CPC field-specific training

B65G "Transport or storage devices" (Conveyors)
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Introduction
B65G conveyors

- 36 main groups
  B65G1/00 to B65G69/00.

- ~300,000 documents
  classified with CPC-classification in B65G.

- image-based technical field
  a majority of files are searched and classified based on images.

- many interferences with other technical field.
Introduction

Where to find …

CPC classification scheme and definitions of B65G

- www.cpcinfo.org: illustrative examples provided for subgroup

B65G 47/088
{cylindrical articles}

Definition statement
This place covers:
Illustrative example of subject matter classified in this group:

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How to classify …

- Many interference with neighboring fields, as "conveying" is present in many different applications (e.g. packaging, sorting, assembly lines).

- **Figures**: Classification of documents mainly via figure analysis for analysis of movement of products.

- **Description and claims**:
  - identification of potentially **specific application** of the invention (not for B65G)
  - does the invention include features of the conveyor itself or are they **linked to a specific application**?
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Criteria for including/excluding documents

- classification of the **conveying-aspect only**. Broad definition of conveying for classification: "transport of a product from A to B **without** work, process or treatment of the product".

- if a product is **worked on, processed or treated** while being conveyed, the document is forwarded to more specific fields (e.g. packaging, sawing machine, metal-working) and are **NOT** classified in B65G. However, a purely conveying aspect prior or after to the specific application might be classified in B65G.
Criteria for including/excluding documents

If the conveying aspect is present in a sub-part of an invention in another specific neighbouring field and applicable only there (e.g. conveyor part in a harvesting machine, transport in coin freed vending machine),
we do NOT classify the document in B65G.
Criteria for including/excluding documents

- If the conveyor is used in a **special environment** for which **particular handling** is needed and a specific classification is available (e.g. road building, underground mines, handling radioactive materials, handling of specimen container in laboratory), we transfer the document and do **NOT** classify in B65G.

- Furthermore, the following aspects are **NOT** classified in B65G:
  - the transport of **humans** (e.g. escalator, elevators),
  - **vehicles** (e.g. trucks, vehicles with axles),
  - hoisting, lifting, hauling (**cranes**)
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The overall structure

36 main groups
(ratio of new publications in main group B65G in 2017-2018, B65G1-B65G69 = 100% of new publications)

| B65G1 (16%) | B65G25 | B65G49 |
| B65G3 | B65G27 | B65G51 |
| B65G5 | B65G29 | B65G53 |
| B65G7 | B65G31 | B65G54 |
| B65G9 | B65G33 | B65G57 (4%) |
| B65G11 | B65G35 | B65G59 |
| B65G13 | B65G37 | B65G60 |
| B65G15 | B65G39 | B65G61 |
| B65G17 (8%) | B65G41 | B65G63 |
| B65G19 | B65G43 | B65G65 |
| B65G21 | B65G45 | B65G67 |
| B65G23 | B65G47 (27%) | B65G69 |

about 100 indexing codes

B65G2201/02 . Articles
B65G2201/0202 . . . (head groups A01 and A21 to A23)
B65G2201/0205 . . . Biscuits (B65B23/12/low)
B65G2201/0208 . . . Eggs (B65B23/02/low; A01K43)
B65G2201/0211 . . .
...
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Group structure

**B65G1**

- B65G1: Storing articles, individually or in orderly arrangement, in warehouses or magazines
- B65G1/02: specification of storage racks
- B65G1/04/low: stacker cranes for removal of products in shelves
- B65G1/137/low: fulfilling orders and commissioning

**Related fields**: A47B, A47F, A47G (furniture, shops fitting...), B66F (cranes), G07F11 (coin-freed apparatus), G06Q10/08 (logistic, inventory)
Group structure
B65G3 and B65G5

- **B65G3/00**: Storing bulk material or loose i.e. disorderly articles
  Related fields: A01F25/16 (covering agricultural produce), B65D88 and B65D90 (big storage containers).

- **B65G5/00**: Storing fluids in natural or artificial cavities or chambers in the earth
  Related fields: E21F17/16 (modification of mine passages), F16C3/005 (when cavity or chamber is lined).
Group structure

**B65G7**

- B65G7/00: Devices for moving or tilting heavy loads

- B65G7/04-10: with rollers, fluid pressure, by tilting.

