

## ECLA EUROPEAN CLASSIFICATION

- B01F MIXING, e.g. DISSOLVING, EMULSIFYING, DISPERSING** ([N: miscellaneous implements for preparing food, e.g. machines for domestic use for mixing, egg-whisks, cream beaters [A47J43/00](#); mixing paints [B44D3/06](#); [N: apparatus specially adapted for mixing radioactively contaminated material [G21F9/00P](#)] [C9807]
- [N: **WARNING** [C2011.06]  
1.The following IPC groups are not used in the internal ECLA classification scheme. Subject matter covered by these groups is classified in the following groups:  
[B01F17/02](#) to [B01F17/56](#) covered by [B01F17/00](#) to [B01F17/00Z2](#)  
]
- Note**  
In this subclass, the following term or expression is used with the meaning indicated:  
- "mixing" covers stirring of a single material.
- B01F1/00 Dissolving** ([N: without involving chemical reactions; [B01F3/04C](#) takes precedence;] separating by dissolving [B01D](#); dissolving to effect cooling [F25D5/00](#)) [C0305]
- B01F1/00B** . [N: Methods] [N0305]
- B01F1/00C** . [N: using driven stirrers] [N0305]
- B01F1/00D** . [N: comprising constructions for blocking or redispersing undissolved solids, e.g. sieves, separators, guiding constructions ([B01F1/00F2B](#) takes precedence)] [N0305] [C0308]
- B01F1/00F** . [N: using flow mixing] [N0308]
- B01F1/00F2** . . [N: using additional holders in conduits, containers or pools for keeping the solid material in place, e.g. supports, receptacles] [N0308]
- B01F1/00F2B** . . . [N: comprising constructions for blocking or redispersing undissolved solids] [N0308]
- B01F1/00P** . [N: Dissolving systems, i.e. flow charts or diagrams; Arrangements, e.g. comprising controlling means] [N0305]
- B01F3/00 Mixing, e.g. dispersing, emulsifying, according to the phases to be mixed** [N: ([C08J3/02](#) takes precedence)] [C0105]
- B01F3/00P** . [N: Mixing systems, i.e. flow charts or diagrams for components having more than two different of having undetermined agglomeration states, e.g. supercritical state ([mixing plant B01F13/10](#))] [C0305]
- B01F3/02** . gases with gases or vapours [N: ([for preparing respiratory gases or vapours A61M16/12](#))] [M0611]
- B01F3/02B** . . [N: with vaporisation of a liquid]
- B01F3/02C** . . [N: with moving mixing elements, e.g. with liquid seal ([B01F3/02B](#) takes precedence)]
- B01F3/02P** . . [N: Mixing systems, i.e. flow charts or diagrams; Arrangements, e.g. comprising

- controlling means] [C0105]
- B01F3/02P2 . . . [N: characterised by the construction of the controlling means] [N0105]
- B01F3/04 . [N: gases or vapours with liquids (mixing non-alcoholic beverages with gases [A23L2/54](#); [N: for medical purposes [A61M16/14](#))] [M1110]
- B01F3/04B . . [N: Introducing a liquid into a gaseous medium, e.g. preparation of aerosols (for air-conditioning [F24F6/00](#))]
- B01F3/04B2 . . . [N: Methods]
- B01F3/04B3 . . . [N: by spraying or atomising of the liquid (apparatus for spraying or atomising per se [B05B](#); evaporating by spraying [B01D1/16](#))] [C9511]
- B01F3/04B3A . . . . [N: using rotating elements, e.g. rolls, brushes] [N0209]
- B01F3/04B3A2 . . . . . [N: for spraying the liquid radially by centrifugal force] [N0209]
- B01F3/04B3A4 . . . . . [N: with additional rotating elements mounted on the same axis, e.g. fans, for moving the gas] [N1204]
- B01F3/04B3C . . . . . [N: using nozzles] [C0209]
- B01F3/04B3C2 . . . . . [N: High pressure atomization, i.e. the liquid is atomized and sprayed by a jet at high pressure] [N1204]
- B01F3/04B3C4 . . . . . [N: Internal mixer atomization, i.e. liquid and gas are mixed and atomized in a jet nozzle before spraying] [N1204]
- B01F3/04B3F . . . . . [N: using electric, sonic or ultrasonic energy]
- B01F3/04B4 . . . . [N: using a gas-liquid mixing column or tower (absorbing units for separating gases or vapours [B01D53/18](#))]
- B01F3/04B7 . . . . [N: by forcing the gas through absorbent pads containing the liquid] [C0209]
- B01F3/04C . . . [N: Introducing a gas or vapour into a liquid medium, e.g. producing aerated liquids (methods for the preparation of non-alcoholic beverages, e.g. of carbonated water [A23L2/00](#); bottling liquids, e.g. combined with aerating or carbonating [B67C3/00](#); dispensing beverages on draught combined with carbonating [B67D1/00H4](#), [B67D1/02B](#), [B67D1/04A](#), [B67D1/04B2](#); dispensing beverages by gas pressure from storage containers, e.g. syphons [B67D1/04](#); biological treatment of water, waste water or sewage [C02F3/00](#); impregnating wine with carbon dioxide [C12G1/06](#); gas introduction means for enzymology or microbiology apparatus [C12M1/04](#))]
- B01F3/04C1 . . . . [N: the gas being introduced by bubbling, e.g. within receptacles or tanks ([B01F3/04C5](#), [B01F3/04C8](#) take precedence; introducing gas for agitation only [B01F13/02](#))] [C0210]
- B01F3/04C1B . . . . . [N: Arrangement or manipulation of the gas bubbling devices] [C0210]
- B01F3/04C1B1 . . . . . [N: Mounting the bubbling devices or the diffusers ([B01F3/04C1B2](#) takes precedence)] [N9511] [C0210]
- B01F3/04C1B2 . . . . . [N: Diffusers] [C0210]
- B01F3/04C1B2F . . . . . [N: having injection means, e.g. nozzles with circumferential outlet] [C0205]
- B01F3/04C1B2G . . . . . [N: having elements opening under air pressure, e.g. valves] [C0205]
- B01F3/04C1B2K . . . . . [N: consisting of rigid porous or perforated material] [N0205]
- B01F3/04C1B2L . . . . . [N: consisting of flexible porous or perforated material, e.g. fabric] [N0205]
- B01F3/04C2 . . . . [N: Methods]
- B01F3/04C3 . . . . [N: Making foam (for cocoa products [A23G1/10E](#); for sweet meats [A23G3/02K10E](#); for fire-extinguishing foam [A62C5/02](#); spray pistols for making foam [B05B7/00C](#); foam used in forming crevices or fractures for stimulation of

- oil production [E21B43/26](#)] [C9409]
- B01F3/04C3B . . . . [N: using driven stirrers]
- B01F3/04C4 . . . . [N: using flow mixing means for introducing the gas, e.g. in conduits or in vessels ([B01F3/04C1](#), [B01F3/08F4](#) take precedence; distillation in which liquids are contacted with gaseous media [B01D3/00](#); jet regulation with aerating means for fresh water plumbing installations [E03C1/084](#))] [C0305]
- B01F3/04C4B . . . . [N: by moving liquid and gas in counter current (absorbing units for separating gases or vapours [B01D53/18](#); in heat exchange apparatus [F28C3/06](#))] [C0305]
- B01F3/04C4B2 . . . . . [N: the liquid flowing in a thin film to absorb the gas (fractional distillation with fractionating columns in which vapour bubbles through liquid [B01D3/16](#))]
- B01F3/04C4B2A . . . . . [N: the liquid film or layer flowing over a horizontal or inclined surface, e.g. perforated] [N1204]
- B01F3/04C4B2B . . . . . [N: the liquid film or layer flowing over a vertical surface, e.g. a mesh] [N1204]
- B01F3/04C4C . . . . [N: using columns, e.g. multistaged columns] [C0305]
- B01F3/04C4G . . . . [N: by circulating the flow in guiding constructions or conduits] [N0305]
- B01F3/04C4G2 . . . . . [N: being at least partially immersed in the liquid, e.g. in a closed circuit ([B01F3/04C5G](#) takes precedence)] [N0305]
- B01F3/04C4G2B . . . . . [N: The conduits being vertical draft pipes with a lower intake end and an upper exit end] [N0309]
- B01F3/04C4G2D . . . . . [N: the guiding constructions being baffles for guiding the flow up-and-down or from left-to-right] [N1204]
- B01F3/04C5 . . . . [N: using driven stirrers with completely immersed stirring elements ([B01F3/04C3B](#) takes precedence; surface aerating with stirrers near to the surface [B01F3/04C6C](#); flotation machines [B03D1/16](#))] [C0305]
- B01F3/04C5B . . . . characterised by the introduction of the gas along the axis of the stirrer or along the stirrer elements [M1106]
- B01F3/04C5C . . . . [N: the stirrer rotating about a horizontal axis; Stirrers therefor ] [C0403]
- B01F3/04C5D . . . . [N: Single stirrer-drive aerating units, e.g. with the stirrer-head pivoting around an horizontal axis] [C0403]
- B01F3/04C5G . . . . [N: provided with stationary guiding means surrounding at least partially the stirrer] [C0011]
- B01F3/04C5G2 . . . . . [N: with tubes surrounding the stirrer]
- B01F3/04C5G3 . . . . . [N: the stirrer being of the centrifugal type, e.g. with a surrounding stator] [C0011]
- B01F3/04C6 . . . . [N: Surface aerating, e.g. by cascading, spraying or projecting a liquid into a gaseous atmosphere (direct-contact heat exchange apparatus, the heat-exchange media being a liquid and a gas or a vapour [F28C3/06](#))] [C0305]
- B01F3/04C6A . . . . . [N: by cascading, spraying or projecting a liquid into a gaseous atmosphere ([B01F3/04C6C](#) takes precedence)] [N1204]
- B01F3/04C6A2 . . . . . [N: Surface aerating by cascading the liquid] [N1204]
- B01F3/04C6A4 . . . . . [N: Surface aerating using liquid falling from orifices in a gaseous atmosphere, the orifices being exits from perforations, tubes, chimneys] [N1204]
- B01F3/04C6A6 . . . . . [N: Surface aerating using nozzles for projecting the liquid as a jet] [N1204]
- B01F3/04C6C . . . . . [N: with stirrers near to the liquid surface, e.g. partially immersed, for spraying the liquid in the gas or for sucking gas into the liquid, e.g. using

- stirrers rotating around a horizontal axis or using centrifugal force] [C0305]
- B01F3/04C6C2 . . . . . [N: the stirrers rotating about a vertical axis]
- B01F3/04C6C2B . . . . . [N: Stirrers therefor]
- B01F3/04C8 . . . . . [N: Apparatus for aerating or carbonating beverages ([B01F3/04C4](#), [B01F3/04C22](#) take precedence; using effervescence-generating compositions, e.g. carbon dioxide tablets [A23L2/40](#))] [C0210]
- B01F3/04C8D . . . . . [N: for aerating or carbonating beverages within containers, e.g. bottles] [C0209]
- B01F3/04C8D2 . . . . . [N: Portable appliances comprising a gas cartridge]
- B01F3/04C8G . . . . . [N: for aerating or carbonating within receptacles or tanks, e.g. distribution machines ([B01F3/04C8D](#) takes precedence)] [C0209]
- B01F3/04C8P . . . . . [N: Mixing systems, i.e. flow charts or diagrams; Arrangements, e.g. comprising controlling means] [N0209]
- B01F3/04C9 . . . . . [N: Parts; Accessories]
- B01F3/04C9A . . . . . Mixing receptacles, e.g. tanks, vessels, reactors, being completely closed, e.g. hermetically closed [N1204]
- B01F3/04C22 . . . . . [N: using vibrations, electrical or magnetical energy, radiations]
- B01F3/04P . . . . . [N: Mixing systems, i.e. flow charts or diagrams]
- B01F3/04P2 . . . . . [N: for obtaining foams or aerosols] [N9502]
  
- B01F3/06 . . . . . gases or vapours with solids [C0309]
- B01F3/06P . . . . . [N: Mixing systems, i.e. flow charts or diagrams] [N0305]
  
- B01F3/08 . . . . . liquids with liquids; Emulsifying [N: ([B01F13/02D](#) takes precedence; dispensing beverages on draught combined with mixing [B67D1/00F](#), [B67D1/00H2](#))]
- B01F3/08B . . . . . [N: Methods (3/08C1 takes precedence)]
- B01F3/08C . . . . . [N: Emulsifying (homogenising milk [A01J11/16](#); for adding a water-fuel emulsion in engine-pertinent apparatus [F02M25/02B](#); for preparing emulsion of liquid fuel with other fluid(s) for feeding combustion apparatus [F23K5/12](#))]
- B01F3/08C1 . . . . . [N: Methods]
- B01F3/08C3 . . . . . [N: using heat, vibrations, electrical or magnetical energy]
- B01F3/08C3B . . . . . [N: using vibrations]
- B01F3/08D . . . . . [N: Mixing liquids using driven stirrers]
- B01F3/08D2 . . . . . [N: At least one of the liquids being introduced from the outside through or along the axis of a rotating stirrer, e.g. the stirrer being rotating due to the reaction of the introduced liquid] [N9502]
- B01F3/08F . . . . . [N: Mixing liquids using flow mixing]
- B01F3/08F1 . . . . . [N: by injecting or introducing one liquid into another] [C9502]
- B01F3/08F2 . . . . . [N: by uniting flows taken from different parts of a receptacle or silo; Sandglass-type mixing (for particulate material [B01F5/24](#))]
- B01F3/08F3 . . . . . [N: by moving the liquids in countercurrent]
- B01F3/08F4 . . . . . [N: by injecting a mixture of liquid and gas] [N0305]
- B01F3/08P . . . . . [N: Mixing systems, i.e. flow charts or diagrams]
- B01F3/10 . . . . . Mixing very viscous liquids
  
- B01F3/12 . . . . . liquids with solids ([N: [B01F1/00](#) takes precedence;] displacing one liquid by another in dispersions of solids in liquids [B01D12/00](#))] [C0305]

- B01F3/12B . . [N: Methods (3/12C takes precedence; process features in the making of dispersions of dyestuffs preparations [C09B67/00P10D](#))]
- B01F3/12B2 . . . [N: characterised by the composition of the liquids or solids]
- B01F3/12C . . [N: using driven stirrers]
- B01F3/12D . . [N: Wetting solids ([B01F5/18](#) takes precedence)]
- B01F3/12F . . [N: the mixture being submitted to electrical, sonic or similar energy]
- B01F3/12F2 . . . [N: using vibrations]
- B01F3/12P . . [N: Mixing systems, i.e. flow charts or diagrams]
- B01F3/14 . . Mixing very viscous liquids with solids
  
- B01F3/18 . solid with solids [N: ([B01F5/24](#) takes precedence; bulk material piled in a stack and unloaded from the stack to obtain an average product [B65G69/10](#))] [M1106]
- B01F3/18C . . [N: using a receptacle provided at its bottom discharge opening with oscillating or vibrating opening and closing elements, or with elements fitted on moving chains]
- B01F3/18D . . [N: using rotatable mixing elements at the lower end of discharge hoppers]
- B01F3/18F . . [N: by evaporating or liquefying at least one of the components; using a fluid which is evaporated after mixing]
- B01F3/18P . . [N: Mixing systems, i.e. flow charts or diagrams; Arrangements, e.g. comprising controlling means] [N0105]
  
