

(NOTES omitted)

B28 WORKING CEMENT, CLAY, OR STONE

NOTE

- "clay" includes like ceramic compositions.

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

- Mixing clay or cement with other material** (general arrangement or layout of plant B28C 9/00; mixers in general B01F; concrete paving mixers combined with distributing devices E01C 19/00; machines for preparing mixtures of road-metal with bitumen E01C 19/10)

NOTE

In groups [B28C 3/00](#) - [B28C 7/00](#), the following term is used with the meaning indicated:

- "mixing" includes preliminary mixing, e.g. of some of the ingredients final mixing, and agitating the mixture to prevent segregation thereof

- 3/00** Apparatus or methods for mixing clay with other substances (producing clay suspensions B28C 1/02)

- 5/00 Apparatus or methods for producing mixtures of cement with other substances, e.g. slurries, mortars, porous or fibrous compositions** (controlling the mixing apparatus and supplying the ingredients **B28C 7/00** {separating cement from waste concrete **B03B 9/063**})

- 5/003 . {Methods for mixing ([B28C 5/386](#), [B28C 5/402](#) take precedence)}
- 5/006 . . {involving mechanical aspects}
- 5/02 . without using driven mechanical means effecting the mixing ([B28C 5/48](#) takes precedence)
- 5/023 . . {using a flexible mat or bag}
- 5/026 . . {Mixing guns or nozzles; Injector mixers (applying plaster by gas pressure [E04F 21/12](#); both conveying and distributing concrete [E04G 21/04](#); conveying concrete [B65G 53/32](#); accelerating or decelerating material flow in troughs or tubes [B65G 53/58](#))}
- 5/04 . . Gravitational mixing; Mixing by intermingling streams of ingredients ({[B28C 5/026](#) takes precedence } ; ingredients projected by fluid pressure [B28C 5/06](#))
- 5/06 . . the mixing being effected by the action of a fluid (in combination with driven mechanical means, producing cellular concrete [B28C 5/38](#))
- 5/08 . using driven mechanical means affecting the mixing ([B28C 5/40](#), [B28C 5/42](#), [B28C 5/48](#) take precedence; in combination with the action of a fluid [B28C 5/38](#))
- 5/0806 . . {Details; Accessories}
- 5/0812 . . . {Drum mixer cover, e.g. lid}
- 5/0818 . . . {Charging or discharging gates or chutes; Sealing means}
- 5/0825 . . . {Drum insulating means}
- 5/0831 . . . {Drives or drive systems, e.g. toothed racks, winches ([B28C 7/0876](#) takes precedence)}
- 5/0837 {Drives for mixers of the tilted-drum type ([B28C 5/085](#) takes precedence)}
- 5/0843 {Drives for drums rotating about a horizontal axis and supported by rotating rollers ([B28C 5/085](#) takes precedence)}
- 5/085 {Hydraulic drives}
- 5/0856 . . . {Supporting frames or structures, e.g. supporting wheels}
- 5/0862 . . {Adaptations of mixing containers therefor, e.g. use of material, coatings}
- 5/0868 . . {Mixing apparatus in which a mixing container is hoisted along an inclined or vertical track during mixing to discharge at a higher level}
- 5/0875 . . {Mixing in separate stages involving different containers for each stage}
- 5/0881 . . {having a stator-rotor system with intermeshing teeth or cages}
