This code is now discontinued, see T01-N01C and W01-A06E1, W01-A06G2, W01-A06X from 2002. Voice mail in telephone system coded in W01-C02B7C. See also W01-A06E1, W01-A06G2, W01-A06X.

Computerised voice mail

T01-H07C3* [1997-2001]

Data / Media Transfer Applications

*This code is now discontinued, see T01-N01D from 2002. Includes downloading file from remote site (FTP).

T01-H07C3A* [1997-2001]

Audio, sound transfer

*This code is now discontinued, see T01-N01D1A from 2002.

Internet radio

T01-H07C3B* [1997-2001]

Computerised video and image file transfer

*This code is now discontinued, see T01-N01D1B from 2002. Includes computerised video conferencing.

JPEG, MPEG

T01-H07C3C* [1997-2001]

Electronic document transfer

*This code is now discontinued, see T01-N01D2 from 2002. For intranet and internet documentation and web page transfer.

WWW, TCP/IP

T01-H07C3D* [1997-2001]

Multimedia transfer

(T01-J09)

*This code is now discontinued, see T01-N01D1 from 2002. Combination of text, data, image, sound, or computer programs. Audio/video aspects of multimedia systems are also assigned W04-K10.

T01-H07C3E* [1997-2001]

Running / executing software from remote site or server

*This code is now discontinued, see T01-N01D3 from 2002.

Applet, Java

T01-H07C5* [1987-2001]

Distributed and networked computer communication

*This code is now discontinued, see T01-N02 from 2002.

T01-H07C5A* [1997-2001]

Computer network control, monitoring and management

*This code is now discontinued, see T01-N02 from 2002. See T01-J08C for communication controllers and W01-A06 for data transmission systems in general.

T01-H07C5C* [1997-2001]

Data transfer over private network, intranet transfer

*This code is now discontinued, see T01-N02A2A from 2002. Data and file transfer within single computer network.

T01-H07C5E* [1997-2001]

Over public network, internet transfer

*This code is now discontinued, see T01-N02A2B from 2002. Data and file transfer between networks. Includes on-line systems.

PSTN, TCP/IP, gateway

T01-H07C5S* [1997-2001]

Using server

*This code is now discontinued, see T01-N02A2C.

Print server

T01-H07C7 [1997]

Local inter-processor data transfer

Inter-processor communication in multiprocessor computer.

T01-H07C7C [1997]

Connections

Non-bus interconnections.

Matrix, circuit-switched

T01-H07P* [1997-2001]

Computer communication protocols

(T01-H07C)

*This code is now discontinued, see T01-N02A from 2002. See T01-H07C prior to 1997, T01-J12C for computer security and T01-D01 for encryption. Bus transfer protocols are found in T01-H07B.

T01-H08 [1992]

Multiprocessor memory management

(T01-H09)

See also T01-M02 for multiprocessor systems and details. See also T01-J05B4 (DBMS) for locking.

Distributed system, parallel-processor, single instruction multiple data (SIMD)

T01-H09

Other

T01-J

Data processing systems

Routine

T01-J01

Desk and pocket calculators

See also T01-M06A1 where no processing details mentioned.

T01-J02* [1980-1991]

Multi-processor systems

*This code is now discontinued, see T01-M02 from 1992.

T01-J02A* [1987-1991]

Distributed

*This code is now discontinued, see T01-M02A from 1992.

T01-J02B* [1987-1991]

Co-operating processor

*This code is now discontinued, see T01-M02B from 1992.

T01-J02C* [1987-1991]

Array/parallel

*This code is now discontinued, see T01-M02C from 1992.

T01-J03

For evaluating statistical data

See also T01-J04B2 for correlation

Histogram

T01-J04

For function synthesis/ analysis or equation solving

T01-J04A [1983]

For solving equations

Differential, polynomial, linear programming

T01-J04B [1983]

For correlation or transformation, e.g. Fourier, Walsh, etc.

T01-J04B1 [1992]

Transformation function

Includes Walsh, Fourier and multi-dimensional transforms.

FT, FFT, S-transform

T01-J04B2 [1992]

Correlation function

Includes digital filtering, array and convolution. Digital filters in general are coded in T01-J08B and U22-G01 codes. See also T01-J03 for statistical analysis using correlation.

T01-J04C [1992]

Matrix or vector computation

Includes complex numbers.

T01-J04D [1992]

Function evaluation by approximation

T01-J04E [2005]

Mathematical Modelling

See also T01-J15H for simulation systems involving mathematical models.

Chaos theory

T01-J05

For administration, commerce or information retrieval

T01-J05A [1987]

Non-Specific Administration, business and commercial Tool

See T05-L codes also for EFT, point-of-sale and automatic teller machines. From 2002 see T01-N01A for on-line business systems.

Cash, cash-transaction, point-of-sale, meter, postage, management

T01-J05A1 [1992]

Financial/Monetary

Includes banking, billing, Point of Sale (POS), and metering.

T01-J05A2 [1992]

Administration and Management Tools

Includes management, resource allocation, business, education, government, marketing and law. Also includes decision support, MIS, stock control, workflow control and project management.

T01-J05A2A [2002]

Business Models

Includes business to public administration relationship models, problem solving/identifying solutions, requirements, and end-to-end thread, see T01-N01A2 for Internet Business models and T01-J05A2 prior to 2002.

T01-J05A2B [2002]

Workflow Management

Includes execution and automation of a business process, see T01-J05A2 prior to 2002.

T01-J05A2C [2002]

Data Analysis

Includes assessing the financial health of a company, processing of market data to predict the future demand of a product/service, surveying and polling in order to obtain data, cost model and TCO, see T01-J05A2 prior to 2002.

T01-J05A2D [2002]

Inventory Monitoring/Management

Includes cash register/terminal maintaining or updating a record of goods, see T01-J05A2 prior to 2002.

T01-J05A2E [2002]

Insurance and Risk Analysis

Includes processing and assessing insurance claims, evaluation of risk factors in a loan determination, see T01-J05A2 prior to 2002.

T01-J05A2F [2002]

Investment portfolio selection, planning analysis and trading

This code covers evaluation of securities or other types of investments, and trading in commodities and securities, see T01-J05A prior to 2002.

T01-J05A2G [2005]

Intellectual Property and Copyright management

See T01-N01A2G for on-line systems. See also W04 for audio/video aspects.

T01-J05A2H [2005]

Personnel Management

Includes internal business administration, health and safety, employment tribunal, organisation chart, people performance management, payroll, pensions, benefits, recruitment, career development, etc. See T01-N01A2H for online personnel management.

Peoplesoft ™, OrgPlus ™

T01-J05A2L [2007]

Legal and Regulatory

Includes legal services such as litigation and contracts as well as accountability and compliance with government regulations.

T01-J05A2M [2011]

marketing and Advertising

Includes all off-line advertising and marketing aspects.

T01-J05A3 [2005]

Tools for Government

This code is intended for electronic public administration and management tools used by governmental bodies or agencies to implement government-to-citizen (G2C), government-to-business (G2B) and/or government-to-government (G2G) service(s). Includes commerce, voting/election, immigration, law enforcement, licensing, taxation, records management etc. See T01-N01A3 for on-line systems and T05-F for voting.

IRS, legislation, ID, social services, Citizenship

T01-J05B [1987]

Information Handling

Includes directory structures, filing, and storage, See T01-J10 also for image and pictorial data storage and accessing. For data recording see appropriate T03, W04 codes.

Database, file, directory, storage

T01-J05B1 [1992]

Content analysis and indexing

Includes abstracting, linguistic processing, and thesauri.

T01-J05B2 [1992]

Storage

Includes directory, file organisation and record classification.

T01-J05B2A [1997]

Image filing/archiving

T01-J05B2B [1997]

Data and directory structures

Includes hashing, tree structures.

T01-J05B2C [2007]

Metadata

T01-J05B3 [1992]

Search and retrieval

Includes algorithms for reducing time required for searching large data bases e.g. clustering, query formulation, searching and selecting, Presentation of results. For on-line searching see T01-N03A2.

T01-J05B4 [1992]

Database

Includes current awareness, information networks, question-answering, fact retrieval, database.

T01-J05B4A [1997]

Distributed database

T01-J05B4B [1997]

Relational database

T01-J05B4C [1997]

Object-Oriented database

T01-J05B4D [1997]

Deductive database

T01-J05B4F [1997]

Image and video databases

T01-J05B4M [1997]

Database Management

Includes database updating, version control, concurrency and access control.

T01-J05B4P [1997]

Database Applications

For database software applications or systems that use databases.

T01-J05B9 [1992]

Other

Data bank sharing, library automation

T01-J05C [1997]

Information analysis

T01-J06

Processing system for medicine

T01-J06A [1983]

For medicine

See also S05 codes for electrical medical equipment in general. For initial diagnostic, S05-D06A. For continuing monitoring, S05-G02B2A. From 2005 see T01-N01E for on-line systems. For non-medical biological processing see T01-J13A only.

Diagnose, patient, biological, medical

T01-J06A1 [1997]

Medical information systems

See also S05-G02G. For medical records, S05-G02G1. For administration including appointments, S05-G02G2. From 2005 see T01-N01E1 for on-line systems.

T01-J06B* [1983-2001]

For vehicle or missile guidance

*This code is now discontinued, see T01-J07D from 2002, See X22-E06 for land vehicle on-board systems and W06-B01B1 and W06-C01B1 for aircraft and ship based systems. Navigation in general is covered by S02-B and W06-A codes.

Aircraft, flight, navigation, map, guide, course, track following, collision avoidance

T01-J06B1* [1997-2001]

Geographical Information Systems

*This code is now discontinued, see T01-J07D3A from 2002. For map generation see T01-J10C2A

GPS

T01-J07 [1983]

For industrial process control

(T01-J09)

Manufacture, parameter, factory automation (FA)

T01-J07A [1987]

Data collection/acquisition

See W05-D codes for measurement and control signal transmission systems.

Process variable, nuclear physics, meteorology

T01-J07A1 [1997]

Portable data input devices

See T01-M06A1 for portable computers.

T01-J07A3 [1997]

Multiple sensor data acquisition

T01-J07B [1992]

Computer control of manufacturing/industrial machine and quality control

Includes computer aided manufacture, computerised robotics/mechatronics see also T06-A, T06-D and X25-A codes.

CAM, industrial robot

T01-J07B1 [1997]

Quality control

T01-J07B2 [2005]

Semiconductor manufacture control

This code covers aspects of semiconductor manufacture and cleaning processes. See also U11-C (especially U11-C15C).

T01-J07C* [1992-2001]

Vehicle microprocessor systems

*This code is now discontinued, see T01-J07D1 from 2002. Includes aerospace, shipping. See also T01-J06B and T06-B01 for vehicle guidance. See also X22 codes.

Heating system control

T01-J07C1* [1992-2001]

Transmission

*This code is now discontinued, see T01-J07D1A from 2002. See also X22-G01 for vehicle transmission systems per se.

T01-J07C2* [1992-2001]

Multiplex control system

*This code is now discontinued, see T01-J07D1B from 2002. Vehicle multiplex systems per se are covered by X22-K, and signal transfer aspects in W05-D02 and W05-D07D.

T01-J07D [2002]

Vehicle/Aircraft/Missile process control systems

(T01-J06B)

Includes microprocessor systems for aircraft, vehicles, and missiles. See X22 and W06 for aircraft and ship based systems. Navigation in general is covered by S02-B and W06-A codes.

Aircraft, flight

T01-J07D1 [2002]

Vehicle microprocessor system

(T01-J07C)

Includes aerospace, shipping. See also T01-J06B and T06-B01 for vehicle guidance. See also X22 codes and T01-J07C1 prior 2002. See T01-J07D3 for vehicle Guidance .

Heating system control

T01-J07D1A [2002]

Transmission

(T01-J07C1)

See also X22-G01 for vehicle transmission systems and T01-J07C2 prior 2002.

T01-J07D1B [2002]

Multiplex control system

(T01-J07C2)

Vehicle multiplex systems per se are covered by X22-K, and signal transfer aspects in W05-D02 and W05-D07D. See also T01-J07C2 prior 2002.

T01-J07D3 [2002]

For guidance

(T01-J06B)

See X22-E06 for land vehicle on-board systems and W06-B01B1 and W06-C01B1 for aircraft and ship based systems. Navigation in general is covered by S02-B and W06-A codes. Also see T01-J06B1 prior 2002.

Aircraft, flight, navigation, map, guide, course, track following, collision avoidance

T01-J07D3A [2002]

Geographical Information Systems

(T01-J06B1)

For map generation see T01-J10C2A.

GPS

T01-J08 [1983]

For electrical equipment

(T01-J09)

Computer-control, component, frequency, test, digital signal processors, DSP

T01-J08A [1992]

Equipment support processing

This code is intended to highlight that a device uses a processing system when nothing is particularly novel about the processing system. Some applications have specific codes in T01 e.g. T01-J07D for vehicles or T01-J07B for industrial machinery, which should always be used in preference to this code. This does not apply to the sub-levels of this code (i.e. T01-J07D1 and T01-J08A3 could be used together to show a vehicle microprocessor system based around a DSP).

Microprocessor based system, ASIC

T01-J08A1 [1997]

Using external, general purpose computer e.g. Personal Computer

T01-J08A2 [1997]

Using Digital Signal Processors

Covers processor converting analogue signals to digital. See also U22-G codes.

DSP

T01-J08A3 [2011]

For game machine

Includes all processing aspects of integrated game devices/machines. See also T05-H05E and W04-X02.

Pachinko machines, Arcade games, pinball game machines, etc

T01-J08B [1992]

Digital filters

Corresponding math function in T01-J04B2. See also U22-G01 codes.

T01-J08C [1992]

Communication controller

See T01-H07 for inter computer communication.

T01-J08F [1997]

Testing or monitoring of equipment function and parameters

See T01-G for microprocessor and computer testing.

T01-J08F1 [2006]

Performance and data logging

T01-J08X [1992]

Other

T01-J09* [1980-2011]

Other

*This code is now discontinued. Includes multimedia up to 1996, see T01-J30 from 1997.

T01-J10 [1987]

For image processing

(T01-J09)

See also T04-D for image recognition and pre-processing, and under application in e.g. W04-P codes for video processing, respectively. Control of photographic film cameras is found in T01-J08A and S06-B.

T01-J10A [1987]

Image acquisition

T01-J10A1* [1992-1996]

Data compression

*This code is now discontinued. See T01-J10D from 1997. Codes remain valid before 1997; see also T01-D02, T01-J10B for image compression prior to 1997.

T01-J10A2 [1992]

Image memory management

Covers use of memory system for processing in conjunction with a data presentation/computer graphics system e.g. manipulating the address or contents of image or text information stored in memory. For display memory organisation and structure for storing an image and manipulating image data between the display memory and the display system see T01-C04. See also T01-J05B for information storage and retrieval.

T01-J10B [1987]

Image processing

Covers digital image processing arrangements using a personal/mobile computer, e.g. image enhancement, analysis, objects processing, optical character recognition (OCR), edge detection, facsimile, and video. If processing is in peripheral or other device then see T04-D. T04-D07 can be applied to highlight applications. (T01-J10 and T04-D are only used together when the novelty does not describe how/when the processing is carried out).

Pel, pixel

T01-J10B1 [1992]

Image enhancement

Includes use of histogram, deblurring, noise filtering and edge detection.

T01-J10B2 [1992]

Image analysis

Includes determination of characteristic parameters and scene analysis.

T01-J10B2A [2002]

For recognition

Includes character and image recognition, OCR, and object recognition.

T01-J10B3 [1992]

Object processing

T01-J10B3A [1997]

Object enlargement, reduction and rotation

T01-J10B3B [1997]

Object colour processing and colour system conversion

T01-J10C [1987]

Image generation

Graphics, function generator, fractal image generation

T01-J10C1 [1992]

Generating graphs

T01-J10C2 [1992]

Generating shapes, curves, lines

T01-J10C3 [1992]

In text

Includes form filling and format. Processing ideographic/pictographic languages and characters. Font generation and manipulation.

Graphic character representation

T01-J10C4 [1992]

3-dimensional

Includes solid modelling, mesh, surface determination, tessellation, voxel, and shading.

T01-J10C4A [1997]

Virtual reality

Generating and displaying of virtual reality images.

T01-J10C4B [1997]

Computer tomography

T01-J10C5 [1992]

Stored modelling data, animation and graphic packages

Texture mapping

T01-J10C7 [1997]

Composite image formation

Combining two or more objects or images.

T01-J10C9 [1992]

Other

'Painting systems'

T01-J10D [1997]

Image digitisation/coding/compression

See T01-J10A1 and T01-J10B prior to 1997. See also T01-D02.

T01-J10E [1997]

Image storage

(T01-J05B, T01-J10A2)

Image filing and archiving. See T01-J10A2 for image memory management. See also T01-J05B2A for image filing, and T01-J05B4F for image and video databases. Also includes Video storage

T01-J10G [1992]

Applications

Includes film, TV, tomography, robotic eye, facsimile, automatic focussing image processing.

T01-J10X [1992]

Other

See T01-H07C3B between 1997 and 2002. See T01-N01D1B post 2002.

T01-J11 [1992]

Productivity Tools and Applications

Includes WYSIWYG, typesetting and editing.

T01-J11A [1992]

Word processing (WP)

T01-J11A1 [1997]

Spelling/dictionary, grammar-checking, parsing

T01-J11B [1992]

Desk top publishing (DTP)

(T01-J09)

Ventura®, PageMaker®, QuarkXpress®

T01-J11C [1997]

Electronic and intranet documentation

See T01-N03B2 for on-line aspects.

T01-J11C1 [1997]

Using Mark-up languages and navigating documents using hypertext

Includes page description languages.

HTML, SGML, XML

T01-J11C2 [1997]

Help documentation

T01-J11C3 [2007]

Parsing markup language documents

T01-J11D [1997]

Document delivery system and office automation

T01-J11E [2005]

Presentation Software

Presentation software, includes multimedia presentation software, see also T01-J30 and W04-W.

PowerPoint ®

T01-J11F [2005]

Organiser/scheduler

See also T01-J05A2B for business schedule organising. See T01-N03A3 for networked aspects.

calendar

T01-J11G [1997]

Spreadsheets

T01-J12 [1992]

Program management, GUI/WIMPS/HCI

Covers software and processing aspect of interactive operator interface windows applications security, and pull down menus.

T01-J12A [1992]

Prompting

T01-J12B [1992]

Window/split screen

Includes menu driven system where options are presented for selection by user. See also T01-C02 for means of selection.

Menu driven, front of screen

T01-J12B1 [1997]

User interface management system

T01-J12C [1992]

Security

(T01-X)

Preventing unauthorised access to files and processing systems such as anti-hacking and copy protection; electronic security systems for computers. See also T01-H01C2 for illegal memory access prevention.

T01-J12C1 [2006]

Authentication

See also W04-V04A3 for voice authentication.

T01-J12C1A [2006]

Using Password

Covers password systems for gaining access to computer system. See T01-N02B1B for network based password systems.

T01-J12C1B [2006]

Using Biometrics

Covers biometric systems for gaining access to computer system. See T01-N02B1H for network based biometric systems. See also T04-D07F for biometric image recognition and S05-D01C5A for measuring systems.

T01-J12C2 [2006]

Security System Administration

T01-J12D [1992]

Icons, Widgets

Covers use of graphic object displayed as a symbolic reference for a process or file which may be selected by user. Includes cursor and pointer manipulation. See also T01-J10C.

T01-J13 [2005]

Scientific Analysis

Processing systems used to support scientific analysis. See S03 for analysis acquisition systems.

T01-J13A [2005]

Biological analysis

Biological analysis includes DNA analysis and other biological systems. See also T01-J06A for medical applications.

T01-J14 [1992]

Language translation

See T01-J16C3 for intelligent natural language processing.

T01-J15 [1987]

Computer aided design and simulation

Includes computer modelling and simulators. See also T01-J10C for image generation. (See also T01-E04 for random number generation).

Net list, Net library

T01-J15A [1987]

Design and simulation of electrical circuits and hardware

See also U11 or V04. Includes CAD systems for mask design.

T01-J15A1 [1987]

Logic circuit, CPU design

T01-J15A2 [1987]

Wiring layout, PCB's, integrated circuits

T01-J15A3 [1992]

Computer simulation of electrical and electronic circuits

(T01-J15A1)

Includes use of graph models, petri net and analog modelling.

GPSS, SPICE, VHDL, Computer timing analysis

T01-J15A4 [1992]

Network design

Includes positioning and routing.

T01-J15B [1997]

Design verification

Includes fault finding techniques.

T01-J15H [1997]

Simulating non-electronic systems

Includes simulation of e.g. thermodynamics and weather systems, also includes electrical systems not covered by T01-J15A/B, see also T01-J04E for mathematical modelling.

T01-J15X [1987]

CAD for non-electronic applications

Includes any electrical systems not covered by T01-J15A/B.

T01-J16 [1992]

Artificial intelligence (AI)

(T01-J09)

Covers knowledge processing, inexact reasoning e.g. fuzzy logic.

T01-J16A [1992]

Expert systems

Comprising a system of an integrated collection of facts and relationships, including knowledge base and table searching, question and answering. Includes knowledge base, rule base and table searching.

Teiresias, rulebase

T01-J16B [1992]

Fuzzy logic systems

Includes circuits for performing logic with more than two levels e.g. non-binary or analog logic systems. See also T02-A04B6 for hardware details, and U21-C03B1B for logic circuits. For implementation details search appropriate codes, e.g. X22-A03K for vehicle engine control using fuzzy logic.

T01-J16C [1992]

Knowledge processing

Forward chaining

T01-J16C1 [1992]

Neural networks

Includes the use of parallel distributed processing elements constructed in hardware or simulated in software. For implementation details search appropriate codes, e.g. T06-A05A for neural network based control systems. For analogue aspects and implementations see T02-A04A5.

SPANN (sequence processing artificial neural network)

T01-J16C2 [1992]

Learning

Includes use of a specific method or system to adjust the rules, i.e. connection weights, e.g. concept learning algorithm.

T01-J16C3 [1992]

Natural and pictorial language processing

Includes where presentation of data to the user includes non-verbal representations or symbol, or statements in standard English language syntax. Non intelligent language translation is covered by T01-J14.

Semantics, abstracting concepts, phrases

T01-J16C4 [1992]

Genetic algorithms

Includes creating new solutions by dividing and splicing the old and determining the fitness of the new. Also includes artificial life. Duplicating the laws of nature e.g. inheritance and evolution.

T01-J16C6 [1997]

Intelligent searching

Includes heuristics, hill climbing, depth first and breadth first searching, simulated annealing, travelling salesman etc..

T01-J16C9 [1992]

Other AI

T01-J17 [1992]

Digital function generators

(T01-X)

Trigonometric, Look-up table

T01-J18 [1997]

Computer processing for speech/audio

(T01-C08A, T01-J08, T01-J09)

T01-J20 [1987]

Software development

Covers only Software programming techniques and production / compilation / debug aids. For Software implementations search T01-J, T01-N codes e.g. T01-J12B for windowing software, T01-N03B for Internet constructional software. For Program code patents see T01-S.

T01-J20A [1992]

Programming techniques

Includes functional, automatic, computer-generated, concurrent, sequential, object-oriented, procedural and network programming. For Object-based systems see T01-F07. For Object-oriented database see T01-J05B4C.

Object orientated programming (OOP), architecture neutral/dependent distribution format (ANDF),(ADDF)

T01-J20B [1992]

Software Development Tools, Systems Analysis

Languages, methodologies, Development environment, Systems analysis.

Structured, top-down, work bench

T01-J20B1 [1997]

Software Development Kit

Integrated Development Environment. Programming Tools. API for software development only. For use of API in program execution see T01-F05A. Program Compilers and Assemblers. Software source code libraries. For dynamic link libraries (DLLs) see T01-F05A.

T01-J20B2 [1997]

Systems Analysis, Documentation

Systems Analysis and Design, Specifications, Source code development version management. From 2007, for version management of other software e.g. BIOS, embedded software, application package, network security software see T01-F05B2, T01-N02B1E, T01-N02B3 as appropriate.

T01-J20B2A [1997]

Software registration and Anti-piracy

For incorporation of Software registration and Anti-Piracy coding mechanisms at development stage of software. See T01-J20X before 1997. See T01-J05A2G, T01-N01A2G for Intellectual Property and Copyright management.

T01-J20C [1992]

Software Test, Verification, Debug, Optimization

(T01-G09)

Software test, verification and debug within and without Integrated Development Environment. Test data generation. Quality Assurance. Optimization of source code. Software simulation.

T01-J20D [1992]

Anti-Virus & Security program development

Development of Anti-Virus, Anti-Spyware programs. Analysis of Virus signatures. From 2007, see T01-N02B3 for applications of Anti-Virus software.

T01-J20X [1992]

Other software details

For Software copyright protection see T01-J20B2 from 1997 - 2006, and T01-J20B2A from 2007.

Software protection

T01-J21 [2006]

Non-vehicle navigation

For vehicle guidance see T01-J07D3, covers all other guidance systems. See also S02-B08.

T01-J21A [2006]

Geographical information systems

Includes updating or displaying geographical information.

T01-J21B [2006]

Position fixing

Processing details used to fix position of user, see also W01/W02 for communication system position fixing and W06 for position fixing in general.

T01-J21C [2006]

Route planning

T01-J30 [1997]

Multimedia computer systems

For details of media systems see W03-G03C1. See T01-J09, T01-J10 prior to 1997.

T01-J30A [2002]

Educational aids

Includes use of multimedia systems for education and training purposes, CAI, tuition support systems, and student. Educational equipment is also assigned W04-W codes, also see T01-P01 prior to 2002. From 2005 see T01-N01B codes for on-line systems.

T01-J30B [2002]

For computer games

See W04-X02C for video games, and T01-J10C for image generation aspects, see T01-P02A prior to 2002.

T01-J30B1 [2002]

For toys and novelties

See T01-P02 prior to 2002.

T01-J30C [2005]

Media Players

Includes computer-based media players that are not browser based for playing CDs, DVD's (see also T01-H01B), videos and audio files. See also T01-N03A1B for on-line systems and W04 for media.

T01-J30D [2005]

Computer processing for sports and training equipment

Covers use of digital computing in sports and exercise equipment. See also W04.

T01-J30E [2006]

E-book reader software

T01-J30F [2006]

Image/Video/Audio editing software

See T01-J12 for GUI aspects and W04 for details of image/video/audio being edited.

T01-J31 [2011]

Computer processing for physically handicapped persons

Includes processing equipments for blind, dumb etc

T01-J40 [1997]

Virtual reality systems

(T01-J10C4, T01-J10C9)

T01-J40A [2002]

Games

(T01-J10C4, T01-J10C9, T01-J40)

Search T01-J40 together with T01-P02A to prior to 2002.

T01-J40B [2002]

Training/Sports Aids Equipment

(T01-P02B, T01-J40)

See also W04-X01 codes for electrical aspects of sports equipment in general , search T01-J40 together with T01-P02B to prior to 2002.

T01-J40C [2006]

Augmented reality systems

Combining virtual reality displays with real world views allowing a user to see both at the same time. See also T01-J10C codes for image generation aspects. See also W04-W07E codes for virtual reality in general, as well other W04 codes for virtual reality and display aspects, e.g. W04-Q01K for head up displays.

T01-J45 [2012]

For evaluating software application or package

Covers evaluating the performance and load testing of a software application using a framework or by a CPU

T01-J50 [2012]

Trial period software

Includes software intended to be used for a defined period of time, search together other T01-J or T01-N codes for type of software

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T01-K [1983]

Clock signal generation/distribution

(T01-X)

See also U22 codes for clock generators and distributors, e.g. U22-A04A2 and U22-D06 respectively.

Oscillator, synchronisation, timing

T01-K01 [1997]

Varying clock rate/frequency

(T01-K)

Clock generators with variable or programmable frequency, e.g. for slowing/increasing clock frequency.

Programmable frequency, variable clock rate

T01-L [1987]

Computer equipment details

(T01-X)

T01-L01 [1987]

Power supplies, stand-by arrangements

Mains supply are covered by U24-D&E and X12-H&J. See X16 for battery systems and X15 for solar power/renewable resources.

Back-up, automatic switching, regulator, stabiliser

T01-L01A [2005]

Primary power supply

Note that for portable devices the battery is the primary power source and would be coded here (as well as T01-M06A1).

