

## ECLA EUROPEAN CLASSIFICATION

### A21C MACHINES OR EQUIPMENT FOR MAKING OR PROCESSING DOUGHS; HANDLING BAKED ARTICLES MADE FROM DOUGH

- A21C1/00** **Mixing or kneading machines for the preparation of dough** (domestic mixing or kneading machines [A47J43/00](#), [A47J44/00](#); [N: mixing in general [B01F](#); mixing or kneading of substances in a plastic state in general [B29B7/00](#)])
- A21C1/00B . [N: Plant; Systems, i.e. flow charts or diagrams]
  - A21C1/00D . [N: Methods]
  - A21C1/02 . with vertically-mounted tools; Machines for whipping or beating
  - A21C1/04 . with inclined rotating mixing arms or levers [[C0207](#)]
  - A21C1/06 . with horizontally-mounted mixing or kneading tools; Worm [N: or screw] mixers
  - A21C1/06B . . [N: Worm or screw mixers, e.g. with consecutive mixing receptacles]
  - A21C1/08 . with rollers
  - A21C1/08B . . [N: by calendering, i.e. working between rollers (using rollers for shaping dough [A21C3/02](#))]
  - A21C1/08C . . [N: having a receptacle rotating about a vertical axis cooperating with rotary rollers]
  - A21C1/10 . with additional aerating apparatus for the manufacture of aerated doughs
  - A21C1/10B . . [N: the gas being introduced through the shaft of a rotary tool]
  - A21C1/12 . for the preparation of dough directly from grain
  - A21C1/14 . Structural elements of mixing or kneading machines; [N: Parts; Accessories]
  - A21C1/14B . . [N: Tools]
  - A21C1/14B2 . . . [N: having mixing or cutting elements essentially perpendicular to their axes]
  - A21C1/14B3 . . . [N: Shafts; Heads therefor]
  - A21C1/14C . . [N: Feeding mechanisms, e.g. skip lifting mechanisms]
  - A21C1/14C2 . . . [N: for feeding in measured doses]
  - A21C1/14C3 . . . [N: using pneumatic means]
  - A21C1/14C4 . . . [N: for liquids ([A21C1/14C2](#) takes precedence)]
  - A21C1/14D . . [N: Discharge mechanisms] [[C0207](#)]
  - A21C1/14D2 . . . [N: using tiltable receptacles; Tilting mechanisms therefor]
  - A21C1/14K . . [N: Controlling; Testing; Measuring ([A21C1/14C2](#) takes precedence)]
  - A21C1/14K2 . . . [N: Measuring data of the driving system, e.g. torque, speed, power]
  - A21C1/14K3 . . . [N: Measuring properties of the dough, e.g. moisture, electrical conductivity, temperature ([A21C1/14K2](#) takes precedence)]
  - A21C1/14L . . [N: Drives]
  - A21C1/14L2 . . . [N: for planetary motion]

- A21C1/14L3 . . . [N: Brakes therefor]
- A21C1/14M . . [N: Safety arrangements ([A21C1/14N](#) takes precedence)]
- A21C1/14N . . [N: Doors; Closures; Operating, e.g. safety, mechanisms therefor]
- A21C1/14P . . [N: Receptacles, e.g. provided with means for carrying or guiding fluids, e.g. coolants]
- A21C1/14V . . [N: Arrangements for cooling or heating ([receptacles with means for guiding fluids per se A21C1/14P](#)); Arrangements for applying super- or sub-atmospheric pressure]