- 5/0887 . . {provided with sieves or filters}
- 5/0893 . . {Mobile mixing devices, e.g. hanging}
- 5/10 . . Mixing in containers not actuated to effect the mixing
- 5/12 . . . with stirrers sweeping through the materials {, e.g. with incorporated feeding or discharging means or with oscillating stirrers}
- 5/1207 {with means for elevating the stirrer, e.g. out of the containers}
- 5/1215 {Independent stirrer-drive units, e.g. portable or mounted on a wheelbarrow}
- 5/1223 {discontinuously operating mixing devices, e.g. with consecutive containers}
- 5/123 {with pressure or suction means for discharging}
- 5/1238 {for materials flowing continuously through the mixing device and with incorporated feeding or discharging devices ([feeding or discharging devices per se B28C 5/0818](#))}
- 5/1246 {with feeding devices ([B28C 5/1276](#), [B28C 5/1292](#) take precedence)}
- 5/1253 {with discharging devices ([B28C 5/1276](#), [B28C 5/1292](#) take precedence)}
- 5/1261 {Applying pressure for discharging (applying pressure during mixing [B28C 5/462](#))}
- 5/1269 {for making cellular concrete (in general [B28C 5/381](#))}
- 5/1276 {with consecutive separate containers with rotating stirring and feeding or discharging means}
- 5/1284 {having a feeding hopper and consecutive vertical or inclined mixing container fed at its upper part}
- 5/1292 {with rotating stirring and feeding or discharging means fixed on the same axis, e.g. in an inclined container fed at its lower part}
- 5/14 the stirrers having motion about a horizontal or substantially horizontal axis {(with feeding or discharging means [B28C 5/12](#))}
- 5/141 {with container tiltable or elevatable for emptying}
- 5/142 {the stirrer shaft carrying screw-blades}
- 5/143 {for materials flowing continuously through the mixing device}
- 5/145 {with several mixing chambers arranged one after the other}
- 5/146 {with several stirrers with parallel shafts in one container ([B28C 5/145](#) takes precedence)}
- 5/147 {the material being moved perpendicularly to the axis of the shafts}
- 5/148 {the stirrer shaft carrying a plurality of radially extending mixing bars}
- 5/16 the stirrers having motion about a vertical or steeply inclined axis {(with feeding or discharging means [B28C 5/12](#))}
- 5/161 {in containers tiltable for emptying in containers with inclined axes}
- 5/163 {in annularly-shaped containers}
- 5/165 {with stirrers having planetary motion}
- 5/166 {Pan-type mixers}
- 5/168 {with stirrers having planetary motion}
- 5/18 . . Mixing in containers to which motion is imparted to effect the mixing
- 5/1806 . . . {rotating about an inclined axis (about a steeply inclined axis [B28C 5/26](#))}
- 5/1812 {with rotating mixing tools}
- 5/1818 {Mobile or portable devices, e.g. on a wheelbarrow ([B28C 5/1887](#) takes precedence)}
- 5/1825 . . . {Mixers of the tilted-drum type, e.g. mixers pivotable about an axis perpendicular to the axis of rotation for emptying}
- 5/1831 {to be mounted on a tractor}
- 5/1837 {provided with feeding means, e.g. hoisting skips ([B28C 5/1831](#), [B28C 5/185](#), [B28C 5/1856](#) take precedence)}