T01-L01B **[2005]**

Back up power supply

UPS, battery back up

T01-L01C **[2011]**

Solar power supply

See also X125 for details of solar power system.

T01-L02 **[1987]**

Constructional details

See V04-T for constructional details of electronic appts. in general.

Stand, support

T01-L02A **[1997]**

Cooling

(T01-L02)

See also V04-T03 codes.

Cooling, ventilating

T01-L02B **[1997]**

Housing

(T01-L02)

Includes peripheral installations in computer housings e.g. internal drives, trackballs etc. See also V04-S codes.

Housing, casing, cabinet

T01-L02C **[1997]**

PCB mounting

(T01-L02)

For mounting of PCBs in computer housing and devices being mounted on the PCB. .See V04-t02 for PCB racking.

Racking, PCB, mounting

T01-L02D **[1997]**

EM shielding

(T01-L02)

See V04-U for EMI shielding.

T01-L02E **[2002]**

Prevention of theft

Includes devices which prevent the theft of computer equipment.

T01-L02F **[2006]**

Computer system acoustic noise reduction

Includes noise reduction for forced cooling (e.g. fans and liquid cooling pumps etc).

T01-L02G **[2011]**

Shock-proof and absorbtion

Includes proofing against earthquakes, etc. Search together with other T01-L codes as appropriate (e.g. T01-L02B for shock absorber in housing)

T01-L03 **[2005]**

Connectors

Includes cables, wiring, etc. for computers. See also V04 (particularly V04-M30E) and X12.

Connector, wiring

T01-L09 **[1987]**

Other

From 2005 see T01-L03 for connectors.

T01-M **[1992]**

Computer/processing architecture

These codes are used for novel architectures, and in conjunction with other T01 codes as additional descriptive detail or as a more general description. See T02 for analogue or hybrid systems. For computer systems using redundancy, see T01-G03 and T01-G05B codes.

T01-M01 **[1992]**

Single processor computer unit

Covers processor arrangements where instructions are received from an external source. See T01-M05 for pre-programmed architectures.

Microprocessor, CPU

T01-M02 [1992]

Multiprocessor systems

(T01-J02)

Covers use of multiple processors to process logically- or functionally-divided jobs or tasks, and to execute programs or program segments concurrently, asynchronously or simultaneously. Multi-tasking is covered by T01-F02 codes.

Master-slave

T01-M02A [1992]

Distributed

(T01-J02A)

Covers use of separate computers that are linked through communications network to process task/job.

Plain, true, distributed

T01-M02A1 [1992]

Computer networks

Computer network interfacing is covered by T01-C03A. Inter-computer communication is covered by T01-H07C. See also W01-A06 codes for network details and networks in general.

LAN, WAN

T01-M02A1A [1997]

Network-only computers

(T01-M02A1)

Includes computers designed to operate using software accessed via a network e.g. Internet.

Internet, network computer, network terminal

T01-M02A1B [1997]

Client-server systems

(T01-M02A)

Covers architecture details of Client-Server systems. Computer networks in general are covered by W01-A06 codes. Data communication within Client-Server Networks are covered by T01-N02A2C. Use of servers is coded in T01-N02A3C.

Client-server, back-end, front-end

T01-M02A1C [1997]

Internetworking

Covers architecture details of internetworking systems such as the Internet, WAN's and the computer architecture details of interconnections. Internets are also covered in W01-A06B7, interconnection details in W01-A06G and communication details are covered within T01-N02A2.

Internet, intranet, WAN, LAN

T01-M02B [1992]

Cooperative

(T01-J02B)

T01-M02C [1992]

Parallel/array

(T01-J02C)

Computer architectures designed to carry out multiple arithmetic operations simultaneously or concurrently.

Systolic, hypercube

T01-M02C1 [1992]

Characterised by instruction/data relationship

Architectures classified by the presence of single or multiple streams of instructions and data.

SIMD (single instruction multiple data), SISD (single instruction single data), MIMD (multiple instruction multiple data), MISD (multiple instruction single data)

T01-M02C2 [1992]

Pipeline/vector computer

Instruction pipelining is covered by T01-F03B.

T01-M02C3 [2005]

Superscalar computers

For processors that execute multiple scalar operations in parallel. Includes Very Long Instruction Word processors. See T01-M02C prior to 2005.

VLIW, 2nd Generation RISC, Trace Scheduling

T01-M02D [1997]

Master-slave systems

(T01-M02)

Master-slave

T01-M03 [1992]

Data/demand driven

Architectures for executing only executable code components required to provide requested data.

T01-M04 [1992]

Reduced instruction set computer

See T01-F03B for pipelined execution of machine instructions.

RISC

T01-M05 [1992]

General microcomputing architectures

(T01-J)

Covers processor arrangements where instructions are pre-programmed or hardwired into the processor before processing is carried out. See also T01-F06 for program arrangements.

ASIC

T01-M06 [1992]

Characterised by type

T01-M06A [1992]

Mini/micro/PC

(T01-X)

Covers personal computers. For use as descriptive code with other T01 codes.

T01-M06A1 [1992]

Portable

Includes laptop, notebook, hand-held and calculator. For processing aspect of calculator see also T01-J01.

T01-M06A1A [1997]

Hand-held: notepads, palm-tops, personal organisers

(T01-M06A1)

Includes PDA with phone functionality (Internet browsing, e-mail, etc.) for phones with computer functionality see W01. Pre-1997, search T01-J01, T01-J05, T01-J09, T01-M06A1.

Palm-top, hand-held

T01-M06A1B [1997]

Docking stations

(T01-M06A)

T01-M06A1C [2006]

E-book reader hardware

Hardware specifically for displaying E-books. Includes details of screens , controls and design intended to simulate a conventional paper book. See also T01-N01B5 for online aspects , U14 for novel display aspects T01-M06A1A , T01-L02B ,V04 for novel casings.

E-book reader

T01-M06A1D [2006]

Wearable computer

T01-M06A3 [1997]

Desktop/mini-tower

(T01-M06A)

T01-M06A5 [2006]

Consoles

This code covers computer systems designed as one self contained unit, e.g. video game console.

T01-M06A9 [1992]

Other (personal computer types)

T01-M06B [1992]

Mainframe

(T01-X)

Covers systems handling large base of time-sharing terminal users.

T01-M06C [1992]

Supercomputer

(T01-X)

T01-M06D [1992]

Optical system

See also T01-E05A for digital optical processing elements, and T02-A03 for analogue and hybrid optical processing elements.

T01-M06E [1992]

Superconductor system

(T01-X)

See also T01-E05C for superconducting elements. See also U14-F02 codes.

T01-M06Q [2005]

Quantum System

Using quantum devices for processing. Prior to 2005 see T01-M06C/X. See T01-E05Q for processing systems using quantum mechanics.

Quantum well gate

T01-M06S [2005]

Servers

Covers architecture and construction of servers. Use of servers in computer networks is covered in T01-N02A3C, client-server systems communications in T01-N02A2C and architecture of client-server systems in T01-M02A1B. Constructional details are also coded in T01-L section.

T01-M06X [1992]

Other (computer types)

T01-M09 [1992]

Other (inc. virtual machines)

Virtual machines are also coded in T01-F05. See also T01-F05G3 for virtual systems, and T01-F02 for multiprogramming.

Emulation

T01-N [2002]

Internet and information transfer

(T01-H07C)

T01-N01 [2002]

Applications

Documents describing specific applications of network communication and Internet systems.

T01-N01A [2002]

Financial/Business

Includes Internet banking, billing, point of sale (POS) and metering, see T01-J05A1 and T01-H07C5E prior to 2002.

T01-N01A1 [2002]

EFT/Banking

Includes Internet Banking, See T01-J05A1 and T01-H07C5E prior 2002 .

Internet Bank, Electronic funds transfer

T01-N01A2 [2002]

Internet Business models

Includes Business Models for the Internet, See T01-J05A and T01-H07C5E prior 2002, and T01-J05A2 for non-Internet related Business models.

T01-N01A2A [2002]

E-shop, e-auction, e-mall, and e-services

Includes On-line ordering, transactions of goods and services, and virtual market place, See T01-J05A together with T01-H07C5E prior to 2002.

On-line shopping, auction, e-commerce

T01-N01A2B [2002]

E-procurement

Includes seeking suppliers, electronic tendering. See T01-J05A2 together with T01-H07C5E prior to 2002.

T01-N01A2C [2002]

Advertising and Marketing

Includes network based systems such as web marketing, common marketing, consumer buying habits, feedback and banner advertising. See also T01-N01A1 and T05-L02 if involving financial incentives (coupons) and W05-E03E for display aspects.

T01-N01A2D [2002]

Virtual communities

Includes discussion forums and message posting. See T01-J05A together with T01-H07C5E prior to 2002.

T01-N01A2E [2002]

Value chain service provider and Integrator

Includes logistics, production management, web based shipping support, web hosting and intregrated on-line management.

T01-N01A2F [2002]

Information Brokerage

Includes financial advice, consultancy, stock/commodities/futures market monitoring/trading (see also T01-N01A1 and T05-L02 for trading). See T01-J05A2 with T01-H07C5E prior to 2002.

On-line broker

T01-N01A2G [2005]

On-line Intellectual Property (IP) and Copyright management

See T01-J05A2G for off-line systems including protecting copyright of downloaded files. See also W04 for audio/video aspects.

T01-N01A2H [2005]

On-line Personnel Management

Includes internal business administration, performance management, payroll, pensions, benefits, recruitment, career development, etc. See T01-J05A2H for offline personnel management.

T01-N01A2J [2005]

On-line insurance and risk analysis

Includes on-line processing and assessing insurance claims, evaluation of risk factors in a loan determination.

T01-N01A2L [2007]

Legal and Regulatory

Includes leagal services such as litigation and contracts as well as accountablility and compliance with government regulations.

T01-N01A2M [2010]

Carbon trading

Covers emissions trading, previously coded as T01-N01A2F.

cap and trade, kyoto protocol

T01-N01A3 [2005]

E-Government

This code is intended for network based electronic public administration and management tools used by governmental bodies or agencies to implement government-to-citizen (G2C), government-to-business (G2B) and/or government-to-government (G2G) service(s). Includes commerce, e-voting, immigration, law enforcement, licensing, taxation, records management etc. See T01-J05A3 for off-line systems and T05-F for voting.

E-Gov, G2C, G2B, G2G, E-voting

T01-N01A4 [2007]

On-line non-profit organization

Includes charities.

T01-N01B [2002]

Entertainment and Educational

See T01-H07C together with T01-H07C5E prior to 2002, from 2005 expanded to cover on-line educational systems.

T01-N01B1 [2002]

Gaming

Includes network, on-line gaming and on-line gambling (see also T01-N01A1, T05-L02 & W04). See T01-H07C3B, T01-H07C3D and T01-H07C5E prior to 2002. See T01-J30 for off-line systems.

Internet gaming, MUD, multi user dungeon, MMOG, MMORPG, massive multi-user on-line game

T01-N01B2 [2002]

Chat rooms

See T01-H07C3D together with T01-H07C5E prior 2002.

On-line chat

T01-N01B3 [2005]

On-line Education

Covers Educational systems using a computer network and use of computer networks in an educational environment. See T01-J30A together with T01-N01D prior to 2005. See also T01-N01A2D for virtual classrooms, etc.

T01-N01B3A [2005]

Remote examination/testing

T01-N01B4 [2005]

News systems

Covers on-line systems for news updates including e-mail subscription services (together with T01-N01C).

T01-N01B5 [2006]

E-books

Documents describing E-book (electronic book) per say including file format aspects see also T01-N01A2G for copyright control aspects T01-J11C for electronic documents in general.

E-book, Electronic book

T01-N01B9 [2002]

Other Internet Entertainment

T01-N01C [2002]

E-mail

Includes electronic mail for use by computer systems connected to a network. Facsimile services are covered by S06 codes, telex systems by W02 codes and message switched networks by W01-A codes. See also W01-A06E1, W01-A06G2, and W01-A06X.

Computerised voice mail

T01-N01D [2002]

Data Transfer

Includes downloading file from remote site (FTP). See T01-H07C3 and T01-H07C5E prior to 2002.

T01-N01D1 [2002]

Multimedia

(T01-J09, T01-H07C3D)

Combination of text, data, image, sound, or computer programs. Audio/video aspects of multimedia systems are also assigned W04-K10. See T01-H07C3D prior to 2002.

T01-N01D1A [2002]

Audio, sound transfer

See T01-H07C3A prior to 2002.

Internet radio

T01-N01D1B [2002]

Video and Image transfer

(T01-H07C3B)

Includes computerised video conferencing. See T01-H07C3B and T01-H07C5E prior to 2002. See also W01-A06E1A for data conferencing and broadcasting and W02-F01E3 interactive Internet broadcasting.

JPEG, MPEG

T01-N01D2 [2002]

File Transfer

(T01-H07C3C)

For transfer of files other than multimedia. Includes downloading non-internet executable programs, as well as web page transfer. Includes the transfer of Instant Message (IM) data between users in real time.

WWW, URL

T01-N01D3 **[2002]**

From remote site or server

(T01-H07C3E)

Includes networks where applications are run on server under the control of a client system. See T01-H07C3E prior to 2002.

Applet, Java, thin-client

T01-N01D3A **[2012]**

Network only systems

Includes network systems were applications are running using a virtual system from remote locations

Cloud Computing, Citrix ®, Virtual Desktop

T01-N01D4 **[2005]**

Network File Caching

For storage of regularly accessed files such as web graphics. See also T01-N02A3C for server based caching, T01-N03A1 for browser based caching, see also T01-H03A before 2005.

T01-N01D5 **[2006]**

Multicasting

T01-N01E **[2005]**

On-line Medicine

See also S05 codes for electrical medical equipment in general. For initial diagnostic, S05-D06A. For continuing monitoring, S05-G02B2A. From 2005 see T01-N01E for on-line systems. For drug delivery/ordering systems see also T01-N01A2 codes.

T01-N01E1 **[2005]**

On-line Medical information systems

See also S05-G02G. For medical records, S05-G02G1. For administration including appointments, S05-G02G2.

T01-N02 **[2002]**

Communications and Control

(T01-H07C5A)

See T01H07C3A prior to 2002.

See T01-J08C for communication controllers and W01-A06 for data transmission systems in general

T01-N02A **[2002]**

Communication

Includes computer communications within a network.

T01-N02A1 **[2002]**

Communication Protocol

(T01-H07P, T01-H07C)

Covers Novel aspects of TCP/IP and novel uses of other protocol types for transfer over a network. See also W01-A06F for protocols in general and W01-A06F2 for network protocols. See T01-H07P prior to 2002, T01-H07C prior to 1997. Bus transfer protocols are found in T01-H07B.

T01-N02A1A **[2005]**

Addressing

Covers network addressing as opposed to routing. For setting and determining destination of packets, not route that they will travel. Includes Domain Name system, network identification and Universal Resource Locators. See also W01-A06F2.

URL, IP address

T01-N02A1B **[2005]**

Ad-hoc network systems

Includes setting up dynamic networks. See also under application, e.g. T01-N01B2 for chat rooms, T01-N01A2C for advertising. See also W01 for network codes, e.g. W01-A06C4A for Blueetooth network or W01-A07H2A for Bluetooth interface.

Proximitymail ™, BluePing ™, 'on the fly' wireless network, relay area network, RAN, localised community messaging network.

T01-N02A2 **[2002]**

Network Communication

(T01-H07C5A, T01-H07P)

For communications between computers in a network, see T01-H07C5A and T01-H07P prior to 2002.

T01-N02A2A [2002]

LAN

(T01-H07C5C)

Includes computer communication over a private network i.e. interconnected distributed communities of computer based data terminals within a single building or a localised group of buildings. See T01-H07C5C prior to 2002, and also see W01.

Intranet, local area network

T01-N02A2B [2002]

WAN

(T01-H07C5E)

Includes computer communication over a public network i.e. networks which link computers, data terminals or Local Area Networks which are physically located in different locations or establishments, also see T01-H07C5E prior to 2002 and see W01.

Internet, wide area network, Gateway, PSTN, TCP/IP

T01-N02A2C [2002]

Client/Server system

(T01-H07C5S)

Includes computer communication using a client/server relationship, see T01-H07C5S prior to 2002.

T01-N02A2D [2005]

SAN

Code covers storage area networks. See also T01-H01B codes for storage media type, T01-N02B codes for access and W01-A06B5B for network aspects.

T01-N02A2E [2005]

Peer-to-peer networks

Covers network communication between stations without using a central server. See also W01-A06B8C and W01-A06E2B.

Viral network, p2p

T01-N02A2X [2002]

Other Network communication system

Includes other types of computer communications not already covered in T01-N02A2.

T01-N02A3 [2002]

Hardware

Includes physical hardware such as computers and servers used for accessing a network, see T01-H07C5S prior to 2002.

T01-N02A3A [2002]

Dedicated systems for accessing the Internet, e.g. set top box

Includes systems designed specifically for accessing the Internet, also see W04.

T01-N02A3B [2002]

Computer based routing

(T01-H07C5A)

Includes routing and management of network traffic, also see W01 and see T01-H07C5A prior to 2002.

T01-N02A3C [2002]

Servers

Includes processing performed on the server and claimed server devices, see T01-M06S for architecture and construction (along with T01-L). See T01-H07C5S prior to 2002.

T01-N02B [2002]

Control

Includes control of computer software.

T01-N02B1 [2002]

Access and Control

Includes control of access to file and folders.

Permissions, access control list, ISP

T01-N02B1A [2002]

File management and access

See T01-F05G5 if done by an operating system. Includes watermarking (see also T01-D02A from 2005) and digital certificates for file authentication for file transfer see also T01-N01D.

Hash values, digital certificates

T01-N02B1B [2002]

User Privileges/Password systems

Includes access file/folders and restricted areas using a password, see T01-J12C prior to 2002.

Security, login, Permissions, access control list

T01-N02B1C [2005]

Unsolicited Advertising Protection

Includes spam and pop up protection, see also T01-N01C for e-mail.

Spyware, adware, browser hijack

T01-N02B1D [2005]

Firewalls

Includes devices or software for controlling access to network data or resources from external network connections and for controlling access to external network resources or data by internal network clients.

Firewall, intrusion detection , port forwarding, port blocking , NAT , Stateful packet inspection

T01-N02B1E [2006]

Network operating system management

Management of network operating systems. Installation and/or updating of software involving transmission over network. For network security software updates see T01-N02B3.

T01-N02B1F [2006]

Internet portals

T01-N02B1G [2006]

Internet gateway

T01-N02B1H [2006]

Biometric authentication

Covers biometric authentication for computer networks. See T01-J12C1B for off-line systems. See also T04-D07F for biometric image recognition and S05-D01C5A for measurement systems.

T01-N02B2 [2002]

Monitoring

Includes monitoring computer/network communications and hardware, see T01-H07C5Aprior to 2002.

T01-N02B2A [2002]

User monitoring

Includes monitoring a user(s) activity on a computer/network.

Cookie

T01-N02B2B [2002]

System and Fault monitoring

Includes monitoring systems which are used to monitor computer hardware operation, log events, report failures also, on-line(internet-based) monitoring and on-line diagnosis of any electronic system, see T01-H07C5A prior to 2002. For monitoring of electrical appliances over the internet see T01-N01D and W05.

Event monitor, system log, event viewer

T01-N02B2C [2005]

Transmitted content analysis

Monitoring contents of transmitted files, including emails.

Packet Sniffing. Chat room monitoring

T01-N02B3 [2006]

Testing network vulnerability

Anti-Virus, Anti-Spyware Software applications. Testing server security and setting updates for security programs. For security program update via network transmission see T01-N02B1E. Before 2007 see T01-J20D for Anti-Virus software applications.

T01-N02B5 [2006]

Web site management

Incorporation of multimedia content in websites. Changing content viewed by different visitors to site.

T01-N03 [2002]

Internet Software

Search together with T01-S03.

T01-N03A [2002]

User Applications

T01-N03A1 [2002]

Browser

Includes browsers used to browse the Internet, search together with T01-S03 for software browsers, previously coded in T01-J12B prior to 2002.

Internet explorer™, Netscape™

T01-N03A1A [2002]

Content management/Parental control

Includes controlling the content viewed using a browser.

Net nanny

T01-N03A1B [2002]

Media player

Includes software which allows multimedia content/information to be viewed/played.

Real player™

T01-N03A1C [2002]

ICQ/Chat windows

Includes pop-up chat windows.

T01-N03A2 [2002]

Search Engines & Searching

Search together with T01-J05B3 and T01-H07C5E prior to 2002.

T01-N03A3 [2005]

Meeting co-ordination and organiser/calendar applications

Covers applications to arrange meetings with groups of people through software. Covers a personal calendar application linked to an email program. See T01-J11E for off-line see also T01-N01C email.

Outlook ™, lotus notes ™

T01-N03B [2002]

Constructional Software

Includes software used to design web sites/page.

T01-N03B1 [2002]

Internet executable programs

Includes executable programs, e.g. applets, flash needed to view content. Covers only novel aspects see T01-N01D3 or T01-N03A1 for applications.

Applet, flash, Java bean

T01-N03B2 [2002]

Mark up languages

Includes page description language used in creating, editing, and navigating electronic documents, see T01-J11C1 prior to 2002.

Hypertext, HTML, XML

T01-N03B2A [2002]

Editors

Includes editors used to edit mark up language e.g. Microsoft® FrontPage.

T01-N03B2B [2007]

Parsing markup language documents

T01-N03B3 [2005]

Scripting Languages

Covers patents concerned with web based scripting languages which are neither compiled nor mark-up languages.

PHP, ASP, JavaScript, PERL, CGI

T01-N03B4 [2005]

Format conversion

Covers conversion of media from one network standard to another one. Includes converting e-mail (T01-N01C) to e.g. Facsimile (S06) or SMS (W01), also includes converting web browser formats such as SGML, XML and HTML (T01-N03B2).

T01-P* [1992-2001]

Computer educational aids and toys

(T01-X)

*This code is now discontinued, see T01-J30 and T01-J40 from 2002.

T01-P01* [1992-2001]

Educational

*This code is now discontinued, see T01-J30A from 2002. Includes use of computers for education and training purposes, question and answer systems, computer aided instruction, CAI, tuition support systems, student testing and computerised marking systems (see also T04 codes). Educational equipment is also assigned W04-W codes.

T01-P02* [1992-2001]

Toys, games and novelties

*This code is now discontinued, see T01-J30B1 from 2002. Covers all computer games and computerised toys. See W04-X codes for electrical aspects of games and amusements.

T01-P02A* [1997-2001]

Computer video games

(T01-P02)

*This code is now discontinued, see T01-J30B and T01-J40A from 2002. See W04-X02C for video games, and T01-J10C for image generation aspects.

T01-P02B* [1997-2001]

Sports equipment

(T01-P02)

*This code is now discontinued, see T01-J40B from 2002. See also W04-X01 codes for electrical aspects of sports equipment in general.

T01-S [1997]

Software content

These codes are used to indicate documents that have a significant software content, and which contain either a program listing, or in which software is used. T01-S codes are used in conjunction with other T01 codes to indicate software aspects.

T01-S01 [1997]

Software listings

Software in the form of a program listing.

T01-S01A [1997]

Machine-oriented low-level languages

(T01-S)

Documents containing listings written in e.g. binary, machine, assembler and firmware languages.

T01-S01B [1997]

High-level languages

(T01-S)

Documents containing source code written in high level language, e.g. C, C++, Java, Visual Basic etc.

T01-S01C [1997]

Pseudo-code and Algorithms

(T01-S)

Documents in which algorithms, rather than software is disclosed.

T01-S02 [1997]

Software patents

Covers documents in which an invention is described and claimed in terms of software, but in which no program listing is included.

T01-S03 [1997]

Claimed software products

Claimed products based on software, and stored on e.g. CD-ROM, in which the use of a computer program or software components is stated in an independent claim.

T01-X

Miscellaneous

T02: Analogue and Hybrid Computers

T02-A
Analogue computers

T02-A01
Hand-manipulated
Slide-rule, linear, circular

T02-A02
Mechanical or fluid-pressure computers
Pneumatic, hydraulic, gearing

T02-A03
Using optical or electrooptical, elements
See also T02-B and T01-E05A. Optical components per se are found in V07.
Transform, correlation, acoustic-optical

T02-A03A [1992]
Implementations
Includes diffraction grating and Fourier analysis implemented using optical elements.

T02-A03B [1992]
Optical computer
Digital optical computers are coded in T01-M06D and digital components in T01-E05A.

T02-A04
Electric or magnetic computers

T02-A04A
Applications
Modelling, simulation

T02-A04A1
Economics, statistics, electric equipment, structures

T02-A04A5 [1992]
Neuronal
(T02-A04A9)
Neural networks are also coded in T01-J16C1 and digital neural elements in T01-E05B.

T02-A04A9
Other (applications)

T02-A04B
Processing
Operational amplifier

T02-A04B1
Multiplication or division

T02-A04B2
Integration or differentiation
Integrator

T02-A04B2A [1992]
Convolution
SAW convolver

T02-A04B3
Evaluating polynomials, roots, exponentials, discontinuous functions
Square-root, exponent, logarithm, tangent, cotangent, sine, cosine, trigonometry

T02-A04B4
Arbitrary function generation

T02-A04B5
Interpolation, extrapolation, equation solving

T02-A04B6 [1992]
Fuzzy Logic
(T02-A04B9)
See also T01-J16B and U21-C03B1B.

T02-A04B9
Other (incl. optimisation or addition)
Includes correlation transforms, (coded in T02-A04B1, T02-A04B2 prior to 8701).

T02-A04X
Other (incl. programming)

T02-B

Hybrid computing arrangements

See also T02-A03 and T01-E05A for use of optical components.

T03: Data Recording

This class covers dynamic recording systems, i.e. those based on relative movement between record carrier and transducer. Record carriers themselves are included irrespective of application and are covered in T03 alone. Mechanical aspects of carrier driving and head positioning are also included in T03 for all applications, but W04 codes are assigned as well to indicate intended use for audio/video recording. All other aspects of audio and video recording, such as circuitry and signal processing, are covered in W04 only. Static stores themselves are coded in U14 and computer storage systems using them in T01-H codes. Abstract storage systems (e.g. software for controlling storage) that do not contain any details of physical recording equipment, such as methods for backing up computer data, are covered in T01 and are not coded in T03. Bar-coding is not covered in T03, being covered by T04-A03B1.

In class T03, recording technologies are split into 'group' (5 character) codes covering four main areas :

T03-A – magnetic recording, e.g. 'hard disk drives', but also including floppy disks, magnetic tapes, cards and tickets.

T03-B – optical recording, e.g. optical disks such as 'CD' and 'DVD', optical cards and tapes also being included.

T03-C – capacitive recording, electron beam recording and 'tunnel current' recording.

T03-D –'combination' recording, i.e. recording using two (or more) of the above methods, e.g. magneto-optical recording such as 'minidisks' (R) but also including electro-optical recording and other technologies.

Apart from the above codes, the other code groups in T03 are independent of 'recording technology' and can be assigned alone - when inventions are broadly applicable - or in conjunction with the technology codes to convey more detail. For example, within the T03-F disk drive codes, T03-F02C1 represents a novel drive motor. In the T03-A codes specific to magnetic recording T03-A08A1C is assigned for any aspect of hard disk drives. Thus a novel disk drive motor for an HDD is coded as T03-A08A1C and T03-F02C1.

T03-A

Magnetic recording/reproduction

'Combination' recording involving magnetic methods such as magneto-optical, is not included - see T03-D01 codes.

T03-A01

Record carriers

Includes materials for cards with magnetic 'strip' - see T04-C01 also. Magnetic record carriers per se are coded in T03 only, even if audio-video application is stated. For records prior to 2002 carriers with containers (e.g. tape cassettes) are also coded in W04 when application to audio or video recording is stated or implied.

T03-A01A

Magnetic layers

Prior to 2007 all magnetic materials and films are also coded in V02-A01 and V02-B01 codes respectively. From 2007 V02-B01 has been discontinued while V02-A01 codes are only applied for magnetic materials of general application. Therefore V02 is no longer routinely assigned for magnetic recording media and heads with the exception of nanostructures, which are coded in V02-B04.

Particle, bind, ferromagnetic, film, coating, layer

T03-A01A1 [1987]

Magnetic materials

Includes composition and physical details of materials.