- B01F3/20 . Pretreatment of the materials to be mixed [N: ([B28C5/40C](#), [B29B7/90D](#) take precedence)] [C0209]
- B01F3/20A . . [N: Coating solid components] [N1204]
- B01F3/20B . . [N: Cooling components] [N1204]
- B01F3/20C . . [N: Degassing, deaerating components; replacing one gas within the components by another gas] [N1204]
- B01F3/20D . . [N: Drying components, e.g. in order to mix them in solid state] [N1204]
- B01F3/20E . . [N: Submitting components to electrical energy fields to charge or ionize them] [N1204]
- B01F3/20F . . [N: Evaporating solvents, dispersion liquid, e.g. water, at least partially] [N1204]
- B01F3/20G . . [N: Extracting components to be mixed from a stream of fluid or from a solid containing them, e.g. by adsorption, absorption or distillation] [N1204]
- B01F3/20H . . [N: Filtering components] [N1204]
- B01F3/20I . . [N: Freezing components, e.g. to mix them in solid state] [N1204]
- B01F3/20J . . [N: Grinding components] [N1204]
- B01F3/20K . . [N: Heating components, e.g. melting] [N1204]
- B01F3/20L . . [N: Irradiating components] [N1204]
- B01F3/20M . . [N: Sieving components] [N1204]
  
- B01F3/22 . Aftertreatment of the mixture
- B01F3/22A . . [N: Coating the solid mixture] [N1204]
- B01F3/22B . . [N: Cooling the mixture] [N1204]
- B01F3/22C . . [N: Venting, degassing, ventilating of gases, fumes or toxic vapours from the mixture] [N1204]
- B01F3/22D . . [N: Drying the mixture] [N1204]
- B01F3/22E . . [N: Submitting a mixture to electrical energy fields, e.g. corona discharge] [N1204]

- B01F3/22F . . [N: Evaporating a carrier, e.g. liquid carbon dioxide, e.g. used to dissolve, disperse, emulsify, other components which are difficult to be mixed; Evaporating liquid components] [N1204]
- B01F3/22G . . [N: Extracting components from the mixture, e.g. by adsorption, absorption, distillation] [N1204]
- B01F3/22H . . [N: Filtering the mixture] [N1204]
- B01F3/22I . . [N: Freezing the mixture] [N1204]
- B01F3/22J . . [N: Grinding the mixture] [N1204]
- B01F3/22K . . [N: Heating the mixture] [N1204]
- B01F3/22L . . [N: Irradiating the mixture] [N1204]

**Guide heading: Mixers**

**B01F5/00** **Flow mixers (sprayers, atomisers [B05B](#)); Mixers for falling materials, e.g. solid particles ([B01F13/04](#) takes precedence; centrifugal mixers [B04](#))**

- B01F5/00B . [N: Mixing by creating a vortex flow, e.g. by tangentially introducing jets (apparatus using free vortex flow in general [B04C](#))] [M1106]
- B01F5/00B2 . . [N: wherein the vortex flows in a spherical shaped receptacle or chamber] [N1204]
- B01F5/00B4 . . [N: wherein the vortex is created by two or more jets introduced tangentially in separate mixing chambers or consecutively in the same mixing chamber] [N1204]
- B01F5/00B6 . . [N: with additional mixing means other than vortex mixers, e.g. the vortex chamber being positioned in another mixing chamber] [N1204]
- B01F5/00B8 . . [N: Characterised by the arrangement of the discharge opening] [N0202]
- B01F5/00B8B . . . [N: the mixing chamber being vertical with the outlet tube at its upper side] [N1204]
- B01F5/00B8D . . . [N: the mixing chamber being vertical and having an outlet tube at its bottom whose inlet is at a higher level than the inlet of the vortex creating jet, e.g. the jet being introduced at the bottom of the mixing chamber] [N1204]
- B01F5/00C . [N: Mixing heads, i.e. compact mixing units or modules, using mixing valves for feeding and mixing at least two components (for homogenizing mixtures [B01F5/06D](#), mixing valves [F16K11/00](#))] [C0302]
- B01F5/00C2 . . [N: of the mixing valve type] [N1204]
- B01F5/00D . [N: Interdigital mixers, i.e. the substances to be mixed are divided in substreams which are rearranged in an interdigital or interspersed manner ([B01F13/00M2C](#) takes precedence)] [N1204]
- B01F5/00E . [N: Mixing drops, droplets, bodies of liquid which flow together or contact each other ([B01F13/00M4](#) takes precedence)] [N1204]
- B01F5/02 . Jet mixers [N: ([B01F5/00B](#) take precedence; with gas agitation, i.e. for fluidisation [B01F13/02](#))] [C0202]
- B01F5/02B . . [N: comprising submerged injectors, e.g. nozzles, for injecting high pressure jets in a large volume or in a mixing chamber ([B01F3/04C1](#) takes precedence; injecting an additional component in a conduit [B01F5/04C](#))] [C0305]
- B01F5/02B2 . . . [N: the injectors being surrounded by guiding tubes] [N0202]
- B01F5/02B3 . . . [N: the injectors being movable, e.g. rotating] [N0202]

- B01F5/02B3B . . . . [N: Pivoting, oscillating in a multidirectional way during jetting] [N1204]
- B01F5/02B3D . . . . [N: Rotating during jetting] [N1204]
- B01F5/02B3F . . . . [N: being vertically moved to bring the injector in or out of operative position] [N1204]
- B01F5/02B3H . . . . [N: being moved or transported between different locations during jetting] [N1204]
- B01F5/02B3J . . . . [N: Moving to adjust the direction of jetting, the injectors being fixed during operation] [N1204]
- B01F5/02C . . [N: Mixing by intersecting jets (in a stream-impingement mixing head for polymers B29B7/76)] [C0202]
- B01F5/02C2 . . . [N: the intersecting jets having the configuration of sheets, cylinders or cones] [N1204]
- B01F5/02F . . [N: Mixing by jets impinging against a collision plate] [C0406]
- B01F5/02H . . [N: Mixing by jetting a component in a conduit for agitating its contents, i.e. using high pressure jets (injection under low pressure B01F5/04; eductor type injector B01F5/04C12)] [N1204]
- B01F5/02S . . [N: characterized by the specific design of the jet injector] [N1204]
- B01F5/02S2 . . . [N: the jet injector being of the RESS (explosive rapid expansion of supercritical solutions) or FIMS (fluid injection of molecular spray) type, i.e. the liquid is jetted in an environment (gas or liquid) by nozzles, in conditions of significant pressure drop, with the possible generation of shock waves] [N1204]
- B01F5/02S4 . . . [N: the jet injector being of coanda type, i.e. having a surface to attract the jet for adjusting its direction] [N1204]
  
- B01F5/04 . . Injector mixers, [N: i.e. one or more components being added to a flowing main component (B01F5/00B takes precedence)] [C0305]
- B01F5/04B . . [N: the additional component being axially fed and radially discharged through a circumferential outlet]
- B01F5/04C . . [N: Mixing conduits or tubes, i.e. conduits or tubes through which the main component is flown (mixing devices for gas burners F23D14/62)]
- B01F5/04C11 . . . [N: for mixing more than two components; Devices specially adapted for generating foam, e.g. air foam]
- B01F5/04C11B . . . . [N: Devices specially adapted for generating foam]
- B01F5/04C11B2 . . . . . [N: with additional mixing means other than injector mixers, e.g. screen, baffles (B01F5/04C11B3 takes precedence)]
- B01F5/04C11B3 . . . . . [N: with rotating elements, e.g. driven by one of the components for feeding or by the resulting mixture for additional mixing]
- B01F5/04C11B6 . . . . . [N: with means for introducing an additional component, e.g. in predetermined proportion, in the main component]
- B01F5/04C12 . . . [N: provided with a venturi element] [C0202]
- B01F5/04C12B . . . . [N: with additional mixing means other than injector mixers, e.g. screens, baffles or rotating elements] [C0202]
- B01F5/04C12D . . . . [N: the material flowing at a supersonic velocity thereby creating shock waves]
- B01F5/04C12M . . . . [N: with two or more venturi elements] [N0202]
- B01F5/04C12M2 . . . . . [N: used alternatively] [N1204]
- B01F5/04C12M4 . . . . . [N: used simultaneously] [N1204]
- B01F5/04C12M6 . . . . . [N: used successively] [N1204]
- B01F5/04C12S . . . . [N: characterized by the place of introduction of the main flow] [N1204]

B01F5/04C12S2	. . . . .	[N: the main flow being injected in the circumferential area of the venturi, creating an aspiration in the central part of the conduit] [N1204]
B01F5/04C12S4	. . . . .	[N: the main flow being injected in the central area of the venturi, creating an aspiration in the circumferential part of the conduit (B01F5/04C12S6 takes precedence)] [N1204]
B01F5/04C12S6	. . . . .	[N: Eductor or eductor type venturi, i.e. the main flow being injected through the venturi with high speed in the form of a jet] [N1204]
B01F5/04C13	. . . . .	[N: the additional component being introduced in the centre of the conduit] [C0211]
B01F5/04C13B	. . . . .	[N: with additional mixing means other than injector mixers, e.g. screens, baffles or rotating elements] [C0202]
B01F5/04C13M	. . . . .	[N: by using two or more injector devices] [N0202]
B01F5/04C13M2	. . . . .	[N: used alternatively] [N1204]
B01F5/04C13M4	. . . . .	[N: used simultaneously] [N1204]
B01F5/04C13M6	. . . . .	[N: used successively] [N1204]
B01F5/04C13M8	. . . . .	[N: arranged concentrically] [N1204]
B01F5/04C13S	. . . . .	[N: characterized by the specific design of the injector] [N1204]
B01F5/04C13S2	. . . . .	[N: Perforated, multi-opening, with a plurality of holes] [N1204]
B01F5/04C13S2B	. . . . .	[N: Porous injectors] [N1204]
B01F5/04C13S4	. . . . .	[N: Ring, torus, toroidal or coiled configurations] [N1204]
B01F5/04C13S6	. . . . .	[N: Rotatable injectors] [N1204]
B01F5/04C13S8	. . . . .	[N: the opening for introducing the supplementary stream being a slit] [N1204]
B01F5/04C14	. . . . .	[N: the additional component being introduced at the circumference of the conduit] [C0211]
B01F5/04C14B	. . . . .	[N: with additional mixing means other than injector mixers]
B01F5/04C14C	. . . . .	[N: the conduit having a plurality of openings in the axial direction or in the circumferential direction] [N9511] [C0211]
B01F5/04C14C2	. . . . .	[N: the conduit being porous] [N9511]
B01F5/04C14C4	. . . . .	[N: with a plurality of perforations in the axial direction only] [N1204]
B01F5/04C14C6	. . . . .	[N: with a plurality of perforations in the circumferential direction only and covering the whole circumference] [N1204]
B01F5/04C14C6B	. . . . .	[N: the perforations being a complete cut-out in the circumferential direction covering the whole diameter of the tube, i.e. having two consecutive tubes placed consecutively, the additional component being introduced between them] [N1204]
B01F5/04C14C8	. . . . .	[N: with a plurality of perforations aligned in a row perpendicular to the flow direction] [N1204]
B01F5/04C14C10	. . . . .	[N: with a plurality of perforations in the axial and circumferential direction covering the whole surface] [N1204]
B01F5/04C14S	. . . . .	[N: characterized by the specific design of the injector] [N1204]
B01F5/04C14S2	. . . . .	[N: A slit extending in the longitudinal direction only] [N1204]
B01F5/04C14S4	. . . . .	[N: A slit extending in the circumferential direction only] [N1204]
B01F5/04C14S6	. . . . .	[N: Rotatable, e.g. placed on a rotatable housing or conduit] [N1204]
B01F5/04C14S8	. . . . .	[N: A bundle of similar tubes, each of them having feedings on the circumferential wall, e.g. as mixer for a reactor] [N1204]
B01F5/04C17	. . . . .	[N: a difference of pressure at different points of the conduit provoking

- introduction of the additional component into the main component  
([B01F5/04C18](#) takes precedence)] [C9511]
- [B01F5/04C18](#) . . . [N: having a container for the additional component fixed to the conduit] [C9511]
- [B01F5/04D](#) . . [N: the additional component being added in a by-pass of the main flow  
([B01F5/04C18](#), [B01F5/10F](#) take precedence)] [N0202]
- [B01F5/06](#) . Mixers in which the components are pressed together through slits, orifices, or screens; [N: Static mixers; Mixers of the fractal type] ([N: [B01F7/16F4](#), [B01F7/22C](#) take precedence;] turbo-mixers [B01F5/16](#); colloid-mills [B02C](#); mixing valves [F16K11/00](#)) [M1106]
- [B01F5/06A](#) . . [N: Fractal mixers] [N1204]
- [B01F5/06B](#) . . [N: Static mixers, i.e. mixers in which the mixing is effected by moving the components jointly in changing directions, e.g. in tubes provided with baffles or obstructions ([B01F5/06D](#), [B01F5/06F](#) take precedence)]
- [B01F5/06B2](#) . . . [N: the mixture or the components moving in an irregular path, e.g. radially  
([B01F5/06B3F](#) takes precedence)] [C9502]
- [B01F5/06B2B](#) . . . . [N: the mixer being composed of stacked plates between which the material is moving, e.g. the plates being provided with grooves or orifices] [N9502] [M1207]
- [B01F5/06B2D](#) . . . . [N: by means of elements placed in the receptacle for moving or guiding the components] [N1204]
- [B01F5/06B2D2](#) . . . . . [N: using baffles] [N1204]
- [B01F5/06B2D4](#) . . . . . [N: using dams] [N1204]
- [B01F5/06B2D6](#) . . . . . [N: using plates with holes, the holes being displaced from one plate to the next one to force the flow to make a bending movement] [N1204]
- [B01F5/06B3](#) . . . [N: Mixing tubes, e.g. the material being submitted to a substantially radial movement or to a movement partially in reverse direction] [C9502]
- [B01F5/06B3B](#) . . . . [N: Straight mixing tubes, e.g. with smooth walls, having baffles or obstructions therein without substantial pressure drop; Baffles therefor (for falling-particle mixers [B01F5/24C](#))] [C0105]
- [B01F5/06B3B1](#) . . . . . [N: the baffles being adjustable]
- [B01F5/06B3B4](#) . . . . . [N: having different kinds of baffles, e.g. plates alternating with screens]
- [B01F5/06B3B5](#) . . . . . [N: comprising a plurality of stacked ducts having their axes parallel to the tube axis]
- [B01F5/06B3B6](#) . . . . . [N: the baffles being helical elements]
- [B01F5/06B3B6B](#) . . . . . . [N: composed of consecutive sections of helical formed elements]
- [B01F5/06B3B7](#) . . . . . [N: the baffles being made by deforming flat pieces of material, e.g. by bonding, folding, deep drawing ([B01F5/06B3B6](#) takes precedence)] [C9503]
- [B01F5/06B3B7B](#) . . . . . . [N: composed of consecutive sections of deformed flat pieces of material]
- [B01F5/06B3B8](#) . . . . . [N: the baffles being flat pieces of material, e.g. intermeshing, fixed to the wall, fixed on a central rod] [C9503]
- [B01F5/06B3B8B](#) . . . . . . [N: composed of consecutive sections of flat pieces of material] [N0105]
- [B01F5/06B3C](#) . . . . [N: with means for dividing a flow of material into separate subflows and for repositioning and recombining these subflows; Cross-mixing, e.g. conducting the outer layer of the material nearer to the axis of the tube or vice-versa ([B01F5/04C18](#) takes precedence; using baffles [B01F5/06B3B](#), for falling particle mixers [B01F5/24C](#))] [C0406]

