Claims

1. Industrial dishwasher ~~(30, 160)~~ comprising
   - a detergent station ~~(36)~~ for washing serviceware ~~(142)~~ with cleaning agent ~~(148)~~;
   - a sanitising station ~~(38, 40)~~ for disinfecting the serviceware ~~(142)~~ with sterilising agent ~~(152)~~;
   - a neutralisation station ~~(32, 34)~~ connected to the detergent station ~~(36)~~, the sanitising station ~~(38, 40)~~ or both ~~(36, 38, 40)~~ for deactivating the cleaning agent ~~(148)~~, the sterilising agent ~~(152)~~ or both ~~(148, 152)~~; and
   - at least one conveyor chain ~~(140)~~ connected to the detergent station ~~(36)~~, the sanitising station ~~(38, 40)~~ or both stations ~~(36, 38, 40)~~ for carrying the serviceware ~~(142)~~ to the detergent station ~~(36)~~, the sanitising station ~~(38, 40)~~ or both stations;
     – **wherein** the at least one conveyor chain is further connected to the neutralisation station for rinsing the serviceware at the neutralisation station **~~(36, 38, 40)~~.**

~~2. Industrial dishwasher (30, 160) of Claim 1, wherein the at least one conveyor chain (140) is further connected to the neutralisation station (32, 34) for rinsing the serviceware (142) at the neutralisation station (32, 34).~~

~~3~~2. Industrial dishwasher ~~(30, 160)~~ of Claim 1 ~~or 2~~, wherein the at least one conveyor chain ~~(140)~~ comprises an endless belt ~~(140)~~ for moving the serviceware ~~(142)~~ from the detergent station ~~(36)~~ to the sanitising station ~~(38, 40)~~ or vice versa.

~~4~~3. Industrial dishwasher ~~(30, 160)~~ of ~~any of the preceding Claims~~Claim 1 or 2 further comprising
an electrolyzer ~~(88)~~ for supplying the cleaning agent ~~(148)~~ to the detergent station ~~(36)~~, the sterilising agent ~~(152)~~ to the sanitising station ~~(36)~~, or both the cleaning agent ~~(148)~~ to the detergent station ~~(36)~~ and the sterilising agent ~~(152)~~ to the sanitising station ~~(36)~~.

~~5~~4. Industrial dishwasher ~~(30, 160)~~ of Claim ~~4~~3, wherein
the electrolyzer ~~(88)~~ is configured to produce alkali electrolysis water ~~(148)~~ as the cleaning agent ~~(148)~~, acid electrolysis water ~~(152)~~ as the sterilising agent ~~(152)~~ or both the alkali electrolysis water ~~(148)~~ and the acid electrolysis water ~~(152)~~.

~~6~~5. Industrial dishwasher ~~(30, 160)~~ of any of the preceding Claims further comprising
a cavitation generator ~~(60, 74, 120)~~ connected to the detergent station ~~(36)~~, the sanitising station ~~(38, 40)~~, the neutralisation station ~~(32, 34)~~ or a combination of any of these stations for producing voids in at least one washing liquid ~~(98, 144, 146, 148, 152)~~.

~~7~~6. Industrial dishwasher ~~(30, 160)~~ of Claim ~~6~~5, wherein
the cavitation generator ~~(60, 74, 120)~~ comprises a mixer ~~(120)~~ for injecting the gas into the at least one washing liquid ~~(98, 144, 146, 148, 152)~~ in order to form micro or ultra-fine cavities.

~~8~~7. Industrial dishwasher ~~(30, 160)~~ of Claim ~~7~~6, wherein
the mixer ~~(120)~~ comprises a porous cylinder for guiding the gas and the at least one liquid ~~(98, 144, 146, 148, 152)~~ flowing along opposite sides of the porous cylinder.

~~9~~8. Industrial dishwasher ~~(30, 160)~~ of Claim ~~6~~5, wherein
the cavitation generator ~~(60, 74, 120)~~ comprises an ultrasonic generator ~~(60, 74)~~.

~~10~~9. Industrial dishwasher ~~(30, 160)~~ of Claim ~~9~~8, wherein
the ultrasonic generator ~~(60, 74)~~ comprises at least one ultrasonic transducer ~~(62, 64, 66, 68, 70, 76, 78, 80, 82, 84)~~ on a wall ~~(72, 86)~~ of the at least one washing stations ~~(32, 34, 36, 38, 40, 42)~~.

~~11~~10. Industrial dishwasher ~~(30, 160)~~ of Claim ~~10~~9, wherein

the ultrasonic generator ~~(60, 74)~~ comprises multiple ultrasonic transducers ~~(62, 64, 66, 68, 70, 76, 78, 80, 82, 84)~~ evenly distributed on a bottom side ~~(72, 86)~~ of the washing stations ~~(32, 34, 36, 38, 40, 42)~~.

~~12~~11. Industrial dishwasher ~~(30, 160)~~ of any of the preceding Claims, wherein the detergent station ~~(36)~~ comprises a detergent container ~~(48)~~ and a prewashing container ~~(46)~~, the detergent container ~~(48)~~ and the prewashing container ~~(46)~~ being connected together for cascading used at least one washing liquid ~~(148)~~ from container ~~(48)~~ to the other ~~(46)~~.