- 5/1843 {having several drums}
- 5/185 {having driven stirrers, e.g. driven from underneath}
- 5/1856 {Details or parts, e.g. drums ([drives B28C 5/0831](#))}
- 5/1862 {Construction of drum, e.g. provided with mixing blades}
- 5/1868 {with mixing elements held stationary}
- 5/1875 {Tilting means; Locks or brakes therefor}
- 5/1881 {the mixing drums being tilted otherwise than about a fixed axis perpendicular to the axis of rotation of the drum, e.g. by means of a set of links}
- 5/1887 {Mobile or portable devices, e.g. for use by do-it-yourself enthusiasts}
- 5/1893 . . . {the mixing drum being rotated by pulling it over the ground; the mixing drum or the stirrer being driven by movement of the wheel of a vehicle}
- 5/20 . . . rotating about a horizontal or substantially horizontal axis during mixing, e.g. without independent stirrers
- 5/2009 {with multi-compartment drums}
- 5/2018 {Transportable containers, e.g. on a wheelbarrow, to be fixed totally or partly in a mixer, e.g. for rotation therewith}
- 5/2027 {using spiral-shaped mixing drums}
- 5/2036 {with the material travelling through the mixer, the discharge being opposite the feed inlet ([B28C 5/2072](#), [B28C 5/22](#), [B28C 5/24](#) take precedence)}
- 5/2045 {Parts or components ([drives B28C 5/0831](#))}
- 5/2054 {Drums, e.g. provided with non-rotary mixing blades ([B28C 5/2009](#) takes precedence)}
- 5/2063 {Drums consisting of axially displaceable halves; Drums having discharging opening on their cylindrical part, e.g. the drum rotating in opposite direction for mixing or for discharging; Drums having a cylindrical part not being a surface of revolution}
- 5/2072 {Feeding or discharging mechanisms}
- 5/2081 {Chutes pivotable about an axis parallel to the plane of the inlet or outlet opening}
- 5/209 {Chutes rotatable about an axis parallel to the drum axis}
- 5/22 with stirrers held stationary {, e.g. the material forming a ring zone by centrifugal force}
- 5/24 with driven stirrers
- 5/26 . . . rotating about a vertical or steeply inclined axis during the mixing {, e.g. comprising a flat bottomplate rotating about a vertical axis, co-operating with blades or stirrers}
- 5/28 without independent stirrers
- 5/30 with stirrers held stationary
- 5/32 with driven stirrers
- 5/325 {with several stirrer shafts}
- 5/34 . . Mixing on or by conveyors {, e.g. by belts or chains provided with mixing elements}
- 5/36 . . . Endless-belt mixers {, i.e. for mixing while transporting the material on an endless belt, e.g. with stationary mixing elements}
- 5/365 {Mixing with driven mixing elements while transporting the mixture on an endless belt}
- 5/38 . wherein the mixing is effected both by the action of a fluid and by directly-acting driven mechanical means, e.g. stirring means {; Producing cellular concrete}
- 5/381 . . {Producing cellular concrete ([B28C 5/1269](#) takes precedence; producing foam [B01F 3/04446](#), [B01F 3/04992](#))}
- 5/383 . . . {comprising stirrers to effect the mixing}
- 5/385 {Stirrers specially adapted therefor}
- 5/386 . . . {Plants; Systems; Methods}
- 5/388 {Methods}
- 5/40 . Mixing specially adapted for preparing mixtures containing fibres
- 5/402 . . {Methods}
- 5/404 . . {Pre-treatment of fibres}
- 5/406 . . . {and mixing with binding material}
- 5/408 . . {by spraying fibres and binding material}
- 5/42 . Apparatus specially adapted for being mounted on vehicles with provision for mixing during transport ({[B28C 5/1893](#) takes precedence; mounted on a wheelbarrow [B28C 5/1215](#), [B28C 5/1818](#), [B28C 5/2018](#); } vehicle aspect [B60P 3/16](#))}
- 5/4203 . . {Details; Accessories}
- 5/4206 . . . {Control apparatus; Drive systems, e.g. coupled to the vehicle drive-system}
- 5/421 {Drives (in general [B28C 5/0831](#))}
- 5/4213 {Hydraulic drives ([B28C 5/4217](#) takes precedence)}
- 5/4217 {Drives in combination with drum mountings; Drives directly coupled to the axis of rotating drums}
- 5/422 {Controlling or measuring devices ([B28C 5/4227](#) takes precedence)}
- 5/4224 {Roll-over prevention}
- 5/4227 {Transmission control mechanisms}
- 5/4231 . . . {Proportioning or supplying water (in general [B28C 7/12](#))}
- 5/4234 . . . {Charge or discharge systems therefor}
- 5/4237 {Charging, e.g. hoppers}
- 5/4241 {having self-charging means, e.g. skips, scoops or buckets, picking up the material from the ground}
- 5/4244 {Discharging; Concrete conveyor means, chutes or spouts therefor (in general [B28C 7/168](#))}
- 5/4248 {using chutes (combined with transporting belts [B28C 5/4255](#), combined with pumps or screws [B28C 5/4258](#))}
- 5/4251 {telescopic or foldable chutes}
- 5/4255 {using transporting belts, e.g. mounted on a foldable frame}
- 5/4258 {using pumps or transporting screws}
- 5/4262 . . . {Closures; Sealing mechanisms ([B28C 5/4237](#) takes precedence)}
- 5/4265 . . . {Mounting means for drums; Support frames}
- 5/4268 . . . {Drums, e.g. provided with non-rotary mixing blades (drums for concrete mixers with horizontal axis [B28C 5/2054](#))}