### **A21C3/00                    Machines or apparatus for shaping batches of dough before sub-division**

- A21C3/02 . Dough-sheeters; Rolling-machines; Rolling-pins [N: ([mixing or kneading dough by rollers A21C1/08](#); [non-manual rolling and working of discrete dough pieces A21C7/00](#))] [C0309]
- A21C3/02B . . [N: Rolling-pins; Hand-operated spreading or rolling devices ([A21C11/00C](#) takes precedence)] [C0309]
- A21C3/02C . . [N: Laminating or undulating a continuous dough sheet, e.g. by folding transversely or longitudinally onto a moving surface ([combined with filling A21C9/04B](#))] [N9902] [C0309]
- A21C3/02D . . [N: using one or more rollers with an axis of rotation substantially parallel or oblique to the direction of dough transport ([A21C3/06B](#) takes precedence)] [N0309]
- A21C3/02E . . [N: with one or more rollers moving perpendicularly to its rotation axis, e.g. reciprocally ([A21C3/02D](#) takes precedence; [hand-operated rollers A21C3/02B](#))] [N0309]
- A21C3/02E2 . . . [N: with multiple rollers moving in a closed loop, e.g. in an orbital path; Planetary roller systems] [N0309]
- A21C3/02F . . [N: using rollers having a shape other than straight round cylinders ([A21C3/04](#) takes precedence)] [N0309]
- A21C3/04 . Dough-extruding machines; [N: Hoppers with moving elements, e.g. rollers or belts as wall elements for drawing the dough] [C0309]
- A21C3/06 . Machines for coiling sheets of dough, e.g. for producing rolls, [N: e.g. crescent-rolls ([as part of a machine for further moulding or forming A21C7/00](#); [with filling A21C9/06](#))] [C0309]
- A21C3/06B . . [N: the coil axis of the produced rolls being in parallel or oblique position relative to the transport direction; with coiling elements, e.g. rollers, being placed in parallel or oblique position relative to the transport direction] [N9902]
- A21C3/08 . Machines for twisting strips of dough, e.g. for making pretzels
- A21C3/10 . combined with dough-dividing apparatus

### **A21C5/00                    Dough-dividing machines**

- A21C5/00B . [N: with revolving bodies, e.g. with bodies having spaces separated by radially oriented elements or walls] [N9910]
- A21C5/00C . [N: for dispensing liquid or semi-liquid dough, e.g. batter] [N0302]
- A21C5/02 . with division boxes and ejection plungers

- A21C5/04 . . with division boxes in a revolving body with radially-working pistons
- A21C5/06 . . with division boxes in a revolving body with axially-working pistons
- A21C5/08 . with radial, i.e. star-like, cutter-blades slidable in the slots of, and relatively to, a pressing-plunger [N: ([A21C7/06](#) takes precedence)] [C1112]
  
- A21C7/00                    Machines which homogenise the subdivided dough by working other than by kneading**
  
- A21C7/00B . [N: the dough pieces being worked in radially disposed cavities in a rotating drum] [N9902]
- A21C7/01 . with endless bands [N: ([A21C7/00B](#) takes precedence)] [C9902]
- A21C7/02 . with moulding channels ([A21C7/01](#) takes precedence)
- A21C7/04 . with moulding cups ([A21C7/01](#) takes precedence)
- A21C7/06 . combined with dividing machines with radial, i.e. star-like, cutter-blades slidable in the slots of, and relatively to, a pressing-plunger
  
- A21C9/00                    Other apparatus for handling dough or dough pieces**
  
- A21C9/02 . Apparatus for hanging or distributing strings of dough, such as noodles, spaghetti or macaroni, on bars
- A21C9/04 . Apparatus for spreading granular material on, or sweeping or coating the surfaces of, pieces or sheets of dough [N: (coating baked articles [A21C15/00B](#))] [C9910]
- A21C9/04B . . [N: Laminating dough sheets combined with applying a filling in between, e.g. lasagna-type products (ravioli-making machines [A21C9/06E](#); making laminated baked wafer sheets [A21C15/02](#))] [N9902] [C9910]
- A21C9/06 . Apparatus for filling pieces of dough such as doughnuts [N: ([A21C11/16B](#) takes precedence; apparatus for filling baked articles [A21C15/00C](#))] [C9910]
- A21C9/06B . . [N: Making continuous filled tubular products, e.g. with subsequent cutting] [N9902] [M1112]
- A21C9/06C . . [N: Applying a folding, wrapping, rolling action ([A21C9/04B](#), [A21C9/06B](#) take precedence)] [N9902] [C9910]
- A21C9/06D . . [N: by means of injection into a piece of dough (filling baked articles [A21C15/00C](#))] [N9902] [C9910]
- A21C9/06E . . [N: using two separate sheets or pieces of dough with filling in between, e.g. crimped at their edges; Ravioli-making machines ([A21C11/16B](#) takes precedence)] [N9902]
- A21C9/06E2 . . . [N: Tools for crimping or trimming of edges or rims, e.g. hand-operated] [N0101]
- A21C9/08 . Depositing, arranging and conveying apparatus for handling pieces, e.g. sheets of dough [N: (for handling liquid or semi-liquid dough, e.g. batter [A21C5/00C](#))] [M1112]
- A21C9/08B . . [N: Charging of baking tins or forms with dough]
- A21C9/08C . . [N: Manipulating tins, pans etc., e.g. charging or discharging conveyors, trolleys or ovens] [N9902]