B01F5/06B3C2	. . . . .	[N: the subflows consisting of at least two flat layers which are recombined, e.g. using means having restriction or expansion zones] [C9503]
B01F5/06B3C2B	. . . . .	[N: using a simple by-pass for separating and recombining the flow, e.g. by using branches of different length] [N1204]
B01F5/06B3C3	. . . . .	[N: essentially composed of stacks of sheets, e.g. corrugated sheets]
B01F5/06B3C4	. . . . .	[N: using elements provided with a plurality of channels or using a plurality of tubes which can either be placed between common spaces or collectors] [N9503] [C0105]
B01F5/06B3C4B	. . . . .	[N: the channels or tubes crossing each other several times] [N0105]
B01F5/06B3F	. . . . .	[N: Mixers composed of several consecutive mixing tubes; Mixing tubes being deformed or bent, e.g. having varying cross-section or being provided with inwardly extending profiles, e.g. with internal screw-thread profile ( <a href="#">B01F5/06B3G</a> takes precedence)]
B01F5/06B3F2	. . . . .	[N: Mixers with bended, curved, coiled, wounded mixing tubes or comprising elements for bending the flow] [N1204]
B01F5/06B3F4	. . . . .	[N: Mixers with a strong change of direction in the conduit for homogenizing the flow] [N1204]
B01F5/06B3F6	. . . . .	[N: Mixers with scallop-shaped tubes or surfaces facing each other] [N1204]
B01F5/06B3F8	. . . . .	[N: Mixers with a converging cross-section] [N1204]
B01F5/06B3F10	. . . . .	[N: Mixers with a converging-diverging cross-section] [N1204]
B01F5/06B3F12	. . . . .	[N: Mixers with a diverging cross-section] [N1204]
B01F5/06B3F14	. . . . .	[N: Mixers with a diverging-converging cross-section] [N1204]
B01F5/06B3F16	. . . . .	[N: Mixers with a succession of converging-diverging cross-sections, i.e. undulating cross-section] [N1204]
B01F5/06B3G	. . . . .	[N: Mixing tubes having therein a cylindrical or conical insert provided with grooves, e.g. the tube being provided with inwardly extending profiles or grooves ( <a href="#">B01F5/06D4</a> takes precedence)] [N0211] [C1207]
B01F5/06B3G2	. . . . .	[N: the insert being provided with helical grooves] [N1204]
B01F5/06B3G4	. . . . .	[N: the insert being provided with a labyrinth of grooves or a distribution of protrusions] [N1204]
B01F5/06B3H	. . . . .	[N: Mixing tubes composed of concentric tubular members (pressing the components through tubular members provided with orifices <a href="#">B01F5/06F</a> )] [C0202]
B01F5/06C	. . . . .	[N: with movable slits formed between reciprocating surfaces (with movable slits formed between stator-rotor or two rotor systems <a href="#">B01F7/00G</a> , <a href="#">B01F7/00H</a> , <a href="#">B01F7/16F</a> )] [C0105]
B01F5/06D	. . . . .	[N: Mixers in which the components are pressed through slits while introducing shear, e.g. the slits being formed by balls and their seats, by the spiro of helical springs ( <a href="#">B01F7/00G</a> takes precedence)] [C0211]
B01F5/06D2	. . . . .	[N: characterized by the configuration of the surfaces forming the slits] [N1204]
B01F5/06D2B	. . . . .	[N: the slits being formed between opposed planar surfaces, e.g. pushed again each other by springs] [N1204]
B01F5/06D2B2	. . . . .	[N: with a plurality of parallel slits, e.g. formed between stacked plates] [N1204]
B01F5/06D2D	. . . . .	[N: the slits being formed between opposed conical or cylindrical surfaces] [N1204]
B01F5/06D2F	. . . . .	[N: the slits being formed between the balls and the seats of a bearing-like construction] [N1204]

B01F5/06D2H	. . . .	[N: the slits being formed between the helical windings of a spring-like construction or by deforming a spring] [N1204]
B01F5/06D2V	. . . .	[N: the opposed surfaces being provided with grooves] [N1204]
B01F5/06D2V2	. . . . .	[N: Axial grooves formed on opposed surfaces, e.g. on cylinders or cones] [N1204]
B01F5/06D2V4	. . . . .	[N: Circumferential grooves formed on opposed surfaces, e.g. on planar surfaces or on cylinders or cones] [N1204]
B01F5/06D2V6	. . . . .	[N: Helical grooves formed on opposed surfaces, e.g. on cylinders or cones] [N1204]
B01F5/06D2V8	. . . . .	[N: Crossing sets of grooves forming a labyrinth formed on opposed surfaces, e.g. on planar surfaces or on cylinders or cones] [N1204]
B01F5/06D2V10	. . . . .	[N: Radial grooves formed on opposed surfaces, e.g. on planar surfaces] [N1204]
B01F5/06D2V12	. . . . .	[N: Spiral grooves formed on opposed surfaces, e.g. on planar surfaces] [N1204]
B01F5/06D2V14	. . . . .	[N: the grooves being formed on the outer surface of the cylindrical or conical core of the slits] [N1204]
B01F5/06D2V16	. . . . .	[N: the grooves being formed on the inner surface of the cylindrical or conical housing of the slits] [N1204]
B01F5/06D5	. . .	[N: characterized by the relative position of the surfaces during operation] [N1204]
B01F5/06D5B	. . . .	[N: the surfaces being maintained in a fixed position, spaced from each other, therefore maintaining the slit always open] [N1204]
B01F5/06D5D	. . . .	[N: the surfaces being maintained in a fixed but adjustable position, spaced from each other, therefore allowing the slit spacing to be varied (B01F5/06D5F takes precedence)] [N1204]
B01F5/06D5F	. . . .	[N: the surfaces being part of a valve construction, formed by opposed members in contact, e.g. automatic positioning caused by spring pressure] [N1204]
B01F5/06F	. .	[N: Mixers in which the components are pressed together through screens, plates provided with orifices, foam-like inserts, or through a bed of loose bodies, e.g. beads (B01F7/00G takes precedence)] [C0105]
B01F5/06F2	. . .	[N: characterised by the means for moving the components or the mixture, e.g. using a piston or having one or more rotor plates, e.g. driven by the components, on the same shaft provided with orifices and co-operating with stator plates provided with orifices]
B01F5/06F2B	. . . .	[N: with a rotor surrounded by a stator provided with orifices]
B01F5/06F2C	. . . .	[N: with reciprocating pistons]
B01F5/06F3	. . .	[N: the components being pressed through foam-like inserts or through a bed of loose bodies, e.g. balls (B01F5/06F2 takes precedence)]
B01F5/06F4	. . .	[N: characterized by the elements through which the components are pressed together] [N1204]
B01F5/06F4B	. . . .	[N: the components being pressed through orifices in elements, e.g. flat plates or cylinders, which obstruct the whole diameter of the tube] [N1204]
B01F5/06F4B2	. . . . .	[N: the elements being cylinders or cones which obstruct the whole diameter of the tube, the flow changing from axial in radial and again in axial] [N1204]
B01F5/06F4B4	. . . . .	[N: the elements comprising means for adjusting the orifices] [N1204]
B01F5/06F4D	. . . .	[N: the components being pressed through porous bodies, e.g. flat plates, blocks or cylinders, which obstruct the whole diameter of the tube]

- (B01F5/06F4G6 takes precedence)] [N1204]
- B01F5/06F4D2 . . . . . [N: the porous bodies being cylinders or cones which obstruct the whole diameter of the tube, the flow changing from axial in radial and again in axial] [N1204]
- B01F5/06F4F . . . . . [N: the components being pressed through sieves, screens or meshes which obstruct the whole diameter of the tube] [N1204]
- B01F5/06F4F2 . . . . . [N: the sieves, screens or meshes being cylinders or cones which obstruct the whole diameter of the tube, the flow changing from axial in radial and again in axial] [N1204]
- B01F5/06F4G . . . . . [N: the components being pressed through foam-like inserts or through a bed of loose bodies, e.g. balls] [N1204]
- B01F5/06F4G2 . . . . . [N: through a bed of balls] [N1204]
- B01F5/06F4G4 . . . . . [N: through a bed of fibres, steel wool or wood chips] [N1204]
- B01F5/06F4G6 . . . . . [N: through a foam or expanded material body] [N1204]
- B01F5/08 . . Homogenizing or emulsifying nozzles [N: ([B01F11/02B](#) takes precedence; mixing heads without moving stirrer for plastics [B29B7/74G](#))] [C0406]
- B01F5/10 . Circulation mixers, [N: e.g. at least part of the mixture being discharged from, and reintroduced into, a receptacle, e.g. with rotary stirrer ([B01F5/02](#) takes precedence)]
- B01F5/10B . . [N: the mixture being circulated during mixing through a set of tubes, e.g. involving gradually introducing a component into a circulating flow]
- B01F5/10C . . [N: provided with rotary stirrer]
- B01F5/10F . . [N: the mixture being discharged from and reintroduced into a receptacle through a recirculation tube into which an additional component is introduced] [N9511]
- B01F5/10G . . [N: provided with an internal pump to recirculate the material inside the receptacle] [N1204]
- B01F5/12 . Pump mixers, [N: i.e. the mixing taking place in the pump itself]
- B01F5/14 . . of the gear type
- B01F5/14B . . . [N: using a Wankel pump] [N1204]
- B01F5/16 . . Turbo-mixers, [N: i.e. of the centrifugal-pump type]
- B01F5/16B . . . [N: Multi-staged turbo-mixers]
- B01F5/16C . . . [N: consisting of a stator-rotor system with intermeshing teeth or cages]
- B01F5/16D . . . [N: with axial access to the mixing device at both its sides]
- B01F5/18 . Spray-mixers; [N: Mixing intersecting sheets of material, e.g. conical liquid sheets ([B01F3/04C6](#), [B01F7/02B](#), [B01F9/02B](#) take precedence)]
- B01F5/20 . . with nozzles [N: ([B01F3/04B3C](#) takes precedence; nozzles per se [B05B1/00](#))]
- B01F5/20B . . . [N: for spraying a fluid on falling particles or on a liquid curtain]
- B01F5/22 . . with rotary [N: parts, e.g.] discs [N: ([B01F3/04B3A2](#), [B01F7/00G](#) take precedence)] [C0209]
- B01F5/22B . . . [N: with a disc or a set of discs mounted on a shaft rotating about a vertical axis, on top of which the material to be thrown outwardly is fed]
- B01F5/22B2 . . . . [N: with repeated action, i.e. the material thrown outwardly being guided, by means provided on the surrounding casing, on top of the next lower disc]
- B01F5/22C . . . [N: for spraying a liquid on falling particles or on a liquid curtain ([B01F5/22B2](#) takes precedence)]
- B01F5/22D . . . [N: the material being fed on both sides of a part rotating about a vertical axis]

- B01F5/22F . . . [N: the rotating part being composed of at least two cooperating members rotating independently about the same vertical axis]
- B01F5/24 . Falling-particle mixers, [N: e.g.] with repeated action [N: (spraying fluids on falling particles [B01F5/20B](#), [B01F5/22C](#))] [C0105]
- B01F5/24B . . [N: Particle mixers uniting flows of material taken from different parts of a receptacle or from a set of receptacles (for liquids [B01F3/08F2](#); devices for emptying containers from the top with vertical passage located inside the containers [B65G65/36B](#))] [C0105]
- B01F5/24B2 . . . [N: by means of conduits having inlet openings at different levels]
- B01F5/24B2B . . . . [N: by means of a central conduit or central set of conduits] [C0105]
- B01F5/24B3 . . . [N: the receptacle being divided into compartments for receiving or storing the different components] [C0105]
- B01F5/24B4 . . . [N: Flow collectors therefor]
- B01F5/24C . . [N: Falling-particle mixers comprising receptacles provided with fixed guiding elements, e.g. baffles, therein; Cross-mixers comprising crossing channels for guiding the falling particles] [C0105]
- B01F5/24D . . [N: Falling-particle mixers comprising superimposed receptacles, the material flowing from one to the other, e.g. of the sandglass type (for liquids [B01F3/08F2](#))]
- B01F5/24F . . [N: the particles falling on a film flowing along the inner wall of a mixer] [N0303]
- B01F5/26 . Falling-particle mixers with moving [N: or vibrating] means, e.g. stirrers, for increasing the mixing [N: ([B01F5/24](#) takes precedence)] [C0105]
- B01F5/26B . . using one central conveyor or several separate conveyors, e.g. belt or screw conveyors, vibrating tables, for discharging flows from receptacles, e.g. in layers [N0105]
  
- B01F7/00** **Mixers with rotary stirring devices in fixed receptacles**, [N: i.e. movement of the receptacle not being meant to effect the mixing ([B01F13/08](#) takes precedence)]; **Kneaders** ([B01F13/04](#) takes precedence; [N: devices especially adapted for mixing foundry sand [B22C5/04](#)])
- B01F7/00B . [N: Stirrers, i.e. rotary stirring devices ([B01F3/04C5B8](#), [B01F3/04C5C](#), [B01F3/04C6C2B](#), [B01F7/02K](#), [B01F11/00N5](#) take precedence)] [N0610] [C0809]
- B01F7/00B10 . . [N: Nature of the rotating mixing element] [N0610]
- B01F7/00B10A . . . [N: Stirrers with replaceable wearing elements; Wearing elements therefor] [N0610]
- B01F7/00B10B . . . [N: Characterised by the materials the stirrers are made of] [N0610]
- B01F7/00B10B2 . . . . [N: with particular surface characteristics, e.g. coated, rough] [N0610]
- B01F7/00B10C . . . [N: Deformable stirrers ([B01F7/00B14A](#) takes precedence)] [N0610]
- B01F7/00B10C1 . . . . [N: with mechanical means to alter the position of the stirring elements] [N0610]
- B01F7/00B10C2 . . . . [N: deformable by centrifugal force] [N0610]
- B01F7/00B10C3 . . . . [N: the position of the stirring elements depending on the direction of rotation of the stirrer] [N0610]
- B01F7/00B10D . . . [N: Stirrers made by deforming a plate] [N0610]
- B01F7/00B12 . . [N: Mounting of the stirring elements on the stirrer shaft ([B01F7/00B14A](#) takes precedence)] [N0610]
- B01F7/00B12A . . . [N: Fixing of the stirrer to the shaft] [N0610]