- B65G7/12: Load carriers e.g. hooks, slings, gloves, modified for load carrying

*Many related CPC entries, e.g.*: A45F3/14 (carrying straps), E04G21/162 (carrying bricks), B25B9 (handheld gripping tools).

*Note*: avoid classifying here if there is a specific application with corresponding class.
Group structure

B65G9

- B65G9/00: Apparatus having suspended load carriers movable by hand or gravity

- B65G9/002-008: Load-carriers, loading or unloading arrangements, braking means, switches

**Related CPC entries:** A47G25/1442 (handling clothing hangers), B61B13/04 (monorail railway systems), D06F95 (handling laundry).

**Note:** do not classify here if the article is not moved by hand or gravity (see B65G17/20, B65G19/025).
Group structure

B65G11

- B65G11/00: Chutes

- B65G11/02+, B65G11/06+, B65G11/08+, B65G11/10+: straight form, helical form, discontinuous guiding surface

**Related entries:** A63G21 (sports, amusement), E04F17/12 (refuse disposal in buildings), A62B1/20 (slides for plane evacuation), B28C5/4248 (discharging chutes for cement)

**Note:** NO switches or chutes comprising a driven conveyor
Group structure

**B65G13**

- BB65G13/00: Roller-ways

- B65G13/02-B65G13/07: drive means (endless elements, chains, frictional).

- B65G13/08-B65G13/10: braking means, switches.

- B65G13/11+: (adjustable) roller frames. Related: B65G1/023 (racks with rollers), B65G39/12 (details of rollers frames)

**Related entries**: B60P1/51 (when the rollers are in a vehicle), C03B35/16 (transporting glass sheets), F16C13/00 (rollers in general), F27B9/2407 (rollers for ovens), B27B25/02 (feeding timer with pressure rollers).
Group structure

B65G15

- B65G15/00: conveyors having endless load-conveying surfaces i.e. belts

- B65G15/02-B65G15/26: general configuration (arc shape, tubular, two or more, side-by-side...).

- B65G15/30/low: materials of belts (reinforced, chains, ribs...).

- B65G15/58: with means for holding or retaining the loads

- B65G15/60/low: arrangements for supporting or guiding the belts.

Related entries: B29D29/06 (Producing conveyor belts), G09F11/12 (weighing belt conveyors)
Group structure  
**B65G17**

- B65G17/00: conveyors having endless traction element, e.g. **chains**

- B65G17/06/low: the load-carrying surface **attached to** single a more **traction element**

- B65G17/08/low: the surface being **formed by the traction element**

  **Note:** If there is no traction element → B65G15/54 (interwoven ropes/wires)

- B65G17/10-B65G17/28: specific load-carriers, rollers, telescopic

- B65G17/30/low: details (with buckets, with conveyor, attachment of carrier)

  **Related entries:** F16G (chains in general)
Group structure

**B65G19**

- B65G19/00: conveyors comprising impeller(s) carried by an endless traction element to move article **over a supporting surface**.

- B65G19/02-B65G19/16: configuration (single or more belt or chain, suspended articles),

- B65G19/18/low: details (traction chain, impellers, attachment of impeller, channels).

**Related entries**: B60S3/004 (conveyors for car wash), E21F13/066 (scraper chain conveyor for underground conditions), A01K39/01 (feeding devices for feeding poultry)
Group structure

B65G21

- B65G21/00: Supporting or protective framework or housing for belt or chain conveyors

**Note:** for jigging/vibrating load-carrier B65G27/08, supporting framework for conveyors as a whole B65G41/00.

- B65G21/02: consisting of struts, ties, etc.

- B65G21/08-B65G21/18: roofs, movable, adjustment of position / length, in curved path.