T03-A01A1A [1992]

Metal and alloy compositions

Prior to 2007 this topic was also coded in V02-A01A2. This topic is no longer coded V02.

Chromium, cobalt, iron, nickel

T03-A01A1C [1992]

Non-metallic compositions

Includes ferrite materials. Prior to 2007 this topic was also coded in V02-A01B2.

Oxide, ferrous, ferric, gamma

T03-A01A1E [1992]

Physical details

Covers details such as e.g. size or shape of magnetic particles themselves - details of physical properties of magnetic layer as a whole are covered by T03-A01A8.

Acicular, diameter, needle

T03-A01A3 [1987]

Binder materials

Includes composition, physical details and manufacture.

Resin, polyurethane, PVC, polymer, copolymer

T03-A01A5 [1992]

Additional non-magnetic material in magnetic layer

Includes lubricant (see also T03-A01B5 codes).

T03-A01A6 [1992]

Multilayer magnetic coatings

Layer arrangements of carrier as a whole are covered by T03-A01F.

T03-A01A6A [2006]

Exchange coupling system

T03-A01A7 [1992]

Complete magnetic layer formula

See also T03-A01A which will continue to be used for cases where precise details cannot be identified.

Recipe, formulation, composition

T03-A01A8 [1992]

Physical details of magnetic layer

Details of magnetic materials per se are covered by T03-A01A1 codes.

T03-A01A8A [1997]

Physical and chemical details of magnetic layer

Covers thickness, hardness, etc. and also inventions specifying low level of, or absence of, certain elements.

Hardness, HB, HR, HV, durability, roughness, film

T03-A01A8C [1997]

Magnetic property details of magnetic layer

Covers details such as specific coercivity, Curie point etc.

T03-A01A9 [1992]

Other magnetic layer details

T03-A01B

Base layers; protective coatings

Film, surface, protect, substrate, lubricate, organic

T03-A01B1 [1987]

Base layers, substrate

T03-A01B1A [1992]

Substrate

Polyester, polyethylene, terephthalate, resin, glass, aluminium, titanium, alloy

T03-A01B1B [1992]

Base layers

Covers layers applied to substrate before magnetic layer is deposited.

Under-layer

T03-A01B1X [1992]

Other layers below magnetic layer

Indicates layers between magnetic layers, normally used with T03-A01A6, which indicates multilayer magnetic coatings.

Intermediate

T03-A01B3 [1987]

Backing layers

Covers layers on opposite side of substrate to magnetic film.

Back-coating layer, reverse

T03-A01B5 [1987]

Protective coating and lubricating layers

T03-A01B5B takes precedence over T03-A01B5A if the position of the lubricating layer is not disclosed or determinable.

Film, anti-abrasion, slide, friction

T03-A01B5A [1992]

Lubricating layers part of magnetic layer

See T03-A01A5 also.

T03-A01B5B [1992]

Lubricating layer separate from magnetic layer

Covers layer subsequently applied to carrier surface.

Disk

T03-A01B5C [1992]

Protective coating layer

Antistatic layers are covered by T03-A01B5D.

Anti-corrosion, nitride

T03-A01B5D [1992]

Antistatic layers and materials

For antistatic measures and materials in general see X25-S codes.

Charge, triboelectric, conductive dispersion, carbon black

T03-A01B7 [2008]

Heat transfer layers

This code covers heat transfer layers chiefly for thermo-assisted magnetic record carriers, for which T03-A01T is also assigned.

Thermal, laser, heating, spot

T03-A01B5X [1992]

Other layers above magnetic layer

Includes 'parking area' e.g. for CSS operation of a hard disk (T03-A01C1A). See also T03-A01G.

Contact-start-stop, zone

T03-A01C

Characterised by form

Codes in this section are applied to indicate the type of carrier only and are used in conjunction with other T03-A01 codes as appropriate. To distinguish recording apparatus in general by carrier type, see T03-N codes.

T03-A01C1 [1987]

Disk

T03-A01C1A [1992]

Hard disk

Covers disk with rigid substrate.

Stack, cylinder, bulk store

T03-A01C1C [1992]

Flexible disk

Covers floppy disks.

T03-A01C3 [1987]

Tape

T03-A01C3A [1992]

For helical scan recording

T03-A01C5 [1992]

Card

(T03-M01)

See T04 also for card carriers of 'magnetic strip' type.

T03-A01C7 [1992]

Drum

T03-A01C8 [1992]

Characterised by intended application

Codes in this section are only used if the carrier is specified (not necessarily claimed) to be primarily for a specific purpose.

T03-A01C8A [1992]

Audio recording

T03-A01C8B [1992]

Video recording

VTR, camera-recorder, camcorder, electronic still picture camera, Mavica

T03-A01C8C [1992]

Computer data recording

This code is **not** used for hard disks, the assumption being made that such carriers are chiefly intended for this purpose.

T03-A01C8X [1992]

Other recording application

T03-A01C9 [1992]

Other magnetic carrier

Includes work piece adapted to store limited amount of data e.g. for identification purposes. This code, when assigned with T03-M02 indicates photographic film with an integral magnetic carrier. (See also S06-B codes).

T03-A01D [1987]

Vertical recording medium

This code is used with other T03-A01 codes as appropriate.

Perpendicular, thickness direction

T03-A01E [1992]

Superconducting magnetic record carrier

This code is used with other T03-A01 codes as appropriate. See T03-A06K for other aspects of using superconductors in magnetic recording. General aspects of recording using superconductors (other than in magnetic recording) are covered by T03-C07. Superconductive devices and materials in general are covered by U14-F codes. (X12-D06 codes are assigned for high-power aspects of superconductors).

T03-A01F [1992]

Layer arrangements

(T03-A01X)

This code deals with emphasis on sequence of layers without particular reference to any one. Multilayer magnetic coatings are covered by T03-A01A6.

T03-A01G [1992]

Additional recording area and physical recording format

(T03-A01X)

This code covers the physical arrangement of the record carrier into separate areas, either for dedicated (e.g. servo tracks) or general use. Recording formatting on a physically continuous recording surface is covered by T03-A06F1.

Hard sectoring, index, format, pre-format, reference

T03-A01G1 [1992]

Separate magnetic tracks

(T03-A01X)

T03-A01G3 [2008]

Carrier with discrete magnetic recording areas

Includes magnetic carrier with patterned magnetic layer, such as nano-imprinted type. For hard disk carriers search with T03-A01C1A and other T03-A01 codes as appropriate. Manufacture of such carriers is covered by T03-A02G3 and other T03-A02 codes as appropriate.

Pattern, depression, pit

T03-A01G5 [1992]

Using other recording method

(T03-A01X)

Covers the use of non-magnetic storage, e.g. a magnetic carrier with an optical or capacitive servo track.

T03-A01H [1992]

Leader

(T03-A01X)

Includes compositions, details of optical transparency, etc. See T03-E05A5 for leader-sensing mode control in tape drives.

Colour, light, transmission, autostop

T03-A01R [2006]

Recycling and destroying magnetic carrier

This code is used for recycling and destroying of **magnetic** record carriers only. Recycling and destroying of optical carriers is covered by T03-B01R and of magneto-optical carriers by T03-D01R. Where an invention is applicable to recycling or destruction of several types of carrier or the type is not disclosed the general code T03-H02R is assigned instead. For recycling of recording or playing equipment see V04-X01C.

T03-A01T [2008]

Thermo-assisted magnetic record carrier

Covers magnetic carriers which are locally heated to facilitate high-density recording. Equipment using this type of recording is assigned T03-A06N1 codes, (T03-A06M codes from 2007-2012), and other T03 codes as appropriate.

HAMR, heat assisted magnetic recording

T03-A01X

Other magnetic carrier details

Marking, cinefilm magnetic soundtrack

T03-A02

Record carrier manufacture

For manufacture restricted to a specific type of carrier, search with T03-A02E codes.

T03-A02A [1987]

Applying magnetic film to substrate

Includes apparatus (with T03-A02D1) and methods for liquid deposition, sputtering, evaporation, and other techniques. Prior to 2007 see V02-H02 codes also for magnetic film application. Therefore V02 is no longer routinely assigned for manufacture of magnetic recording media with the exception of nanostructures, which are coded in V02-H02G. Manufacturing processes other than magnetic layer deposition are covered by T03-A02B codes. (See note for T03-A02B8).

Vapour deposition, vacuum deposition, plating, coating

T03-A02A1 [1992]

Coating by liquid method, including plating

Prior to 2007 magnetic film deposition by plating was also coded in V02-H02C. Electrolytic, electroless, spray, dip

T03-A02A3 [1992]

Coating by sputtering, vapour deposition

Vacuum

T03-A02A3A [1992]

Sputtering

Prior to 2007 this topic was coded in V02-H02B as well. Sputtering apparatus of general application is also coded in X25-A04 and V05-F codes.

T03-A02A3B [1992]

Vapour deposition

Heat, vessel, evaporate

T03-A02A3X [1992]

Other

Includes techniques such as plasma spraying.

Flame, jet

T03-A02A5 [1992]

Treatment of deposited layer

T03-A02A5A [1992]

During deposition

Includes e.g. magnetic orientation.

Field, orient, direction

T03-A02A5C [1992]

After deposition

Includes e.g. heat treatment.

Drying

T03-A02B [1992]

Substrate and non-magnetic layer processing

Codes in this section are used to describe manufacturing processes (or equipment when used with T03-A02D codes) other than for magnetic layer deposition, which is covered by T03-A02A.

T03-A02B1 [1992]

Manufacture of substrate and base layers

T03-A02B1A [1992]

Manufacture of substrate per se

Includes shaping, stamping etc. but **not** manufacture of substrate material, which is covered by T03-A01B1A. Prior to 1997, this code covered texturing and polishing of substrates (chiefly for hard disks, in which case T03-A02E1A is also assigned). From 1997 these topics are transferred to T03-A02B1C and T03-A02B1D. Both codes are assumed to relate to substrates, unless T03-A02B1B is also assigned to indicate base layer treatment.

Moulding, rolling, punching, extruding, stretching

T03-A02B1B [1992]

Base layer application and treatment

Covers manufacture and deposition of base layers prior to magnetic layer deposition. Manufacture of base layer materials per se is covered by T03-A01B1B.

T03-A02B1C [1997]

Polishing

(T03-A02B1A)

It is assumed that this code relates to substrates unless T03-A02B1B is also assigned to indicate base-layer treatment.

T03-A02B1D [1997]

Texturing

It is assumed that this code relates to substrates, unless T03-A02B1B is also assigned to indicate base-layer treatment.

CSS, flying height, slider, roughness

T03-A02B3 [1992]

Backing layer manufacture

Covers production of back-coat layers, but **not** materials manufacture which is covered by T03-A01B3.

T03-A02B5 [1992]

Protective and lubricating layer manufacture

Covers deposition of layers only, for compositions see T03-A01B5 codes.

T03-A02B7 [1992]

Additional manufacturing processes

Covers manufacturing steps carried out after basic carrier manufacture, e.g. cleaning, tape slitting (previously coded in T03-A02 and T03-M02), etc., but not loading into carrier case which is covered by T03-H01 codes. Equipment performing these processes is coded in T03-A02D3.

Post-treatment

T03-A02B8 [1992]

Multistep manufacturing processes

This code is used for inventions covering a number of manufacturing steps without apparent emphasis on any one, and therefore takes precedence over T03-A02A codes if magnetic layer deposition is mentioned as only one of several process steps.

T03-A02B8A [1992]

Multistep manufacturing process for whole carrier

This code is used for inventions describing the complete manufacturing process only.

T03-A02B9 [1992]

Other manufacturing processes

Includes packing and shipping of manufactured carrier. Also includes writing of servo tracks during manufacture.

T03-A02C [1992]

Quality control, testing (methods and equipment)

QC, evaluate, inspect

T03-A02C1 [1992]

Checking manufacturing process

Monitoring, control, instrumentation

T03-A02C5 [1992]

Checking finished or partially finished carrier

Flaw, inspection, testing, still-picture, contact-stop-start, CSS, lifetime

T03-A02C5A [1992]

Using optical or other inspection

See also appropriate code in S03, e.g. S03-E04F2, which covers optical flaw detection.

Chemical, corrosion, humidity, heat, wear, exfoliation, abrasion, durability, asperity

T03-A02C5B [1992]

By test recording

Error, bit error rate, BER, check

T03-A02D [1992]

Manufacturing equipment

T03-A02D1 [1992]

For manufacture of carrier per se

This code is used with other T03-A02 codes as appropriate, to indicate specific purpose. For example, use T03-A02A codes with T03-A02D1 for equipment used to apply magnetic layer to the carrier substrate; for general aspects of equipment for magnetic disk manufacture use T03-A02D1 with T03-A02E1.

T03-A02D3 [1992]

For subsequent processing

Includes equipment for treatment carried out after manufacture of carrier per se, e.g. slitting of tape (previously coded in T03-A02 and T03-M02), and general handling aspects.

Stack, wind, conveyor, feed

T03-A02D5 [1992]

For bulk storage, e.g. pancake

Reel, drum

T03-A02E [1992]

Characterised by type of carrier

Codes in this section are used (with other manufacturing codes as appropriate) to indicate the type of carrier being manufactured only. Prior to 1992 use T03-N codes.

T03-A02E1 [1992]

Disk

T03-A02E1A [1992]

Hard disk

T03-A02E1C [1992]

Flexible disk

T03-A02E3 [1992]

Tape

T03-A02E5 [1992]

Card

T03-A02E7 [1992]

Drum

T03-A02E9 [1992]

Other magnetic carrier

T03-A02G [2008]

Manufacture of carrier with separate recording areas

Includes manufacture of magnetic carrier not having magnetic recording film over the whole area.

T03-A02G1 [2008]

Manufacture of carrier with separate magnetic recording tracks

Includes manufacture of magnetic carrier with separate magnetic track regions. For hard disk carriers search with T03-A02E1A and other T03-A02 codes as appropriate.

T03-A02G3 [2008]

Manufacture of carrier with discrete magnetic recording areas

Includes manufacture of magnetic carrier with patterned magnetic layer, such as nano-imprinted type.

Pattern, depression, pit, stamper

T03-A02G5 [2008]

Manufacture of carrier including non-magnetic recording areas

Includes manufacture of magnetic carrier with separate recording area using other technology, such as optical, for which T03-B codes are also assigned. Magneto-optical record carriers are not included here, being covered by T03-D01A8 codes.

T03-A03

Heads

Prior to 2007 see also V02-A02 codes for magnetic materials. Prior to 2002 if audio/video application is indicated see also W04-B02A. For erase heads search with T03-A06E1. From 2002 heads for audio/visual recording are no longer coded in W04-B02. Audio/visual applications are indicated by W04-B10, W04-B12, W04-B14 and W04-B16 codes.

Field, transducer, coil, flux, bias, inductance, yoke, core, ferromagnetic, pick-up, read, write

T03-A03A

Heads with multiple active gaps

Multichannel, multitrack, film, glass, erase

T03-A03A1 [1992]

For operation on same track

T03-A03A5 [1992]

For operation on different tracks

For array type heads T03-A03A7 takes precedence.

Stereophonic, DCC

T03-A03A7 [1992]

Array-type multiple head

Matrix

T03-A03B

Other inductive head structures

This code is used for inductive head structures not catered for by other T03-A03 codes which take precedence, or when precise detail cannot be determined.

T03-A03C

Flux-sensitive heads

Includes magneto-resistive aspects (covered in T03-A03C3).

Read-only

T03-A03C1 [1992]

Combined with write head

Composite, disk drive

T03-A03C3 [1992]

Using magnetoresistive material

All heads with thin film construction are additionally coded in T03-A03E. For biasing arrangements see T03-A03J9 also. Magnetoresistive elements used in non-head devices such as MRAM are coded in U12-B01B. Prior to 2007 thin film heads were also coded in V02-B03 but this code is now discontinued.

T03-A03C3A [1997]

Using giant magnetoresistance effect

GMR, spin valve, Barkhausen

T03-A03C3C [2005]

Tunnel junction magnetoresistive head

See also T03-A03C3A for tunnel junction giant magnetoresistive head.

T03-A03C3G [2006]

Ballistic magnetoresistive head

T03-A03C3X [2006]

Other magnetoresistive head types

Colossal

T03-A03C5 [1992]

Using semiconductor-type device

See also U12-B01 codes.

Hall effect

T03-A03C9 [2005]

Flux sensitive head details

T03-A03C9A [2005]

Magnetic layers

Pinned layer, free layer

T03-A03C9C [2005]

Spacer layer

Includes conductive non-magnetic layer between magnetic layers.

T03-A03C9E [2005]

Tunnel barrier layer

Includes insulating non-magnetic layer between magnetic layers.

T03-A03C9G [2005]

Exchange layer

Anti-ferromagnetic

T03-A03C9J [2005]

Shielding layer

Used for internal shielding layers of magnetoresistive heads only. For other shielding aspects see T03-A03J7A.

T03-A03C9L [2005]

Layer arrangements

Covers emphasis on sequence of layers without particular reference to any one.

T03-A03C9N [2005]

Biasing arrangements

Circuitry for biasing magnetic heads is covered in T03-A06G.

T03-A03C9X [2005]

Other

T03-A03D [1987]

Vertical recording head

This code is used with other T03-A03 codes as appropriate.

Perpendicular

T03-A03E [1987]

Thin film heads

Assumed to be for inductive type head structures unless applied in conjunction with T03-A03C codes. This code is intended for magnetic heads wholly of film-circuit type construction, i.e. including thin film coil windings (for details of which search with T03-A03J5). Magnetic heads in which only the core and related magnetic circuit components are of thin film construction are not included. Cores for such heads are covered by T03-A03J1C, and for thin film circuit type heads by T03-A03J1E. Metal-in-gap heads are covered by T03-A03F codes. Prior to 2007 magnetic film details of 'thin film' heads of both types were also coded in V02-B03, which has now been discontinued. For film circuits in general, see U14-H codes, which are not assigned for thin film magnetic heads.

T03-A03E1 [2006]

Lead layers

Covers layer arrangements for internal head connections. External head connections are covered in T03-A05C8.

T03-A03F [1992]

Metal-in-gap head

MIG

T03-A03F1 [1992]

Gap-filling material

Details of gap materials and structure for magnetic heads in general are covered by T03-A03J3C.

T03-A03J [1992]

General magnetic head details

Covers details of inductive type heads. For details of magnetoresistive heads see T03-A03C9 codes. Codes in this section are used alone or in conjunction with other T03-A03 codes as appropriate.

T03-A03J1 [1992]

Head cores

Carrier-contacting surfaces, including pole-pieces, are covered by T03-A03J3.

T03-A03J1A [1997]

Magnetic material composition

Prior to 2007 see also V02-A02 codes for further details of materials.

T03-A03J1C [1997]

Thin film core (for non-film head)

This code relates to magnetic heads with film-type cores, other parts of the head, such as windings, being of conventional construction. Prior to 2007 see also V02-B codes, especially V02-B03. From 2007 these codes are discontinued. Heads which are entirely of film circuit construction are covered by T03-A03E, their cores being covered by T03-A03J1E. Metal-in-gap heads are covered by T03-A03F codes.

T03-A03J1E [1997]

Thin film head cores

This code is intended for core details of magnetic heads which are entirely of film circuit type construction, also coded in T03-A03E. See T03-A03J1C for magnetic film cores for otherwise conventional heads. (Prior to 2007 V02-B03 is also assigned for all aspects of thin magnetic films used for heads).

T03-A03J3 [1992]

Carrier-interfacing surface

Covers mechanical aspects and magnetic details such as pole pieces, but **not** cores, which are covered by T03-A03J1.

T03-A03J3A [1992]

Pole pieces

Includes flux guides. Details of cores are covered in T03-A03J1.

T03-A03J3C [1992]

Gap details

Metal-in-gap head details are covered by T03-A03F codes.

T03-A03J3E [1992]

Head face

Covers mechanical aspects of carrier-contacting surface surrounding active part of head, such as shape, friction-reduction, etc.

Hardness, roughness, smooth, projection, asperity

T03-A03J3J [2007]

Heating device

(T03-A03J9)

Covers arrangements for hearing carrier-interfacing surface of head to control fly height. Also coded in T03-A05C1. Arrangements for thermo-assisted magnetic recording (where portion of carrier is heated as part of the recording process) are not coded here, being covered in T03-A06M instead.

T03-A03J5 [1992]

Windings

HF coils in general are covered by V02-F01 codes. Prior to 2007 HF coils for magnetic heads were also coded in V02-F05, which has now been discontinued.

T03-A03J7 [1992]

Casing, shielding, substrates

From 1997 codes in this section include substrates, previously covered in T03-A03J9.

T03-A03J7A [1997]

Casing and external shielding

T03-A03J7C [1997]

Internal shielding layers

Includes shielding layers within film-type heads (see T03-A03E). For shielding layers within magnetoresistive heads see T03-A03C9J.

T03-A03J7E [1997]

Substrate

(T03-A03J9)

T03-A03J8 [2006]

Internal head connections

See T03-A03E1 for internal head connections for thin-film heads (e.g. magnetoresistive or inductive heads). External head connections are covered in T03-A05C8.

T03-A03J9 [1992]

Other general head details

Prior to 1997 this code included head substrates, now covered by T03-A03J7E and prior to 2005 also included biasing arrangements for magnetoresistive heads which are now covered in T03-A03C9N. Circuitry for biasing magnetic heads is covered in T03-A06G.

T03-A04

Head manufacture, testing, demagnetisation, cleaning

T03-A04A [1987]

Manufacture, testing

Prior to 2007 see also V02-H codes and V02-H05. From 2007 manufacture and testing of magnetic heads is covered in T03 only.

T03-A04A1 [1992]

Head manufacture

T03-A04A1A [1992]

Assembly

T03-A04A1B [1992]

Film deposition

T03-A04A1C [1992]

Coil winding

T03-A04A1D [1992]

Casing manufacture

Includes manufacture of shield and mounting arrangements.

T03-A04A1E [1992]

Mechanical or chemical treatment

Includes e.g. burnishing, etching etc.

T03-A04A5 [1992]

Head testing

Includes test recording and non-electrical testing and inspection methods (also coded in e.g. S03).

T03-A04B [1987]

Demagnetisation, cleaning

See V02-D for demagnetisation in general.

Abrasion

T03-A04B1 [1992]

Demagnetising magnetic heads

Degaussing, coil, solenoid, decay

T03-A04B3 [1992]

Cleaning magnetic heads

Cleaning of record carriers and of recording equipment in general is covered by T03-H02B and T03-H02C respectively.

Aerosol, cartridge

T03-A04B3A [1992]

Cleaning compositions

Solvent

T03-A04B3B [1992]

Dummy carrier for cleaning

Includes cleaning cassettes, floppy disks adapted for cleaning, etc.

Cleaning tape

T03-A04B3C [1992]

Brush

T03-A05

Head mounting and positioning

For records prior to 2002 audio/video head mounting and positioning is also coded in W04-B03. From 2002 W04-B03 is no longer used, audio/visual applications being indicated by W04-B10, W04-B12, W04-B14 and W04-B16 codes.

Drive, motor, stepper, track, control, rotating, read, write, slide, carriage

T03-A05A

Azimuth correction, track centering, alignment maintenance

Error detection, angle, pitch

T03-A05A1 [1987]

Dynamic adjustment, i.e. dependent on recorded signals.

Includes use of piezoelectric elements for head deflection.

Control, pilot

T03-A05A1A [1992]

Head adjusting element

See also V06-M06D for piezoelectric actuator. Includes shape memory alloy elements with self heating or auxiliary heater.

SMA, bimorph

T03-A05A1B [1997]

Head position adjustment based on maximum read signal level

Covers dynamic arrangements positioning head for optimum output, without necessarily using dedicated servo information for track following (covered by T03-A05A1C).

Peak, maximise

T03-A05A1C [1992]

Track-following system, servo

For combined track accessing and following servo system see T03-A05B1A which is used as the default 'servo' code for magnetic recording and takes precedence over this code. For track following servos in general see T03-G02C1. For layout of servo tracks on magnetic carriers see T03-A06F codes. Details of physically separate servo tracks (magnetic and non-magnetic) created during formation of magnetic layer on carrier are covered in T03-A01G.

T03-A05A1D [1992]

Speed control for moving head

Covers rotary-head speed control. See T03-E03A7 for helical scan tape speed control.

T03-A05A1E [2008]

Head positioning for dual actuator systems

Includes control of a secondary actuator, e.g. on the main head arm of a disk drive, for fine positioning. For details of head adjusting elements per se see T03-A05A1A.

Piezoelectric

T03-A05A1G [2005]

Using non-magnetic servo information

Includes use of optical servo tracks.

T03-A05A1X [1992]

Other dynamic adjustment

T03-A05A3 [1992]

Adjustment not dependent on recorded signal alignment, setting up

Includes temp. compensation and manual adjustment of e.g. azimuth. See T03-K07 codes for testing also.

Screw, spring, pitch

T03-A05B [1992]

Track selection

(T03-A05X)

Covers arrangements to position head over desired track.

T03-A05B1 [1992]

By recorded signal

(T03-A05X)

Includes track accessing servo. See T03-G02B1 for track accessing servos in general.

Index, count, track crossing

T03-A05B1A [1992]

Switching to track following servo action

This code is used as the default 'servo' code for magnetic recording. Inventions specific to track following servos only for magnetic recording are covered by T03-A05A1C.

T03-A05C [1992]

Head support structure

(T03-A05X)

Includes details of head to medium interface such as air bearing, contouring, gimbal, suspension and load arm. Use with T03-A05F codes for disks.

T03-A05C1 [1992]

For head-to-carrier spacing adjustment

(T03-A05X)

Raise, lift, lower

T03-A05C1A [1992]

Slider

(T03-A05X)

T03-A05C3 [1992]

Head support arm

(T03-A05X)

Covers details of arm per se such as shape, mounting etc.

Swage

T03-A05C5 [1992]

Motor drive

(T03-A05X)

Includes motors per se - see V06-M codes also. See T03-A05D7 for helical-scan head motor drive.

Bearings

T03-A05C5A [1992]

Rotary drive

T03-A05C5C [1992]

Linear drive

T03-A05C8 [2005]

Connections to read/write head

Includes wiring formed on head support arm. Prior to 2005 this was covered by T03-A05C3 and T03-A06C.

T03-A05D [1992]

Specific head positioning details for helical-scan tape

(T03-A05X)

T03-A05D1 [1992]

Layout of heads i.e. disposition

(T03-A05X)

T03-A05D3 [1992]

Signal coupling arrangements

(T03-A05X)

Codes in this section are concerned with signal transfer between the rotating heads and stationary part of equipment.

T03-A05D3A [1992]

Inductive e.g. transformer

(T03-A05X)

See V02-F02 codes also.

T03-A05D3C [1992]

Optical

(T03-A05X)

T03-A05D3E [1992]

Radio frequency

(T03-A05X)

T03-A05D3G [1992]

Brushes

(T03-A05X)

See V04-L01 codes also.

T03-A05D3X [1992]

Other rotary signal coupling

(T03-A05X)

T03-A05D5 [1992]

Rotary head drum

(T03-A05X)

Covers details of head drum per se, such as shape, materials, etc.

T03-A05D7 [1992]

Rotary head motor drive

(T03-A05X)

Includes motor per se. Motor-driven positioning for non-rotary heads in general is covered by T03-A05C5 codes.

T03-A05E [1992]

Head positioning for longitudinally-scanned tape

T03-A05F [1992]

Head positioning for disk

Codes in this section are used either alone or with other T03-A05 codes, if the use of T03-A05F codes conveys additional information. See also T03-A08 codes, now assigned for all aspects of magnetic recording equipment. Prior to 1997, T03-A05F codes may be used to discriminate equipment type when head positioning is involved.

T03-A05F1 [1992]

Non-contacting during operation

Hard disk, stack, CSS

T03-A05F5 [1992]

Contacting during operation

Floppy, flexible, diskette

T03-A05G [2005]

Parking, latching arrangements

Includes load-unload ramps in hard disk drives, for which T03-A08A1C is also assigned. Prior to 2005 this topic was covered by T03-A05X.

LUL

T03-A05X

Other head positioning aspects

T03-A06

Recording, reproducing or erasing methods/circuits

See T03-P codes for signal processing for recording in general, and W04-F and W04-G01 codes for video and audio recording signal processing in general.