- 5/4272 . . {with rotating drum rotating about a horizontal or inclined axis, e.g. comprising tilting or raising means for the drum ([B28C 5/4279](#) takes precedence)}
- 5/4275 . . . {with a drum rotating about a horizontal axis, e.g. perpendicular to the longitudinal axis of the vehicle}
- 5/4279 . . {with rotating drum and independently-rotating mixing tools}
- 5/4282 . . {with moving mixing tools in a stationary container}
- 5/4286 . . . {with mixing screw-blades}
- 5/4289 . . . {with stirrers rotating about a vertical axis}
- 5/4293 . . . {with reciprocating or oscillating stirrers}
- 5/4296 . . {mounted on a tractor or on a tractor wheel (for tilted-drum type mixers [B28C 5/1831](#); charging thereof [B28C 5/4237](#))}
- 5/44 . Apparatus specially adapted for drive by muscle power
- 5/46 . Arrangements for applying super- or sub-atmospheric pressure during mixing; Arrangements for cooling or heating during mixing {, e.g. by introducing vapour}
- 5/462 . . {Mixing at sub- or super-atmospheric pressure ([B28C 5/1261](#) takes precedence)}
- 5/464 . . . {at sub-atmospheric pressure}
- 5/466 . . {Heating, e.g. using steam}
- 5/468 . . {Cooling, e.g. using ice}
- 5/48 . wherein the mixing is effected by vibrations (mixers with vibrating mechanisms in general [B01F 11/00](#))
- 5/485 . . {with reciprocating or oscillating stirrers; Stirrers therefor ([B28C 5/4293](#) takes precedence)}
- 7/00 Controlling the operation of apparatus for producing mixtures of clay or cement with other substances; Supplying or proportioning the ingredients for mixing clay or cement with other substances; Discharging the mixture {([B28C 5/42](#) takes precedence; feeding material in general [B65G](#); proportioning in general [G01F](#), [G01G](#); controlling in general [G05](#))}**
- 7/0007 . {Pretreatment of the ingredients, e.g. by heating, sorting, grading, drying, disintegrating; Preventing generation of dust}
- 7/0015 . . {Tagging of the ingredients, e.g. by using ingredient identification means like RFID or labels}
- 7/0023 . . {by heating or cooling ([during mixing B28C 5/46](#))}
- 7/003 . . . {Heating, e.g. using steam}
- 7/0038 . . . {Cooling, e.g. using ice}
- 7/0046 . {Storage or weighing apparatus for supplying ingredients ([B28C 7/04](#) takes precedence)}
- 7/0053 . . {Storage containers, e.g. hoppers, silos, bins ([B28C 7/0084](#) takes precedence)}
- 7/0061 . . . {Storage container plant}
- 7/0069 . . . {having compartments}
- 7/0076 . . . {Parts or details thereof, e.g. opening, closing or unloading means}
- 7/0084 . . {Storage containers or silos mounted on, or specially adapted for transport by, vehicles; Means for erecting containers or silos}
- 7/0092 . . {Stationary storage means having elements to divide the ground in sectors}