- A21C9/08D . . [N: Separating, spacing, orienting or aligning discrete dough pieces, e.g. after passing a cutting device] [N9902] [C9910]
- A21C9/08E . . [N: Stacking or unstacking discrete dough sheets (with filling in between sheets [A21C9/04B](#))] [N9902] [C9910]
- A21C9/08F . . [N: Folding or bending discrete dough pieces or dough strips (twisting strips of dough [A21C3/08](#); with filling action [A21C9/06C](#); forming toroid-shaped dough pieces [A21C11/00B](#))] [N9902] [C9910]
  
- A21C11/00**                    **Other machines for forming the dough into its final shape before cooking or baking**
  
- A21C11/00B . . [N: the shape being toroid-like, e.g. bagels, doughnuts (extruding machines for toroid shaped products [A21C11/16C](#))] [N9910]
- A21C11/00C . . [N: forming the dough into a substantially disc-like shape with or without an outer rim, e.g. for making pie crusts, cake shells or pizza bases] [N0101]
- A21C11/00C2 . . [N: by pressing or press-moulding ([A21C11/00C3](#) takes precedence)] [N0101]
- A21C11/00C3 . . [N: by press-rolling] [N0101]
  
- A21C11/02 . . Embossing machines
- A21C11/04 . . with cutting and embossing rollers or drums [N: ([A21C11/10C](#) takes precedence)] [C0101]
- A21C11/06 . . handling regularly pre-shaped sheets of dough
- A21C11/08 . . with engraved moulds, e.g. rotary machines with die rolls
  
- A21C11/10 . . combined with cutting apparatus [N: ([A21C11/00C](#) takes precedence)] [C0101]
- A21C11/10B . . [N: having multiple cutting elements slidably or rotably mounted in a diaphragm-like arrangement] [N9902]
- A21C11/10C . . [N: using hand-operated cutting tools ([A21C9/06E2](#) takes precedence)] [N0101]
  
- A21C11/12 . . Apparatus for slotting, slitting or perforating the surface of pieces of dough
- A21C11/14 . . for star-like stamping
  
- A21C11/16 . . Extruding machines
- A21C11/16B . . [N: Applying co-extrusion, i.e. extruding two or more plastic substances simultaneously, e.g. for making filled dough products; Making products from two or more different substances supplied to the extruder] [N9902]
- A21C11/16C . . [N: for making toroid-shaped products, e.g. doughnuts ([A21C11/16B](#) takes precedence)] [N9902]
- A21C11/18 . . with pistons
- A21C11/20 . . with worms
  
- A21C11/22 . . Apparatus with rollers and cutting discs or blades for shaping noodles
  
- A21C11/24 . . Apparatus for cutting out noodles from a sheet or ribbon of dough by an engaging pair of grooved rollers
  
- A21C13/00**                    **Provers, i.e. apparatus permitting dough to rise [N: (testing dough properties [G01N33/10](#))] [C9910]**
  
- A21C13/02 . . with endless conveyers [N: e.g. for moving the dough pieces progressively through the

prover] [C9910]

- A21C14/00**      **Machines or equipment for making or processing dough, not provided for in other groups of this subclass [N0611]**
- A21C15/00**      **Apparatus for handling baked articles**
- A21C15/00B      . [N: Apparatus for spreading granular material on, or sweeping or coating the surface of baked articles (of pieces of dough [A21C9/04](#); for confectionary [A23G3/28](#))] [C9902]
- A21C15/00B2      . . [N: of which at least the dispensing part is hand-held, e.g. comprising a flexible container, pouch or gun-like applicator] [N9902]
- A21C15/00C      . [N: Apparatus for filling baked articles (filling pieces of dough [A21C9/06](#); filled bakery products [A21D13/00D](#), [A21D13/08D](#))] [C9606]
- A21C15/02      . Apparatus for shaping or moulding baked wafers; Making multi-layer wafer sheets
- A21C15/02B      . . [N: Apparatus for shaping or moulding baked wafers, e.g. to obtain cones for ice cream] [M1112]
- A21C15/04      . Cutting or slicing machines or devices specially adapted for baked articles other than bread (for cutting or slicing bread [B26B](#), [B26D](#))