T03-A06A

Direct, FM, PM or boundary displacement analogue recording

Frequency, phase, modulate, pulse

T03-A06B

Other analogue recording

T03-A06C

Digital recording

Code, decode, pulse, bit, mark, space

T03-A06C1 [1992]

Recording/write circuitry

T03-A06C3 [1992]

Read circuitry

Sense, threshold, peak

T03-A06D [1992]

Equalisation

(T03-A06X)

T03-A06E [1992]

Erasing

(T03-A06X)

Coil, magnet

T03-A06E1 [1992]

In equipment

(T03-A06X)

Oscillator, head

T03-A06E3 [1992]

Bulk

(T03-A06X)

See V02-D for demagnetising in general. Prior to 1992 T03-H02 was used for bulk erasure.

T03-A06F [1992]

Format

(T03-A06X)

Covers signals recorded as magnetic information on carrier only. See T03-A01G codes for physical aspects of record carrier formatting, e.g. hard sectoring. See W04-B01A codes for formatting aspects relevant to audio/video recording.

T03-A06F1 [1992]

Track layout

(T03-A06X)

T03-A06G [1992]

Biasing

(T03-A06X)

Arrangements for biasing magneto-resistive heads are covered in T03-A03C9N (prior to 2005 this was covered in T03-A03J9).

T03-A06H [1992]

Skew correction, timebase correction

(T03-A06X)

See W04-F02B and W04-G01 codes for video and audio recording aspects.

T03-A06K [1992]

Superconductive magnetic recording

See T03-A01E for superconductive magnetic record carriers per se.

T03-A06M* [2005-2012]

Thermo-assisted magnetic recording

*This code is now discontinued. Prior to 2013 it was used to indicate localised heating, usually by a laser, of an area on a magnetic record carrier to be written on. From 2013 this technology is transferred to T03-A06N1 within the category of energy-assisted magnetic recording.

T03-A06M1* [2007-2012]

Thermo-assisted magnetic recording methods

*This code is now discontinued. Prior to 2013 it was used to indicate recording methods using heat assistance. From 2013 this technology is transferred to T03-A06N1A within the category of energy-assisted magnetic recording.

T03-A06M3* [2007-2012]

Heat source

*This code is now discontinued. Prior to 2013 it was used to indicate novel aspects of the heat source for heat-assisted recording. (Also covered in V08 for novel details of lasers and U12 for semiconductor lasers). From 2013 this technology is transferred to T03-A06N1C within the category of energy-assisted magnetic recording.

T03-A06M5* [2007-2012]

Optical system

*This code is now discontinued. Prior to 2013 it was used to indicate novel aspects of the optical system for heat-assisted magnetic recording. From 2013 this technology is transferred to T03-A06N1E within the category of energy-assisted magnetic recording.

T03-A06N [2013]

Energy-assisted magnetic recording

This code and its subdivisions cover the use of a separate energy source to enable writing to a magnetic record carrier using a lower magnetic field strength, i.e. to lower the coercivity of a storage bit while it is being written. The technology is assumed to apply to vertical/perpendicular recording and the general code for that topic, T03-A06V, is **not** normally assigned for energy-assisted magnetic recording. For application to hard disk drives search with T03-A08A1C. Note that magneto-optical recording is **not** included and is covered by T03-D01 codes .

T03-A06N1 [2013]

Thermo-assisted magnetic recording

Covers thermo-assisted ('heat-assisted') magnetic recording. Between 2005 and 2012 this topic was covered by T03-A06M codes.

HAMR

T03-A06N1A [2013]

Thermo-assisted magnetic recording methods

Covers thermo-assisted ('heat-assisted') magnetic recording methods. Between 2005 and 2012 this topic was covered by T03-A06M1 codes.

T03-A06N1C [2013]

Heat source for thermo-assisted magnetic recording

This code covers novel aspects of the heat source for heat-assisted recording, e.g. a laser. (Also covered in V08 for novel details of lasers and U12 for semiconductor lasers). Prior to 2013 this technology was covered by T03-A06M3.

T03-A06N1E [2013]

Optical system for thermo-assisted magnetic recording

This code covers novel aspects of the optical system for heat-assisted recording. Prior to 2013 this topic was covered by T03-A06M5.

Lens, near-field optics, solid immersion

T03-A06N3 [2013]

Microwave-assisted magnetic recording

Search with T03-A03 codes for magnetic head details, e.g. T03-A03C3A for heads based on giant magnetoresistance effect or T03-A03C3C for tunnel junction magnetoresistive heads.

GMR, MAMR, oscillating field, spin torque oscillator, STO, TMR

T03-A06N3A [2013]

Microwave-assisted magnetic recording methods

T03-A06N9 [2013]

Other energy-assisted magnetic recording

Covers the use of a separate energy source, other than heat or microwave energy, to lower storage bit coercivity during writing.

T03-A06V [2007]

Vertical recording

This code is used for highlighting the relevance of vertical recording methods where neither a novel vertical recording medium or novel vertical recording head is involved. Novel vertical recording media and heads are not routinely coded here, being covered by T03-A01D and T03-A03D respectively. Note that energy-assisted magnetic recording (as covered from 2013 by T03-A06N codes) is assumed to involve use of vertical/perpendicular magnetic recording and so T03-A06V is **not** routinely assigned for that topic.

T03-A06X

Other recording circuitry and methods

T03-A07 [1987]

Re-recording

(T03-A09)

Prior to 2006 this section included write/erase protection. From 2006 hardware aspects of write/erase protection for all types of recording are transferred to T03-H07 while signal format and signal processing methods are covered solely in T03-P07. T03-A codes are now used in addition to T03-H07 or T03-P07 codes to indicate applicability to magnetic recoding.

Copy, master, duplicate

T03-A07A* [1992-2005]

Preventing overwriting, erasure or copying

*This code is now discontinued. See T01-H01C and T01-J12C for computing aspects.

T03-A07A1* [1992-2005]

Preventing accidental loss of data

*This code is now discontinued.

T03-A07A1A* [1992-2005]

By hardware detail e.g. erase tab etc.

*This code is now discontinued. Prior to 2006 the code was used with T03-N03 for tape cassette systems and with T03-N01 for disks.

T03-A07A1B* [1992-2005]

By signal format, by recorded data

*This code is now discontinued. See T03-P07 for general non-magnetic recording signal processing aspects of data erasure or copying prevention.

Pilot, inhibit

T03-A07A3* [1992-2005]

Preventing unauthorised deliberate access or copying

*This code is now discontinued.

T03-A07A3A* [1992-2005]

By hardware detail, e.g. disk drive lock

*This code is now discontinued.

T03-A07A3B* [1992-2005]

By signal format

*This code is now discontinued.

T03-A07B [1992]

Copying; re-recording

Covers authorised copying of magnetic recordings.

T03-A07B1 [1992]

Duplication of pre-recorded information at post mfg. stage, e.g. time code carrier

Includes servo track writing post manufacture, e.g. in hard disk drive. Duplication of whole carrier information is covered by T03-A07B3 codes.

Pre-formatting, servo, index, SMPTE

T03-A07B3 [1992]

Duplication from one carrier to another

T03-A07B3A [1992]

Making many copies from one master

T03-A07B9 [1992]

Other copying, re-recording

T03-A08 [1992]

Magnetic drive

Codes in this section are used with either T03-E or T03-F codes as appropriate to indicate carrier positioning aspects. Portable standalone drives are also coded in T04-P. Prior to 1997, these codes were used to indicate these aspects only, but are now widened in scope to be applied for any novel aspect of magnetic drives which would be included in T03. To further discriminate the type of equipment concerned, codes from the T03-N section should be used where T03-A08 codes are not sufficiently specific.

T03-A08A [1992]

Disk drive

See T03-F codes also.

T03-A08A1 [1992]

Single disk drive module

From 2012 T03-A08A1G is introduced for portable hard disk drives that are used for external storage. Hard disk drives of normal form factor for use within computers, servers, etc., are covered by T03-A08A1C and card-type or similar small form factor drives are covered by T03-A08A1E. In 2002 the title of T03-A08A1 was amended to better reflect its intended coverage of single units which may drive one or more magnetic disks. Storage systems based on multiple magnetic disk drive modules used together are covered by T03-A08A5 codes.

T03-A08A1A [1992]

Floppy disk drive

T03-A08A1C [1992]

Hard disk drive

This code is used as the default reference for a 'hard disk drive'. Card type, or similar small form factor magnetic disk drives used within equipment are covered by T03-A08A1E and external hard disk drives by T03-A08A1G (from 2012), both of which are assigned instead of T03-A08A1C.

T03-A08A1E [1997]

Card type, small form factor magnetic disk drive

This code covers compact and/or thin drives, assumed to be of hard disk type unless other codes indicate otherwise, that are mounted inside the equipment using the stored data. Portable hard disk drives that are external to the computer or other equipment with which they are used are covered by T03-A08A1G.

PCMIA

T03-A08A1G [2012]

Portable hard disk drive

This code covers hard disk drives that are self-contained and used as external drives, e.g. for connection to a PC via a USB or similar interface. T04-P is also assigned for external computer storage disk drives. Standard hard disk drives and compact drives of e.g. card-type that are mounted inside equipment are covered by T03-A08A1C and T03-A08A1E respectively.

Back-up, desk-top, external storage

T03-A08A5 [1992]

Multiple disk drive modules

From 2002 the title of this code has been amended to better reflect its intended coverage of multiple disk drive units (assumed to be for hard disks unless T03-A08A1A also assigned).

Stack

T03-A08A5A [1997]

RAID system

Redundant array inexpensive disks

T03-A08C [1992]

Card drive

See T03-F and T04-A03A/T04-J codes also.

T03-A08E [1992]

Tape drive

See also T03-E codes. This code is intended solely for drives intended for computer storage applications, e.g. tape streamers. It is **not** applied for details of audio or video tape recorders.

T03-A08M [2007]

Multiple head actuator type drive

Drives with multiple heads mounted in a fixed relationship with respect to each other are not routinely coded here.

T03-A09

Other

T03-A10 [1992]

Interfacing with magnetic recorder

T03-A10A [1997]

Interfacing hardware

Includes plugs, sockets, cables etc.

T03-A10C [1997]

Interface circuitry

T03-A10E [1997]

Control aspects

See T01-C01 and T01-H01 codes also. Use with T03-A08A5A for RAID aspects.

T03-A10E1 [1997]

Data transfer aspects

T03-A10E3 [1997]

Control of storage

Includes file allocation, etc.

FAT

T03-B

Optical recording/reproduction

For records prior to 2002 audio/video applications are assigned W04-C codes also. From 2002 carriers and head/record carrier driving aspects of audio/video optical recording are **no longer** coded in W04. For audio/video applications of optical recording drives see W04-C10 codes. Hard formatting aspects specific to audio/video recording are also covered in W04-C01F while signal formatting aspects are covered in W04-C05. Optical reading/writing circuitry is coded in W04-C06.

These codes are **not** used for cinematography per se (S06-B05), but optical soundtrack systems are included. 'Combination' optical recording, e.g. magneto-optical (T03-D01 codes), is **not** assigned T03-B codes unless stated to be applicable to optical recording also.

Disk, storage, compact, laser, beam, light

T03-B01

Record carriers and their manufacture

For records prior to 2002 all aspects of record carriers per se are assigned W04-C01 codes also, irrespective of stated application. From 2002 W04-C01 codes are no longer used. Codes for carrier type (T03-B01D section) are assigned when possible, to indicate this aspect only. (Prior to 1992 use T03-N codes). From 2002 T03-B01D codes can be used to indicate audio/video carrier applications. From 1997, T03-B01H is used for layer arrangements without particular reference to any one (previously assigned the general T03-B01 code).

T03-B01A [1987]

Substrates

Mould, transparent

T03-B01A1 [1992]

Compositions

Includes glues, resins used for bonding multiple substrates.

PMMA, polycarbonate, resin

T03-B01A5 [1992]

Structure; shape

T03-B01A5A [1992]

Double substrate

Double-sided, dual-substrate

T03-B01B [1987]

Light sensitive layers

Photo-sensitive, photochromic, contrast, reflection, pit

T03-B01B1 [1992]

Light sensitive materials

Spiropyran

T03-B01B1A [1992]

Light absorbing materials

Includes IR-absorbing compounds.

T03-B01B5 [1992]

Characterised by recording process

Codes in this section are only assigned when some aspect of the light sensitive layer is novel, **not** to routinely indicate carrier type, which is catered for by T03-B01D codes.

T03-B01B5A [1992]

Ablation

Covers methods involving depletion of material, such as hole burning.

Ablative, evaporation, metal film, surface tension

T03-B01B5C [1992]

Deformation

Includes formation of bubbles.

Polymer, metal, bi-layer, gas, scatter

T03-B01B5E [1992]

Interaction

Includes alloying or segregation of material.

Exothermic, chemical reaction, alloy, separate, crystallisation, bi-layer

T03-B01B5G [1992]

Phase transition

Includes change between crystalline and amorphous states.

Phase-change, liquid crystal

T03-B01B5J [1992]

Combination of methods

Includes use of more than one recording mechanism for multilevel recording of data. From 1997, multiple light sensitive layer arrangements and (single) layers sensitive to more than one wavelength, previously coded here, are respectively transferred to T03-B01B5N and T03-B01B5P.

High density, tri-level

T03-B01B5L [1992]

Reversible process

See T03-B01D8 for rewritable optical carrier in general.

Erasable, rewritable, photochromic

T03-B01B5N [1997]

Multiple light-sensitive layer

(T03-B01B5J)

T03-B01B5P [1997]

Layer sensitive to different light wavelengths

(T03-B01B5J)

T03-B01B5X [1992]

Other recording processes

T03-B01C [1987]

Protective layers, (anti-) reflective layers

Coating, film

T03-B01C1 [1992]

Internal reflective or antireflective layers

This code takes precedence over T03-B01C3 and is used for indeterminate cases.

T03-B01C3 [1992]

External reflective or antireflective layers

T03-B01C5 [1992]

Protective (ext.) layer

Anti-abrasion, scratch-resistant, antistatic

T03-B01C7 [1992]

Protection subsequently applied to carrier

Includes plastic air-occlusion film applied to surface of compact disk.

T03-B01C8 [2007]

Labelling layers

(T03-B01C9)

Includes optical and thermo sensitive layers for recording human readable information as well as layers suitable for printing e.g. by ink jet (see T04-G02). Layers for recording data are covered in T03-B01B and are not coded here. See T04 for details of printing not carried out by the optical drive.

T03-B01C9 [1992]

Other

T03-B01D [1992]

Record carrier type

Codes in this section are used in conjunction with either those for features of carriers per se, or those for manufacture, to indicate the type of the carrier only.

T03-B01D1 [1992]

Disk

T03-B01D1A [2002]

For audio/video storage

(W04-C01)

T03-B01D3 [1992]

Card

Includes cards with circular tracks and centre-hole to allow recording/playback in optical disk recorder.

T03-B01D3A [2002]

For audio/video storage

(W04-C01)

T03-B01D4 [2006]

Super resolution carrier

Includes layer arrangements on carrier, e.g. mask layers, to increase resolution beyond wavelength of read/write laser. Super resolution arrangements involving optical components of head are covered in T03-B02B6 and are not coded here.

Super RENS, Super Resolution Near Field Structure

T03-B01D5 [1992]

Tape

T03-B01D5A [2002]

For audio/video storage

(W04-C01)

T03-B01D6 [1997]

Multilayer carriers

Includes double-substrate arrangements (also assigned T03-B01A5A) and carriers with multiple light sensitive layers on one substrate (see also T03-B01B5N).

T03-B01D7 [1992]

Non-erasable carrier

This code is only used when this aspect of the carrier is stated, and not merely instead of T03-B01D8. Search in conjunction with T03-B01D8 for hybrid carrier arrangements with erasable and non-erasable areas.

Direct read after write, DRAW, write once read many times, WORM, compact disk, CD

T03-B01D7A [1997]

Read only

Includes CD-ROM.

T03-B01D7C [1997]

WORM

Covers carrier enabling writing, but not erasing.

Archive

T03-B01D8 [1992]

Erasable and rewritable carrier

For details of recording layers see T03-B01B5L. Search in conjunction with T03-B01D7 for hybrid carrier arrangements with erasable and non-erasable areas.

T03-B01E [1992]

Manufacture

Use with T03-B01D codes to indicate manufacture of a particular type of carrier.

T03-B01E1 [1992]

Equipment

T03-B01E1A [1992]

Stamper

From 1997, this code will be used to cover stampers per se only -see note for T03-B01E3E.

Press, punch, form, substrate, roll, sheet

T03-B01E1B [1992]

Coating equipment

Covers equipment for applying any type of layer to substrate.

Evaporate, coat, deposit, spray, sputter, vacuum, vapour

T03-B01E1M [2006]

Mastering equipment

Includes equipment for writing to glass master and performing other mastering processes. See V05 codes for novel aspects of electron beam writing equipment.

Electron beam writer

T03-B01E3 [1997]

Characterised by process

Codes in this section are used with other T03-B01E codes as appropriate to provide additional information on the processes involved in an invention.

T03-B01E3A [1997]

Fabrication and recording of master

Includes production of master from raw material and also process of recording data on it which carriers will finally store.

Glass, cut, tape master, hard disk, subcode

T03-B01E3C [1997]

Production of intermediate copies

Includes production of 'metal master' and 'metal mother'.

Plating, sputtering, coating

T03-B01E3E

Production of stamper per se

Stampers per se, and materials for them, are coded in T03-B01E1A. From 1997, their manufacture will be described by use of T03-B01E3E together with T03-B01E1 or T03-B01E5 as appropriate. (Prior to 1997, T03-B01E1A itself was used with either 'apparatus' or 'method' codes).

T03-B01E3G [1997]

Pressing

Includes bonding of multiple substrates and setting resins as well as sheet stamping methods. See T03-B01E3X for punching hole in substrate after pressing.

Injection moulding

T03-B01E3J [1997]

Applying coatings after pressing

Includes labelling where label is part of carrier (also coded in T03-H02A1A and X25-F08 when there are significant electrical details). Chiefly covers application of reflective and protective films after pressing process. T03-B01E1B will continue to be assigned (in addition to T03-B01E3J) where novel coating equipment is involved.

T03-B01E3L [2011]

Polishing and cleaning

This code covers polishing and cleaning of an optical recording medium or a stamper or similar (e.g. with T03-B01E3E) **as part of a manufacturing process**. Polishing, cleaning or reconditioning of already-manufactured optical carriers by a user is **not** included and is covered by T03-H02B with T03-B01D codes assigned also as appropriate to denote the form of the carrier, e.g. T03-B01D1 for disk cleaning or scratch repair.

T03-B01E3P [1997]

Packing and shipment

Includes placing CDs in 'jewel boxes' ('jewel boxes' per se and their manufacture are covered by T03-L01A1), labelling, etc. Electrical details of packing and labelling of carrier containers are also assigned X25-F codes.

T03-B01E3S [2002]

Multistep manufacturing process

This code is used for inventions covering a number of manufacturing steps without apparent emphasis on any one.

T03-B01E3X [1997]

Other optical carrier manufacturing processes

T03-B01E5 [1992]

Methods

T03-B01E7 [1992]

Testing, monitoring

T03-B01E7A [1992]

Of manufacturing process

Instrumentation, check, measure

T03-B01E7B [1992]

Of carrier during manufacture

T03-B01E7C [1992]

Of complete carrier

Includes test recording and inspection by e.g. optical testing methods.

T03-B01F [1992]

Recording format

Covers physical aspects only such as groove/land structure and other aspects fixed at time of disk manufacture, as well as geometry of recordable and non-recordable pits. See T03-B05 for signal aspects of recording formats, including spatial arrangement of data on carrier and between carrier layers.

Sector, servo, index

T03-B01F1 [1992]

To increase storage density

Capacity, data

T03-B01F1A [2007]

Multivalue data formats

Includes recording marks that are able to contain several pieces of information by using variations in length, width or depth, to store data values with base greater than two.

T03-B01F5 [1997]

Details of grooves, pits, etc.

T03-B01F5A [1997]

Relating to tracking

Track following and accessing is covered in T03-B02A3 codes, also assigned where appropriate.

T03-B01H [1997]

Layer arrangements

Covers details of sequence layers making up record carrier without specific reference to any one layer.

T03-B01R [2006]

Recycling and destroying optical carrier

This code is used for recycling and destroying of **optical** record carriers only. Recycling and destroying of magnetic carriers is covered by T03-A01R and of magneto-optical carriers by T03-D01R. Where an invention is applicable to recycling or destruction of several types of carrier or the type is not disclosed the general code T03-H02R is assigned instead. For recycling of recording or playing equipment see V04-X01C.

T03-B02

Heads and head/light source positioning

T03-B02A [1987]

Positioning, focusing

Codes in this section cover both lens positioning for focusing, and positioning of the head as a whole for track selection and alignment.

T03-B02A1 [1992]

Lens positioning for focusing

Positioning of the head moving across the carrier is covered by T03-B02A3 codes.

T03-B02A1A [1992]

Drive element per se

Includes voice coil motor. (See V06-M04 also).

VCM

T03-B02A1C [1992]

Focus detection and control

Includes focus servo arrangements.

Feedback, error, lens, position

T03-B02A3 [1992]

Head positioning

Covers positioning of head as a whole, for track selection or following, **not** focusing, which is covered by T03-B02A1 codes.

T03-B02A3A [1992]

Drive element per se

Includes linear motor. (See V06-M06B also).

Coil, pulse, step

T03-B02A3B [1992]

Movable mounting structures

Includes rail assembly allowing head movement.

Guide, slide

T03-B02A3C [1992]

Track selection and access

Includes track-accessing servo arrangements. (For track access servo in general, see T03-G02B1 codes).

Index, seek, kick pulse, step, initialise

T03-B02A3D [1992]

Track following

Includes track-following servo arrangements. (For track-following servos in general see T03-G02C1).

Alignment, feedback, off-track, shift, compensate, tilt

T03-B02A3E [1992]

Interchangeable servo system

Includes track accessing servo switching to track following mode. This code takes precedence over T03-B02A3C and T03-B02A3D.

T03-B02A4 [2005]

Tilt correction

Covers arrangements involving movement of lens or using other optical systems e.g. liquid crystal element. Search in conjunction with T03-B06 codes for compensation by signal processing.

T03-B02A5 [1992]

Compensation system

Includes arrangements compensating for temperature change or vibration, in either focus or track access/following system.

Shift, disturbance, distortion, jitter

T03-B02A7 [1992]

Light source control

Includes control of bias circuit for semiconductor laser (see also U12-A01B4 and corresponding codes in V08).

Monitor, current, feedback, LED, photodiode, APD sensor

T03-B02A8 [1997]

Using multiple heads, head positioning for double-sided disk

From 2007 this code has been expanded to include multiple head systems not exclusively used for double-sided disks. Previously this code covered only head positioning for double-sided disk.

T03-B02A8A [2007]

Head positioning for double-sided disk

All general aspects of multiple head drives are also covered in T03-B10M. Includes dual-head systems and arrangements for single head to move to other side of disk. Search using T03-B02A8 for all records prior to 2007.

T03-B02A8C [2007]

Reading multiple formats

T03-B02A8E [2007]

Increasing access speed

T03-B02A8G [2007]

Simultaneous reading of multiple tracks

T03-B02B [1992]

Head

The codes in this group cover constructional aspects of optical heads per se. Head positioning is covered by T03-B02A codes.

T03-B02B1 [1992]

Light source

This code covers novel light sources themselves, such as laser diodes, specific details of which are covered by U12-A01B codes and also codes in V08. It does not refer to assemblies including the light source and associated optical elements external to it which are covered by T03-B02B if no specific detail is given, or by other T03-B02B subdivisions as appropriate. Light sources are normally assigned T03-B02B1 only but in cases of specific application to reading or writing, subdivision codes are assigned instead. Frequency doubling or other multiplying optical arrangements are covered by T03-B02B7E (coded as T03-B02B1 and T03-B02B7 prior to 1997). Light source control aspects are coded in T03-B02A7.

LED, laser, solid, gas

T03-B02B1A [1992]

For recording

Writing, erasing, overwrite

T03-B02B1B [1992]

For reading

T03-B02B3 [1992]

Photodetector for focus and read

Photodiode, diode, APD, quadrant, sensor

T03-B02B5 [1992]

Lenses

T03-B02B6 [1997]

'Super-resolution' optical aspects

Aperture, Rayleigh, wavelength, refraction

T03-B02B7 [1992]

Optical systems, optical elements

Includes other optical elements e.g. lightguides for transferring reading or writing light, (see V07-F01 codes for novel aspects). Lenses are covered by T03-B02B5. 'Super-resolution' optical aspects are indicated by assignment of T03-B02B6 with T03-B02B5 or T03-B02B7 codes as appropriate.

T03-B02B7A [1997]

Beam splitter

Prism

T03-B02B7C [1997]

Polarising arrangements

T03-B02B7E [1997]

Harmonic generators

(T03-B02B1, T03-B02B7)

Covers arrangements effectively reducing wavelength of recording or reading light.

T03-B02B7G [2005]

Diffraction gratings

T03-B02B7M [2006]

Multiple optical path

Includes systems for reading different types of optical disk.

T03-B02B8 [1992]

Optical recording head cleaning, head manufacture, head testing

From 2012 the scope of this code has been expanded to include manufacture and testing of optical heads, respectively covered by subdivisions T03-B02B8C and T03-B02B8E, in addition to optical head cleaning, for which T03-B02B8A is now the main code. Note that T03-B02B8 codes refer to the optical head itself, as defined by T03-B02B codes, and not head positioning aspects as covered by T03-B02A codes. Prior to 2012 T03-B02B8 covered only arrangements for cleaning sources, detectors, and optical system with cleaning of e.g. an optical disk player lens by a dummy carrier being covered by T03-B02B8A. From 2012 T03-B02B8A is used as a general reference for head cleaning. Cleaning of recording equipment in general is covered by T03-H02C.

T03-B02B8A [1992]

Optical recording head cleaning, including use of dummy carriers

From 2012 the scope of this code has been expanded to cover general arrangements for cleaning optical recording and playback heads, such as lens cleaners, in addition to its previous coverage of dummy carriers for cleaning. Prior to 2012, T03-B02B8A was used for cleaning using dummy carriers such as cleaning disks and T03-B02B8 served as a general 'optical head cleaning' code. (Prior to 1992 T03-B02 and T03-H02 were assigned for optical head cleaning).

Wipe, pad, brush, solvent, lens

T03-B02B8C [2012]

Optical recording head manufacture

Between 2006 and 2011 search T03-B02B codes with T03-M08 (general manufacturing code) for optical recording head manufacture. From 2012 T03-M08 is no longer assigned for this topic.

T03-B02B8E [2012]

Optical recording head testing

Between 1992 and 2011 search T03-B02B codes with T03-K07 codes (general testing code) for optical recording head testing. From 2012 T03-K07 codes are no longer assigned for this topic. When optical testing is involved codes in e.g. S02-J04 or S03-E04 subgroups are also assigned as appropriate.

T03-B02C [1992]

Static carrier reading and writing system

Covers arrangements for reading or writing where relative movement of light source/sensor with respect to recording medium does not involve physical movement of either record carrier or a head apparatus. Instead relative movement takes place, for instance, by optical beam scanning with electro-optical or electromechanical scanning, or use of an switched optical array. Does not cover optical static stores, which are covered by U14-A02 codes.

T03-B03* [1992-2004]

Record carrier positioning

*This code is now discontinued and from 2005 novel aspects of optical record carrier positioning are assigned the appropriate T03-B10 code in conjunction with T03-F or T03-E codes.

T03-B03A* [1992-2004]

For disks

*This code is now discontinued. Prior to 2005 T03-N01 was also assigned and T03-F codes were applied for specific details.

T03-B03C* [1992-2004]

For cards

*This code is now discontinued Prior to 2005 T03-N05 was also assigned and also T03-F codes for specific details. Codes in T04, e.g. T04-A03B and T04-J are assigned for this topic.

T03-B03E* [1992-2004]

For tape

*This code is now discontinued Prior to 2005 T03-N02 and/or T03-N03 or T03-N04 were also assigned along with T03-E codes, which are still assigned for specific tape drive details.

T03-B05 [1992]

Signal recording format and methods

T03-B05A [2005]

Recording methods

Includes arrangements for recording label information using data recording equipment on visible light sensitive layer. For this topic see also T03-H02A.