B01F7/00B12B	. . .	[N: Disposition with respect to the rotating axis] [N0610]
B01F7/00B12B1	. . . .	[N: parallel with respect to the rotating axis] [N0610]
B01F7/00B12B2	. . . .	[N: perpendicular with respect to the rotating axis] [N0610]
B01F7/00B12B3	. . . .	[N: oblique with respect to the rotating axis] [N0610]
B01F7/00B12B4	. . . .	[N: directly mounted on the rotating axis] [N0610]
B01F7/00B12B5	. . . .	[N: on the free end of the rotating axis] [N0610]
B01F7/00B12B6	. . . .	[N: having stirring elements connected to the stirrer shaft each by a single radial rod, other than open frameworks] [N0610]
B01F7/00B12B6B	. . . . .	[N: of the anchor type, i.e. the stirring elements being connected to the rods by one end and extending parallel to the shaft axis] [N0610]
B01F7/00B12B7	. . . .	[N: having stirring elements connected to the stirrer shaft each by two or more radial rods, e.g. the shaft being interrupted between the rods, or of crankshaft type (B01F7/00B16J takes precedence)] [N0610]
B01F7/00B12C	. . .	[N: with stirring elements moving with respect to the stirrer shaft, e.g. floating or comprising contracting chambers] [N0610]
B01F7/00B12D	. . .	[N: having two or more mixing elements being concentrically mounted on the same shaft] [N1204]
B01F7/00B14	. .	[N: Mounting of the rotating mixing element in respect to the receptacle] [N0610]
B01F7/00B14A	. . .	[N: having elements for co operating with receptacle wall or bottom, e.g. for scraping (B01F7/16G takes precedence)] [N0610]
B01F7/00B14B	. . .	[N: occupying substantially the whole interior space of the receptacle] [N0610]
B01F7/00B14C	. . .	[N: eccentrically arranged] [N1204]
B01F7/00B16	. .	[N: Configuration of the rotating mixing element] [N0610]
B01F7/00B16A	. . .	[N: Centrifugal stirrers, i.e. having a radial outflow or turbine-type, e.g. with means to guide the flow] [N0610]
B01F7/00B16B	. . .	[N: with arms, paddles, vanes or blades] [N0610]
B01F7/00B16B1	. . . .	[N: pin shaped] [N0610]
B01F7/00B16B2	. . . .	[N: anchor shaped] [N0610]
B01F7/00B16B3	. . . .	[N: sickle shaped, i.e. curved in at least one direction ] [N0610]
B01F7/00B16B4	. . . .	[N: rake shaped or grid shaped] [N0610]
B01F7/00B16B5	. . . .	[N: having vanes or blades, e.g. provided with orifices, extending parallel or oblique to the stirrer axis (B01F7/00B16 takes precedence)] [N0610]
B01F7/00B16B5A	. . . . .	[N: having holes in the surface] [N0610]
B01F7/00B16B5B	. . . . .	[N: paddle wheels] [N0610]
B01F7/00B16B5C	. . . . .	[N: the blades extending oblique to the stirrer axis] [N0610]
B01F7/00B16B6	. . . .	[N: the stirrer being a bent rod supported at one end only] [N0610]
B01F7/00B16B7	. . . .	[N: spoon-shaped] [N1204]
B01F7/00B16C	. . .	[N: Propellers, i.e. stirrers having an axial outflow, e.g. of the ship or aircraft propeller type or having means on the propeller to guide the flow] [N0610]
B01F7/00B16C1	. . . .	[N: having holes in the surface] [N0610]
B01F7/00B16C2	. . . .	[N: with guiding tubes or tubular segments fixed to and surrounding the tips of the propeller blades, e.g. with supplementary mixing elements on the outside of the tubes or the segments] [N0610]
B01F7/00B16C3	. . . .	[N: the impeller being of airfoil, aerofoil type] [N1204]
B01F7/00B16C4	. . . .	[N: the impeller being of hydrofoil type] [N1204]
B01F7/00B16C5	. . . .	[N: the impeller being of Rushton type] [N1204]

B01F7/00B16D	. . .	[N: Helices, i.e. stirrers comprising a helically shaped band; Stirrers composed of helically shaped band sections] [N0610]
B01F7/00B16D1	. . . .	[N: having holes in the surface] [N0610]
B01F7/00B16D2	. . . .	[N: of the corkscrew type composed of a helically shaped band, e.g. flexible spiral springs] [N0610]
B01F7/00B16D3	. . . .	[N: screws; Worms; Stirrers composed of screw sections] [N0610]
B01F7/00B16D4	. . . .	[N: blade shaped] [N0610]
B01F7/00B16D5	. . . .	[N: ribbon shaped, i.e. with an open space between the helical ribbon flight and the rotating axis] [N0610]
B01F7/00B16D5A	. . . . .	[N: forming open frameworks or cages] [N0610]
B01F7/00B16E	. . .	[N: with discs or disc like elements essentially perpendicular to the stirrer shaft axis, e.g. with stirring elements other than discs fixed thereon or with grooves on the sides of the discs] [N0610]
B01F7/00B16E1	. . . .	[N: having holes in the surface] [N0610]
B01F7/00B16E2	. . . .	[N: with separate elements other than discs fixed on the discs] [N0610]
B01F7/00B16E3	. . . .	[N: the discs being made by deforming flat discs] [N0610]
B01F7/00B16E4	. . . .	[N: cup shaped, e.g. semi sphere] [N0610]
B01F7/00B16E5	. . . .	[N: with interconnected discs, forming open frameworks or cages] [N0610]
B01F7/00B16F	. . .	[N: shaped as cylinders, balls or rollers] [N0610]
B01F7/00B16F1	. . . .	[N: having holes in the surface] [N0610]
B01F7/00B16F2	. . . .	[N: Balls] [N0610]
B01F7/00B16F3	. . . .	[N: Rollers] [N0610]
B01F7/00B16F3B	. . . . .	[N: comprising paddles fixed thereon, e.g. with a total a diameter close to that of the surrounding receptacle] [N1204]
B01F7/00B16G	. . .	[N: with cones, e.g. funnels] [N0610]
B01F7/00B16G1	. . . .	[N: having holes in the surface] [N0610]
B01F7/00B16H	. . .	[N: provided with brushes, sieves, grids, chains or springs (B01F7/00B16D2 takes precedence)] [N0610]
B01F7/00B16J	. . .	[N: with rigid wires or flexible rods] [N0610]
B01F7/00B16J1	. . . .	[N: with a bent rod of non helical configuration supported at one end ] [N0610]
B01F7/00B16K	. . .	[N: Openwork frame or cage stirrers not provided for elsewhere] [N0610]
B01F7/00B16L	. . .	[N: provided with tubes for guiding the material] [N0610]
B01F7/00B16M	. . .	[N: having additional elements on the stirrer, other than for mixing] [N0610]
B01F7/00B16M1	. . . .	[N: having elements for disintegrating, e.g. for milling (B01F7/16F, B01F7/00B16L2 take precedence) ] [N0610]
B01F7/00B16M2	. . . .	[N: having elements for cutting, e.g. knives] [N0610]
B01F7/00B16N	. . .	[N: Multistage systems, i.e. with a plurality of mixing elements mounted in sequence on the same axis] [N0610]
B01F7/00B16N1	. . . .	[N: provided with a plurality of similar elements] [N0610]
B01F7/00B16N2	. . . .	[N: provided with a plurality of dissimilar elements] [N0610]
B01F7/00B16N2B	. . . . .	[N: comprising helical elements and paddles] [N0610]
B01F7/00C	. .	[N: Configuration of the rotating axis] [N0610]
B01F7/00C2	. .	[N: Nature of the axis] [N0610]

- B01F7/00C2A . . . [N: The axis being a flexible shaft] [N0610] [M1106]
- B01F7/00C4 . . [N: Construction of the axis] [N0610]
- B01F7/00C4A . . . [N: The axis being composed of interconnected parts] [N0610] [M1106]
- B01F7/00C4B . . . [N: The axis being a hollow cylinder, e.g. for feeding a component ([B01F7/02B2](#) takes precedence)] [N0610] [C1207]
- B01F7/00C4C . . . [N: The axis comprising stirring means and feeding or discharging means fixed on the same axis] [N1106]
- B01F7/00C4D . . . [N: the axis being adjustable in length, e.g. telescopic] [N1204]
- B01F7/00C6 . . [N: Connection of the rotating axis with the drive] [N0610]
  
- B01F7/00F . [N: Submerged mixers, i.e. with a submerged stirrer and drive unit, e.g. displaceable on a vertical beam (submerged stirring devices for introducing a gas in a liquid [B01F3/04C5F](#))] [C0011]
- B01F7/00F2 . . [N: Vertical beam constructions therefor] [N9509] [C0011]
  
- B01F7/00G . [N: the mixer being composed of a stator-rotor system with movable slits between surfaces facing each other, e.g. having intermeshing teeth or cylinders or having orifices (with axial inflow and radial outflow for batch mixing [B01F7/16F](#); for mixtures of cement with other substances [B28C5/08G](#); for plastics [B29B7/40C](#))] [C0105]
- B01F7/00G1 . . [N: the stator rotor system being formed by substantial flat surfaces] [N0610]
- B01F7/00G1A . . . [N: provided with intermeshing elements] [N0610]
- B01F7/00G1B . . . [N: provided with ribs, ridges or grooves on one surface] [N0610]
- B01F7/00G1C . . . [N: the surfaces having a conical shape] [N1204]
- B01F7/00G1D . . . [N: the relative position of the stator and the rotor, gap in between or gap with the walls being adjustable] [N1204]
- B01F7/00G2 . . [N: the stator rotor system being formed by conical or cylindrical surfaces, e.g. curved surfaces] [N0609]
- B01F7/00G2A . . . [N: provided with intermeshing elements] [N0610]
- B01F7/00G2B . . . [N: provided with ribs, ridges or grooves on one surface] [N0610]
- B01F7/00G2C . . . [N: the surfaces having a conical shape] [N1204]
- B01F7/00G2D . . . [N: the relative position of the stator and the rotor, gap in between or gap with the walls being adjustable] [N1204]
- B01F7/00G4 . . [N: the mixer being composed of a stator-rotor system being formed by bearing elements, e.g. roller bearings] [N1204]
  
- B01F7/00H . [N: the stirring devices being composed of two independently driven coaxial rotors facing each other, e.g. having intermeshing teeth] [C0105]
- B01F7/00H1 . . [N: with rotating surfaces facing each other] [N0610]
- B01F7/00H1A . . . [N: provided with intermeshing elements] [N0610]
- B01F7/00H1B . . . [N: provided with ribs, ridges or grooves on one surface] [N0610]
- B01F7/00H2 . . [N: with rotating surfaces next to one another, e.g. on parallel axis] [N0610]
- B01F7/00H2A . . . [N: provided with intermeshing elements] [N0610]
- B01F7/00H2B . . . [N: provided with ribs, ridges or grooves on one surface] [N0610]
  
- B01F7/00K . [N: Pipe mixers, i.e. mixing material flowing continuously through pipes, e.g. column mixers] [C0105]
  
- B01F7/00L . [N: the stirrer being driven by the moving material] [C0209]

- B01F7/00P . . [N: characterised by the orientation or disposition of the rotor axis, e.g. a plurality of mixing shafts with different or random orientation] [N0105]
- B01F7/00P2 . . [N: Variable, e.g. tiltable during the operation] [N0610]
- B01F7/00P2B . . . [N: the orientation of the rotating shaft being adjustable in the interior of the receptacle, e.g. by tilting the stirrer shaft during the mixing] [N1204]
- B01F7/00P2D . . . [N: the position of the rotating shaft being adjustable in the interior of the receptacle, e.g. to locate the stirrer in different locations during the mixing] [N1204]
- B01F7/00P4 . . [N: with a plurality of rotation axis] [N0610]
- B01F7/00P4A . . . [N: having different inclinations, e.g. non parallel] [N0610]
- B01F7/00P4B . . . [N: parallel] [N0610]
- B01F7/00P4C . . . [N: perpendicular] [N0610]
- B01F7/00P4D . . . [N: planetary (B01F7/14 and B01F7/30 take precedence)] [N0610]
  
- B01F7/02 . . with stirrers rotating about a horizontal or inclined axis
- B01F7/02A . . [N: rotating about an inclined axis] [N0610]
- B01F7/02B . . [N: comprising liquid feeding, e.g. spraying means (in general [B01F15/02B4](#))] [C0011]
- B01F7/02B2 . . . [N: the liquid being fed through the shaft of the stirrer] [N0011]
- B01F7/02C . . [N: the receptacle being divided into compartments, e.g. with porous divisions]
- B01F7/02F . . [N: the receptacles being tiltable, e.g. for emptying (for concrete [B28C5/14A](#), [B28C5/16A](#))]
- B01F7/02K . . [N: provided with buckets]
- B01F7/04 . . with paddles, [N: blades] or arms [C0011]
- B01F7/04C . . . [N: comprising two or more shafts, e.g. in consecutive mixing chambers ([B01F7/02J](#) takes precedence)]
- B01F7/04C2 . . . . [N: with intermeshing paddles]
- B01F7/04C3 . . . . [N: with stirrers rotating at different speeds, or rotating in opposite directions about the same axis, e.g. with a first stirrer surrounded by a tube inside a second stirrer ([B01F7/04C4](#) takes precedence)]
- B01F7/04C4 . . . . [N: with stirrers facing each other, i.e. being supported by opposite walls of the receptacle]
- B01F7/04C5 . . . . [N: characterised by the shape of the stirrer, i.e. of Z- or S-shape]
- B01F7/04C6 . . . . [N: with all the shafts in the same receptacle ([B01F7/04C2](#), [B01F7/04C3](#), [B01F7/04C4](#), [B01F7/04C5](#) take precedence)]
- B01F7/04G . . . [N: the paddles co-operating, e.g. intermeshing, with elements on the receptacle wall]
- B01F7/06 . . with propellers
- B01F7/06B . . . [N: co-operating with stationary guiding means, e.g. baffles]
- B01F7/06B2 . . . . [N: the guiding means being tubes surrounding the propellers]
- B01F7/08 . . with helices [N: or sections of helices (with a housing closely surrounding the helices, i.e. extruders, [B29C47/38](#))]
- B01F7/08B . . . [N: with at least two helices in the same receptacle]
- B01F7/08B2 . . . . [N: the helices being closely surrounded by a casing (for mixing or kneading plastics [B29B7/48](#))]
- B01F7/08B2B . . . . . [N: the stirrers being composed of helices and paddles on the same