- 7/02 . Controlling the operation of the mixing
- 7/022 . . {by measuring the consistency or composition of the mixture, e.g. with supply of a missing component}
- 7/024 . . . {by measuring properties of the mixture, e.g. moisture, electrical resistivity, density}
- 7/026 . . . {by measuring data of the driving system, e.g. rotational speed, torque, consumed power}
- 7/028 . . {by counting the number of revolutions performed, or by measuring the mixing time}
- 7/04 . Supplying or proportioning the ingredients {([B28C 7/022](#) takes precedence; forming a predetermined ratio of the components to be mixed, in general [B01F 15/04](#))}
- 7/0404 . . {Proportioning}
- 7/0409 . . . {taking regard of the moisture content of the solid ingredients; Moisture indicators}
- 7/0413 . . . {two or more flows in predetermined ratio}
- 7/0418 . . . {control systems therefor}
- 7/0422 . . {Weighing predetermined amounts of ingredients, e.g. for consecutive delivery}
- 7/0427 . . . {using a charging-skip, to be hoisted or tilted, provided with weight-indicating means}
- 7/0431 . . . {using a weighing belt or the like}
- 7/0436 . . . {Weighing means specially adapted for use in batching plants}
- 7/044 . . . {Weighing mechanisms specially adapted therefor; Weighing containers ([other containers B28C 7/0046](#))}
- 7/0445 . . . {using a weighing receptacle, the feeding thereof being automatically suspended after a predetermined weight has been obtained ([B28C 7/045](#) takes precedence)}
- 7/045 . . . {using a weighing receptacle movable between several positions, e.g. moving vertically, horizontally or rotating about an axis ([B28C 7/0427](#) takes precedence)}
- 7/0454 . . {Volumetric measuring devices, e.g. for consecutively delivering predetermined volumes of ingredients}
- 7/0459 . . . {the ingredients being first supplied into measuring chambers, e.g. containers or skips}
- 7/0463 {Measuring chambers or containers therefor ([other containers B28C 7/0046](#))}
- 7/0468 {the measuring chambers being provided on a rotating drum}
- 7/0472 . . . {for continuous feeding, e.g. by controlling the velocity of a transporting belt or the thickness of the ingredients on the belt or by regulating the outlet of a hopper ([B28C 7/0477](#) takes precedence)}
- 7/0477 . . . {by using conveyor screws}
- 7/0481 . . {Plant for proportioning, supplying or batching ([B28C 7/0436](#), [B28C 7/0811](#) take precedence; plant in general [B28C 9/00](#))}
- 7/0486 . . . {the plant being mobile}
- 7/049 {and broken-down for transport}
- 7/0495 {with a frame carrying the supplying, proportioning or batching elements, movable between a horizontal transport position and an inclined working position}
- 7/06 . . Supplying the solid ingredients, e.g. by means of endless conveyors or jiggling conveyors