T03-B05A1 [2005]

Optimisation methods

Includes use of test recording area. Use with appropriate code, e.g. T03-B02A7 for controlling light source power.

T03-B05F [2005]

Format

Covers arrangement of data only, physical aspects such as hard sectoring of data, are covered by T03-B01F. Index signal recording and related aspects are also in T03-J01 codes.

Constant, angular, linear, velocity, CAV, CLV

T03-B05F1 [2007]

Data arrangement within recording layers

Covers two dimensional data layout.

T03-B05F5 [2007]

Data arrangement between recording layers

Covers arrangement of different data types between different layers, e.g. layer used for interactive data such as Java info in Blu-Ray disks.

T03-B05F9 [2007]

Other data arrangements

T03-B05K [2005]

Determining format or type of carrier inserted

E.g. distinguishing between CD and DVD or between CD-R and CD-RW in drive capable of handling multiple formats.

T03-B06 [1992]

Reading/writing circuitry

This code is used with T03-P codes when signal processing aspects are involved.

Laser, diode

T03-B06A [1992]

Writing

T03-B06C [1992]

Reading

T03-B07 [2007]

Re-recording, duplication

(T03-B01E3X, T03-B05A)

Includes equipment and methods for duplicating optical carriers by recording on writable media. Production of optical carriers by pressing is covered in T03-B01E and is not coded here.

T03-B08 [1992]

Interfacing with optical recording equipment

T03-B09

Other optical recording/reproduction aspects

Includes editing/recording techniques esp. for optical recording, track flaw detection, noise elimination etc., when not relevant to other T03-B codes.

T03-B10 [2005]

Optical drive

Portable standalone drives are also coded in T04-P. From 2005 optical drives are coded in this section in accordance with carrier type and are no longer assigned a corresponding T03-N code. Prior to 2002 optical drives are coded in T03-N as appropriate and W04-C10. From 2002 W04-C10 codes are applied only for audio/video recording applications and therefore between 2002 and 2005 optical drives with no audio/video aspect were assigned a T03-N code in conjunction with the appropriate T03-B codes to denote novel aspects.

T03-B10A [2005]

Disk drive

CD, CD-ROM, CD-R, CD-RW, DVD, DVD-ROM, DVD-R, DVD-RW, DVD-RAM, DVD+R, DVD+RW, HD-DVD, BD-ROM, BD-R, BD-RE, Blu Ray, UMD

T03-B10A1 [2005]

Multilayer disk

From 2002 to 2005 drives for optical disk with multiple recording layers, e.g. DVD-9, DVD-10 and DVD-18 formats, are assigned W04-C10A2 where the invention has significant audio/video recording aspects. From 2005 W04-C10A2 is no longer used and all multi-layer aspects of drives are coded here. Optical disk drives for audio/video recording which are also used for recording other data formats are coded in W04-C10A3A.

T03-B10C [2005]

Card drive

T03-B10E [2005]

Tape drive

T03-B10M [2007]

Multiple head type drive

T03-B12 [2005]

Holographic recording

This code is applied in conjunction with other T03-B codes to denote the relevant aspect. Prior to 2005 holographic recording was assigned T03-C09 as well as in T03-B codes.

T03-C

Other dynamic recording/reproducing methods

Audio/video applications are coded in W04-D codes also. For records prior to 2002, where application to audio/video recording is **not** stated, only capacitive record carriers and recording equipment are routinely assigned W04 codes also (in W04-D section). From 2002 W04-D codes are only applied where audio/video applications are specifically mentioned. For static stores see U14-A codes.

T03-C01 [1992]

Capacitive

Includes ferro-electric probe storage.

PVC, carbon, conductive, lubricant, stylus, diamond, shank, antistatic

T03-C03 [1992]

Using electron beam

See also V05-F08C3 and other V05-F codes for equipment aspects, as appropriate.

T03-C05 [1992]

Using tunnelling effects

See also V05-F08C3 and V05-F01A5, and other V05-F codes for equipment aspects, as appropriate.

T03-C05A [1997]

Record carriers and their manufacture

T03-C07 [1992]

Using superconductive element

See T03-A01E for superconducting magnetic record carriers, and T03-A06K for superconductive magnetic recording systems. Superconductive materials and devices in general are coded in U14-F codes, (X12-D06 codes are assigned for high-power electrical aspects of superconductors).

T03-C09 [1992]

Other recording methods

T03-D

Recording/reproducing using combination of methods

Audio/video applications are assigned in W04-D codes also.

T03-D01 [1987]

Magneto-optical recording

T03-D01 codes cover recording intended to be read as changes in reflected light due to the Kerr effect and not recording based on temporary lowering of coercivity by a heat source that is read magnetically, as in heat-assisted magnetic recording (covered by T03-A06N1). Prior to 2002 all aspects of magneto-optical recording were assigned W04-D codes. From 2002 carriers and mechanical aspects of magneto-optical recording are no longer coded in W04. Carriers intended specifically for audio/video recording are coded in T03-D01A1K. Audio/video applications of magnetic-optical recording drives are assigned W04-D20 codes. Inventions are assigned T03-D01 codes when specific reference is made to magneto-optical recording. However, it should be noted that T03-B should be considered also for general aspects, such as optical systems, which may also be relevant to magneto-optical recording, and to allow for cases where the magneto-optical aspect cannot be ascertained.

Photomagnetic, Kerr effect, disk, substrate, film, rare earth, amorphous, optomagnetic

T03-D01A [1992]

Record carriers

Prior to 1997, this code included disclosures dealing with a sequence of layers without emphasis on any specific one. This subject matter is now transferred to T03-D01A4.

T03-D01A1 [1992]

Carrier type

Codes in this section are used to indicate carrier type for both novel carrier details and novel manufacturing aspects. For these aspects, T03-N codes are **not** assigned from 1992.

T03-D01A1A [1992]

Disk

T03-D01A1C [1992]

Card

T03-D01A1E [1992]

Tape

T03-D01A1K [2002]

For audio/video recording

T03-D01A2 [1992]

Substrate

T03-D01A3 [1992]

Reflective, antireflective, and dielectric layers

The title of this code has been expanded to reflect the previous inclusion of dielectric layers, now covered by T03-D01A3E.

T03-D01A3A [1992]

Antireflective layer

T03-D01A3C [1992]

Reflective layer

T03-D01A3E [1997]

Dielectric layers

This code is mainly intended for layers internal to the carrier. Spacing layers between two magnetic layers are covered by T03-D01A5G. External protective layers are covered by T03-D01A7 codes.

T03-D01A4 [1997]

Layer arrangements in general

This code is used for inventions where structures involving several layers are claimed, without particular emphasis on any one. See other T03-D01A codes for novel details of specific layers.

T03-D01A5 [1992]

Magnetic layers

See V02-A01 codes for magnetic compositions also, and V02-B01 for magnetic film in general.

T03-D01A5A [1992]

Recording layers

T03-D01A5C [1992]

Reference layers

T03-D01A5E [1997]

Exchange coupling system

(T03-D01A5A, T03-D01A5C)

T03-D01A5G [1997]

Spacing layers

Covers layers consisting of metallic or non-metallic material separating two magnetic layers. Dielectric layers in general are covered by T03-D01A3E.

T03-D01A5J [2005]

Domain wall displacement system

Covers systems which transfer high density recorded marks from memory/recording layer to displacement/reproduction layer via switching layer through exchange coupling force, then causing exchange coupling force to disappear through heating and shifting domain wall in reproduction layer to increase size of mark so as to allow reading by standard wavelength laser.

Memory layer, switching layer, displacement layer, control layer, reading layer, magnetically amplifying magneto optical system (MAMOS)

T03-D01A7 [1992]

Overcoat layer

T03-D01A7A [1992]

Lubrication aspects of overcoat layer

T03-D01A8 [1992]

Record carrier manufacture and testing

Prior to 2002 this aspect was also coded in W04-D01A1, irrespective of application. From 2002 W04-D01A1 is no longer used. Use T03-D01A1 codes to discriminate carrier type (T03-N codes not assigned from 1992).

T03-D01A8A [1992]

Substrate manufacture

T03-D01A8C [1992]

Reflective layer deposition

T03-D01A8E [1992]

Magnetic layer deposition

Also coded in V02-H02 codes for novel aspects of equipment or process. Magnetic layer deposition for purely magnetic record carriers is covered by T03-A02A codes.

T03-D01A8G [1997]

Overcoat and lubricating layer deposition

T03-D01A8J [1992]

Carrier testing

For non-recording testing aspects see S02/S03 codes, e.g. S03-E04F2 for optical flaw testing.

T03-D01A9 [2005]

Recording format

Covers physical aspects only, e.g. details of grooves and pits. See T03-D01E7 for signal aspects of recording format.

T03-D01B* [1992-2004]

Record carrier positioning

*This code is now discontinued. From 2005 novel aspects of magneto-optical record carrier positioning are assigned T03-F or T03-E codes in conjunction with the appropriate T03-D01K code.

T03-D01B1* [1992-2004]

For disks

*This code is now discontinued. Prior to 2005 T03-N01 was also assigned along with T03-F codes for specific details.

T03-D01B5* [1992-2004]

For tape

*This code is now discontinued. Prior to 2005 T03-N02 and/or T03-N03 or T03-N04 were also assigned. See T03-E codes for tape drive details.

T03-D01C [1992]

Optical head details

T03-D01C1 [1992]

Optical elements

Includes light guides (see V07-F01 codes also).

T03-D01C1A [1992]

Lenses

T03-D01C1C [1992]

Beam splitter, polarizer

T03-D01C1E [1997]

'Super-resolution' optics

Numerical aperture, NA, Rayleigh, refraction

T03-D01C1G [1997]

Harmonic generator

Covers arrangements effectively reducing wavelength of recording or reading light.

T03-D01C3 [1992]

Light source

See U12 and V08 codes as appropriate for details of lasers and their control.

T03-D01C3A [1992]

Light source control

T03-D01C5 [1997]

Photodetector

See U12-A02B codes for semiconductor device respects.

Photodiode, diode, APD, quadrant, sensor

T03-D01D [1992]

Optical head positioning

T03-D01D1 [1992]

Focusing

T03-D01D1A [1992]

Focus servo

T03-D01D1C [1992]

Motor drive

Includes voice-coil motors and their control. See also V06-M04 and V06-N codes.

T03-D01D3 [1992]

Track selection and accessing

Includes motor drive for head positioning. See also V06-M and V06-N codes as appropriate.

T03-D01D3A [1992]

Track accessing servo

Track access servo systems in general are covered by T03-G02B1.

T03-D01D3C [1992]

Switching to track following servo action

T03-D01D5 [1992]

Track following

T03-D01D5A [1992]

Track following servo

Track following servo systems in general are covered by T03-G02C1.

T03-D01D7 [1992]

Motor drive for track selection and following

Includes motor per se and also drive circuitry not specifically part of track access or track following servo systems, these being covered by T03-D01D3A and T03-D01D5A respectively.

T03-D01E [1992]

Erasing, rewriting, writing, interfacing methods and circuits

The title of this code has been expanded to reflect its wider use since 1992 to include reading and writing circuitry (now covered by T03-D01E3 codes) and interfacing aspects (T03-D01E5 codes).

T03-D01E1 [1992]

Erasing/rewriting methods

Includes methods intended to reduce access time.

T03-D01E1A [1992]

Reducing unnecessary erasure

Includes monitoring of unrecorded areas to allocate data accordingly.

T03-D01E3 [1997]

Writing and reading circuitry

See also T03-P codes where broader signal processing aspects are involved.

T03-D01E3A [1997]

Writing

T03-D01E3C [1997]

Reading

T03-D01E5 [1997]

Interfacing aspects

Includes actual interfacing circuits and also storage control aspects, e.g. file allocation, etc. See also T01-H codes for computer storage systems.

FAT

T03-D01E7 [2005]

Signal recording format, methods

T03-D01E9 [1997]

Other magneto-optical recorder aspects

T03-D01F [1992]

Magnetic system

T03-D01F1 [1992]

Magnetic head

Includes manufacture of head (see V02-H05 also). Magnetic heads for purely magnetic recording are covered by T03-A03 codes.

T03-D01F1A [1992]

Head movement

Covers spacing/movement of head relative to disk surface. Optical head positioning is covered by T03-D01D codes.

T03-D01F3 [1992]

Bias magnet, initialisation system

Novel permanent magnets are also coded in V02-E01, electromagnets in V02-E02 codes.

T03-D01F3A [1992]

Position adjustment

Includes movement towards disk surface.

T03-D01H [1992]

Recording method

Codes indicating recording method are assigned to indicate equipment type, and thus may be used with any other T03-D01 code provided the type of recording is disclosed.

T03-D01H1 [1992]

Magnetic field modulation

Covers systems with constant intensity (unmodulated) light beam.

T03-D01H5 [1992]

Light beam modulation

Covers systems with constant (unmodulated) magnetic field.

T03-D01K [2005]

Magneto-optical drive

Portable standalone drives are also coded in T04-P. From 2005 magneto-optical drives are coded in this section in accordance with carrier type and are no longer assigned a corresponding T03-N code. Prior to 2002 magneto-optical drives are coded in T03-N as appropriate and W04-D20. From 2002 W04-D10 codes are applied only for audio/video recording applications and therefore between 2002 and 2005 optical drives with no audio/video aspect were assigned a T03-N code in conjunction with the appropriate T03-D01 codes to denote novel aspects.

T03-D01K1 [2005]

Disk drive

T03-D01K3 [2005]

Card drive

T03-D01K5 [2005]

Tape drive

T03-D01R [2006]

Recycling and destroying magneto-optical carrier

This code is used for recycling and destroying of **magneto-optical** record carriers only. Recycling and destroying of magnetic carriers is covered by T03-A01R and of optical carriers by T03-B01R. Where an invention is applicable to recycling or destruction of several types of carrier or the type is not disclosed the general code T03-H02R is assigned instead. For recycling of recording or playing equipment see V04-X01C.

T03-D03 [1992]

Electro-optical recording

Includes photorefractive ferroelectric carrier system with e.g. static electric field and modulated light beam. For details of head and carrier positioning see T03-E, T03-F, and T03-G codes, as appropriate.

T03-D03A [1992]

Record carriers and their manufacture

Prior to 2002 W04-D01A codes were also applied. From 2002 W04-D01A codes are no longer used.

T03-D09 [1992]

Other combination recording methods

T03-E

Tape(/filament) transport

For records prior to 2002 tape transport for audio/video recording was also coded in W04-B04B or W04-E02B. From 2002 tape transport aspects are no longer covered in these equivalent codes in W04, but are assigned W04-B10A or W04-B12A as appropriate if specific to video or audio tape recorders respectively. T03-N codes are assigned as appropriate to indicate equipment type.

Motor, rotor, drive, belt, gear, tape deck

T03-E01

Spools; cassette changing; loading; threading

Spools within cassette housings are coded in T03-H01B, or T03-H01C only. Winding tape onto spools during manufacture is covered by T03-H codes only. Includes retention of cassette/spool in position during recording/playback.

Engage, guide, cam, gear, eject

T03-E01A [1992]

Spools

Hub, reel, flange, leader

T03-E01B [1992]

Cassette changing

Load, eject, slot, slide, carriage

T03-E01B1 [1992]

Changing/ejecting mechanism within apparatus

T03-E01B1A [1992]

Cassette door

Flap, damping, spring

T03-E01B5 [1992]

External feeding apparatus

From 2006 external tape feeding for library systems is no longer included here, being covered by T03-Q01 and T03-Q07A. Prior to 2006 search with T03-E01B5 and T03-Q01 for external feeding arrangements for tape libraries.

T03-E01B7 [1992]

Handling different sized cassettes

Cassette adaptors per se (e.g. for enabling insertion of small cassette into standard machine) are covered by T03-H01B6.

T03-E01C [1992]

Looping, threading

T03-E01C1 [1992]

For helical scan tape

Includes arrangement to withdraw loop of tape from cassettes. Also coded in T03-N02 and T03-N03. Prior to 2002 audio/video applications of this technology were also assigned W04-B04B7A which is discontinued from 2002 and thus no longer assigned.

T03-E02

Other tape guidance

Includes capstan and rotary head guides, vacuum arrangements and pressure pads.

T03-E03

Controlling, regulating or indicating speed

T03-E03A [1992]

Speed control

Servo, feedback

T03-E03A1 [1992]

By measurement of carrier speed

Tachometer, pulse counting

T03-E03A5 [1992]

By recorded data

T03-E03A7 [1992]

In conjunction with helical-scan head

See also T03-A05A1D for helical scan head speed control, also coded in T03-N02.

T03-E04

Tape tension control; speed changing; reversing

Fast forward, rewind, selector, motor

T03-E05

Control of operating mode

For records prior to 2002 audio/video applications are coded in W04-B04B5 codes. From 2002 these codes are no longer assigned.

Select, switch, function, play, rewind, fast forward, display, pause, cue, autostop, solenoid

T03-E05A [1992]

Based on sensed carrier features e.g. autostop

T03-E05A1 [1992]

Sensing recorded data

T03-E05A3 [1992]

Sensing tape tension

T03-E05A5 [1992]

Sensing non-magnetic feature on tape e.g. leader

Includes optical detection. (Leader per se is covered by T03-A01H and T03-A01C3).

Light transmission, transparent

T03-E05A7 [1992]

Sensing speed of carrier

Includes detection of drop in speed, e.g. at end of tape, to halt operation.

T03-E05A9 [1992]

Other control based on sensed carrier features

T03-E05B [1992]

Manual control

Includes operating controls, keys, switches, etc.

Pushbutton

T03-E05C [1992]

Remote control

See W04-E04A for remote control specific to audio or video recording.

Optical, IR, ultrasonic, radio, wire

T03-E06

Driving spools

Includes motor, gearing and pulley systems, torque adjustment.

Reel, belt, tension, friction

T03-E06A [1992]

Motor

This code is used as a general code for tape drive system motors.

T03-E07

Driving tape

Includes capstan/pinch roller systems.

T03-E08

Other driving arrangements

Includes braking arrangements. Spool rotation preventing devices within cassettes are covered by T03-H01B7A.

Clutch, reel, torque

T03-F

Disk, drum, etc. drive and positioning

This section deals mainly with disk drive arrangements (general), but also covers analogous systems for card, drum, or other carriers. (For convenience the term 'disk' is used below). Search with T03-N codes to discriminate type of equipment, and with specific codes from other sections, e.g. T03-A08, T03-B03, etc.

Motor, floppy, hard, card, drum, cylinder

T03-F01

Automatic disk changing

Includes all types of loading/ejection mechanism where disk is not placed in final recording/reproducing. position by hand.

Load, arm, cartridge, eject, feed

T03-F01A [1992]

Loading mechanism and drive

Includes disk tray.

T03-F01A1 [1992]

Disk shutter opener

Disk cartridge shutters per se are covered by T03-H01A5. Includes arrangements to extract disk from cartridge within drive for playback/reproduction.

Pin, tab, lever

T03-F01A5 [1992]

Ejection system

This code covers arrangements peculiar to the ejection of carriers, and **not** merely part of the reciprocating system for loading/unloading, which is covered by T03-F01A.

T03-F01A7 [1997]

Handling different disk size or type

T03-F01B [1992]

Disk positioning and centering

Hub, locate

T03-F01C [1992]

Disk changing control system

Monitor, controller, circuit

T03-F01D [1992]

Manual loading of carrier

T03-F01E [1992]

Loading from carousel container for several carriers

Covers arrangements enabling simultaneous loading of several carriers, which are then played or recorded on, sequentially or non-sequentially. 'Internal' jukebox arrangements are covered by T03-F01F1. Carousel container per se is covered by T03-H01A2.

T03-F01F [1992]

Automatic feeding of single carrier from e.g. stack

T03-F01F1 [1992]

Feeding from stack within recording apparatus

Includes jukebox systems. Feeding systems from external stack (apart from library systems) are covered by T03-F01F5. Library systems are covered by T03-Q codes.

T03-F01F5 [1992]

Feeding from stack or system external to equipment per se

From 2006 library systems are no longer included here, being covered by T03-Q codes.

T03-F01X [1992]

Other feeding arrangements

T03-F02

Driving; control of drive and operating function; other

Motor details are coded in V06.

T03-F02A [1992]

Drive control

Covers circuitry supervising and monitoring operation. Aspects specific to disk changing are covered by T03-F01C. See V06-N codes for motor control circuits.

T03-F02A1 [1992]

Speed control

T03-F02A5 [2005]

Motor tilt control

T03-F02C [1992]

Drive components

Covers only those mechanical or electromechanical elements concerned with driving carrier.

T03-F02C1 [1992]

Drive motor

See V06-M codes also for motor details.

Spindle motor

T03-F02C3 [1992]

Turntable, spindle, bearings, disk clamping

T03-F02C3A [1997]

Disk clamping arrangements

(T03-F01B, T03-F02C3)

Covers arrangements to clamp disk onto shaft. Clamp arrangements for drive braking are covered by T03-F02C5.

T03-F02C3C [1997]

Bearings

T03-F02C5 [1992]

Braking arrangements

Arrangements to fix disk(s) on driving shaft are covered by T03-F02C3.

T03-F02E [1992]

Carrier pressure arrangements

Includes arrangement to press floppy disk against magnetic head.

T03-F02G [1992]

Ventilation, cooling, air filters

Includes fans, heatsinks, etc. Cooling of electronic equipment in general is covered by V04-T03 codes.

T03-F02G1 [1992]

Air filters

Air filters of general application are covered by T03-H02C. Prior to 1992 see T03-F02 and T03-H02.

T03-F02J [1992]

Multi-carrier type drive

This code is used with other T03-F codes as appropriate and covers arrangements specific to driving several carriers simultaneously.

T03-F02L* [1992-2004]

Casings, constructional details

*This code is now discontinued and since 2005 codes in this section are no longer used. Constructional aspects of disk drives are now assigned T03-L05 codes in conjunction with T03-A08A, T03-B08A or T03-D01K1 as appropriate, or in conjunction with T03-N01 for general cases.

T03-F02L1* [1997-2004]

Casings, housings

*This code is now discontinued.

T03-F02L5* [1997-2004]

Internal construction

*This code is now discontinued.

T03-F02X [1992]

Other disk drive details

Includes internal connectors, e.g. between drive assembly and PCB. Prior to 2005 this code included external interfacing connectors, which are now covered in T03-M07. Includes arrangements for lubricating carriers within disk drives. For lubricating arrangements for motor bearings see T03-F02C3C along with V06.

T03-G

General head arrangements

To be used where appts. is non-specific or common to several types of recording. For specific applications see the relevant code group, e.g. T03-A05 for magnetic, and T03-B02A for optical recording.

Disk, drive, arm, carriage, position, motor, mount, rotating, transducer, align, stepper, slide, pick-up

T03-G01

For adjusting head/record carrier spacing

Air, bearing, lower, pressure, raise

T03-G02

For track selecting/aligning

Covers mechanical and electromechanical arrangements.

T03-G02A [1992]

Head position actuator

T03-G02A1 [1992]

Drive motor

See V06-M codes for details of motor per se.

T03-G02A5 [1992]

Mounting, support

Includes support arms, bearings etc.

T03-G02B [1992]

Track selection

T03-G02B1 [1992]

Track access servo

T03-G02B1A [1992]

Switching to track following action

T03-G02C [1992]

Track alignment

T03-G02C1 [1992]

Automatic alignment, track following servo

T03-G02C5 [1992]

Manual alignment; setting up

For testing aspects see T03-K07 codes also.

T03-G02E [1992]

Preventing servo crosstalk or unwanted interaction

Includes arrangements to prevent crosstalk between e.g. track following servo and focus servo in optical or magneto-optical disk systems, (see T03-B and T03-D01 codes also as appropriate).

T03-G09

Other head arrangements

Includes other head locking/positioning appts. and head/carrier pressure maintaining appts.

T03-H

Record carriers and accessories in general

T03-H01

Containers

Codes in this section relate to containers, casings, sleeves etc. in which record carrier is driven. Storage containers in which the carrier is removed for playing are covered by T03-L01 codes.

Sleeve, cover, cartridge, housing material, fabric, fiber

T03-H01A

For disks

Prior to 2002 disk containers for audio/visual recording applications were also coded in W04-E02A1. From 2002 these codes are no longer used and T03-H01A6K is applied for disk containers specifically intended for audio/visual recording.

(G11B-023)

Floppy, hard, compact, envelope, jacket, fold, flexible

T03-H01A1 [1992]

Materials

Covers composition of container.

T03-H01A2 [1992]

For multiple disk container

Includes carousel arrangement in which carriers can be driven for recording or reproduction. See T03-F01E also for carousel-changing aspects.

T03-H01A3 [1992]

Structure

T03-H01A4 [1997]

Liner for disk container

T03-H01A5 [1992]

Protective arrangement e.g. shutter

Disk drive arrangements for opening shutters are coded in T03-F01A1.

T03-H01A6 [1992]

Disk type

T03-H01A6A [1992]

Magnetic

T03-H01A6B [1992]

Optical

T03-H01A6C [1992]

Capacitive

T03-H01A6D [1992]

Magneto-optical

T03-H01A6K [2002]

For audio/video recording

(W04-E02A1)

T03-H01A6X [1992]

Other disk type

T03-H01A7 [1992]

Disk hub

T03-H01A8 [1992]

Manufacture and assembly

Covers manufacture of component parts of container and mounting carrier inside it.

T03-H01A9 [1992]

Other disk container details

T03-H01B

Cassettes for end-to-end webs/filaments

Prior to 2002 this topic was also coded in W04-B04B1 and W04-E02B1. From 2002 these codes are no longer used and audio/visual applications are indicated using T03-H01B4. Cassettes are assumed to be for magnetic tape unless other codes indicate otherwise.

Tape, guide, insert, reel, spool, end, leader

T03-H01B1 [1992]

Materials

Polycarbonate, plastics

T03-H01B3 [1992]

Construction

Covers shape, internal arrangement of component parts, etc.

T03-H01B4 [2002]

For audio/video recording

(W04-B04B1 and W04-E02B1)

T03-H01B5 [1992]

Protective arrangement e.g. tape cover

Search with T03-N02 for helical scan cassettes.

T03-H01B6 [1992]

Cassette adaptor

Arrangements in a recorder to allow loading of different sized cassettes are covered by T03-E01B7.

T03-H01B7 [1992]

Spools, spool locks

Spools not part of a cassette are covered by T03-E01A.

T03-H01B7A [1992]

Spool locks

Preventing spool rotation by tape drive components (e.g. brakes) is covered by T03-E08.

T03-H01B8 [1992]

Loading with tape, manufacture of cassette per se

Includes manufacture and assembly of cassette.

T03-H01B8A [1992]

Loading cassette with tape

Includes arrangements for cutting tape and attaching leader, gripper or buckle etc. For novel gripper or buckle arrangements per se, see T03-H01B9.

Pancake

T03-H01B8C [1992]

Manufacture of cassette per se

Includes moulding of cassette halves.

T03-H01B9 [1992]

Other end-to-end cassette details

Includes labels (with T03-H02A1A). Includes attachments to tape leader for gripping etc..

T03-H01C

Cassettes for endless webs/filaments

Loop, continuous, spool, message recorder, telephone answering, announcement

T03-H01X

Other container details

T03-H02

Record carriers, cleaning

Magnetic head cleaning is covered by T03-A04B codes only.

Disk, tape, cassette, head, compact, housing, cartridge, filter, fluid

T03-H02A [1992]

General aspects of carriers, including labels

Prior to 2002 labels for audio/video recording carriers and cassettes were coded in W04-E03A. From 2002 this code is no longer used and audio/video applications of labels are coded in T03-H02A8. Includes labels applied to carrier itself and to housing, e.g. cassette case, jewel box, etc.

T03-H02A1 [1997]

Labels and authentication marks

T03-H02A1A [1997]

Labels

Includes labels applied to carrier itself and to housing, e.g. cassette case, jewel box. For labelling during manufacture of optical media see T03-B01E codes and X25-F08 (if there are significant electrical details).

T03-H02A1C [1997]

Authentication markings for record carrier

Includes both human-readable and machine-readable markings, such as bar coding (see T04-A and T04-C codes also). Identification of counterfeit recordings by added signals is **not** included being covered in T03-P07C, and for audio and video recording in W04-G01L3 and W04-F01L3 respectively.