- shaft, e.g. helically arranged ovally shaped paddles]
- B01F7/08B4 . . . . [N: the helices intermeshing to knead the mixture]
- B01F7/08C . . . . [N: having a single helice closely surrounded by a casing (for mixing or kneading plastics [B29B7/42](#))]
- B01F7/08D . . . . [N: with two or more helices in respective separate casings , e.g. one casing inside the other]
- B01F7/08F . . . . [N: the stirrers being composed of two helices with opposite pitch on the same shaft; the stirrers being composed of two helices on the same axis, driven in opposite directions or at different speeds]
- B01F7/10 . . with rotary discs, [N: e.g. provided with orifices; or the receptacle being divided into compartments (pressing the components through orifices on rotating elements [B01F5/06E](#); pressing the components axially through a rotor-stator system, at least the stator being a perforated plate [B01F5/06F2](#))]
- B01F7/10B . . . . [N: with two or more parallel shafts provided with perpendicularly mounted discs, e.g. lens shaped, one against the other on each shaft and in circumferential contact with the discs on the other shafts, e.g. for cleaning]
- B01F7/12 . . with [N: rotary] cylinders, [N: e.g. having special profile cross-section ([B01F7/14B](#) takes precedence)]
- B01F7/14 . . with stirrers having planetary motion, [N: i.e. rotating about their own axis and about a horizontal sun axis]
- B01F7/14B . . . . [N: the stirrers being cylinders, balls or gears]
- B01F7/16 . with stirrers rotating about a substantially vertical axis
- B01F7/16C . . [N: with relative displacement, e.g. vertical, between stirrer and receptacle for bringing them into operative position, e.g. with an independent receptacle or with means to close the receptacle; Fixing elements for the receptacle] [C0209]
- B01F7/16C2 . . . . [N: with vertical displacement of the stirrer, e.g. with additional means for axially displacing or for pivoting the stirrer about a vertical axis in order to co-operate with several receptacles]
- B01F7/16C3 . . . . [N: with the stirrer-head pivoting about a horizontal axis to bring the stirrer in and out of operative position, e.g. with a receptacle pivoting about a horizontal axis for emptying]
- B01F7/16D . . [N: the stirrers being driven from the bottom of the receptacle] [C0302]
- B01F7/16F . . [N: the stirrers having a central axial inflow and a substantially radial outflow, e.g. centrifugal rotors with several rotors rotating in opposite direction]
- B01F7/16F2 . . . . [N: with the inflow from one side only, e.g. stirrers placed on the bottom of the receptacle, or used as a bottom discharge pump]
- B01F7/16F2B . . . . . [N: the stirrers co-operating with stationary guiding elements, e.g. surrounding stators or intermeshing stators ([B01F7/16F4](#) takes precedence)]
- B01F7/16F4 . . . . [N: the stirrers co-operating with surrounding stators, or with intermeshing stators, e.g. comprising slits, orifices or screens]
- B01F7/16F5 . . . . [N: the stirrers co-operating with stationary guiding elements ([B01F7/16F4](#) takes precedence)]
- B01F7/16G . . [N: Pan-type mixers, i.e. mixers in which the stirring elements move along the bottom of a pan-shaped receptacle (with stirring elements moving along the wall or bottom of the receptable for scraping in general [B01F15/00B24](#))] [C0105]
- B01F7/16H . . [N: the stirrers being additionally moved radially, or oscillating about an axis perpendicular to the stirrer axis ([B01F7/30](#) takes precedence)]
- B01F7/16K . . [N: with stirrers rotating at different speeds or in opposite direction about the same axis]

- B01F7/16L . . [N: having two or more stirrers on separate shafts, e.g. the shape of the receptacle matching with the periphery of the rotating stirrers ([B01F7/16K](#) takes precedence)] [C9502]
- B01F7/16L2 . . . [N: the receptacle being subdivided in adjacent compartments] [N9502]
- B01F7/16P . . [N: co-operating with deflectors or baffles fixed to the receptacle ([B01F7/16F2B](#), [B01F7/16F5](#) take precedence)] [C0204]
- B01F7/16P2 . . . [N: the baffles being of cylindrical shape, e.g. a mixing chamber surrounding the stirrer, the baffle being displaced axially to form an interior mixing chamber] [C9502]
- B01F7/16P3 . . . [N: the baffles being adjustable or movable ([B01F7/16P2](#) takes precedence)]
- B01F7/16Q . . [N: the receptacle being divided into superimposed compartments]
- B01F7/16S . . [N: with an independent receptacle-stirrer unit, the stirrer being adapted to be coupled to a drive mechanism] [C0305]
- B01F7/18 . . with paddles or arms [N: ([B01F7/16D](#), [B01F7/16G](#) take precedence)]
- B01F7/18B . . . [N: the paddles co-operating, e.g. intermeshing, with elements fixed on the receptacle walls]
- B01F7/18B2 . . . . [N: the elements being vertically arranged, e.g. fixed on the bottom]
- B01F7/20 . . . with fixed axis
- B01F7/22 . . with propellers [N: ([B01F7/16D](#) takes precedence)]
- B01F7/22C . . . [N: forcing the material through orifices or slits, e.g. in a stationary part]
- B01F7/24 . . with helices [N: or screws ([B01F7/30](#) takes precedence)]
- B01F7/24B . . . [N: with at least two helices, e.g. intermeshing helices] [C9502]
- B01F7/24C . . . [N: the helices being mounted centrally in the receptacle for mixing in batches ([B01F7/24B](#) takes precedence)] [C9502]
- B01F7/24C2 . . . . [N: the helices being surrounded by a guiding tube][C0302]
- B01F7/24C2C . . . . . [N: combined with means for uniting flows of material taken from different parts of the receptacle]
- B01F7/24C3 . . . . [N: with conical helices] [N9502]
- B01F7/24C4 . . . . [N: the helices having a diameter only slightly less than the diameter of the receptacle ([B01F7/24C3](#) takes precedence)] [N9502]
- B01F7/24C5 . . . . [N: with additional mixing elements other than helices; having inner and outer helices; with helices surrounding a guiding tube] [N9502]
- B01F7/24D . . . [N: the material flowing continuously through the receptacle]
- B01F7/26 . . with rotary discs, [N: e.g. provided with orifices, or co-operating with loose mixing particles, provided with feeding or discharging means or provided with sieves for continuously mixing ([pressing the components through orifices on rotating elements \[B01F5/06F\]\(#\)](#); [pressing the components axially through a rotor-stator system, at least the stator being a perforated plate \[B01F5/06F2\]\(#\)](#))]
- B01F7/28 . . with [N: rotary] cylinders, [N: e.g. having special profile cross-section]
- B01F7/28B . . . [N: with hollow cylinders or cones, e.g. perforated or having special stirring elements thereon]
- B01F7/30 . . with stirrers having planetary motion, [N: i.e. rotating about their own axis and about a vertical sun axis]
- B01F7/30B . . . [N: using only helical stirrers]
- B01F7/30D . . . [N: with at least one stirrer mounted on the sun axis] [N1204]
- B01F7/30G . . . [N: the stirrers being cylinders with their circumference in contact with the bottom of the receptacle and rotating about an axis at an angle to the sun axis, e.g. mixers of the Muller type]

- B01F7/32 . . with openwork frames or cages [C0204]
  
- B01F9/00** **Mixers with rotating receptacles**, [N: i.e. the rotary motion is imparted to effect the mixing] ([N: [B01F11/00B](#),] [B01F13/04](#) take precedence); [N: Mixing the contents of packages or like independent containers by rotating them]
  
- B01F9/00B . [N: the receptacles being submitted to rotation about two different axes, e.g. receptacles having planetary motion] [C0302]
- B01F9/00C . [N: Use of centrifuges for mixing]
- B01F9/00D . [N: the receptacles rotating about an axis at an angle to their longitudinal axis] [N0401]
- B01F9/00F . [N: the material flowing continuously through the receptacles from feed to discharge, e.g. the feed and discharge being at the same end] [N0401]
- B01F9/00F2 . . [N: with at least one screw inside the receptacle for feeding or discharging, e.g. the axis of screw and receptacle being parallel] [N0401]
- B01F9/00F4 . . [N: the feed and discharge openings being at opposite ends of the receptacle] [N1204]
- B01F9/00F6 . . [N: the feed and discharge openings being at the same side of the receptacle] [N1204]
  
- B01F9/00G . [N: Mixing the contents of packages or like independent containers, e.g. tins, bottles, by rotating them]
- B01F9/00G1 . . [N: the containers being supported by driving means, e.g. by rotating rollers]
- B01F9/00G2 . . [N: the containers being modified for coupling to rotating frames or the like; Containers therefor; Coupling means therefor]
- B01F9/00G2B . . . [N: for test-tubes or like small containers, e.g. containing blood samples]
- B01F9/00G2C . . . [N: Several containers being held in a support for simultaneous mixing, optionally with feeding and discharging means, e.g. for bottles in crates]
- B01F9/00G3 . . [N: Imparting a composite movement to a plurality of bottles]
- B01F9/00G3B . . . [N: by means of a rotary table provided with a plurality of bottle grippers at its periphery, an additional movement being imparted to the grippers]
- B01F9/00G3C . . . [N: the bottles being submitted to a screw-motion about an axis perpendicular to the axis of the bottles and lying intermediate the ends of the bottles]
- B01F9/00G3D . . . [N: essentially by rotating bottles about an axis perpendicular to the bottle axis and lying outside the bottles, using a rotating drum provided with pockets for the bottles at its periphery]
- B01F9/00G4 . . [N: Construction details of the holders for the independent packages or receptacles] [N1204]
  
- B01F9/00P . [N: Parts or components, e.g. receptacles, feeding or discharging means ([B01F9/00F2](#) takes precedence)] [C0401]
- B01F9/00P2 . . [N: Receptacles, e.g. provided with liners]
- B01F9/00P2B . . . [N: characterised by the shape or cross-section of the receptacle, e.g. of Y -, Z -, S -, or X shape] [N0401] [M1106]
- B01F9/00P2B2 . . . . [N: Non-cylindrical sections, e.g. elliptical, irregular] [N1204]
- B01F9/00P2B4 . . . . [N: Polygonal sections, e.g. triangular, square] [N1204]
- B01F9/00P2B6 . . . . [N: Conical, double-conical, diabolo shapes] [N1204]

- B01F9/00P2B8 . . . . [N: Cubic, cubical, polyhedronal shapes] [N1204]
- B01F9/00P2B10 . . . . [N: S shapes] [N1204]
- B01F9/00P2B12 . . . . [N: Spherical shapes] [N1204]
- B01F9/00P2B14 . . . . [N: Toroidal shapes] [N1204]
- B01F9/00P2B16 . . . . [N: V or W shapes] [N1204]
- B01F9/00P2B18 . . . . [N: X shapes] [N1204]
- B01F9/00P2B20 . . . . [N: Y or double Y shapes] [N1204]
  
- B01F9/02 . . . . rotating about a horizontal or inclined axis, e.g. drum mixers
- B01F9/02B . . . . [N: comprising liquid spraying devices]
- B01F9/04 . . . . without bars, [N: i.e. without mixing elements; Characterised by the shape or cross-section of the receptacle, e.g. of Y, Z, S or X shape; Cylindrical receptacles rotating about an axis at an angle to their longitudinal axis] [C9502]
- B01F9/06 . . . . with fixed bars, [N: i.e. stationary, or fixed on the receptacle]
- B01F9/08 . . . . with [N: moving, e.g.] rotating stirring devices, [N: i.e. moving with respect to the receptacle]
  
- B01F9/10 . . . . rotating about a [N: substantially] vertical axis
- B01F9/10B . . . . [N: co-operating with stationary mixing elements ([B01F9/10D](#) takes precedence)]
- B01F9/10D . . . . [N: the receptacle comprising a rotary part, e.g. the bottom, and a stationary part, e.g. the wall, with optional use of a stirrer; the receptacle comprising parts moving in opposite directions]
- B01F9/12 . . . . with [N: rotary] paddles or arms, [N: e.g. movable out of the receptacle ([dough mixers or kneaders with stirrers rotating about an inclined axis](#) [A21C1/04](#))]
- B01F9/12B . . . . . [N: Pan-type mixers, i.e. having stirrers moving along the bottom of a pan-shaped receptacle]
- B01F9/14 . . . . with propellers
- B01F9/16 . . . . with helices, [N: e.g. rotating about an inclined axis]
- B01F9/18 . . . . with rotary discs
- B01F9/20 . . . . with [N: rotary] cylinders
  
- B01F9/22 . . . . with stirrers having planetary motion [N: ([receptacles having planetary motion](#) [B01F9/00B](#))] [C0302]
  
- B01F11/00** **Mixers with shaking, oscillating, or vibrating mechanisms ([B01F13/04](#) takes precedence)**
  
- B01F11/00B . . . . [N: with a mixing receptacle rotating alternately in opposite directions, or rotating about an axis which intersects the receptacle axis at an angle]
- B01F11/00C . . . . [N: Mixing the contents of independent containers, e.g. test-tubes, by shaking or oscillating them]
- B01F11/00C1 . . . . [N: Holders therefor]
- B01F11/00C3 . . . . [N: for beverage bottles, e.g. within crates or with feeding means for the bottles]
- B01F11/00C4 . . . . [N: with supporting means moving in a horizontal plane, e.g. describing an orbital path for moving the containers about an axis which intersects the receptacle axis at an angle ([B01F11/00C5](#), [B01F11/00C6](#), [B01F11/00C9](#), [B01F11/00C10](#) take precedence)]

- B01F11/00C5 . . [N: by pivoting the containers about an axis ([B01F11/00C7](#), [B01F11/00C9](#), [B01F11/00C10](#) take precedence)]
- B01F11/00C5B . . . [N: the containers being of the sandglass-type or being linked with their openings] [N1204]
- B01F11/00C6 . . [N: the containers being submitted to a rectilinear movement ([B01F11/00C7](#), [B01F11/00C9](#), [B01F11/00C10](#) take precedence)]
- B01F11/00C7 . . [N: the containers being submitted to a composite movement not in a horizontal plane, e.g. rectilinear and pivoting]
- B01F11/00C8 . . [N: the containers being submitted to a wobbling movement]
- B01F11/00C9 . . [N: the vibrations being caused by an unbalanced rotating member]
- B01F11/00C10 . . [N: the vibrations being caused by electromagnets]
- B01F11/00C11 . . [N: with means for transporting test tubes to and from the stirring device] [N9409]
- B01F11/00C12 . . [N: the vibrations being caused by piezoelectric elements] [N1204]
  
- B01F11/00D . [N: Comprising a receptacle to only a part of which the movement is imparted; Periodically deforming flexible tubular members through which the material is flowing]
- B01F11/00D2 . . [N: comprising a receptacle with a deformable part, e.g. a membrane, to which a motion is imparted]
- B01F11/00D2B . . . [N: the motion being a linear movement to one part of the receptacle] [N1204]
- B01F11/00D2D . . . [N: the motion being a transversal movement to one part of the receptacle, e.g. by moving alternatively up and down the opposite edges of a closing lid to cause a pumping action] [N1204]
  
- B01F11/00F . [N: having a rotary stirrer oscillating axially (having rotary stirrers with additional radial movement, or oscillating about an axis perpendicular to the stirrer axis, [B01F7/16H](#))]
- B01F11/00F1 . . [N: for material flowing continuously axially therethrough]
- B01F11/00G . [N: having an annular trough vibrating about its central axis]
- B01F11/00H . [N: having a receptacle submitted to a composite movement, i.e. at least one movement being vibratory or oscillatory]
- B01F11/00J . [N: the material being contained in a flexible bag submitted to periodical deformation]
- B01F11/00K . [N: having a vibrating receptacle provided with stirring elements, e.g. independent stirring elements]
- B01F11/00L . [N: the material being directly submitted to a pulsating movement, e.g. by means of an oscillating piston or air column (solvent extraction of liquid solution comprising vibrating mechanisms [B01D11/04K6](#); stationary reactors of pulsating type [B01J19/18D](#))]
- B01F11/00L2 . . [N: Mixing by successively aspirating a part of the mixture in a conduit, e.g. a piston, and reinjecting it through the same conduit into the receptacle] [N1204]
- B01F11/00M . [N: for material continuously moving therethrough ([B01F11/00D](#), [B01F11/00F1](#), [B01F11/00G](#), [B01F11/02F](#) take precedence)]
- B01F11/00N . [N: the stirrers performing an oscillatory, vibratory or shaking movement ([B01F11/00F](#), [B01F11/04](#) take precedence)] [C0207]
- B01F11/00N2 . . [N: performing a rectilinear reciprocating movement]
- B01F11/00N3 . . [N: performing a superposed additional movement other than oscillation, vibration]