- 7/061 . . . {from stationary storage means having elements for dividing the ground sectorially ([B28C 7/0811 takes precedence](#))}
- 7/062 . . . {with a pneumatic or hydraulic conveyor}
- 7/064 . . . {Supply from sacks; Sack openers}
- 7/065 . . . {with a pivotable charging-bin ([B28C 7/068 takes precedence](#))}
- 7/067 . . . {by means of stationary hoppers, chambers or bins from which the material is fed gravitationally, e.g. having agitating means therein ([hoppers or bins per se B28C 7/0053](#))}
- 7/068 . . . {having means to elevate or hoist a charging-bin or container}
- 7/08 . . . by means of scrapers or skips
- 7/0805 {by means of a barrow or the like}
- 7/0811 {from stationary storage means having elements for dividing the ground sectorially}
- 7/0817 {on an endless chain}
- 7/0823 {using manually-operated cable-pulled drag shovels ([B28C 7/0841 takes precedence](#))}
- 7/0829 {using reciprocating cable-suspended drag shovels}
- 7/0835 {using skips to be hoisted along guides or to be tilted, to charge working-site concrete mixers ([proportioning by means of a skip B28C 7/0427, B28C 7/0459](#))}
- 7/0841 {having mechanisms to fill the skip in its lowest position, e.g. by drag shovels, from a hopper}
- 7/0847 {the skips being hoisted along vertical or inclined guides}
- 7/0852 {and being tilted in their upmost position for discharging them at their upper side}
- 7/0858 {the skips being tilted ([B28C 7/0852 takes precedence](#))}
- 7/0864 {about a fixed axis}
- 7/087 {Parts; Accessories, e.g. safety devices}
- 7/0876 {Drives therefor, e.g. winches, hydraulic drives}
- 7/0882 {Skips}
- 7/0888 {Vibration devices, e.g. for facilitating the emptying of the skips}
- 7/0894 {Parts, e.g. winches}
- 7/10 . . . by means of rotary members {, e.g. inclinable screws}
- 7/12 . . Supplying or proportioning liquid ingredients
- 7/122 . . . {by means of a measuring chamber, e.g. container}
- 7/124 {for use with a skip}
- 7/126 . . . {Supply means, e.g. nozzles}
- 7/128 {Nozzles; Valves; Valve-actuating means}
- 7/14 . Supply means incorporated in, or mounted on, mixers
- 7/16 . Discharge means {, e.g. with intermediate storage of fresh concrete}
- 7/161 . . {with storage reservoirs for temporarily storing the fresh concrete; Charging or discharging devices therefor}
- 7/162 . . {by means of conveyors, other than those comprising skips or containers, e.g. endless belts, screws, air under pressure}
- 7/163 . . . {using a pump}
- 7/165 {using a fluid, e.g. gas ([B28C 5/06, B28C 5/1261 take precedence](#))}
- 7/166 {comprising a lock rotor with pockets for feeding determined quantities of material from a hopper into the driving fluid}
- 7/167 . . . {by means of a screw conveyor}
- 7/168 . . . {Discharging chutes for concrete mixers}
- 9/00 General arrangement or layout of plant**
{([B28C 7/0061, B28C 7/0481 take precedence](#))}
- 9/002 . {Mixing systems, i.e. flow charts or diagrams; Making slurries; Involving methodical aspects; Involving pretreatment of ingredients; Involving packaging}
- 9/004 . . {Making slurries, e.g. with discharging means for injecting in a well or projecting against a wall}
- 9/006 . {comprising a multicompartment silo with the mixing device, e.g. a mixing screw, fitted directly at the underside of the silo, e.g. with proportioning means at the exit of the silo}
- 9/008 . {Plant adapted for mixing materials lying on the ground, e.g. in sectors ([B28C 9/0436 takes precedence](#))}
- 9/02 . for producing mixtures of clay or cement with other materials
- 9/04 . the plant being mobile, {e.g. mounted on a carriage or a set of carriages} ([B28C 5/42, B28C 9/004, B28C 9/006 take precedence](#))
- 9/0409 . . {and broken-down for transport ([B28C 9/0445 takes precedence](#))}
- 9/0418 . . . {with a storage silo movable between a horizontal transport position and a vertical working position}
- 9/0427 . . . {with a frame carrying the supplying and mixing elements movable between a horizontal transport position and an inclined working position}
- 9/0436 . . {Plant adapted for mixing material lying in sectors on the ground}
- 9/0445 . . . {and broken-down for transport}
- 9/0454 . . {Self-contained units, i.e. mobile plants having storage containers for the ingredients ([B28C 9/0472, B28C 9/0481 take precedence](#))}
- 9/0463 . . . {with a mixing discharge trough with a free end, e.g. provided with a mixing screw or pivotable about a vertical or horizontal axis}
- 9/0472 . . {provided with two or more carriages for storing the ingredients or for the mixing device, e.g. transportable on rails}
- 9/0481 . . {with means for loading the material from ground level to the mixing device, e.g. with an endless conveyor or a charging skip ([B28C 9/0436 takes precedence](#))}
- 9/049 . . . {with at least a storage compartment for one of the ingredients}