T03-H02A3 [2002]

Integrated circuit storing carrier information

This code is intended for ICs incorporated in record carriers to act as e.g. 'electronic labels', with the possibility of reading contents information, or similar, either by recording equipment itself, or by an accessory system.

T03-H02A8 [2002]

For audio/video recording

(W04-E03A)

T03-H02B [1992]

Cleaning of carriers

This code is used to highlight the cleaning or re-conditioning of record carriers by an end user and **not** as a step in a manufacturing process. For cleaning, re-conditioning and similar processes as part of record carrier manufacture see codes for manufacture of the particular carrier type, e.g. T03-A02 codes for magnetic carriers, T03-B01E3L and other T03-B01E codes for optical carriers, or T03-D01A8 codes for magneto-optical carriers.

T03-H02C [1992]

Cleaning equipment, including air filters

Air filters specifically designed for disk drives are coded in T03-F02G1 only. Prior to 1992 search T03-F02 and T03-H02. Cleaning of magnetic and optical heads is not included and is respectively covered by T03-A04B3 codes and T03-B02B8 codes (from 1992).

T03-H02R [2006]

General carrier recycling and destroying arrangements

This code is used for recycling and destroying of record carriers in general, i.e. where the invention is applicable to several types of carrier or the type is not disclosed. It is **not** assigned when recycling or destroying of a **specific** type of carrier is involved, for which T03-A01R (magnetic carriers), T03-B01R (optical carriers) or T03-D01R (magneto-optical carriers) is assigned. For recycling of recording or playing equipment see V04-X01C.

T03-H07 [2006]

Preventing overwriting, erasure or copying

Covers hardware-based methods of write/erase protection, e.g. erase tab, disk-drive lock. See T03-P07 for erasure/ copy prevention using signal formats/signal processing.

T03-H07A [2006]

Preventing accidental loss of data

T03-H07C [2006]

Preventing unauthorised deliberate access or copying

T03-H09

Other record carrier and accessory aspects

Including spool manufacture, tape winders/rewinders and disk-sleeve insertion appts.

T03-J

Indexing; synchronising; measuring tape travel

This section includes codes for counters, gap inserting, cue recording, and carrier storage marking/indication. Labels for carriers are covered by T03-H02A1A. For audio/video applications see W04-H and W04-K codes also.

Pulse, code, position, track, time, counter, indicate, display

T03-J01 [1992]

Index signal recording and detection

T03-J01A [1992]

Time code

SMPTE

T03-J01C [1997]

Indexing information relating to carrier contents

Includes 'table of contents' information, recorded separately or interleaved with main recorded information, but usually by same recording process in either case. Labels providing such information in human-readable form are covered by T03-H02A1A.

TOC

T03-J01C1 [1997]

User-recordable contents index information

Includes 'user table of contents' information, and thus implies use of recordable, rather than 'read-only' carriers.

UTOC

T03-J01E [2006]

Error management information

T03-J03 [1992]

Synchronising

T03-J03A [1997]

Synchronising data with carrier speed or head position

Codes in this section cover both control of carrier speed based on data rate, and modification of data rate based on head or carrier drive aspects. Details of clock circuits and systems are in T03-J03C.

CAV, CLV, angular, linear, wobble

T03-J03A1 [1997]

Controlling carrier speed based on recording data rate

See also T03-E03A5 and T03-F02A1 for tape and disk drive aspects respectively. Arrangements modifying data rate based on carrier speed or position of head on carrier, e.g. differing linear velocity along radius of a disk, are covered by T03-J03A3 and T03-J03A5 respectively.

T03-J03A3 [1997]

Modifying data rate based on carrier speed

Covers arrangements to modify data rate based on measured speed of carrier.

T03-J03A5 [1997]

Modifying data rate based on head position

Includes arrangements to modify data rate based on change in linear velocity of tracks on a disk along its radius.

T03-J03C [1997]

Clock system details

See appropriate codes in e.g. U22 and U23 for actual oscillator and clock extraction circuits.

Phase, PLL

T03-J03C1 [1997]

Clock generation and recording

Crystal, resonator, feedback, ring

T03-J03C5 [1997]

Clock recovery

This code is intended for read circuitry establishing a clock signal from recorded data itself.

T03-J05 [1992]

Measuring carrier travel

T03-J05A [1992]

Measuring tape travel

Includes tape counters. Search with T03-E05A1 for arrangement for stopping e.g. in response to gaps in recorded information.

Automatic music search system, AMSS, display

T03-K

Editing; monitoring

Includes dubbing, splicing, displays, disk speed monitoring, etc. For audio/video applications see W04-H and W04-J codes also. See T03-P01A for digital recording error correction.

Control, check, monitoring

T03-K01 [1992]

Editing, splicing tape

Dubbing

T03-K01A [1992]

Splicing

Tape, join, repair, bond

T03-K03 [1992]

Operation displays

VU, volume unit, meter, mode, indicate

T03-K05 [1992]

Recording equipment control and circuits (general)

Includes control systems compensating for ageing effects, temperature change, etc.

T03-K05A [1992]

Adaptive control systems

T03-K07 [1992]

Recording equipment testing

Electronic circuitry testing in general is covered by S01-G01 codes.

T03-K07A [1992]

Testing during manufacture

Production line, evaluate, reject

T03-K07C [1992]

Complete equipment testing

Includes self-test facilities and performance testing of finished equipment.

Test tape, test disk, error check

T03-K07E [2006]

Detecting carrier defect

Covers arrangements to protect drive from damage. For detection of defects using BER measurements search along with T03-P01A. Arrangements to store information concerning the location of carrier errors, e.g. bad sectors, in order to speed up read and write processes are not coded here, being covered in T03-P01A and T03-J01E instead. Prior to 2006 this topic was covered in T03-P01A and T03-J01C.

T03-K09 [1992]

Other monitoring details

T03-L

Recording housings

Codes in this section relate to storage housings for record carriers, and also constructional details of recording equipment.

Disk, cassette, storage, magnetic, tape, floppy, cover, lock, support, case, compact, compartment, stack

T03-L01 [1987]

Cases and storage racks or boxes for record carriers

T03-L01 codes relate to casings and housings for record carriers, from which the carriers can be removed, and are not assigned for casings and housings of equipment, which are covered by T03-L05A. T03-L01 codes cover cassette boxes, racks, storage boxes for floppy disks, hard disks, tape reels etc. but not casings inserted into recording equipment in which the carrier is driven during recording/playing process, which are covered by T03-H01 codes. Prior to 2002 record carrier containers for optical recording carriers and other carriers specifically used for audio/video recording were also assigned W04-L01 codes. From 2002 these codes are no longer used and T03-L01K codes are used to indicate the type of carrier that the container is used for, and where appropriate, its application.

T03-L01A [1992]

Record carrier container

Includes packaging aspects, e.g. shipping containers.

T03-L01A1 [1992]

For disks

Compact, CD case, sleeve

T03-L01A3 [1992]

For tape

Search with T03-N03 for cassettes, and also T03-N02 for helical scan cassettes.

Video rental

T03-L01C [1992]

Storage racks and cases

Includes arrangements for home or office use, mounting in car, etc., and also display stands for use in e.g. shop.

Retail, store

T03-L01C1 [1992]

For disks

Floppy, computer, data, file, box

T03-L01C3 [1992]

For tape

T03-N02, T03-N03 are also assigned as appropriate.

Spool, reel, cassette, drawer, rack, box

T03-L01K [2002]

Carrier type

T03-L01K1 [2002]

Magnetic

T03-L01K3 [2002]

Optical

T03-L01K5 [2002]

Magneto-optical

T03-L01K8 [2002]

For audio/video recording

(W04-L01)

T03-L01N [2007]

Novelty housings, containers, combined with other article

Covers record carrier containers used for additional function. Includes record carrier cases and racks combined with other article, e.g. drinks can. Use in conjunction with other T03-L codes to indicate type of container.

T03-L05 [1987]

For recording equipment; constructional details of recording equipment

T03-L05 codes relate to recording equipment per se and mounting details. T03-L01 codes are only assigned in addition when a storage rack is an integral part of an automatic feed system, for example. (For library systems T03-Q codes are also assigned plus T03-E/T03-F as appropriate).

Housings and constructional details specific to audio/visual recording equipment is also coded in W04-L05.

T03-L05A [1987]

Cabinets, casings, stands

T03-L05B [1987]

Construction

Includes mounting of components, internal layout, cooling etc. See V04-T for constructional details of electronic appts. in general.

T03-L05N [2005]

Noise and vibration reduction using constructional techniques

This code covers constructional arrangements to reduce acoustic noise and vibration generated by the recording and reproducing equipment itself. Arrangements to reduce electrical noise in recorded or reproduced signals are covered by T03-P05.

T03-L05S [2005]

Shock absorbing and damping

This code covers constructional arrangements to reduce the effects of externally-applied shocks and vibration on the recording and reproducing equipment. Arrangements to reduce acoustic noise and vibration produced by the recording or reproducing equipment itself are covered by T03-L05N.

T03-M

General

T03-M01

For flat record carriers

This code was used to indicate card-type carrier systems prior to 1992. From 1992, T03-N05 will be assigned instead.

Card, strip

T03-M02

For web and other record carriers

Prior to 1992, this code was chiefly used to indicate certain magnetic tape manufacturing processes (with T03-A02), such as slitting. From 1992 these are covered by T03-A02B7 and T03-A02E3, and T03-M02 is now mainly used for non-standard web carriers such as photographic film with e.g. magnetic recording aspects, (also assigned T03-A01C9).

Tape

T03-M05 [2005]

Power supply details

T03-M07 [2005]

Interfacing, connectors

Covers external interfacing and connectors, e.g. between drive and other equipment, only. Interfacing for magnetic drives and optical drives is covered in T03-A10 and T03-B08 respectively, and is not coded here. See V04 codes also.

T03-M08 [2006]

General equipment manufacturing details

This code covers the manufacture of recording and playback equipment in general and is not assigned where more specific codes are available, such as T03-A04A1 codes for magnetic head manufacture and (from 2012) T03-B02B8C for optical head manufacture. T03-M08 is not assigned for manufacture of 'bought-in' components used in recording equipment, or for record carrier manufacture which is covered by specific codes in e.g. T03-A02 (magnetic carriers), T03-B01E (optical carriers), T03-C (capacitive and other carriers), T03-D01A8 (magneto-optical carriers), T03-D03A (electro-optical carriers) and T03-D09 (other 'combined method' carriers).

T03-M09

Other general recording aspects

T03-N [1983]

Recorder types

Notes :

(1) Codes in this section are applied to indicate equipment type only, and do not themselves indicate novel features;

(2) It is not intended that the codes be used in isolation, but rather to restrict the scope of other T03 codes;

(3) From 1992, T03-N codes have not been assigned to record carriers per se which can be assigned codes from the following sections: T03-A01C, T03-A02E, T03-B01D, T03-D01A1;

(4) Prior to 2005 T03-N codes were assigned to all inventions involving a record carrier drive used for a given type of record carrier. From 2005 codes in this section will be only be applied where the recording method, e.g. magnetic. optical etc., is unknown or the invention is of a general nature. T03-A08, T03B08 and T03-D01K codes are applied for inventions involving a particular method of recording;

(5) Carriers in casings (e.g. cassettes, diskettes as covered by T03-H codes) are also assigned T03-N codes.

T03-N01

Disk

T03-N02

Helical scan

T03-N03

Cassette

T03-N04

Reel-to-reel

T03-N05 [1992]

Card recorder

(T03-M01)

See also T04 and T05-H02 codes for card-freed systems.

T03-N06 [1997]

Drum recorder

Magnetic

T03-P [1987]

Signal processing for recording (general)

Codes in this section may be used in conjunction with other T03 codes, or alone. For audio applications see W04-G01A also, and for video recording see W04-F codes.

T03-P01 [1987]

Digital recording

T03-P01A [1987]

Error detection

See U21-A06 for error detection in coding systems in general.

Decode, code, block, interleave, Reed Solomon, cyclic, correct, memory

T03-P01B [1992]

Compression and decompression codes

See T01-D02 for computer application of data compression and U21-A05A2 in general.

Compaction

T03-P01D [2005]

Equalisation, thresholding and digital signal processing

Covers signal processing circuitry for detection and reading of signals. Can be used in conjunction with T03-A06C3 and T03-B06C for specific application to magnetic and optical recording respectively. Prior to 2007 inventions specific to magnetic or optical read circuitry were assigned T03-A06C3 or T03-B06C only. See also U22-G codes for digital signal processing.

T03-P01F [1997]

Formatting aspects

Formatting aspects of magnetic record carriers, with emphasis on layout of tracks, are covered by T03-A06F codes.

T03-P02 [1987]

Analogue

Demodulate, AM, FM, PM

T03-P05 [1992]

Noise reduction

This code covers arrangements to reduce electrical noise in recording or reproducing signals. Error detection and correction in digital recording is covered by T03-P01A. Reduction of acoustic noise (sound energy) generated by the equipment is not included and is covered by T03-L05N.

T03-P07 [1992]

Signal processing to restrict or monitor access, writing, erasing or copying

W04-F01L and W04-G01L codes cover analogous arrangements specifically for audio and video recording and in these cases T03-P07 codes are not assigned. Prevention of overwriting, erasing or copying using hardware techniques, for all types of recording, is covered in T03-H07. Prior to 2006 T03-A07 codes covered anti-copying aspects specific to magnetic recording.

T03-P07A [1997]

Signal processing to prevent unauthorised access or copying

T03-P07C [1997]

Signal processing to identify occurrence of copying

T03-Q [1992]

Library systems

Covers systems for bulk storage of data, especially with automated retrieval.

T03-Q01 [1992]

Tape storage

Covers magnetic tape storage, unless additional codes indicate otherwise.

T03-Q05 [1992]

Disk storage

T03-Q05A [1992]

Magnetic disk library

T03-Q05C [1992]

Optical disk library

T03-Q05E [1992]

Magneto-optical disk library

T03-Q05X [1992]

Other disk library

T03-Q07 [2006]

General aspects of recording media library

From 2006 this section covers all media library loading mechanisms and control systems. Previously this topic was covered in T03-E01B5 and T03-F01 for tape and disk systems respectively.

T03-Q07A [2006]

Loading mechanism and drive

T03-Q07B [2006]

Media changing control system

T03-S [2005]

Use of data recording apparatus for non-recording applications

Use in conjunction with T03-B01D1 for articles incorporating optical disks, e.g. clocks, drinks coasters. Also for using storage media for holding biological/chemical samples, testing/instrumentation aspects are also coded in S03.

T04: Computer Peripheral Equipment

T04-A

Using digitally marked record carriers

Read, card, data, print, sense, code, document, mark, encode, bar codes

T04-A01

Punched card or tape punches and readers

Optical, hole, punch hole, aperture

T04-A02

Other digital marking (writing)

Includes credit or security card marking. Digitally marked cards per se are covered by T04-C codes. Writing to IC cards is covered by T04-K02. Includes erasure of markings.

T04-A02A [1992]

Electrostatic or magnetic

T04-A02B [1992]

Digital marking to be read using light (incl. IR,UV)

Includes bar code marking, two-dimensional bar code marking.

T04-A02X [1992]

Other writing

T04-A03

Other digital mark sensing (reading)

Reading of IC cards is covered by T04-K02.

Head, pick-up, sweep

T04-A03A

By detecting electrostatic or magnetic field change

Strip

T04-A03B

Using light (incl. IR, UV)

Optical, beam, illuminate, laser, lens, reflect

T04-A03B1 [1992]

Bar code reading

Search with T05-L01C for point of sale application, T01-C06 for computer interfacing and T04-M02 for hand-held bar-code scanner.

UPC, POS, two-dimensional code

T04-A03B9 [1992]

Other reading with light

Concealed data

T04-A03X

Other reading

Contact, key, electrode, acoustic, ultrasound

T04-A05 [2005]

Card feeding apparatus

Card feeding details for digitally marked record carrier. See T04-A03 for reading aspects.

T04-B

Verifying correctness of digital marking

Covers checking and monitoring of marking e.g. for alignment, **not** routine reading to determine authorisation, etc. Includes error detection.

T04-C

Digitally marked record carriers

Includes physical aspects, material, shape, etc. Covers only carriers with digital markings, digitally marked ID on items. 'Smart' cards are in T04-K01. Includes punched paper cards or tape (punches/readers are in T04-A01) see also T05-H02C5.

Identify, code

T04-C01 [1992]

Magnetic

Magnetic carriers are also assigned T03-A codes, or T03-A02 codes for manufacture, cross reference with T05-H02C5A.

Strip, card

T04-C02 [1992]

Using light (incl. IR, UV)

Cross reference to V07 hologram, T05-D card/badge access, T05-H cash payment, T05-C fare registering.

Optical, hologram, bar code

T04-C09 [1992]

Other record carriers

Includes electrostatic cards, inductive cards and remote sensing.

T04-D

Character and signal pattern recognition

For data processing aspects of image acquisition and processing devices e.g. analysis, image detection, scanning, optical character recognition, camera, e.g. recognition for edge detection in peripheral. (T01-J10 and T04-D are only used together when the novelty does not describe how/when the processing is carried out). See also X25 codes, e.g. X25-A03E for robot manipulators. If novelty is in camera then see W04.

Image, detect, camera, digital, identify, scan, optical, video, facsimile, line, pixel, analysis

T04-D01

Using characters containing code marks

Used for system where character conveys additional information, e.g. in stroke width, or magnetic ink character recognition systems.

MICR

T04-D02

Image acquisition

Scanning, reader, image pick-up, TV camera, alignment, CCD camera

T04-D02A [1992]

Mechanical and optical aspects of image acquisition

Lens, focus

T04-D02B [1992]

Circuitry, processing of image acquisition

Processing within pick-up device, else coded in image processing see T01-J10 codes.

T04-D03

Image preprocessing for image recognition

Image preprocessing before recognition processing, cross reference to T01-J10B2 for image processing/image analysis.

Filtering, quantising, compression, expansion, enhancement, contour, sensing

T04-D03A [1992]

Noise reduction

Noise reduction done in peripheral unit.

T04-D03B [1992]

Edge recognition and determining orientation

Alignment

T04-D04

Recognition

Includes OCR (optical character recognition) and fingerprint identification, (see S05-D01C5A also). For speech recognition, see W04-V codes only. Scanner-computer interface details are coded in T01-C06.

Compare, reference, digital, memory, match

T04-D05 [1992]

Monitoring and error detection

(T04-D09)

Covers monitoring of parts of recognition system only. Using pattern recognition to detect errors in a pattern is in T04-D07A.

Fault detection

T04-D07 [1992]

Applications of recognition techniques

See also under application.

Inspection

T04-D07A [1992]

Detecting defect in pattern

Errors in the recognition system itself are covered by T04-D05. Flaw detection, also see S03-E. Includes comparison with original pattern e.g. PCB, workpieces, valuable papers etc. Cross reference to U11 for checking circuit/wiring layout, see also T01-J15A2.

T04-D07B [1992]

Sorting objects by type

Includes quality pass-fail tests based on e.g. colour. See also T05-K and X25-F06 for sorting.

Select

T04-D07B1 [1992]

Using patterns specifically applied as identification marks

Label

T04-D07C [1992]

Identification of item

T04-D07D [1992]

Detecting movement or position

T04-D07D1 [1992]

Detecting movement

T04-D07D3 [2011]

Detecting dimensions

Covers uses of recognition system to determine dimensions of an object, e.g. height, length, etc. See also S02-A03.

T04-D07D5 [1992]

Detecting position or orientation

T04-D07E [1992]

Hand written character recognition

Cross reference to T04-F04 input of handwritten characters.

T04-D07F [2006]

Biometrics

For image recognition relating to fingerprint recognition. See T04-D04 only prior to 2006. See also T05-D01B for entry/exit registers based on human characteristics. See also S05-D01C5A were novel detection systems are included.

T04-D07F1 [2006]

Facial recognition

T04-D07F1A [2007]

Eye detection

Includes iris recognition, for red eye detection see also W04.

T04-D07F2 [2006]

Fingerprint recognition

T04-D07F9 [2007]

Other biometrics

T04-D07K [1992]

Using non-visible light images (e.g. IR,UV)

T04-D07X [1992]

Other recognition applications

T04-D08 [1992]

Colour systems

T04-D09

Other recognition aspects

T04-E

Graph reading

Includes curve followers and devices for converting position of manually operated writing or tracing member into an electrical signal. Light pens, joysticks, etc. are covered by T04-F02 codes. See T01-C02 codes for computer interfacing of manual input interfacing systems and T01-C06 for scanner interfacing.

Position, tablet, coordinate, optical, digital, screen, matrix, point

T04-F

Manual input arrangements for computers and computer controlled equipment

Only used if input devices details are given. Covers manual or other physical input arrangements. Covers input for computer controlled devices. Includes keyboards/keypads, trackpads and touchscreens for personal digital assistants (PDAs), handheld video games, handheld GPS systems, etc. See T01-C02 codes for interface to computer.

Position, select, switch, contact, digital, touch, coordinate

T04-F01 [1983]

Keyboards and keypads

For typewriter keyboards see also S06-K. For switch and key actuation aspects see V03-C01, cross reference T01-C02A for keyboard interface. Virtual keyboards are coded in T01-C02B1 only. If use of keypad/keyboard is not precise, no T04-F code is applied, but V03 codes instead.

Layout

T04-F01A [1992]

Control, circuitry

T04-F01A1 [1992]

Key operation circuitry

Including scanning. See also U21-B02C.

T04-F01A5 [1992]

Key coding aspects

See also U21-A05D codes for key coding aspects.

Foreign, function key

T04-F01B [1992]

Construction

Cross reference to V03 for constructional details.

Key, membrane, pushbutton, pressure, casing, housing

T04-F02 [1983]

Analogue

Control, video game, indicate, matrix

T04-F02A [1992]

Based on absolute position

Input device when pressed/touched on particular position, inputs data according to that position.

X-Y, coordinate

T04-F02A1 [1992]

Light pen

Optical, light pointer

T04-F02A2 [1992]

Touchscreen

Details of touch sensors are coded under U21-B02C. Constructional details of the touchscreen are also coded under T04-F02C.

T04-F02A5 [1992]

Manual input pad

Digitiser tablet, graphic interface, touch pad.

Pen, matrix

T04-F02B [1992]

Based on relative position

Input device when moved moves e.g. cursor accordingly.

T04-F02B1 [1992]

Mouse

T04-F02B1A [2005]

Optical

Mouse using optical elements instead of roller ball.

T04-F02B2 [2005]

Track Pad

Touch pad used as mouse input e.g. on laptop computer.

T04-F02B3 [1992]

Joystick, gamepad

Includes input devices used for gaming machines, e.g. joypad, driving wheel, etc. that are used in place of joystick.

T04-F02B3A* [2002-2006]

Force feedback for joystick

*This code is now discontinued. From 2007 see T04-F03.

Pen, matrix

T04-F02B5 [1992]

Track ball

T04-F02B7 [2002]

Three dimensional input

Includes power glove, 3-D input with strain gauges, virtual reality and acceleration measurements used as input e.g. tilt sensor used to scroll display on a PDA.

Glove, Wiimote®, Wii remote®

T04-F02C [2005]

Construction, manufacturing and testing details of analogue input arrangement

Includes mechanical details, manufacture and manufacturing apparatus. See also codes for type (e.g. T04-F02B1 for mouse, etc.). See T04-L01/L05 prior to 2005.

T04-F03 [2007]

Haptic feedback for manual input devices

Previous to 2007 see T04-F02B3A.

T04-F04 [1992]

Input of hand written characters

T04-F05* [1992-1996]

Hand scanner for computer input

*This code is now discontinued but remains searchable and valid for records from 1992 to 1996. From 1997 see T04-M02. See also S06 codes. Scanner computer interfacing details are covered by T01-C06 and image acquisition details are covered by T01-J10A codes.

T04-F06 [2007]

Miscellaneous input devices

Includes buttons and foot pads for input. See also V03 or U21 for details of device.

T04-G* [1980-2009]

Printers

*This code is now discontinued. See S06-D to K. Press/plate-type printers are in S06-C only. Includes all aspects of individual character and line printers. (Computer output interface details are in T01).

Drive, feed, roll, copy, character, line, carriage, motor, head, record, word-processor

T04-G01* [1980-2009]

Impact

*This code is now discontinued. See S06-F from 2010. Includes mechanical action. Electromagnet and solenoid drive aspects are coded in V02-E02A also.

Armature, coil

T04-G01A* [1983-2009]

Dot printers

*This code is now discontinued. See S06-F01 from 2010.

Matrix, pin, wire, needle

T04-G01B* [1983-2009]

Using type

*This code is now discontinued. See S06-F02 from 2010.

Select, hammer, daisy-wheel, disc, step, font, typeface, golf-ball

T04-G01C* [1992-2009]

Ribbon

*This code is now discontinued. See S06-F03 from 2010.

Ink, cassette

T04-G02* [1980-2009]

Ink-jet

*This code is now discontinued. See S06-G from 2010.

Liquid, dye, nozzle, resin, water, channel, drop, pressure, reservoir, eject, electrode, pulse

T04-G02A* **[1983-2009]**

Drop-on-demand

*This code is now discontinued. See S06-G01 from 2010.

Thermal ink-jet, bubble, piezoelectric, ultrasound

T04-G02A1* **[2002-2009]**

Print head for ink jet drop-on-demand printer

*This code is now discontinued. See S06-G03 from 2010.

Thermal ink-jet, bubble, piezoelectric, ultrasound

T04-G02B* **[1983-2009]**

Selective drop deflection

*This code is now discontinued. See S06-G02 from 2010.

Charge, electrode, stream, gutter, continuous

T04-G02B1* **[2002-2009]**

Print head for selective drop deflection printer

*This code is now discontinued. See S06-G03 from 2010.

Charge, electrode, stream, gutter, continuous

T04-G02C* **[1992-2009]**

Ink

*This code is now discontinued. See S06-G04 from 2010.

T04-G02D* **[2002-2009]**

Inkjet head cleaning and general maintenance of printhead

*This code is now discontinued. See S06-K06 from 2010.

T04-G02E* **[1997-2009]**

Recording media

*This code is now discontinued. See S06-G05 from 2010. Includes pre-print application of liquid (not ink) to paper/ pre-treatment of paper for ink jet printing. See also X25-T09A for electrical details of paper manufacture.

Paper, fabrics, OHP sheet, recording pattern of LCD screen

T04-G02F* **[2002-2009]**

Refilling of ink cartridge

*This code is now discontinued. See S06-G06A from 2010.

T04-G02G* **[2005-2009]**

Ink Chamber

*This code is now discontinued. See S06-G06 from 2010.

T04-G02H* **[2005-2009]**

Post ink application processing

*This code is now discontinued. See S06-G07 from 2010. Includes processes for treating ink after application using e.g. heat or UV light.

T04-G02J* **[2005-2009]**

Applications of ink-jet printing technology

*This code is now discontinued. See S06-G10 from 2010. Covers printing on non-paperlike media, e.g. CD (see also T03). Includes textile printing (see also X25-T04D), 3-D printing and other industrial applications using inkjet technology. Manufacturing LCD screens and filters (see also U14).

T04-G03* **[1983-2009]**

Thermal

*This code is now discontinued. See S06-H from 2010. Includes thermal ink compositions and heat sensitive paper and ribbons.

Transfer, thermosensitive

T04-G03A* **[1992-2009]**

Using thermally-sensitive paper

*This code is now discontinued. See S06-H01 from 2010.

T04-G03A1* **[1992-2009]**

Composition of heat-sensitive layer

*This code is now discontinued. See S06-H01A from 2010.

T04-G03B* [1992-2009]

Using thermal ribbon

*This code is now discontinued. See S06-H02 from 2010. Includes use of thermal transfer sheets.

Cartridge

T04-G03B1* [1992-2009]

Thermal ink composition

*This code is now discontinued. See S06-H02A from 2010. Includes composition and manufacture of thermal ink.

Dye

T04-G03C* [1992-2009]

Printhead details for thermal printer

*This code is now discontinued. See S06-H03 from 2010. For thin-film resistor heads see also U14 codes, e.g. U14-H01B.

Printhead

T04-G04* [1983-2009]

Optical (incl. laser)

*This code is now discontinued. See S06-E from 2010. For line projection onto photosensitive medium which is then electrophotographically developed. If light deflection or modulation aspects are claimed, then see V07-K codes also

Toner, laser

T04-G04A* [1992-2009]

Optical system, and driving system

*This code is now discontinued. See S06-E03 from 2010.