- or shaking]
- B01F11/00N4 . . [N: performing an oscillatory movement about an axis]
- B01F11/00N5 . . [N: Stirrers constructions] [M1106]
- B01F11/00P . [N: having a vibrating receptacle ([B01F11/00B](#), [B01F11/00C](#), [B01F11/00G](#), [B01F11/00H](#), [B01F11/00K](#) take precedence)]
- B01F11/00Q . [N: Drives therefor, e.g. crank mechanisms ([B01F11/00C2](#) takes precedence)]
- B01F11/02 . Mixing by means of [N: high-frequency, e.g.] ultrasonic vibrations, [N: e.g. jets impinging against a vibrating plate]
- B01F11/02B . . [N: the vibrations being generated inside a mixing device without external drive, e.g. by a flow of material causing a knife to vibrate or using nozzles]
- B01F11/02C . . [N: the material being forced through a narrow vibrating slit]
- B01F11/02D . . [N: comprising a supplementary stirring element]
- B01F11/02D2 . . . [N: the vibrations being generated by the rotation of the stirring element]
- B01F11/02F . . [N: for material continuously moving through a tube, e.g. by deforming the tube ([B01F11/02B](#) takes precedence)]
- B01F11/02F2 . . . [N: with a vibrating element inside the tube]
- B01F11/02G . . [N: using a vibrating element inside a receptacle]
- B01F11/02H . . [N: with vibrating the receptacle or part of it]
- B01F11/02H2 . . . [N: caused by hitting or striking the receptacle] [N1204]
- B01F11/02K . . [N: transmitting the vibratory energy by means of a fluid, e.g. by means of air shock waves]
- B01F11/02L . . [N: Methodical aspects; Controlling]
- B01F11/04 . with pendulum stirrers, [N: i.e. with stirrers suspended so as to oscillate about fixed points or axes ([stirrers per se B01F11/00N5](#))]
- B01F13/00**      **Other mixers; Mixing plant, including combinations of [N: mixers, e.g. of] dissimilar mixers**
- B01F13/00B . [N: Mixers using electrical energy, other than for driving a motor ([B01F3/04B3F](#), [B01F3/04C22](#), [B01F3/08C3](#), [B01F3/12F](#) take precedence)] [C0203]
- B01F13/00B2 . . [N: the energy being electrical energy working on the ingredients or compositions for mixing them] [N1204]
- B01F13/00B4 . . [N: the energy being electric fields for electrostatically charging of the ingredients or compositions for mixing them] [N1204]
- B01F13/00B6 . . [N: the energy being magnetic or electromagnetic energy, radiation working on the ingredients or compositions for or during mixing them] [N1204]
- B01F13/00B8 . . [N: the energy being in the form of a laser to modify the characteristics or conditions of the products, e.g for heating] [N1204]
- B01F13/00B10 . . [N: the energy being particle radiation working on the ingredients or compositions for or during mixing them] [N1204]
- B01F13/00C . [N: Mixers in which the mixing of the components is achieved by natural or induced convection] [N1204]
- B01F13/00D . [N: Mixers with an endless belt for transport of the material, e.g. in layers or with mixing means above or at the end of the belt] [C9506]

- B01F13/00F . [N: Mixers having moving endless chains or belts, e.g. provided with paddles, as mixing elements]
- B01F13/00K . [N: Movable or transportable mixing devices or plants] [M1106]
- B01F13/00K2 . . [N: Movable mixing devices, i.e. apt to be shifted or displaced from one place to another, e.g. by human force] [N0006] [C1106]
- B01F13/00K2B . . . [N: portable during use, e.g. hand-held ([B05C17/005F](#) takes precedence, whisks comprising mixing wires [A47J43/10D](#))] [N1106]
- B01F13/00K2B2 . . . . [N: Small portable bottles, flasks, vials, e.g. with means for mixing ingredients or for homogenizing their content, e.g. by hand shaking] [N1204]
- B01F13/00K2B4 . . . . [N: Of the syringe, cartridge type] [N1204]
- B01F13/00K2B6 . . . . [N: Of the pipette type] [N1204]
- B01F13/00K2B8 . . . . [N: Of the hand-held gun type] [N1204]
- B01F13/00K2B10 . . . . [N: Stirring devices adapted to be connected to a standard boring machine or other kind of domestic tool] [N1204]
- B01F13/00K2D . . . [N: adapted to be mounted during use on a standard, base or support] [N1204]
- B01F13/00K2F . . . [N: movable by mechanical means, e.g. hoisting systems, grippers, lift trucks] [N1204]
- B01F13/00K2H . . . [N: movable by human force, e.g. kitchen or table devices] [N1204]
- B01F13/00K4 . . [N: vehicle mounted (mixing devices for cement mounted on vehicles with provisions for mixing during transport [B28C5/42](#))] [N0006]
- B01F13/00K4B . . . [N: the vehicle being self-propelled, e.g. truck mounted, provided with a motor, driven by tracks ([B01F13/00K4D](#) to [B01F13/00K4N](#) take precedence)] [N1204]
- B01F13/00K4D . . . [N: the vehicle being a carriage moving or driving along fixed or movable beams or bridges] [N1204]
- B01F13/00K4F . . . [N: the vehicle being a trailer which is hand moved or coupled to self propelling vehicles] [N1204]
- B01F13/00K4H . . . [N: the vehicle being moved by human force] [N1204]
- B01F13/00K4J . . . [N: using rails for guiding the mixing installation during moving or displacing] [N1204]
- B01F13/00K4L . . . [N: using sledges or skids for moving or displacing the mixing installation] [N1204]
- B01F13/00K4N . . . [N: using driven tracks, caterpillars, crawler for moving or displacing the mixing installation] [N1204]
- B01F13/00K10 . . [N: Floating] [N0011] [M1106]
- B01F13/00L . [N: Mixers with loose mixing elements, e.g. balls, in a receptacle] [N0207]
- B01F13/00L2 . . [N: using balls as loose mixing element] [N1204]
- B01F13/00L4 . . [N: using bubbles as loose mixing element] [N1204]
- B01F13/00L6 . . [N: using sliders or cylindrical elements as loose mixing element] [N1204]
- B01F13/00L8 . . [N: using springs as loose mixing element] [N1204]
- B01F13/00M . [N: Micromixers] [N0202]
- B01F13/00M2 . . [N: using specific means for arranging the streams to be mixed] [N0610]
- B01F13/00M2A . . . [N: Hydrodynamic focussing] [N0610]
- B01F13/00M2B . . . [N: Mixing chamber] [N0610]
- B01F13/00M2C . . . [N: Interdigital streams, i.e. lamellae] [N0610]

- B01F13/00M2C2 . . . . [N: The interdigital streams being concentric lamellae] [N0610]
- B01F13/00M4 . . [N: the components flowing in the form of droplets (B01F3/08C take precedence)] [N0610]
- B01F13/00M4A . . . [N: the components to be mixed being combined in a single independent droplet, e.g. these droplets being divided by a non-miscible fluid or consisting of independent droplets] [N0610]
- B01F13/00M4B . . . [N: the components being formed by independent droplets which are alternated, the mixing of the components being achieved by diffusion between droplets] [N0610]
- B01F13/00M6 . . [N: using mixing means not otherwise provided for (B01F5/00, B01F7/00, B01F9/00, B01F11/00, B01F13/02 and B01F13/08 take precedence)] [N0610]
- B01F13/00M6A . . . [N: using electrohydrodynamic (EHD) or electrokinetic (EKI) phenomena to mix or move the fluids] [N0610]
- B01F13/00M6B . . . [N: using magnetohydrodynamic (MHD) phenomena to mix or move the fluids] [N0610]
- B01F13/00M6C . . . [N: using heat to mix or move the fluids] [N0610]
- B01F13/00M6D . . . [N: using induced convection or movement in the mixture to mix or move the fluids without mechanical means, e.g. thermodynamic instability, strong gradients, etc.] [N0610]
- B01F13/00M6E . . . [N: using surface tension to mix, move or hold the fluids] [N0610]
- B01F13/00M6E1 . . . . [N: using hydrophilic/hydrophobic surfaces] [N0610]
- B01F13/00M6E2 . . . . [N: using roughness of the surfaces] [N0610]
- B01F13/00M6F . . . [N: using a biological motor, i.e. biological molecules which are activated and movement is induced to stir a fluid] [N0610]
- B01F13/00M6G . . . [N: using coupled electrorotation (CER) phenomena to mix or move fluids, or to sense properties of the mixture] [N0610]
- B01F13/00M6H . . . [N: using ciliary stirrers to move or stir the fluids] [N1106]
- B01F13/00M6I . . . [N: the mixing being achieved by diffusion between layers (B01F13/00M4 takes precedence)] [N1204]
- B01F13/00M6J . . . [N: the mixing being performed in a mixing chamber where the products are brought into contact] [N1204]
- B01F13/00M6K . . . [N: using turbulence on microscale] [N1204]
- B01F13/00T . . [N: Mixing after turning the mixing vessel upside down] [N0203]
- B01F13/02 . . Mixers with gas [N: or liquid] agitation, e.g. with air supply tubes [N: (B01F3/04C1 takes precedence; supplying ingredients in concrete mixers with a pneumatic or hydraulic conveyer B28C7/06B; fluidising devices facilitating filling or emptying of containers B65D88/72)] [C0210]
- [N: **Note**  
The agitating fluid is not meant to mix with the material  
]
- B01F13/02B . . [N: Methods]
- B01F13/02C . . [N: comprising supplementary stirring elements]
- B01F13/02C2 . . . [N: the gas being introduced through the shaft of the stirring element]
- B01F13/02D . . [N: for mixing liquids (B01F13/02C, B01F13/02G, B01F13/02H take precedence)]
- B01F13/02F . . [N: for mixing material moving continuously therethrough, e.g. using impinging jets]
- B01F13/02G . . [N: in receptacles having guiding conduits therein, e.g. for feeding the gas to the

- bottom of the receptacle]
- B01F13/02G2 . . . [N: with vertical conduits through which the material is being moved upwardly driven by the fluid]
- B01F13/02G2B . . . . [N: with a central conduit or a central set of conduits]
- B01F13/02G2C . . . . [N: involving gas diffusers at the bottom]
- B01F13/02H . . [N: in receptacles with gas supply only at the bottom ([B01F13/02G](#) takes precedence)]
- B01F13/02H2 . . . [N: through orifices arranged around a central cone ([B01F13/02H3](#) takes precedence)]
- B01F13/02H3 . . . [N: with means for modifying the gas pressure or for supplying gas at different pressures or in different volumes at different parts of the bottom]
- B01F13/02J . . [N: by blowing gas on the material from above]
- B01F13/02K . . [N: Controlling]
- B01F13/02L . . [N: Parts, e.g. diffusion elements; Accessories]
- B01F13/02M . . [N: Storing receptacles provided with separate mixing chambers]
- B01F13/02P . . [N: Plants]
  
- B01F13/04 . Mixers combined with safety devices [N: (safety devices in general F16P)] [M1106]
- B01F13/04B . . [N: with a safety or relief valve] [N1204]
- B01F13/04D . . [N: Safety devices concerning the operation of the mixer] [N1204]
- B01F13/04D2 . . . [N: with locking, blocking or interlocking mechanisms for preventing operation of the actuation mechanism of the mixing device] [N1204]
  
- B01F13/06 . Mixers adapted for working at sub- or super-atmospheric pressure, [N: e.g. combined with defoaming]
- B01F13/06B . . [N: Working at super-atmospheric pressure]
  
- B01F13/08 . Magnetic mixers; [N: Mixers having magnetically driven stirrers]
- B01F13/08B . . [N: the mixture being directly submitted to an electromagnetic field without use of a stirrer, e.g. for material comprising ferromagnetic particles, or for molten metal]
- B01F13/08C . . [N: using independant floating stirring elements] [C0207]
- B01F13/08D . . [N: using supported or suspended stirring elements] [C0207]
- B01F13/08D2 . . . [N: using an axis supported in several points for mounting the stirring element] [N1204]
- B01F13/08D4 . . . [N: using a bearing, tube, opening or gap for internally supporting the stirring element] [N1204]
- B01F13/08D6 . . . [N: supporting the stirring element in one point] [N1204]
- B01F13/08D8 . . . [N: using a rod for supporting the stirring element, e.g. stirrer sliding on a rod or mounted on a rod sliding in a tube] [N1204]
- B01F13/08D10 . . . [N: using a stud for supporting the stirring element] [N1204]
- B01F13/08D12 . . . [N: using a wire for supporting or suspending the stirring element, e.g. stirrer sliding on a wire] [N1204]
- B01F13/08D14 . . . [N: the stirring element being suspended by one point] [N1204]
  
- B01F13/10 . Mixing plant, including combinations of [N: mixers, e.g. of] dissimilar mixers [N: ([B01F13/02P](#) takes precedence)]
- B01F13/10A . . [N: for granular material]

- B01F13/10A2 . . . [N: with several silos arranged in a row or around a central delivery point, e.g. provided with proportioning means] [N9409]
- B01F13/10A2B . . . . [N: the silos being arranged in a circular configuration, i.e. in a circle around a central delivery point] [N1204]
- B01F13/10A3 . . . [N: involving other than mixing operations, e.g. milling, sieving, drying] [N9409]
- B01F13/10B . . [N: Combinations of similar mixers, e.g. with rotary stirring devices in two or more receptacles ([B01F13/10A](#) takes precedence)] [C0207]
- B01F13/10B2 . . . [N: in two or more consecutive, i.e. successive, mixing receptacles or being consecutively arranged] [N1204]
- B01F13/10B4 . . . [N: in two or more alternative mixing receptacles, e.g. mixing in one receptacle and dispensing from another receptacle] [N1204]
- B01F13/10B6 . . . [N: mixing simultaneously in two or more mixing receptacles] [N1204]
- B01F13/10C . . [N: Combinations of dissimilar mixers ([B01F13/10A](#) takes precedence)]
- B01F13/10C2 . . . [N: with consecutive receptacles]
- B01F13/10C2B . . . . [N: with moving and non-moving stirring devices]
- B01F13/10C3 . . . [N: with moving and non-moving stirring devices in the same receptacle]
- B01F13/10C4 . . . [N: in two or more alternative mixing receptacles, e.g. mixing in one receptacle and dispensing from another receptacle] [N1204]
- B01F13/10C6 . . . [N: mixing simultaneously in two or more mixing receptacles] [N1204]
- B01F13/10D . . [N: comprising mixers specially adapted for mixing in combination with disintegrating ([B01F7/04G](#), [B01F13/10A](#) take precedence)] [M1106]
- B01F13/10D2 . . . [N: Devices with one shaft, provided with mixing and milling tools, e.g. using balls or rollers as working tools; Devices with two or more tools rotating about the same axis] [N9502]
- B01F13/10D3 . . . [N: Devices with consecutive working receptacles, e.g. with two intermeshing tools in one of the receptacles ([B01F13/10D2](#) takes precedence)] [N9502]
- B01F13/10D4 . . . [N: Devices with several tools rotating about different axis in the same receptacle] [N9502]
- B01F13/10G . . [N: Mixing plant with mixing receptacles receiving material dispended from several component receptacles, e.g. paint tins] [C9502]
- B01F13/10G3 . . . [N: with component receptacles fixed in a circular configuration on a horizontal table, e.g. the table being able to be indexed about a vertical axis] [N9502] [C0305]
- B01F13/10G6 . . . [N: with means for customizing the mixture on the point of sale, e.g. by sensing, receiving, analysing information about the characteristics of the mixture to be made] [N1204]
- B01F13/10G6B . . . . [N: using a computer for controlling information and converting it in a formula and a set of operation instructions, e.g. on the point of sale (data processing in buying-selling transactions G06F17/60B)] [N1204]
- B01F13/10G8 . . . [N: using stored recipes for determining the composition of the mixture to be produced, i.e. for determining the amounts of the basic components to be dispensed from the component receptacles] [N1204]
- B01F13/10G10 . . . [N: using data, i.e. barcodes, 3D codes or similar type of tagging information, as instruction or identification codes for controlling the dispensing and mixing operations] [N1204]
- B01F13/10J . . [N: Plants with a plurality of mixing receptacles or mixing tools, e.g. the receptacles or tools being able to be indexed into different working positions along a line or along a circle] [N9502]
- B01F15/00** **Accessories for mixers; [N: Auxiliary operations or auxiliary devices; Parts or details of general application] [M1106]**