- B65G21/20/low: Means incorporated to framework for guiding load-carrier (magnetic, suction, lateral guiding means)
Group structure

**B65G23**

- B65G23/00: Driving gear for endless conveyors
- B65G23/08: Drums, rollers with self-contained drive

**Note**: for roller-way also in B65G13/06

**Related entries**: H02K7/1012 (dynamo electric machines), A63B22/0235 (treadmills)

- B65G23/10-B65G23/23: drive elements: endless, screws, mounting of motors
- B65G23/24-B65G23/42: gearing, clutches, drive of two or more points of conveyor.
- B65G23/44: belt or chain **tensioning**

**Related entries**: B65G39/16 (aligning belts or chains), G03G15/755 (in printers), B27B17/14 (saw chains)
Group structure

**B65G25**

- B65G25/00: conveyors comprising cyclically-moving / reciprocating carrier or impeller which is disengaged from the load during return path

  **Note**: group dedicated to conveyors with **substantial movement** in contrast to B65G27 (jigging conveyors)

- B65G25/02: different forward and return path
  Related classes: B23Q11/0057 (removing chips in machine tool), B23Q7/003

- B65G25/04/low: identical forward and return path (floor conveyors, impellers)
Group structure
B65G27

- B65G27/00: Jigging conveyors

- B65G27/02-B65G27/08: general configuration (helical channel, straight, supports)

- B65G27/10/low: devices for generating or transmitting jigging movements (hydraulic, rotating, electromagnetic, also piezoelectric means, with dynamic balancing ...)

Related entries: jigs for wet separation B03B, sifting or sorting B07B1/28
Group structure

B65G29 and B65G31

- B65G29/00: Rotary conveyors
- B65G29/02: for inclined or vertical transit

**Note:** details of the construction of the rotary conveyor

**Related entries:** B65G47/846 (star shaped wheels), B65G47/80 (turntables as feeding devices)

- B65G31/00: mechanical projectors for articles projecting or "catapulting" articles

**Related entries:** distributors for fertiliser A01C, moulding machines B22C, sandblasting devices B24C, applying plaster to building E04F21
Group structure

B65G33

- B65G33/00: Screw or rotary spiral conveyors

**NOT**: screws for extruding, compressing, mixing or other special operation

**Related entries**: B30B9/121 (press for dewatering solid material), B21C37/26 (manufacturing of screws), B60P1/40 (screw conveyors on vehicles), A01F12 (harvesting)

- B65G33/02-B65G33/08: screws for articles / for fluent materials (in tubes, multiple screws...)

- B65G33/24: Details (shape of screw, bearings or couplings, driving gears)

**Note**: if the screw transports a load carrier: B65G35/063
Group structure

**B65G35**

- B65G35/00: Kinds of mechanical conveyors not otherwise provided for
- B65G35/005: with peristaltic propulsion along flexible tube
- B65G35/06/low: comprising load-carrier moving along path and adapted to be engaged by any one of a series of traction elements space along the path (by bar or screw)
  
  **Note**: if only one traction element in closed path: B65G19/02
  **Related entries**: B23Q (machine tools), B61B13/125 (railway systems)
- B65G35/08: comprising trains of unconnected load-carriers
  **Note**: only independent load-carriers pushing each other
Group structure
B65G37

- B65G37/00: Combinations of mechanical conveyors
  
  Related entries: cooperating belts: B65G15/22, cooperating chains B65G17/26, control of sequence of conveyors: B65G43/10

- B65G37/005: cooperating conveying elements with parallel longitudinal axes
  NOT: parallel conveying belts wherein the article is in direct contact with the belts (B65G15/10)

- B65G37/02: flow-sheet
  ONLY: combination of successive conveyors NOT separated by processing stations
Group structure

**B65G39**

- B65G39/00: Rollers, drive rollers or arrangements thereof incorporated in roller-ways

  **Related entries**: Driving gear for rollers of roller-ways (B65G13/06), drive rollers for endless conveyors (B65G23/04)

- B65G39/02/low: features of roller (shock absorbing, for alignment of belt, for cleaning of belt (related B08B), bearing)

- B65G39/16: for aligning belts or chains

  **NOT**: tensioning of the belt (B65G23/44)
Group structure

**B65G41**

- B65G41/00: Supporting frames or bases for conveyors as a whole e.g. transportable conveyor frame
- B65G41/low: pivotably mounted, linear movement, mounted on wheels, caterpillar

**ONLY**: wherein the whole conveying unit is on a base
Group structure

**B65G43**

- B65G43/00: Control, e.g. safety, warning, fault-correcting devices
- B65G43/low: Detecting dangerous physical condition, detecting slip, interrupting drive, sequence control of combined conveyors