T04-G04A1* [1992-2009]

Optics (e.g. lenses and mirrors)

*This code is now discontinued. See S06-E03B from 2010.

Polygonal, galvanometer

T04-G04A2* [1992-2009]

Driving system

*This code is now discontinued. See S06-E03C from 2010. See also V06 codes for motor details.

Scan

T04-G04B* [1992-2009]

Printhead details, including light source

*This code is now discontinued. See S06-E03A from 2010. For LED heads see also U12-A01A3 or U12-A01A6.

Array, LED, shutter

T04-G04C* [1992-2009]

Photosensitive materials

*This code is now discontinued. See S06-E01 from 2010. Includes photosenstive paper, photoconductive belt, drum, etc.

Photoconductor, belt, sheet

T04-G05* [1983-2009]

Electrode (e.g. electrosensitive/erosive)

*This code is now discontinued. See S06-J from 2010. Electrostatic printing using any means other than light for charging. For electrographic details (e.g. developing. If not specifically for printing see also S02-K.

Electrostatic, dielectric, electrochromic, stylus

T04-G06* [1983-2009]

Sheet breadth control, carriage drive for sheet control

*This code is now discontinued. See S06-K03A from 2010. Includes solenoids and motors, but not control circuitry.

Position, step, margin, tabulate, space, nip

T04-G06A* [1992-2009]

Media feeding

*This code is now discontinued. See S06-K02 from 2010.

Line feed, paper

T04-G06B* [2005-2009]

Finishing apparatus

*This code is now discontinued. See S06-K05 from 2010. Includes stapling, binding, laminating, etc. See also S06-C05 for industrial process. For devices independent of printer see T04-J02.

T04-G06C* **[2006-2009]**

Transferring image

*This code is now discontinued. See S06-K05 from 2010. E.g. in ink jet printer - jetting onto substrate and then transfer to final substrate.

T04-G06S* **[2008-2009]**

Shredding

*This code is now discontinued. See S06-K05C from 2010. Includes details of shredder integrated into printer, e.g. for automatically shredding confidential paper after paper jam.

T04-G07* **[1992-2009]**

Colour printing

*This code is now discontinued. See S06-K01 from 2010.

CMYK

T04-G08* **[1992-2009]**

Self contained typewriters and printing devices

*This code is now discontinued. See S06-K99A from 2010. Includes details of label printers, independent units, and hand held printing devices.

T04-G09* **[1980-2009]**

Other printer types

*This code is now discontinued. See S06-K from 2010. Includes magnetic and Braille printers (see S05-K, T04-X for other Braille aspects), electronic pen recorders.

T04-G10* **[1992-2009]**

Control systems for printers

*This code is now discontinued. See S06-K07 from 2010. Does not include motors and solenoids for carriage and platen.

T04-G10A* **[1992-2009]**

Internal control

*This code is now discontinued. See S06-K07A from 2010. Includes control circuitry, power management.

T04-G10A1* **[2005-2009]**

User input and display

*This code is now discontinued. See S06-K07A1 from 2010. Includes mode selection keys, etc.

T04-G10C* **[1992-2009]**

Interface

*This code is now discontinued. See S06-K07C2 from 2010. Also coded in T01-C05A.

Serial, parallel, Centronics, RS232

T04-G10E* **[1992-2009]**

Control from outside printer

*This code is now discontinued. See S06-K07C1 from 2010. See T01-C05A for output to printer, T01-H05A for print drivers and T01-J08F for diagnostic aspects of any peripheral equipment. Network printers will also require other T01 codes.

Network printer, print driver

T04-G10E1* **[2005-2009]**

Print Job/Queue

*This code is now discontinued. See S06-K07C1A from 2010. See also T01-C05A/T01-C05A1 for output to printer and T01-H05A for print drivers.

T04-G10F* **[2006-2009]**

Management of confidential / secure documents, e.g. prevention of illegal copying

*This code is now discontinued. See S06-K07A3 from 2010. Prevention of illegal printing of private documents, etc, recognizing or printing copy prevention mark on documents, output to authorised operator. See also T01 for image processing aspects, and T05-J for testing of securities, banknotes, etc.

T04-G10G* **[2007-2009]**

Monitoring of printing

*This code is now discontinued. See S06-K07B from 2010.

T04-G11* [2005-2009]

General Construction

*This code is now discontinued. See S06-K03 from 2010.

T04-G11A* [2005-2009]

Construction and manufacturing details of printer

*This code is now discontinued. See S06-K03 from 2010. Includes mechanical details, manufacture and manufacturing apparatus. See T04-L01/L05 prior to 2005.

T04-G11B* [2005-2009]

Recycling Systems

*This code is now discontinued. See S06-K04 from 2010. See also X25-W04 for electrical aspects of recycling systems in general.

T04-H

Visual display units

Includes displays for computer related equipment such as for laptops and PDA's (personal digital assistants) and portable game consoles (e.g. Nintendo DS™, Sony PSP™). For signal processing aspects e.g. contrast control, white balance control etc, see also W03 codes.

Screen, video, cursor, terminal, processor, VDU, graphic, line, monitor

T04-H01

CRT control arrangements

For CRT per se see V05-D codes. CRT TV display aspects are covered by W03-A08A codes.

Image, deflect, raster, pixel

T04-H01A

For single beam tubes

T04-H01A1 [1983]

Character and stroke generators

Pattern, vector

T04-H01B

For storage, colour or other tubes

Beam index, beam penetration

T04-H01B1 [1992]

Colour

T04-H02 [1985-2010]

Plotters*

*This code is now discontinued. See S06-K99E from 2011. For computer interface per se see T01-C05B also.

T04-H03

Arrangements for other visual indicators

Includes LED, LCD element drive arrangements. Display arrangements in general are in W05-E codes also. Plasma displays per se are coded in V05-A codes also.

Gas discharge, optical, panel, number, alphanumeric, character, symbol

T04-H03A [1983]

For single character

Seven segment, decoder, segment

T04-H03B [1983]

For several characters, e.g. matrix

From 2005 all display types (except LED) will not be coded in this section without novel details of the matrix array.

Row, column, driver, address

T04-H03C [1992]

Characterised by type

T04-H03C1 [1992]

LED

See also U12-A01A.

T04-H03C1A* [1997-2010]

Driver circuitry

*This code is now discontinued, see T04-H03F together with T04-H03C1 from 2010. See also U12-A01A5B for array or U12-A01A5A for single LED.

T04-H03C2 [1992]

LCD

See also U14-K01.

Liquid crystal, ferroelectric, antiferroelectric, deformed helical ferroelectric

T04-H03C2A* [1997-2010]

Driver circuitry

*This code is now discontinued. See T04-H03F together with T04-H03C2 from 2010. See also U14-K01A3.

T04-H03C3 [1992]

Electroluminescent

See also U14-J03.

T04-H03C3A* [1997-2010]

Driver circuitry

*This code is now discontinued. See T04-H03F together with T04-H03C3 from 2010. See also U14-J03.

T04-H03C4 [1992]

Plasma display panel

See also V05 codes.

T04-H03C4A* [1997]

Driver circuitry

*This code is now discontinued. See T04-H03F together with T04-H03C4 from 2010. See also V05-A01G.

T04-H03C5 [2002]

Field emission display

T04-H03C5A* [2002]

Field emission display driver circuitry

*This code is now discontinued. See T04-H03F together with T04-H03C5 from 2010. See also V05.

T04-H03C6 [2002]

Digital micromirror display

See also V07 for mirror control.

T04-H03C6A [2002]

Digital micromirror display driver circuitry

*This code is now discontinued. See T04-H03F together with T04-H03C6 from 2010.

T04-H03C7 [2006]

Electrophoretic display

Based on electrophoresis effect, microencapsulated EPD, partition-type EPD, charged particle display, electrochromatic display, electrostatic display.

T04-H03C7A [2006]

Electrophoretic display driver circuitry

*This code is now discontinued. See T04-H03F together with T04-H03C3 from 2010

T04-H03C8 [2007]

Interference based MEMS display

See also U12-B03F1 and V06-M06G.

T04-H03C9 [1992]

Other display types

Includes Braille type displays (Braille printers are coded under T04-G09).

Head mounted display

T04-H03D [1992]

Back lighting for displays

See also X26-U04A.

Illuminate

T04-H03E [2005]

Projectors

See also W04-Q01 for novel projector details, projectors don't receive any other T04-H codes.

T04-H03F [2010]

Driver circuitry

Search together with other T04-H02 codes as appropriate to denote application of driver circuitry.

T04-H03M [2008]

Multi-display systems

T04-H04 [2005]

Construction, manufacturing and testing details of display

Covers display housings, casings, stands, supports, wiring components, etc. previously coded in T04-L. Does not include details of the display elements per se which are covered by the relevant class (e.g. U14 for LCD). Search with other T04-H codes for display types.

T04-H06 [2007]

Stereoscopic and 3D displays

T04-J

Conveying record carriers between independent stations

Including computer paper perforation and sprocket details, collators and sorting appt. For digitally marked record carriers see T04-A05 from 2005. See also S06-C05 and X25-F02A.

Guide, position, web, card, document

T04-J01 [1992]

Media feeding

See S06-K for paper feeding in printer, T04-K02C1 for smart card feeding, and T04-A05 for card feeding.

Transport, path

T04-J02 [1992]

Collating, sorting

Sort, staple

T04-K [1987]

Smart media e.g. cards incorporating integrated circuit memory etc.

Includes reading aspects. Constructional details are coded in U11/U14 as appropriate. See also under application (T05, W05, W06 or X25). For protective coatings see V04-R03E. See also X25-F08 if details of the actual attachment of the tag (e.g. RFID tag) to an item.

IC, memory, contactless, smart paper

T04-K01 [1992]

Smart media details

Includes all construction aspects of smart media.

Key, IC

T04-K01A [2006]

Circuitry, inc. encapsulation

For construction and manufacturing of the circuitry aspects of smart media. See also U11, U14 and V04 for details.

T04-K01B [2006]

General construction details

For all aspects of smart media construction/manufacture except circuitry which is coded in T04-K01A.

T04-K01C [2007]

Antenna

See also W02-B codes as well as V04-G06 for PCB details and U13 for integrated circuit details.

T04-K02 [1992]

Reading and writing aspects

Including smart card feed/conveying. See also T01-H01B3A. See also W02-C02G7 (near-field radio) or W02-G05 (transponder) for non-contact details.

PCMCIA, contact, non-contact

T04-K02A [2006]

Contact

T04-K02B [2006]

Non-contact

Covers non-contact reading/writing, physical details of the non-contact system only should be covered in K01 and/or K03. For example the construction of the antenna in a transponder is T04-K01C and T04-K03B and would not be included here unless a communication aspect is also described. See also W02-C02G7 (smart cards) and W02-G05 codes (transponders and tags).

T04-K02C [2006]

Reading/Writing apparatus

Covers all aspects of the apparatus used to read from or write to smart media, rather than the media itself.

T04-K02C1 [2006]

Feeding mechanisms

Prior to 2006 see T04-J.

T04-K02C2 [2007]

Constructional details of card reader / writer

Includes non-electrical constructional details such as housing and mountings. Details of circuits, connectors, interfaces, etc. go under T04-K02C.

T04-K02C3 [2010]

Control, circuitry of card reader/writer

T04-K03 [2006]

Media type

Codes used to highlight the type of media used. Search together with other T04-K codes as required.

T04-K03A [2006]

Smart card

T04-K03B [2006]

RFID/transponder

T04-K03C [2006]

Paper/cardboard

T04-K03D [2006]

Memory card/stick

T04-K03D1 [2006]

USB Memory stick

T04-K04 [2006]

Security

All security aspects including physical protection of the hardware, encryption (see also T01-D01) and fraud protection (previously coded T01-H01C1).

T04-K05 [2012]

Testing smart media

For security aspects see T04-K04

T04-L [1987]

Constructional details of peripheral and ancillary equipment

(T04-X)

Includes construction of peripheral equipment not covered by T04-F01B, T04-F02C, S06-K or T04-H04. Computer housing and constructional details are covered by T01-L02. See also V04-T and V04-S.

T04-L01 [1987]

Casings, cabinets of peripheral equipment

Includes details of housing, stand, support. Furniture aspects of 'electronic office' are coded in T04-L07 from 1992.

Adjust, position, angle, stand, hinges

T04-L02 [2005]

Power supply arrangements for peripheral equipment

See also U24 and X12.

T04-L05 [1987]

General constructional details

Includes mounting of PCB's, components, leads, rails, leverage system, etc.

T04-L07 [1992]

Furniture aspects of 'electronic office'

(T04-L01)

Includes furniture aspects. See also T01-L02 for furniture specifically for computer.

Desk, cable, chair, flooring

T04-L08 [2012]

Cleaning of computer and peripheral devices

T04-L09 [1987]

Other peripheral accessories etc.

Includes details of mouse mat, arm rest, theft alarm (see also W05 codes) or document stand.

Filter, screen, antistatic, theft alarm, mouse mats, arm rest, attachments, protective cover

T04-M [1992]

(Digitiser) Scanner for computer input

(W02-J)

See S06-D only from 2010 for scanning arrangements for image forming devices.

T04-M01 [1997]

Digitiser incl. flat bed scanner

See also T04-D codes for image processing aspects, S06 as appropriate, and T01-C06 for computer interfacing details.

T04-M02 [1997]

Hand-held scanner

(T04-F04)

Includes hand-held bar-code scanner (see also T04-A03B1). Prior to 1997, hand scanners for computer input were coded under T04-F05 (now discontinued).

T04-M03 [2010]

Construction and manufacturing details of scanners

Includes details of casing, framework and internal mounting arrangements of components and modules.

Frames, glass, sheet, PCB

T04-M04 [2010]

Control circuitry of scanners

Includes internal control and power management.

Control, circuit, power supply

T04-N [2012]

Audio input/output

Includes speakers, headphones and microphones specifically for computer applications.

T04-P [1997]

Drives for computer input

External drive unit, see also T03.

T04-X

Miscellaneous

Includes card case/wallet (see also T03), office automation, cleaning appt. for computer peripherals, computer equipment for handicapped people (see also S05-K, and for Braille printer see also S06-K), and maintenance equipment, shedder, electric stapler and general packaging specifically for office equipment.

T05: Counting, Checking, Vending, ATM and POS Systems

T05-A

Counting objects

Counting of coins or banknotes is covered by T05-L07. Vehicle counting is covered by T07-A01C.

T05-A01

On conveyor

For electrical conveyor aspects see X25-F01 codes.

Production line, manufacture, process, monitor

T05-A02

In stack or randomly distributed

Sheet, card, lamina, pile

T05-B

Counting mechanisms

Includes mechanical, electromechanical, and electronic arrangements. These codes are **not** used for counting circuits in general, which are covered by U21-D codes. T05-B codes are used for counting devices per se which may be used to count objects, events, units of distance travelled, etc. For some non-electronic applications see:

(1) T05-A codes for object counting

(2) T05-G codes for registering/indicating

(3) T05-L09 for currency counting

(4) S02-B12 for distance recorders and pedometers.

Wheel, disc, register, pin, reset, restore

T05-B01

Counters with additional facilities

Includes arrangements for performing an operation at predetermined count. For tape recorder see T03-J05A and W04-H03 also.

T05-C

Ticket-issuing, fare-registering, franking appts.

For electrical printing aspects see T04-G codes also.

Meter, memory, transport, vehicle

T05-C01 [1992]

Ticket and receipt issuing

Includes label printing devices. See T05-H codes as appropriate for payment-operated systems. See T04 for printing aspect

Bill, invoice, slip, cut, separate, pass, toll, mark, perforate

T05-C03 [1992]

Fare registering

Includes taximeters (see also T05-G01 and X22-E05 for electrical aspects) and charge indicating aspects of vehicle toll systems (see T05-C01 for ticket issuing aspects and T05-D02 for monitoring aspects).

Distance, time, rate

T05-C05 [1992]

Franking appts.

Includes all aspects of franking equipment, such as registering of credit, security, and control. See also T01 codes e.g. T01-J05A1 for financial data processing systems, and S02-D codes for weighing. Sorting of mail is **not** included - see T05-K02.

Postage, meter, rate, reset, verify, stamp

T05-D

Individual entry or exit registers

Includes systems for control and recording of access. See W05-B01 codes for intruder alarm aspects and X25-M codes for locks.

Identify, pass, code, enter, security, authorise, door, gate, checkpoint

T05-D01 [1992]

For personnel control

Turnstiles per se are coded in T05-D01X.

Restricted area, banking, lobby, automatic teller/transaction machine, ATM

T05-D01A [1992]

With record carrier

See T05-H02 codes as appropriate for card-freed aspects in payment-based systems, see T04 for record carry types and W02-G for transponders. Includes checking/validating ticket or pre-paid card

Data, optical, magnetic, barcode, record, carrier, transponder, token

T05-D01A1 [2005]

With portable electronic device

Covers the use of a mobile device, e.g. PDA or mobile phone as the record carrier. See also W05-D08C and W05-D06G for remote control aspects

T05-D01B [1992]

With human characteristic detection

Includes e.g. finger or palm-print analysis by pattern recognition (see S05-D01C5A and T04-D codes also), and voice recognition (see W04-V codes also).

Recognise, ID, face, feature, retina, voiceprint

T05-D01X [1992]

Other

Includes turnstiles per se, toll-gate, barrier control, adjustable entry gate. Structural details

Stadium, arena

T05-D02 [1992]

For vehicles

Includes toll systems, automatic fee charging system while entering/exiting motorway. See also T05-C01 and T05-C03 respectively for ticket/card issuing and charge indicating aspects. For automatic vehicle identification see T07-A03. See W02-C and W05-D for communication aspects.

T05-E

Checking occurrence of condition

Includes pass/fail test in e.g. production line manufacturing process. Also for lottery or bingo games. Audible or visible signalling for industrial aspects refer to W05-A.

Identify, compare, inspect, authorisation, entry

T05-F

Voting and lottery appts; generating random numbers

See T01-E04 for digital random number generators, and U22-A01A for random pulse generators.

Game, select, display, bingo, card, ticket, ballot, cast, majority, register, betting

T05-G

Registering/indicating

Display, record, register, measure, indicate, monitor, check

T05-G01

Vehicle working

Includes on-board distance and operation recording equipment which is also coded in X22 when electrical. For taximeters see also X22-E05 (fare-indicating aspects are also covered by T05-C03). For tachographs see also X22-E05, and S02-K05/S02-K06 codes for chart recorder details, T01-H01B3 codes for electronic data storage in memory modules.

Tachograph, fuel, speed, tacho-generator, taximeter

T05-G02

Machine working

Includes systems and apparatus monitoring the operation of a single machine or a group of machines, e.g. in a manufacturing environment. For computer-aided manufacturing aspects see T01-J07B also.

Safety, press, tool, factory, automation, FA, CAM, QC, quality control, idle time, down time

T05-G02A [1992]

For maintenance

Includes operation cycle counters and logging arrangements to determine maintenance intervals, remaining lifetime, etc.

Log, maintain, repair, recondition

T05-G02B [1992]

Production line process monitoring

Remote monitoring of measured values in general is covered by W05-D codes.

Work-area, workstation, track, conveyor, materials handling, truck

T05-G02B1 [1992]

Using record carrier attached to workpiece

Includes arrangements to identify workpiece, manufactured item, etc., using e.g. barcode, magnetic label, or other passive record carrier (See T04 codes also, e.g. T04-A03B1 for optical barcode reading). Transponder systems are covered by T05-G02B1A.

Ferromagnetic, magnetise, electrostatic, light, IR, UV, visible, human-readable, pattern recognition

T05-G02B1A [1992]

Transponder interrogation systems

Covers systems using an electronic 'tag' attached to workpiece, manufactured item, etc., which can be interrogated by a central station, or equipment at a particular workstation. Interrogation-based systems of this type are also coded in W06-A04B5, and details of transponders per se in W02-G05 codes.

T05-G03

Time of events

Time measurement in general is covered in S04. This code is used for arrangements to monitor both the time at which events occur and also their duration (see S04-C03 and S04-E codes also). It includes timing for sporting events (see W04-X01 codes for electrical aspects) e.g. lap time recording systems, start and finish times, etc., and also registering systems for employee attendance, time and motion study, etc.

Clock, clock in, period, elapsed time, night watchman, security, patrol, race, photo-finish, trigger, actuate, work study

T05-G03A [1992]

Parking meter

See T05-H codes also for coin- or card payment aspects. Parking control systems are covered by T07-F.

Vehicle, bay, credit, reset

T05-H

Coin-, token-, or card-freed appts

This section deals with direct or indirect payment-based arrangements for dispensing, or providing services. Dispensing involving volume measurement is covered by S02-C04 codes. Documents are assigned T05-H codes either by virtue of G07F IPC, which may involve inventions without electrical aspects, or based on their electrical content. In the latter case, X25-F03 codes may also be assigned e.g. X25-F03B1 for food/drink vending machines. T05-H codes may be assigned for any payment-based provision of goods or services, and hence codes for the particular application should also be searched.

Vending, slot, dispense, cash, denomination, insert, automat, unattended

T05-H01

Coin-actuated mechanisms; interlocks

Includes mechanical and electrical systems. See T05-H03 for coin testing/sorting aspects.

Lock, release, activate, chute, lever, switch

T05-H02

Equipment actuated by objects other than coins

Codes in this section are used with other T05-H codes as appropriate.

T05-H02A [1992]

Actuated by banknote

T05-H02B [1992]

Actuated by token

T05-H02C [1992]

Actuated by record carrier

Includes card-operated systems e.g. with data stored in magnetic strip or electronically. See also T04, e.g. T04-A03 codes.

Card

T05-H02C1 [1992]

Using dedicated record carrier

Includes e.g. telephone card, pre-paid card not usable for other purposes. (See also T05-H05C and W01-C07A codes)

T05-H02C3 [1992]

Using non-dedicated record carrier

Includes use of credit/debit banking card and multi-purpose pre-paid card.

Charge, account

T05-H02C5 [1992]

Characterised by type of carrier

Codes in this section are used to indicate system type only, and not necessarily novel aspects.

T05-H02C5A [1992]

Magnetic card

See T04-C01 also for card per se, and T04-A03A for reading aspects.

T05-H02C5B [1992]

Optical card

See T04-C02 also for card per se, and T04-A03B codes for reading aspects.

T05-H02C5C [1992]

Smart card, IC card

Integrated circuit memory cards per se are coded in T04-K01. For reading/writing aspects see T04-K02 and T01-H01B3A also. For non-contact type see also W02.

T05-H02C5X [1992]

Other types of carrier

T05-H02D [2005]

Actuated by Mobile Device

For equipment actuated by fund or credit transfer from mobile telephone devices or portable computing devices, via e.g. cellular phone network, Internet, Bluetooth® or local wireless network. See W01-C and T01-N01A1 and T01-M06A1, T05-L02 codes.

T05-H02E [1992]

Reverse vending, e.g. for returnable container

Includes arrangement returning deposit on receipt of one or more containers. Returnable-deposit systems for supermarket trolleys are covered by T05-H05A1.

Recycle, returnable, carton, box, bottle, can, crusher, deposit

T05-H02X [1992]

Other

T05-H03

Coin testing or sorting appts. combined with coin-freed appts.

Includes analogous testing arrangements for token- or banknote-freed systems. Includes change giving mechanism. See also codes in S03 for e.g. optical, magnetic testing etc. and T04-D codes for pattern recognition aspects.

Select, reject, validate

T05-H04

Appts. dispensing discrete articles

Includes packaged items such as canned beverages, but arrangements dispensing liquids into cups are covered by T05-H06.

Select, storage, vending, cigarette, confectionery, newspaper, contraceptive, ticket

T05-H04A [1992]

Involving heating/cooking

See also X25-F03B1 and X27-C for cooking aspects. Payment-freed cooking/heating appts. for food supplied by customer is covered by T05-H05. For patents involving heating and cooling, only T05-H04 is applied.

Microwave, IR, grill, conveyor, oven, meal

T05-H04B [2011]

Involving cooling/freezing

For patents involving heating and cooling, only T05-H04 is applied. See also X27-F for refrigeration.

T05-H05

Appts. for hiring articles, coin-freed facilities, and services

T05-H05A [1992]

Article hiring apparatus

Video, tape-cassette, sports equipment

T05-H05A1 [1992]

Returning payment or part payment on return of article

Includes supermarket trolley with coin-freed lock. (Reverse vending encouraging return of containers is covered by T05-H02E).

Deposit, unlock, chain, free

T05-H05C [1992]

Payment-freed provision of services

Includes payment of parking meters (see T05-G03A also) and public telephones (see W01-C07A codes also). Automatic banking machines are coded in T05-H02 codes for card/note accepting aspects and in T05-L03 codes.

Prepayment, call box, left luggage, locker, launderette, washing machine, dryer, lighting, illumination, commentary, toilet, cable, television subscription, car wash

T05-H05E [1992]

Payment-freed amusement and entertainment systems

See W04-X02A also for electrical aspects of gaming machines and W04-X03A1 also for jukeboxes. See also T01-J30B for video game machines.

Gambling, prize, reward, award, win, lose, skill, AWP, amusement-with-prizes, slot machine, pinball, pachinko

T05-H06

Appts. dispensing fluids, granular material or electricity

Includes quantity and tariff adjustment. Meter rental charges. Electricity consumption meters are also assigned S01-B codes. Dispensing of canned drinks is covered by T05-H04.

Beverage, sachet, ingredients, powder, mix, liquid, meter, pump, water

T05-H08 [1992]

General details of vending and analogous appts

Codes in this section are used alone, or with other T05-H codes as appropriate.

T05-H08A [1992]

Constructional details

Housing, mounting, casing, support, reinforce, door, access, lock, maintain, refill, cashbox

T05-H08C [1992]

Control systems

See also T01 where significant control aspects are included.

Microprocessor, computer, logic, monitor, fault, alarm, antitheft

T05-H08C1 [2005]

Control from outside unit

Covers control, management and monitoring of payment freed devices from an external unit such as a central server. Includes inventory monitoring for vending machines (see also T01-J05A2D), control of multiple gambling machines in casino (see also W04-X02A8).

Microprocessor, computer, logic, monitor, fault, alarm, antitheft

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T05-J

Testing coins or valuable papers

Testing of coins or banknotes in e.g. vending machines is covered by T05-H03.

Banknote, denomination, value, counterfeit, currency, reject, validate

T05-K

Sorting and delivering

See X25-F06 also for electrical aspects of sorting in general.

Conveyor, select, separate, divert, channel, grade, evaluate, compare

T05-K01 [1983]

Coins and tokens

See T05-H03 for coin-sorting aspects of coin-freed appts. Includes change giving apparatus and coin wrapping (see T05-L09 also).

T05-K02 [1983]

Valuable papers (including mail)

Franking equipment is covered by T05-C05.

Banknote, dispense, bank, note, sheet, feed, envelope, letter, post, postcode

T05-K05 [1992]

Objects on conveyor, and manufactured objects

T05-K09 [1992]

Other

T05-L

Point-of-sale equipment, EFT, and other currency handling systems

Cash, bill, note, coin, banking, reject, refund, dispense

T05-L01 [1992]

Point of sale equipment

Checkout antitheft alarms are coded in W05 only, e.g. W05-B01A codes.

POS, shop, store, retail

T05-L01A [1992]

Cash register

See also T01-J05A1 for processing aspects

ECR, till drawer, key, lock, receipt, paper roll, printer, display, calculate, processor

T05-L01B [1992]

Card reader

Includes credit/debit card reading system. See also T05-H02D codes and T05-L02 for electronic funds transfer aspects.

EFT, EFTPOS, wipe, swipe, terminal, validate

T05-L01C [1992]

Product code reader

For both checkout and inventory purposes.

Scan, laser, polygon, mirror, orient, decode, format, check, portable, data terminal

T05-L01C1 [2006]

Using bar code

See also T04-A03B1 for bar code reading in general.

T05-L01C3 [2006]

Using RFID/transponder

See also T04-K and W02 for RFID/transponders in general.

T05-L01C9 [2006]

Other

Includes image recognition of item (see T04-D).

T05-L01D [1992]

Data transfer and network aspects

Includes networks linking cash registers and central computer. See also T01 and W01-A06 codes.

LAN, WAN, local area, wide area, bus, loop, ring, interconnect, interface

T05-L01E [2005]

POS Weighing Scales

See T05-L01X prior to 2005. See also S02 for weighing apparatus in general.