- B01F15/00F . [N: Mixing heads comprising a driven stirrer (mixing heads without driven stirrer [B01F5/00C](#))]
- B01F15/00F2 . . [N: the stirrer being provided with a surrounding stator]
- B01F15/00G . [N: Washing or cleaning mixers, e.g. using knockers or scrapers; Inhibiting build-up of material on machine parts (cleaning in general [B08B](#))]
- B01F15/00G2 . . [N: using a fluid]
- B01F15/00G2B . . . [N: by means of jets of fluid, e.g. air]
- B01F15/00G4 . . [N: using mechanical elements] [N1204]
- B01F15/00G4B . . . [N: using a brush for cleaning out rests of products] [N1204]
- B01F15/00G4D . . . [N: using pushers, i.e. a piston, for pushing out rests of products] [N1204]
- B01F15/00G4F . . . [N: using scrapers for cleaning mixers] [N1204]
- B01F15/00G6 . . [N: using one or some of the components of the mixture to wash-out the mixer] [N1204]
- B01F15/00G8 . . [N: Working under sterile conditions; Sterilizing the mixer or parts thereof (sterilizing in general A61L)] [N1204]
  
- B01F15/00K . [N: Controlling; Testing; Measuring ([B01F15/04D](#) takes precedence)]
- B01F15/00K1 . . [N: Measuring operational parameters (B01F15/00K2 and B01F15/00K3 take precedence)] [N1204]
- B01F15/00K1B . . . [N: Measuring flow rate] [N1204]
- B01F15/00K1B1 . . . . [N: Measuring mass flow rate] [N1204]
- B01F15/00K1B3 . . . . [N: Measuring volumetric flow rate] [N1204]
- B01F15/00K1D . . . [N: Measuring the level of material in a container or the position or shape of the upper surface of the material] [N1204]
- B01F15/00K1F . . . [N: Measuring pressure] [N1204]
- B01F15/00K1H . . . [N: Measuring speed of feeding material, e.g. bands or strips] [N1204]
- B01F15/00K1J . . . [N: Measuring temperature] [N1204]
- B01F15/00K1J1 . . . . [N: using infrared radiation thermometer or pyrometer, infrared sensors for temperature measurement without contact] [N1204]
- B01F15/00K1L . . . [N: Measuring volume] [N1204]
- B01F15/00K1N . . . [N: Measuring weight] [N1204]
- B01F15/00K2 . . [N: Measuring data of the driving system, e.g. torque, speed, power; Motor control]
- B01F15/00K3 . . [N: Measuring properties of the mixtures, e.g. temperature, density, colour, vibration, noise ([B01F15/00K2](#) takes precedence)]
- B01F15/00K3B . . . [N: Measuring colour or luminiscence] [N1204]
- B01F15/00K3D . . . [N: Measuring concentration, pH, pOH, p(ION), oxygen-demand (B01F15/00K3F takes precedence)] [N1204]
- B01F15/00K3F . . . [N: Measuring electrical conductivity or dielectric constant of the mixture] [N1204]
- B01F15/00K3H . . . [N: Measuring density or solids or particle number] [N1204]
- B01F15/00K3J . . . [N: Measuring humidity, e.g. moisture content] [N1204]
- B01F15/00K3L . . . [N: Measuring viscosity] [N1204]
- B01F15/00K4 . . [N: Controlling the whole mixing process] [N9502]
- B01F15/00K20 . . [N: characterized by the means for measuring parameters] [N1204]

B01F15/00K20B	. . .	[N: Measuring parameters of mixture or components to be mixed by means of wireless sensors introduced in the mixture, e.g. using transponders or RFID tags] [N1204]
B01F15/00K20D	. . .	[N: using radiation for measuring parameters of mixture or components to be mixed] [N1204]
B01F15/00K40	. . .	[N: characterized by the type of control technique used] [N1204]
B01F15/00K40B	. . .	[N: Controlling the mixing process by feed-back, i.e. a measured parameter of the mixture is measured, compared with the set-value and the feed values are corrected] [N1204]
B01F15/00K40D	. . .	[N: Controlling the mixing process by feed-forward, i.e. a parameter of the components to be mixed is measured and the feed values are calculated] [N1204]
B01F15/00K40F	. . .	[N: Controlling the mixing process by fuzzy control, i.e. a prescribed fuzzy rule] [N1204]
B01F15/00K40H	. . .	[N: Controlling the mixing process from a remote server, e.g. by sending commands using radio, telephone, internet, local network, GPS or other means] [N1204]
B01F15/00K40J	. . .	[N: Use of stored recipes for controlling the computer programs, e.g. for manipulation, handling, production, composition in mixing plants (B01F13/10G8 takes precedence)] [N1204]
B01F15/00K40L	. . .	[N: Use of data, i.e. barcodes, 3D codes or similar type of tagging information, as instruction or identification codes for controlling the computer programs, e.g. for manipulation, handling, production, compounding in mixing plants (B01F13/10G10 takes precedence)] [N1204]
B01F15/00K40N	. . .	[N: Controlling using ultrasonic waves during the operation] [N1204]
B01F15/00K60	. . .	[N: characterized by the parameter being controlled] [N1204]
B01F15/00K60B	. . .	[N: Controlling the position of baffles used to modify the flow in a conduit or a container] [N1204]
B01F15/00K60D	. . .	[N: Controlling the amount of delivered fluid during a period] [N1204]
B01F15/00K60F	. . .	[N: Controlling the level of the material in the mixer] [N1204]
B01F15/00K60H	. . .	[N: Controlling pressure] [N1204]
B01F15/00K60J	. . .	[N: Controlling speed during the operation] [N1204]
B01F15/00K60J1	. . . .	[N: Controlling the speed of feeding of at least one component to be mixed] [N1204]
B01F15/00K60J2	. . . .	[N: Controlling the speed of the mixing device during the operation] [N1204]
B01F15/00K60J2A	. . . . .	[N: Controlling the linear speed of the tip of a moving stirrer during the operation] [N1204]
B01F15/00K60J2B	. . . . .	[N: Controlling the speed of rotation of the mixing axis, stirrer or receptacle during the operation] [N1204]
B01F15/00K60L	. . .	[N: Controlling temperature] [N1204]
B01F15/00K60N	. . .	[N: Controlling time, i.e. duration, of at least one parameter during the operation] [N1204]
B01F15/00K60N1	. . . .	[N: Controlling the duration of the mixing process or parts of it] [N1204]
B01F15/00K60N2	. . . .	[N: Controlling the time of feeding of at least one of the components to be mixed] [N1204]
B01F15/00K60P	. . .	[N: Controlling the volume of at least one component to be mixed] [N1204]
B01F15/00K60R	. . .	[N: Controlling the weight of at least one component to be mixed] [N1204]

- B01F15/00L . [N: Drives, e.g. for reciprocating motion; Transmissions; Brakes; Couplings (B01F15/00K2, B01F15/00M2 take precedence; drives using magnetic couplings B01F13/08)] [M1106]
- B01F15/00L2 . . [N: Construction of driving shafts]
- B01F15/00L3 . . [N: for vertical stirrer shafts (B01F15/00L4 takes precedence)]
- B01F15/00L3B . . . [N: Driving several stirrer shafts, e.g. about the same axis]
- B01F15/00L4 . . [N: Driving independent stirrer shafts, i.e. not fitted on the container]
- B01F15/00L5 . . [N: Driving reciprocating or oscillating stirrers]
- B01F15/00L6 . . [N: Electrical circuits therefor]
- B01F15/00L7 . . [N: Couplings therefor, e.g. with torque sensing means (couplings or clutches in general F16D; measuring torque G01L3/00)] [M1106]
- B01F15/00L8 . . [N: Nature of the drive] [N1106]
- B01F15/00L8A . . . [N: Driven by acoustic force, e.g. acoustically induced bubbles, acoustic windmill, acoustic scallop] [N1204]
- B01F15/00L8B . . . [N: Flow driven] [N1106]
- B01F15/00L8C . . . [N: Hand driven] [N1106]
- B01F15/00L8C2 . . . . [N: Shaking by hand a portable receptacle or stirrer for mixing] [N1204]
- B01F15/00L8D . . . [N: Battery driven] [N1204]
- B01F15/00L8E . . . [N: Gas driven] [N1204]
- B01F15/00L8F . . . [N: Gravity driven, e.g. by means of weights out of balance, plunger-weights moving in a cylinder] [N1204]
- B01F15/00L8G . . . [N: Motor driven, i.e. by means of an electric or IC motor] [N1204]
- B01F15/00L8H . . . [N: Hydraulically driven] [N1106]
- B01F15/00L8I . . . [N: Driven by optical pressure force, e.g. produced by a laser beam] [N1204]
- B01F15/00L8J . . . [N: Driven by solar energy] [N1204]
- B01F15/00L8K . . . [N: Driven by the rotation of the wheels during movement] [N1204]
- B01F15/00L8W . . . [N: Wind driven] [N1106]
- B01F15/00M . . [N: Mounting or supporting mixing devices, e.g. independent stirrer units on receptacles; Mounting or supporting receptacles on frames or stands; Clamping or holding arrangements therefor] [N1106]
- B01F15/00M2 . . [N: Mounting or supporting stirrer shafts on receptacles] [N1106]
- B01F15/00M2B . . . [N: by supporting only one extremity of the shaft] [N1106]
- B01F15/00M2B2 . . . . [N: at the top of the receptacle] [N1106]
- B01F15/00M2B4 . . . . [N: at the bottom of the receptacle, e.g. by studs] [N1106]
- B01F15/00M2B6 . . . . [N: at a side wall of the receptacle] [N1106]
- B01F15/00M2D . . . [N: by supporting both extremities of the shaft] [N1106]
- B01F15/00M2D2 . . . . [N: at the top and at the bottom of the receptacle, e.g. for performing a conical orbital movement about a vertical axis] [N1106]
- B01F15/00M2D4 . . . . [N: at the side walls of the receptacle] [N1106]
- B01F15/00M2F . . . [N: by means of clamps, clamping arrangements for fixing attached stirrers or independent stirrer units] [N1204]
- B01F15/00M2H . . . [N: using inflatable arrangements for supporting a stirring element] [N1204]
- B01F15/00M4 . . [N: Clamping or holding arrangements for mounting receptacles on mixing devices, e.g. for shaking, vibrating or rotating the receptacle] [N1106]

- B01F15/00M4B . . . [N: having a cup-shaped or cage-type form] [N1106]
- B01F15/00M4D . . . [N: having a jaw-type or finger-type shape] [N1106]
- B01F15/00M4F . . . [N: of the vertically movable, two-plates type] [N1106]
- B01F15/00M4R . . . [N: Holding arrangements for retaining loose elements of the mixing receptacle, e.g. for holding the handle of a can while it is being shaken] [N1204]
- B01F15/00M6 . . [N: Supporting receptacles on frames or stands ([B01F15/00M4](#) takes precedence; frames of machines, stands as support for apparatus, in general F16M)] [N1106]
  
- B01F15/00N . [N: Receptacle closures, covers or doors; Mechanisms for operating them]
- B01F15/00N2 . . [N: by rotating them about an axis parallel to the plane of the opening]
- B01F15/00N3 . . [N: by moving them in the plane of the opening ([B01F15/00N5](#) takes precedence)]
- B01F15/00N3B . . . [N: by rotating them about an axis perpendicular to the plane of the opening]
- B01F15/00N4 . . [N: by moving them perpendicular to the plane of the opening]
- B01F15/00N4B . . . [N: and moving them afterwards in another direction]
- B01F15/00N5 . . [N: Moving covers on a cylindrical drum in a circular path along the drum]
  
- B01F15/00P . [N: Receptacles ([B01F9/00P](#), [B01F15/00N](#) take precedence)]
- B01F15/00P2 . . [N: Nature of the receptacle] [C0610]
- B01F15/00P2A . . . [N: provided with liners, e.g. wear resistant or flexible liners] [N0610]
- B01F15/00P2B . . . [N: Surface characteristics, e.g. coated, rough] [N0610] [M1106]
- B01F15/00P2C . . . [N: the mixing receptacle being flexible, e.g. flexible bags supported by rigid containers] [N1204]
- B01F15/00P2D . . . [N: the mixing receptacle or conduit being transparent or comprising transparent parts] [N1204]
- B01F15/00P4 . . [N: Multi compartment receptacles] [N0610] [M1106]
- B01F15/00P4B . . . [N: comprising compartments keeping the materials to be mixed separated until the mixing is initiated ([B65D81/32](#) takes precedence)] [N1106]
- B01F15/00P6 . . [N: Configuration of the interior] [N0610]
- B01F15/00P6A . . . [N: provided with baffles, plates or bars on the wall or the bottom] [N0610]
- B01F15/00P6A2 . . . . [N: with horizontal baffles mounted on the walls] [N1204]
- B01F15/00P6A4 . . . . [N: with vertical baffles mounted on the walls] [N1204]
- B01F15/00P6B . . . [N: provided with guide tubes on the wall or the bottom] [N0610]
- B01F15/00P8 . . [N: Closely surrounding the rotating element] [N0610]
  
- B01F15/00Q . [N: Baffles; Flow breakers]
  
- B01F15/00S . [N: Maintenance, e.g. replacing, repairing or inspecting; Making mixers or parts thereof] [C0305]
  
- B01F15/00T . [N: General build-up of the mixers]
- B01F15/00T2 . . [N: the mixer being built-up from a plurality of modules or stacked plates comprising complete or partial elements of the mixer] [N1204]
- B01F15/00T4 . . [N: the mixer or mixing elements being collapsible, i.e. when discharging the products] [N1204]
- B01F15/00T4B . . . [N: the complete mixer being collapsible, i.e. the housing can be collapsed] [N1204]
  
- B01F15/00V . [N: Preventing generation of dust or dirt; Sieves; Filters ([B01F15/00G](#), [B01J15/00N](#)