**Related entries**: for lifts in elevators B66B, safety devices F16P, signalling or calling systems G08B, sensing technology in G01P, G01D
Group structure

**B65G45**

- B65G45/00: lubricating, cleaning or clearing devices
- B65G45/02/low: lubricating for rollers, chains
  
  **Related entries:** C10M173/025 (composition of lubricant), F16N (lubricating in general)
  Chains: only external lubricating means, self-lubricating chains in B65G17/38
- B65G45/10/low: Cleaning devices (with vibration, scrapers, brushes, fluid)
  
  **Related entries:** cleaning escalators (B66B31/00), general group for cleaning: B08B3/B5
Group structure
B65G47 (1/5)

- B65G47/00: Article or material handling devices associated with conveyors
  **Most detailed and complex groups in B65G!**

  **Related entries**: packaging B65B (for orientation of articles), grippers in many specific fields (B25J, B23Q, C03B9)

- B65G47/084/low: grouping articles in predetermined 2-dimensional pattern

- B65G47/1407/low: feeding from disorderly arranged articles in a container (by rotation, vibration, pick-up devices, suction)
Group structure

B65G47 (2/5)

- B65G47/22/low: devices influencing the relative position of the attitude of articles during transit by conveyors (orientating, accumulating, spacing)

- B65G47/34; Devices for discharging from conveyors

- B65G47/5104/low: buffers, (FIFO and FILO), variable accumulation, relative displacement
Group structure
B65G47 (3/5)

- B65G47/52/low: Devices for transferring articles between conveyors (using fluid jets, at least one is a roller-way, to or from inclined or vertical conveyor sections, switching conveyors, discharge to several conveyors)

- B65G47/74/low: plough or scrapers, reciprocating member (pushers)
Group structure
B65G47 (4/5)

- B65G47/84/low: Star-shaped wheels or devices having endless travelling belts or chains equipped with article engaging elements
  
  Related entries: B67C7 (handling of bottles)

- B65G47/88: Separating or stopping elements (with one or more stop, pivoting)
  
  Related entries: B65G47/29 (stopping for spacing), B07C (sorting)
Group structure
B65G47 (5/5)

- B65G47/90 – B65G47/91: Devices for picking-up (grippers) – pneumatic

  Note: subclasses concerned mainly the movement (rectilinear, rotary) of the whole gripper.

  Related entries: B25J (Manipulators), gripper on star wheel (B65G47/847)

- B65G47/94/low: Devices for flexing or tilting travelling structures; Throw-off carriages

  Related entries: B07C (sorting), B64F1/368 (handling of luggage)
Group structure

**B65G49**

- B65G49/00: conveying systems characterised by their application for specified purposes
- B65G49/02/low: convening workpieces through baths of liquid
- B65G49/06: for fragile sheets (glass)
- B65G49/07: for semiconductor NOT USED, see H01L21

**Related entries**: B65H (conveying of sheet material)
Group structure
B65G51

- B65G51/00: Conveying articles through pipes or tubes by fluid
  Conveying articles over a flat surface by jets in the surface
  **Note**: only with articles and with fluid **propulsion**

- B65G51/01: Hydraulic transport of articles
  **Related entries**: A23N (treating fruits), B65B25/04 (packaging fruit)

- B65G51/02/low: directly conveying the articles by flowing gases
  **Related entries**: G07D (handling of bank notes)

- B65G51/04/low: Conveying articles in carriers – tube mail systems
  carriers, gates, pipes, switches
  **Related entries**: B65F5/005 (garbage), G01N12035
  (biological samples)
Group structure

B65G53

- B65G53/00: Conveying materials in bulk through pipes, tubes by floating the material, by flows of gas, liquid

  Related entries: loaders for hay (A01D87/00), fluidising devices for filling or emptying of large containers (B65D88/72), dredging, excavation (E02F).