Scales, weigh

T05-L01F [2005]

Electronically Addressed shelf edge display

Coded as T05-L01X prior to 2005.

T05-L01H [2006]

POS printers

T05-L01X [1992]

Other POS equipment or systems

Conveyor, automatic packing, price

T05-L02 [1992]

Electronic funds transfer

Includes all aspects of EFT. Telephone line data transmission aspects are also coded in W01-C05B3C. Computer/Internet aspects are also coded T01-N01A1.

T05-L03 [1992]

Cash dispensing and depositing machines

Includes automatic teller machines.

Bank, terminal, banknote, card, ATM

T05-L03A [1992]

Cash-handling aspects

See T05-K02 for banknote sorting/delivering in general.

T05-L03A1 [1992]

Cash-receiving

Deposit, envelope

T05-L03A5 [1992]

Cash dispensing

T05-L03C [1992]

Security and control

See T05-H02 codes for card operated access system details, and T05-D01 codes for control of access to enclosure.

Lobby

T05-L03C1 [1992]

General control system

Includes display arrangements and selection keys.

Microprocessor, computer, controller, program

T05-L03C5 [1992]

Security system aspects

Authorise, validate, personal identification number, PIN

T05-L03E [1992]

Constructional details

Includes internal details such as component mounting, and also housing, reinforcement, etc.

Casing, support, bezel, escutcheon, display filter

T05-L05 [1992]

Cashboxes, strongboxes, safes, moneyboxes

See W05-B01 codes for theft/burglar alarms.

T05-L05A [1992]

Strongboxes, safes

Lock, combination, tumbler, time delay, release

T05-L05B [1992]

Personal moneybox, coin holders

T05-L07 [1992]

Coin and note counting

T05-L09 [1992]

Other

Coin wrapping, minting

T06: Process and Machine Control

These codes cover general or unspecified control systems and methods. T06 codes are often applied due to the presence of guaranteed G05B (T06-A codes) and G05D (T06-B codes) IPCs, as well as G05G (T06-C codes), as long as there is some electrical content for the latter. In the absence of a guaranteed G05B or G05D IPC, if the control is "specific", then T06 codes are not normally applied. For example, non-specific or general torque control will be coded in T06-B12, but if the patent details control of electric motor torque, e.g. for a motor vehicle power steering system, then T06 codes will not be applied (unless there is e.g. a G05D-017 IPC assigned), because the control can be much more accurately highlighted by applying specific V06-N (motor torque control) and X22-C05A (vehicle power steering) codes.

T06-A

General control systems

This code is used for systems for regulating specific variables which are more generally applicable.

T06-A01

Comparing elements

Includes electric analogue and digital comparators. General electronic comparators are coded in U22-A04D5.

Error detectors

T06-A02

Anti-hunting and internal feedback arrangements

Includes electric and fluidic antihunting measures; electric and fluidic feedback to obtain proportional, integral and differential characteristics. See also T06-A06A9 for PID control per se.

PI, PD, PID

T06-A03

Obtaining smooth (dis)engagement of automatic control; safety arrangements

Includes both electric and fluidic arrangements.

T06-A04

Programme-control systems

T06-A04A

Numerical controllers

NC

T06-A04A1

Using measuring device

T06-A04A2

Characterised by computer; with central computer controlling several NC machines

See T01-F06 for CNC-related microprocessing.

CNC, computerised numerical controller

T06-A04A2A [1997]

Total factory control

For central factory control not using NC systems, see T06-A04B7.

FA, DNC, Direct/distributed numerical controller

T06-A04A3 [1997]

Positioning or contouring control systems

Also includes tool centring, measuring workpiece for machining, backlash and other types of error compensation, and control of velocity, etc.

T06-A04A4 [1997]

Machine data input and handling arrangements

Includes NC systems where form of data input is the characterising feature e.g. manual data input, generating data from the drawing, or using design data from a CAD/CAM system. Also includes reading, buffering or conversion of data.

T06-A04A5 [1997]

Using tool path interpolation

T06-A04A6 [1997]

Monitoring and safety systems

See also T06-A03 and T06-A08 for general safety and monitoring systems, respectively.

T06-A04A9

Other numerical controller aspects

Includes open loop systems.

T06-A04B

Non-numerical

T06-A04B1 [1997]

Sequence or logic controller

Also includes programmable logic controllers. See also T01-F06 for program control arrangements e.g. using stored programs, such as in PLC, for control of computer peripheral. For general safety and monitoring systems, see T06-A03 and T06-A08, respectively.

PLC, relay ladder, graph set processing

T06-A04B3 [1997]

Fluidic control systems

T06-A04B5 [1997]

Recording and playback/teaching systems

T06-A04B7 [1997]

Total central control of factory

For central factory control using NC systems, see T06-A04A2A.

FMS, Flexible manufacturing system, CIM, computer integrated manufacturing, multi-machine control, IMS, integrated manufacturing system

T06-A05

Adaptive (optimum) control systems

T06-A05A [1992]

Artificial Intelligence-based systems

Includes expert-, rule-, or knowledge-based systems. See also T01-J16 codes.

AI, KBE, rule acquisition, inference engine, heuristic rules

T06-A05A1 [1992]

Fuzzy control

See also T01-J16B.

T06-A05C [2007]

Using algorithms

Includes adaptive control systems using algorithms to optimise system performance. E.g. includes control algorithms used in washing machines (see also X27-D01A5) to optimise wash cycle based on sensed parameters such as weight of clothes, temperature etc.

T06-A06

Automatic controllers

T06-A06A

Electric

T06-A06A1

(Dis)continuous controllers

T06-A06A1A [1992]

Continuous

(T06-A06A3)

Output of controller is continuous function of deviation from desired value. See T06-A06A3 for records from 1983 to 1991.

T06-A06A1D [1992]

Discontinuous

(T06-A06A5)

Output of controller is discontinuous function of deviation from desired value e.g. two or multi-step controllers. See T06-A06A5 for records from 1983 to 1991.

T06-A06A2

With output pulse-train signal; with multiple inputs and outputs

Includes systems where the output of controller is pulse-height, -width, or frequency-modulated; multiple inputs obtained from more than one sensor and outputs applied to more than one correcting element.

T06-A06A3* **[1983-1991]**

Continuous

*This code is now discontinued and transferred to T06-A06A1A from 1992 onwards to indicate its proper hierarchical relationship to T06-A06A1. It is still searchable and valid for records of 1983 to 1991.

T06-A06A5* **[1983-1991]**

Discontinuous

*This code is now discontinued and transferred to T06-A06A1D from 1992 onwards to indicate its proper hierarchical relationship to T06-A06A1. It is still searchable and valid for records of 1983 to 1991.

T06-A06A9

Other electric automatic controllers

Includes arrangements to obtain PID and proportional, integral, or differential characteristics.

T06-A06B

Pneumatic or hydraulic only

T06-A07

Computer controlled systems; systems using models

T06-A07A **[1992]**

Computer-controlled systems

This code is used together with other codes only if substantial computing details are disclosed. For example, CNC machine tool motor control systems would be coded only in T06-A04A. See also

T01-J07B for the computing aspects of industrial process controllers.

CAE, CAI, CAM

T06-A07A1 **[1992]**

Distributed control systems

T06-A07B **[1992]**

Systems using models

T06-A08

Testing and monitoring control systems

T06-A10 **[1992]**

Sampled-variable control systems

(T06-A20)

T06-A11 **[1997]**

Control systems-related (data) communications arrangements

(T06-A20)

See also W01-A06 codes for data communications in general. RF type communications are in W02 and transmission systems for measurement and control systems are covered by W05-D codes. Only used when 'control' data is being communicated.

MAP

T06-A20

Other general control systems aspects

Includes open-loop automatic control systems; general constructional details of controllers e.g. control boards or racks for electronic controllers (see V04-T codes for electronic equipment constructional features).

T06-B

Control of non-electric variables

Includes normally documents with the G05D IPC, or those with substantial electrical content but **no** relevant provision elsewhere in EPI, e.g. flow control. Does **not** cover automotive vehicle controllers like torque (see X22-A03D instead), etc. unless G05D is applied.

T06-B codes are primarily applied with regard to the final variable being controlled, though in some cases, an intermediate variable being controlled may also be coded, if deemed helpful. For example: in a system controlling the flow of fluid by varying the speed of a pump, T06-B04 will be the code normally applied to highlight the desired flow control aspect (if a G05D IPC is assigned or no specific application is detailed), and in most cases the intermediate speed control aspect (T06-B09) will not need to be coded.

T06-B01

Vehicle position, course, altitude or attitude

For aircraft flight controllers, see W06-B01A5.

T06-B01A

Position or course in two dimensions

Includes vehicles using near-field transmission system e.g. having buried conductors in floor etc. (see W02-C02 also).

Steering, tracking, robotic vehicles, navigation

T06-B01B

Altitude or attitude; target seeking control

See W07-A codes also for missile guidance.

Aircraft, flight, satellite

T06-B01X

Other vehicle position/course control

Includes 3-dimensional position or course control.

T06-B02

Position or direction

T06-B02A

Without feedback

T06-B02B

With feedback

T06-B03

Material dimensions

T06-B04

Flow

T06-B04A

Without auxiliary power

T06-B04B

Using electric means

T06-B04X

Other flow controller

T06-B05

Level

T06-B06

Chemical or physico-chemical variables

T06-B07

Humidity; viscosity; light intensity

Only used for general or non-specific control systems. For illumination control/light dimming see X26-C codes only, for controlling light intensity of display see appropriate U14, W05 etc. display codes only, and for humidifiers per se see X27-E01B2 only.

T06-B08

Ratio

T06-B08A

Of two or more fluid flows

T06-B08A1

Electrical

T06-B08A9

Other ratio control with(out) auxiliary power

T06-B08X

Other ratio control

T06-B09

Speed; acceleration

T06-B09A

Without auxiliary power; with auxiliary non-electric power

T06-B09B

Using electric means

T06-B10

Mechanical force or stress

T06-B11

Fluid pressure

T06-B11A

Without auxiliary power

T06-B11X

Other fluid pressure control

T06-B12

Torque; mechanical power; mechanical oscillations

T06-B13

Temperature

Control of electric heaters is in X25-B04, central heating control in X27-E01A.

Thermostats

T06-B13A

Without auxiliary power

T06-B13B

Using electric means

T06-B13B1

Using elements with temp. dependent electric or magnetic properties

T06-B13B2

With auxiliary heater

T06-B13B9

Other electric temperature control

T06-B13X

Other temperature control

T06-B14

Several variables simultaneously

T06-B20

Other non-electric variables' control

Includes simultaneous control of electric and non-electric variables.

T06-C

Mechanical control devices or systems

Included in EPI only if application is for electrical systems or devices.

T06-C01

Controlling and controlled members

Includes knobs for switches or variable resistors, etc. See V03-B09, V01-A03.

T06-C02

Limiting movement

T06-C03

Manually operated mechanisms

T06-C03A

With single controlled member

T06-C03B

With several controlled members

T06-C09

Other mechanical control devices or systems

T06-D

Applications

In general, relates to items in X25, which should also be searched.

T06-D01

Agriculture

T06-D01A [1983]

Soil working, sowing, harvesting

See also X25-N01A for electrical equipment.

Tractor, depth, plough, harvester, agricultural vehicles

T06-D01B [1983]

Irrigating, fertilising, culture

See also X25-N01B for electrical equipment.

Sprinklers

T06-D01C [1987]

Livestock industry

Includes feeding, milking, and enclosure heating and air conditioning. See also X25-N02.

Feeding control

T06-D02
Food, pharmaceuticals and tobacco processing
See also X25-P.

T06-D02A [1987]
Pharmaceuticals
See also X25-P02.
Drugs, medicines

T06-D02B [2011]
Tobacco
Includes control of tobacco processing plant.

T06-D03
Textile and paper manufacture

T06-D03A [1983]
Paper making
See also X25-T09.

T06-D03B [1983]
Fiber, yarn, etc. manufacture
See also X25-T04A.
Spinning, winding, twisting, combing, carding, tension-control

T06-D03C [1983]
Fabric manufacture
See also X25-T04B codes.
Looms, knitting machines, wefting machines, warping machines, weaving

T06-D03D [1983]
Sewing machine/Embroidery machines
See also X25-T04C.
Embroidery

T06-D04
Separating; crushing; mixing
See also X25-J for crushing and mixing. Also includes shredder.

T06-D05
Metal working; casting

T06-D05A [1983]
Metal working

T06-D05A1 [1987]
Shaping; rolling; hammering; bending; punching
Includes shaping of materials (excluding cutting), e.g. rolling (see also X25-A02B), bending, punching and hammering (see also X25-A02D).

T06-D05A2 [2011]
Pressing
(T06-D20)
See also X25-A02A for presses per se.
Press

T06-D05B [1983]
Casting
See also X25-A01.

T06-D06
Machine tool control

T06-D07
Grinding; polishing; cutting; drilling; manipulators

T06-D07A [1983]
Milling; grinding; polishing
See also X25-A03C codes as appropriate.
Abrading, honing, lapping, planing, sanding, burnishing, blasting

T06-D07B [1983]
Manipulators
Also see X25-A03E. See T06-D08F and X25-F05A instead for autonomous and robotic vehicles.
Robots

T06-D07C [2011]
Turning; boring; drilling; cutting
Also see X25-A03A and X25-A03B codes as appropriate.
Sawing, trimming, grooving, lathe

T06-D08

Conveying, lifting, hauling, handling materials

T06-D08A

Web-advancing

Includes strip and coil handling. Also see X25-F02 for web/strip/coil handling per se.

Sheets, roll, paper, filaments

T06-D08B

Article feeding; tension regulating

T06-D08C

Conveyors

See also X25-F01A for control details of conveyors.

Belts, transporting goods, shelving and retrieving, locating, addressing

T06-D08D

Lifts

See also X25-F04A for control details of lifts.

Elevators, car call control, escalators, cabins, cages

T06-D08E

Cranes, load engaging equipment, soil shifters

See also X25-F05 for cranes and X25-D01 for excavators and soil shifting.

Hoists, excavators

T06-D08F [1987]

Trucks, goods or robotic vehicles

Includes goods conveying vehicle control (see also X25-F05A codes).

Robotic vehicles, autonomous vehicles, trucks

T06-D08X

Other material handling control systems

T06-D09 [1983]

Metallurgy

See also X25-A codes for metal working, and X25-Q codes for iron and steel manufacture, furnace control (see X25-X13 also), heat treatment etc.

T06-D10 [1983]

Chemical processing

T06-D11 [1987]

Mining

(T06-D20)

See also X25-D02 for mining.

Conveyors, machines

T06-D12 [1987]

Earth drilling

(T06-D20)

Includes oil, gas and water wells drilling. Drilling for building construction is **not** covered. See also X25-E01 for drilling equipment.

Boreholes

T06-D13 [1987]

Plastics

(T06-D20)

See also X25-A06 for plastic working per se.

Extruding, injecting, moulding

T06-D14 [2011]

Rubber

(T06-D20)

Includes control of rubber processing and tyre manufacturing plant. See also X25-A07 for rubber working per se.

T06-D20

Other applications of control systems

Includes drying (see also X25-G), etc. From 2011 control of presses is transferred to T06-D05A2.

T07: Traffic Control Systems

Traffic control systems specifically for rail, air/marine transport are not included, and are covered by X23 and W06 codes respectively. Some offboard roadside aspect or traffic control centre must be present to be coded in T07. Purely onboard motor vehicle aspects are coded in X22 only.

T07-A

Determining road vehicle position, speed or flow

T07-A01 [1992]

Monitoring flow of traffic

Includes measurement of number of vehicles passing within fixed time period.

Congestion, volume, closed-circuit TV, CCTV, survey, cable, pressure, detect

T07-A01A [1992]

Measuring speed of traffic

Includes measurement of average speed.

T07-A01A1 [1992]

Measuring individual vehicle speed

Includes police speed trap using e.g. radar, laser, etc. (For driver countermeasures see X22-E08 and W06-A04E3C).

Gun, check, readout

T07-A01B [1997]

Detecting presence of vehicle

This code is for detecting the presence of a vehicle in a known local position, e.g. using inductive loops embedded in roadway that detect change in magnetic field caused by presence of the vehicle. For detecting the presence of vehicles specifically for traffic signal control, e.g. traffic light control, see T07-C03A only. For detecting free parking space see T07-F also. For systems detecting an unknown geographic location of the vehicle see T07-A05 codes instead.

T07-A01B1 [1997]

Detecting 'wrong way' travel

Use with T07-E codes also.

T07-A01C [1992]

Vehicle counting

See also T07-F for counting number of vehicles entering car park.

T07-A01D [2002]

Vehicle classification system

Includes classification of vehicle type, e.g. car, lorry, motorbike, and e.g. monitoring of vehicle height. Includes optical systems in which light beam is interrupted when high vehicle such as truck passes by.

Classify, vehicle type, height sensing

T07-A03 [1992]

Identifying and recording individual vehicle information

T07-A03A [1997]

Transponder interrogation

Transponder interrogation systems for vehicle identification in general are covered by T04-K03B, T04-K02 and W06-A04B1 codes and W02-G05 codes for novel RF details.

RFID, transponder, tag

T07-A03A1* [1997-2001]

For tolls or other charging systems

*This code is now discontinued; the transponder aspect is now transferred to T07-A03A and the toll aspect is transferred to T07-A03E from 2002 onwards. T07-A03A1 remains searchable for records between 1997 and 2001.

T07-A03C [1997]

Recording images

Includes systems triggered by detecting vehicle speeding, or travelling through stop signal.

Automatic camera, number, offence, violation

T07-A03C1 [1997]

By photography

Electrical aspects of photography are also assigned and are coded in S06-B, especially S06-B02 codes.

T07-A03C5 [1997]

By video systems

Closed circuit TV systems are assigned W02-F01 codes. See W04-M01 codes for details of video cameras.

CCTV, VCR, tape, playback

T07-A03C5A [1997]

With pattern recognition of licence plate information

See T04-D codes also.

T07-A03E [2002]

Toll and charging arrangements

Transponder aspects for transmission of data between toll booth and vehicle are coded in T07-A03A also. See T05-D02 also and T05-C03 for charge indicating aspects. See X22-X07 also for on-board vehicle aspects such as windscreen mounted transponder.

Transponder, card, debit, toll

T07-A05 [1992]

Monitoring position of vehicle

This code is for monitoring the geographic position of a vehicle. For position monitoring in conjunction with mobile radio systems see W02-C03C codes (e.g. W02-C03C1E). For T07-A05 to be applied there needs to be some offboard or roadside aspect. Purely onboard vehicle position determination is coded in X22-E06 instead, as well as e.g. S02-B08C and W06-A03A5C if GPS is used for the position fixing. For systems detecting the position or rather presence of a vehicle at a known point on the road, see T07-A01B instead, or T07-C03A if the aim of the presence detection is for road traffic signal control.

Location, city, zone, district, road, street, plan, moving map, destination

T07-A05A [1992]

Monitoring position of scheduled vehicle e.g. bus

Includes systems for monitoring position of buses or other vehicles such as delivery vehicles following a set route or travelling between specific destinations, e.g. to allow off-board controller to monitor vehicle progress. See also T07-A05L for display of vehicle position to controller. See also X22-P05A and other appropriate X22 codes for on-board bus details.

T07-A05A1* [1992-2006]

Displaying information to passenger

*This code is now discontinued and transferred to T07-A05D and T07-A05S. T07-A05A1 remains searchable for records from 1992-2006.

Time, interval, indication, boarding, alighting

T07-A05A3* [1992-2001]

Displaying information to controller

*This code is now discontinued; the display to central controller aspect is transferred to T07-A05B and the application to scheduled vehicles is covered by T07-A05A. T07-A05A3 remains searchable for records between 1992 and 2001.

Central station, route

T07-A05B [2002]

Displaying information to controller

Includes informing central station of vehicle position, e.g. to allow controller to monitor vehicle progress and alter vehicle schedule if required (see also T07-A05S). See also X22-E06F for updating vehicle navigation display.

Central station, route

T07-A05C [1992]

Displaying information to driver

Includes arrangements indicating position of vehicle to driver, e.g. using roadside beacons or other roadside based navigational systems. Systems transmitting actual control signals affecting vehicle steering for example, are covered by T07-D01 (and X22-C05B for automatic steering details). See also X22-E06F and S02-B08 codes. Includes use of offboard traffic centre to inform driver of best route to destination, e.g. due to traffic congestion, i.e. to reduce processing requirements of on-board navigation system. T07-G01 may also need to be applied for indication of traffic congestion.

CD-ROM

T07-A05D [2007]

Displaying information to passenger

(X22-A05A1)

Includes systems for informing passenger of current position of bus or taxi or its expected arrival time. Includes display of vehicle position on hand-held device, in-bus display or on off-board bus stop display.

T07-A05U [2007]

Monitoring position of un-scheduled vehicle e.g. taxi

(X22-A05)

Includes systems for monitoring position of taxis, e.g. to allow dispatcher to efficiently dispatch taxis to most appropriate pick-up points. See also T07-A05L for display of taxi position to controller, T07-A05N for display of pick-up point to taxi driver, and T07-A05J for informing passenger of current taxi location and expected arrival time. See X22-P05C and other appropriate X22 codes for on-board taxi details.

T07-B

Traffic signals and roadsigns

The codes in this section relate to equipment providing both variable traffic instructions and fixed information.

Display, road, warning, optical, reflect, sign, emergency, light

T07-B01 [1992]

Signal details

T07-B01A [1992]

Light source

Only includes novel light sources/bulbs etc. per se. See X26 for lamps and U12-A01A codes for LEDs. Lampholders are coded in T07-B01B.

Incandescent, discharge, bulb, fluorescent, light emitting diode, LED, HID

T07-B01B [1992]

Reflectors, filters, lenses, fittings

Includes holders for lamps or other light source.

T07-B01C [1992]

Constructional details

Casing, mounting, cable, harness, seal, post, street furniture

T07-B05 [1992]

Signal type

Codes in this section are used to indicate signal type either alone, in conjunction with T07-B01 codes, or with T07-C codes.

T07-B05A [1992]

Traffic intersection control

Includes standard 'traffic lights' and pedestrian crossing systems.

T07-B05A1 [1992]

Portable, temporary unit

Includes portable display used at traffic intersection. For movable displays used in other situations see T07-B05G only.

Road works, repairs, one-way, alternate, single line, battery

T07-B05A5 [1992]

Indicating elapsed time

Includes indication of time before next signal change.

Period, warning, fuel saving, pollution

T07-B05C [1992]

Variable information display

Includes matrix displays e.g. indicating temporary speed limit, motorway lane closure, etc.

T07-B05E [1992]

Fixed display

Includes illuminated direction signs.

T07-B05G [2002]

Movable display

Includes portable or temporary displays, e.g. mounted on movable trailer, and used at roadworks along motorway to inform drivers of temporary speed limit or lane closures. Portable displays used for traffic intersection signalling such as temporary traffic lights are coded in T07-B05A1 only.

T07-B07 [2002]

Traffic signals and roadsigns with ancillary signalling

Includes roadside transmitters, e.g. incorporated in road sign to transmit radio position signal or speed limit signal to vehicle. See also T07-D03 if vehicle speed is automatically controlled.

Radio transmitter, beacon, speed limit notification

T07-C

Controlling traffic signals

For control of a particular type of signal search with T07-B05 codes (except T07-B05E).

T07-C01 [1992]

Control circuitry

Computer, microprocessor, sequential, program, logic, clock, time

T07-C03 [1992]

Switch and detector arrangements

Includes manual switch for e.g. pedestrian crossing. See also V03 codes for novel mechanical switches per se.

Pushbutton

T07-C03A [1992]

Detecting presence of vehicle

Includes using inductive loops below road surface (also coded in S03-C02B) to detect vehicle presence and then control traffic signal. For vehicle presence detection not associated with traffic signal control see T07-A01B only.

Sense, pressure, magnetic field

T07-C05 [1992]

Monitoring and alarms

Includes safety measures to prevent signal conflict, warning of signal lamp failure, etc.

T07-C07 [1992]

Over-ride control system

Includes emergency services vehicle priority system. See also X22 and e.g. W05-D codes for wireless remote control.

T07-D

Vehicle guidance and control systems

Includes offboard systems that effect automatic control or guidance of land vehicle.

Car

T07-D01 [2002]

Vehicle guidance systems

This code covers arrangements controlling vehicle travel direction in road traffic or off-road traffic system, normally where there is some traffic contention aspect, e.g. to prevent collisions. (See T06-B01A, X22-C05B and W02-C02 codes for inductive loop and radiating cable guidance systems also. For materials handling vehicles, see X25-F05A codes). Systems providing navigational information only, without automatic guidance control, are covered by T07-A05C and also included in X22-E06 codes for onboard aspects, and in S02-B08. Information processing aspects of vehicle guidance irrespectively are covered by T01-J07D codes.

Position, road, track, cable, near field, automatic steering

T07-D03 [2002]

Vehicle automatic control systems

Includes automatic regulation of vehicle speed in response to signal transmitted from roadside transmitter. See also T07-B07 if transmitter is incorporated into road sign. X22-A03B and X22-C02D codes may also need to be applied for automatic vehicle speed and braking control.

Speed limit enforcement, speed control, automatic braking, by-wire

T07-E

Anti-collision systems

See X22-J05 codes for self-contained on-board road vehicle systems, which are **not** coded here, and W06-A codes for 'radar' types, e.g. W06-A04H1.

Ultrasonic, light, beam, distance, receive, transmit, rear, indicate, safety, warning, obstacle

T07-E01 [1992]

Warning of or preventing collision

Includes warning of insufficient vehicle spacing.

T07-E05 [1992]

Warning of unsafe vehicle position

Includes warning of deviation from lane using some road based apparatus such as passive radar reflector or transponder embedded in road. Excludes on-board vehicle optical detection of painted white line.

White line, pattern, stud

T07-F

Parking control systems

Includes indication of occupancy of parking spaces (see T07-A01B also for vehicle presence detector and T07-A01C for vehicle counting) and vehicle access control and direction of vehicle to parking space. See also T05-D codes for barrier/access control aspects per se. See X25-U02 only for vehicle handling/lifting/storing via powered equipment in multistorey car park. Parking meters are not included - see T05-G03A.

Time, display, vehicle, car, card, fee, ticket, charge

T07-G [1992]

Informing driver of traffic and weather conditions

From 1997, the scope of this code has been widened to include warning of traffic congestion. Includes use of radio broadcasting or telephone information services. See W01-C05 codes for telephone aspects, W02 codes for radio systems (especially W02-E01B5 for RDS-based systems) and W05 for signalling in general. T07-B codes may be relevant also for signalling aspects.

T07-G01 [1997]

Informing driver of traffic congestion

Includes use of roadside display to inform driver of delays or transmission of information directly to onboard vehicle display (see also X22-E11). For systems also displaying alternative route to driver to avoid congestion, also see T07-A05C and X22-E06F codes.

Accident, road works, lane closure, traffic jam, diversion, signal failure, alternative route

T07-G02 [2013]

Informing driver of road surface conditions

Includes informing driver of temporary road surface, resurfacing works, pot holes, raised ironwork etc. For warning of road flooding etc. see T07-G05 instead. If the monitoring system is located on the road, X25-U05 should also be applied. If the monitoring system is mounted on the vehicle, see X22 only.

T07-G05 [1997]

Adverse weather condition monitoring and warning

For warning driver of severe weather such as flooding so that alternative route can be used. See S03-D codes for meteorological aspects also.

Visibility, fog, mist, temperature, frost, ice, black ice, flood

T07-H [2002]

Intelligent highway systems

Includes general details of intelligent roadways, such as roadside infrastructure, e.g. beacons or transponders beside or embedded in road, to assist with automatic vehicle steering (see also T07-D01) or vehicle separation distance control (see also T07-D03). For vehicle control via a central traffic centre, see T07-A05 codes instead.

T07-M [2012]

Traffic administration and traffic modelling/design

Includes traffic planning and designing. Also see T01-J05A for administration or T01-J15X for computer design and modelling.

T07-X

Other electrical traffic control aspects

Includes illuminated road studs and lane markings, and electrically height adjustable road bumps. Includes warning triangle placed on road by vehicle driver, e.g. to guide emergency vehicle to accident site. See also X22-B03.

Cats eye, speed bump, warning triangle