- take precedence)] [M1106]
- B01F15/00V2 . . [N: Preventing generation of dust] [N1204]
- B01F15/00V4 . . [N: using splash guards in mixers for avoiding dirt or projection of material] [N1204]
- B01F15/00V6 . . [N: using filters in mixers, e.g. during venting] [N1204]
- B01F15/00V6A . . . [N: Filters for micro-living organisms, i.e. filtering of the mixture] [N1204]
- B01F15/00V8 . . [N: using sieves in mixers for purposes other than mixing, e.g. eliminating dust during venting] [N1204]
- B01F15/00V10 . . [N: Venting, degassing, ventilating of gases, fumes or toxic vapours during mixing] [N1204]
  
- B01F15/02 . Feed or discharge mechanisms
- B01F15/02B . . [N: Feed mechanisms (with proportioning [B01F15/04](#))]
- B01F15/02B3 . . . [N: for feeding a mixture of components, i.e. solids in liquid, solids in a gas stream]
- B01F15/02B4 . . . [N: for feeding fluids]
- B01F15/02B6 . . . [N: comprising breaking packages or parts thereof, e.g. piercing or opening sealing elements between compartments or cartridges ([B65D25/08](#), [B65D81/32](#) take precedence)] [N0305]
- B01F15/02B6B . . . . [N: Breaking or perforating packages, containers, vials] [N1204]
- B01F15/02B6D . . . . [N: the package containing one of the components dissolves when in contact with the other component of the mixture ([B65D65/46](#) takes precedence)] [N1204]
- B01F15/02B6F . . . . [N: Opening clips which seal openings between the compartments] [N1204]
- B01F15/02B6H . . . . [N: Dissolving the seal when in contact with one of the products to be mixed, thereby bringing the compartments in communication] [N1204]
- B01F15/02B6J . . . . [N: Opening the seal between the compartments by application of heat] [N1204]
- B01F15/02B6L . . . . [N: Opening hooks which lock, close-off openings between compartments] [N1204]
- B01F15/02B6N . . . . [N: Piercing, perforating, melting membranes, closures which seal the compartments] [N1204]
- B01F15/02B6P . . . . [N: Opening valves which close-off openings between compartments] [N1204]
- B01F15/02B6R . . . . [N: Removing separation walls, plugs which close off the different compartments, e.g. by rotation, axially sliding] [N1204]
- B01F15/02B7 . . . [N: for feeding predetermined amounts ([B01F15/04H](#) takes precedence)] [C0305]
- B01F15/02B7C . . . . [N: using measuring chambers moving between a loading and unloading position, e.g. reciprocating feed frames] [C0305]
- B01F15/02B7C2 . . . . . [N: rotating or oscillating about an axis]
- B01F15/02B7C2B . . . . . [N: the measuring chambers being pockets on the circumference of a drum rotating about a horizontal axis with discharging by gravity] [N9511]
- B01F15/02B7C2C . . . . . [N: the measuring chambers being channels extending between both front faces of a rotating cylinder or disc] [N9511]
- B01F15/02B20 . . . [N: characterized by the relative arrangement of the containers for feeding or mixing the components] [N1204]
- B01F15/02B20B . . . . [N: the containers being connected coaxially before contacting the contents]

				[N1204]
B01F15/02B20D	.	.	.	[N: A container being placed inside the other before contacting the contents] [N1204]
B01F15/02B20F	.	.	.	[N: the containers being connected in a mouth-to-mouth, end-to-end disposition, i.e. the openings are juxtaposed before contacting the contents] [N1204]
B01F15/02B20H	.	.	.	[N: the containers being placed in parallel before contacting the contents] [N1204]
B01F15/02B40	.	.	.	[N: characterized by the means for feeding the components to the mixer] [N1204]
B01F15/02B40A	.	.	.	[N: using belts] [N1204]
B01F15/02B40B	.	.	.	[N: using boxes, closable containers, sacks, carts] [N1204]
B01F15/02B40C	.	.	.	[N: using buckets, cups, open containers] [N1204]
B01F15/02B40D	.	.	.	[N: using capillary forces] [N1204]
B01F15/02B40E	.	.	.	[N: using centrifugal forces] [N1204]
B01F15/02B40F	.	.	.	[N: using gravity, e.g. from a hopper] [N1204]
B01F15/02B40F2	.	.	.	[N: using a hopper] [N1204]
B01F15/02B40G	.	.	.	[N: using grippers] [N1204]
B01F15/02B40H	.	.	.	[N: using pistons, plungers, syringes] [N1204]
B01F15/02B40I	.	.	.	[N: using pneumatic pressure, overpressure, gas or air pressure in a closed receptacle or circuit system] [N1204]
B01F15/02B40J	.	.	.	[N: using propellers] [N1204]
B01F15/02B40K	.	.	.	[N: using means for feeding components in a pulsating or intermittent manner] [N1204]
B01F15/02B40K2	.	.	.	[N: using electrical pulses] [N1204]
B01F15/02B40L	.	.	.	[N: using pumps] [N1204]
B01F15/02B40L1	.	.	.	[N: membrane pumps] [N1204]
B01F15/02B40L2	.	.	.	[N: peristaltic pumps] [N1204]
B01F15/02B40L3	.	.	.	[N: piezoelectric pumps] [N1204]
B01F15/02B40L4	.	.	.	[N: piston pumps] [N1204]
B01F15/02B40L5	.	.	.	[N: venturi pumps] [N1204]
B01F15/02B40M	.	.	.	[N: using rakes, plain plates with raking movement] [N1204]
B01F15/02B40N	.	.	.	[N: using rollers] [N1204]
B01F15/02B40O	.	.	.	[N: using helical screws] [N1204]
B01F15/02B40P	.	.	.	[N: using shovels, scoops] [N1204]
B01F15/02B40Q	.	.	.	[N: using slides, vibrating tables] [N1204]
B01F15/02B40R	.	.	.	[N: using sprayers, nozzles, jets] [N1204]
B01F15/02B40R2	.	.	.	[N: using ink jet heads or cartridges, e.g. of the thermal bubble jet or piezoelectric type] [N1204]
B01F15/02B40S	.	.	.	[N: Squeezing a flexible container] [N1204]
B01F15/02B40T	.	.	.	[N: using vacuum, underpressure in a closed receptacle or circuit system] [N1204]
B01F15/02B40T2	.	.	.	[N: using a syphon to create a suction of a component] [N1204]
B01F15/02B40U	.	.	.	[N: using valves, gates, orifices, openings] [N1204]
B01F15/02B40U1	.	.	.	[N: being adjustable] [N1204]

B01F15/02B40V	. . . .	[N: using fans, turbines] [N1204]
B01F15/02B40W	. . . .	[N: using vibrations, e.g. standing waves, ultrasonic vibrations] [N1204]
B01F15/02B40X	. . . .	[N: With means for feeding the material with a fractal or tree-type distribution in a surface] [N1204]
B01F15/02B40Z	. . . .	[N: using means for feeding one phase surrounded by another phase without mixing during the feeding] [N1204]
B01F15/02C	. .	[N: Discharge mechanism] [C0204]
B01F15/02C2	. . .	[N: Discharging by opening a gate, e.g. using discharge paddles]
B01F15/02C2B	. . . .	[N: the gate carrying a stirrer acting as discharge pump]
B01F15/02C4	. . .	[N: with arrangements for converting the mechanism from mixing to discharging, e.g. by either guiding a mixture back into a receptacle or discharging it] [C0204]
B01F15/02C5	. . .	[N: Discharging at the upper side of the receptacle, e.g. by pressurising the liquid in the receptacle or by centrifugal force] [C9509]
B01F15/02C40	. . .	[N: characterized by the means for discharging the components from the mixer] [N1204]
B01F15/02C40A	. . . .	[N: using belts] [N1204]
B01F15/02C40B	. . . .	[N: using gravity] [N1204]
B01F15/02C40C	. . . .	[N: Discharging the components by overflow] [N1204]
B01F15/02C40D	. . . .	[N: using pistons or plungers] [N1204]
B01F15/02C40D2	. . . . .	[N: reciprocating in the mixing receptacle] [N1204]
B01F15/02C40E	. . . .	[N: using pneumatic pressure, overpressure, gas pressure in a closed receptacle or circuit system] [N1204]
B01F15/02C40F	. . . .	[N: using means for discharging the mixture in a pulsating or intermittent manner] [N1204]
B01F15/02C40F2	. . . . .	[N: using electrical pulses] [N1204]
B01F15/02C40G	. . . .	[N: using pumps] [N1204]
B01F15/02C40G2	. . . . .	[N: using venturi pumps] [N1204]
B01F15/02C40H	. . . .	[N: using pushers] [N1204]
B01F15/02C40I	. . . .	[N: using slides] [N1204]
B01F15/02C40J	. . . .	[N: using a rotary discharge means, e.g. a screw beneath the receptacle (B01F15/02C2 takes precedence)] [N1204]
B01F15/02C40J2	. . . . .	[N: using helical screws] [N1204]
B01F15/02C40K	. . . .	[N: using squeezing means on a deformable container] [N1204]
B01F15/02C40L	. . . .	[N: using suction, vacuum, e.g. with a pipette] [N1204]
B01F15/02C40M	. . . .	[N: using valves, gates, orifices, openings] [N1204]
B01F15/02C40M2	. . . . .	[N: being adjustable] [N1204]
B01F15/02C40N	. . . .	[N: using fans or ventilators] [N1204]
B01F15/02C40O	. . . .	[N: using tilting or pivoting means for emptying the mixing receptacle] [N1204]
B01F15/02C40P	. . . .	[N: the mixing receptacle rotating in opposite directions for mixing and for discharging] [N1204]
B01F15/02C40Q	. . . .	[N: using distributing means, e.g. manifold valves, multiple fittings for supplying the discharge components to a plurality of dispensing places] [N1204]
B01F15/02G	. .	[N: Preventing lumping, or comminuting lumps, during feeding or discharging, e.g. by means of vibrations, or by scrapers]

- B01F15/04 . Forming a predetermined ratio of the substances to be mixed (controlling ratio of two or more flows of fluid or fluent material G05D11/02) [N: (G05D11/00 takes precedence)] [C0610]
- B01F15/04B . . [N: Forming mixtures with changing ratio or gradient] [N9502]
- B01F15/04D . . [N: Adding a component to a mixture in response to a detected feature, e.g. density, radioactivity, consumed power, colour]
- B01F15/04G . . [N: Forming a predetermined ratio of two or more flows, e.g. using flow-sensing or flow controlling devices ([B01F15/04D](#) takes precedence)]
- B01F15/04G2 . . . [N: using one or more pump or other dispensing mechanisms for feeding the flows in predetermined proportion, e.g. one of the pumps being driven by one of the flows ([B01F15/04G3](#) takes precedence)]
- B01F15/04G2B . . . . [N: with means for controlling the motor driving the pumps or the other dispensing mechanisms]
- B01F15/04G3 . . . [N: Flow control by weighing]
- B01F15/04G4 . . . [N: Flow control by valves, e.g. opening intermittently]
- B01F15/04G4B . . . . [N: the flow of one component operating the actuator of the valve, e.g. by deforming a membrane which operates de valve actuator] [N1204]
- B01F15/04G6 . . . [N: the flow of substances to be mixed circulating in a closed circuit, e.g. from a container through valve, driving means, metering means, dispensing means, e.g. 3-way valve, and back to the container] [N1204]
- B01F15/04H . . [N: by feeding the components in predetermined amounts]
- B01F15/04H3 . . . [N: by weighing, e.g. with automatic discharge]
- B01F15/04H3B . . . . [N: the weighing being effected by material receiving containers rotating or tilting under the influence of the weight of the material in those containers]
- B01F15/04H5 . . . [N: using measuring chambers, e.g. volumetric pumps, for feeding the substances (for amalgam mixers [A61C5/06](#); specially adapted for mixing plastic material [B29B7/60B2B2](#), [B29B7/76F3](#); for amalgam mixers [A61C5/06](#); feeding plastic material in general [B29C31/06](#), [B29C31/10](#); for presses [B30B15/30B](#), [B30B15/30B2](#); pumps for delivering fixed or variable measured quantities of two or more fluids at the same time [F04B13/02](#); measuring and separating a predetermined volume of fluid or fluent solid material [G01F11/00](#))]
- B01F15/04H5B . . . . [N: involving controlling]
- B01F15/04H5C . . . . [N: using measuring chambers of the piston or plunger type ([B01F15/04H5D](#) takes precedence)]
- B01F15/04H5C2 . . . . . [N: with double acting pistons ([B01F15/04H5C3](#) takes precedence)]
- B01F15/04H5C3 . . . . . [N: without external means for driving the piston, e.g. the piston being driven by one of the components]
- B01F15/04H5D . . . . [N: using diaphragms or bellows]
- B01F15/04H7 . . . [N: using flow rate controls for feeding the substances] [N1106]
- B01F15/04J . . [N: for solid materials, e.g. using belts, vibrations, hoppers with variable outlets or hoppers with rotating elements, e.g. screws, at their outlet ([B01F15/04D](#) to [B01F15/04H](#) take precedence)]
- B01F15/04J2 . . . [N: the material after falling on a, e.g. rotatable, plate being wiped from this plate by means of a scraper]
- B01F15/04K . . [N: Measuring receptacles therefor]
- B01F15/04L . . [N: characterised by the build-up of the device]
- B01F15/06 . Heating or cooling systems
- B01F15/06C . . [N: using gas or liquid injected into the material, e.g. using liquefied [C02](#) or steam]

- C0204]
- B01F15/06D . . [N: using heating or cooling elements at the outside of the receptacle, e.g. heated jackets, burners, spraying devices] [C0204]
  - B01F15/06F . . [N: using heating or cooling elements inside the receptacle] [C0204]
  - B01F15/06G . . [N: using radiation or high frequency energy, e.g. microwaves or electromagnetic radiation] [C0204]
  - B01F15/06H . . [N: using heated or cooled stirrers] [C0204]

**B01F17/00****Use of substances as emulsifying, wetting, dispersing or foam-producing agents**

[N: see for particular applications relevant classes, e.g. lubricant emulsions [C10M](#); fuel emulsions [C10L1/32](#); detergents [C11D](#); colour and dye dispersions [C09](#); textile applications [D06](#); cosmetics [A61K](#); food [A23L1/035](#); biocides [A01N](#); petrol winning [E21B](#); hydrometallurgy, metal liquid-liquid extraction [C22B](#); mixers [B01F3/00](#); polymers mixing; waxes [C08](#); paper [D21H](#); demulsification (anti foam) [B01D19/04](#)]

**Note**

A compound is always classified in the last appropriate place

- B01F17/00A . [N: Inorganic compounds]
- B01F17/00B . [N: Organic compounds containing only carbon and hydrogen]
- B01F17/00E . [N: Organic compounds containing oxygen]
- B01F17/00E2 . . [N: Macromolecular compounds]
- B01F17/00H . [N: Organic compounds containing halogen]
- B01F17/00K . [N: Organic compounds containing nitrogen]
- B01F17/00K2 . . [N: Macromolecular compounds]
- B01F17/00M . [N: Organic compounds containing sulfur, selenium, or tellurium]
- B01F17/00R . [N: Organic compounds containing phosphorus]
- B01F17/00V . [N: Organic compounds containing silicon]
- B01F17/00W . [N: Organic compounds not provided for in groups [B01F17/00B](#) to [B01F17/00V](#)]
- B01F17/00Z . [N: Mixtures of compounds]
- B01F17/00Z2 . . [N: Mixtures of 2 or more different organic oxygen-containing compounds]