- B65G53/04/low: Gas pressure systems with / without fluidisation, Gas suction systems

- B65G53/54: Details (gates, pipes, switches, …)
Group structure
B65G54

- B65G54/00: Non-Mechanical conveyors
  **ONLY**: contactless conveying, using light or sound waves
- B65G54/02: electrostatic, electric, magnetic
  **NOT**: for driving endless conveyor (B65G23/23), linear motors as such (H02K41)
Group structure

B65G57

- B65G57/00: Stacking of articles

  Related entries: stacking of jumbo rolls (B41F), stackable containers (B65D), stacking sheets (B65H), wrapping a stack (B65B11)

- B65G57/02, B65G57/30, B65G57/32
  stacking from the top (also particular shapes), from the bottom, during transit
Group structure

B65G59

- B65G59/00: Destacking of articles
- B65G59/005: by using insertions or spacers between the stacked layers
- B65G59/02 – B65G59/06 – B65G59/10 – B65G59/12
  Destacking from the **top**, from the **bottom**, of **nested** articles, during **transit**

**Related entries**: racks with dispensers (A47F1/106), coin-freed apparatus (G07F11)
Group structure
B65G60/61

- B65G60/00: Simultaneously or alternatively stacking and destacking of articles
  
  **Note**: also rearrangement of piles

- B65G61/00: Use of pick-up or transfer devices or of **manipulators** for stacking or destacking articles not otherwise provided for
  
  **Note**: Manipulators or robots per se in B25J
Group structure

B65G63

- B65G63/00: Transferring or trans-shipping at storage areas, railway yards, harbours, Marshalling yard installations

- B65G63/02, B65G63/04, B65G63/06: horizontal transit without bridge, with bridge (suspended load), vertical transit

Related entries: B61B1/005 (train loading stations)
Group structure

B65G65 (1/2)

- B65G65/00: Loading or unloading (of vehicles in B65G67)
- B65G65/00: loading racks, trays, trolleys
  Related entries: reverse vending machine (collecting empty bottles) G07F7/0609
- B65G65/02: Loading or unloading machines with conveyor associated with picking-up device (shovels, scraper, screws)
  Related entry: road milling machine (E01C23/088)
- B65G65/23: Devices for tilting and emptying containers
  Related entries: B65D88/56, B65F (refuse, garbage), B60P (truck)
Group structure
B65G65 (2/2)

- B65G65/30/low: Devices for filling or emptying bunkers, hoppers classify here if document is of general application not covered by a single other subclass

- B65G65/32: Filling devices
  **Note:** if pneumatic B65G51 or B65G53

- B65G65/34/low: Emptying devices from *top, bottom* (by belts, screws, rotating elements, etc...)

  **Related entries:** gates or closures (B65D90/54), filling bags (B65B), preventing bridge (B65D88/68)
Group structure

B65G67

- B65G67/00: Loading or unloading **vehicles**
- B65G67/02/low: Loading or unloading of **land vehicles**
  (belts, loading moving vehicles, using scrapers, tipping, rotary)

  **Note**: NOT if mechanism is part of the vehicle

  **Related entries**: trucks (B60P1/52)

- B65G67/60/low: Loading or unloading ships
Group Structure

B65G69 (1/2)

- B65G69/00: Auxiliary measures taken, or devices used, in connection with loading or unloading

- B65G69/001-B65G69/008: buffers, restraining, centring
  
  **Note**: If the device is located in the vehicle, see the relevant entries outside B65G (B60P)

- B65G69/04/low: Spreading out the materials (by belt, vibration, chutes...)
Group Structure

**B65G69 (2/2)**

- B65G69/18: Preventing escape of dust
  
  **Related entries:** while packaging (B65B1/28), Preventing escape of dirt from production areas (B08B15)

- B65G69/28/low Loading ramps (pivoting, spring-operated, seals, ...)
  
  **Related entries:** access to ships (E01D15/24), aircraft (B64F1/305), buildings (E04F11/02)...
  
  If the loading ramp is attached to vehicle/truck: B60P1/43
Group Structure
Additional indexing codes

About 100 specific indexing codes
Indication of references to related entries outside B65G

- By type or shape of article
  (biscuits, eggs, fruits, wood, elongated, flat ....)

- B65G2201/0261: **Puck**

- B65G2207/12: **Chain pin retainers**

- B65G2207/20: **Earthquake protection**

- B65G2207/22: Heat or tire protection

- B65G2207/48: Wear protection
Thank you for your attention !