~~13~~12. Industrial dishwasher ~~(30, 160)~~ of any of the preceding Claims, wherein the detergent station ~~(36)~~ comprises an automatic heater ~~(55)~~ for regulating fluid temperature of the detergent station ~~(36)~~ to be from about 28 degree Celsius to 38 degree Celsius.

~~14~~13. Industrial dishwasher ~~(30, 160)~~ of any of the preceding Claims, wherein the sanitizing station ~~(40)~~ comprises a sanitizing container ~~(52)~~ and a scouring container ~~(50)~~, the sanitizing container ~~(52)~~ and the scouring container ~~(50)~~ being connected together for cascading used at least one washing liquid ~~(152)~~ from one container ~~(50, 52)~~ to the other ~~(50, 52)~~.

~~15~~14. Industrial dishwasher ~~(30, 160)~~ of any of the preceding Claims, wherein the sanitizing station ~~(40)~~ comprises an intelligent heater ~~(57)~~ for keeping fluid temperature of the sanitizing station ~~(40)~~ to be around 50 degree Celsius to 60 degree Celsius.

~~16~~15. Industrial dishwasher ~~(30, 160)~~ of any of the preceding Claims, wherein the neutralisation station ~~(32, 34)~~ comprises a prewashing container ~~(46)~~ for mixing the cleaning agent ~~(148)~~ with the sterilising agent ~~(152)~~.

~~17~~16. Industrial dishwasher ~~(30, 160)~~ of any of the preceding Claims, wherein the detergent station ~~(36)~~, the sanitising station ~~(38, 40)~~, the neutralisation station ~~(32, 34)~~ or a combination of any of these stations ~~(32, 34, 36, 38, 40, 42)~~

comprises at least one stirrer (63) for causing turbulence in at least one of the stations (32, 34, 36, 38, 40, 42).

1817. Industrial dishwasher (30, 160) of any of the preceding Claims further comprising

a rinsing station (42, 38) connected to the detergent station (36) or the sanitising station (38, 40) for removing the cleaning agent (148), the sterilising agent (152) or both.

1918. Industrial dishwasher (30, 160) of any of the preceding Claims, wherein the neutralisation station (32, 34), the detergent station (36) and the sanitising station (38, 40) are serially connected for washing the serviceware (142) from the neutralisation station (32, 34), to the detergent station (36) and then to the sanitising station (38, 40) sequentially.

2019. Industrial dishwasher (30, 160) of any of the preceding Claims, wherein the neutralisation station (32, 34), the detergent station (36) or the sanitising station (38, 40) comprises a spray nozzle for discharging at least one washing fluid onto the serviceware.

2120. Industrial dishwasher (30, 160) of any of the preceding Claims further comprising

a drying station for parching the serviceware (142).

2221. Industrial dishwasher (30, 160) of any of the preceding Claims further comprising

a vision inspection station for examining washing quality of the serviceware (142) automatically.

2322. Industrial dishwasher (30, 160) of any of the preceding Claims further comprising

at least one steam station for discharging steam onto soiled serviceware or washed serviceware.

~~24~~23. Method of using an industrial dishwasher ~~(30, 160)~~ comprising:

- providing a cleaning agent ~~(148)~~ at a detergent station ~~(36)~~ for washing serviceware ~~(142)~~,
- offering a sterilising agent ~~(152)~~ at a sanitising station ~~(38, 40)~~ for disinfecting the serviceware ~~(142)~~;
- presenting a neutralisation station ~~(32, 34)~~;
- transporting soiled serviceware through the neutralisation station, the detergent station and the sanitising station or a combination of any of these two or more stations sequentially; and
- receiving and deactivating the cleaning agent ~~(148)~~, the sterilising agent ~~(152)~~ or both by the neutralisation station ~~(32, 34)~~.

~~25. Method of Claim 24 further comprising~~

~~transporting soiled serviceware (142) through the neutralisation station (32, 34) the detergent station (36) and the sanitising station (38, 40) or a combination of any of these two or more stations (32, 34, 36, 38, 40) sequentially.~~

~~26~~24. Method of Claim ~~24 or 25~~23 further comprising

discharging electric current through an electrolyte for making alkali electrolysis water as the cleaning agent ~~(148)~~, acid electrolysis water as the sterilising agent ~~(152)~~, or both simultaneously.

~~27~~25. Method of any of the preceding Claims ~~24 to 26~~23 or 24 further comprising

generating micro cavities in washing fluid at the detergent station ~~(36)~~, the sanitising station ~~(38, 40)~~, the neutralisation station ~~(32, 34)~~ or a combination of any of these stations ~~(32, 34, 36, 38, 40)~~.

~~28~~26. Method of any of the preceding Claims ~~24~~23 to ~~27~~25 further comprising

regulating fluid temperature of the detergent station ~~(36)~~, the sanitising station ~~(38, 40)~~, the neutralisation station ~~(32, 34)~~ or a combination of any of these stations ~~(32, 34, 36, 38, 40)~~ to be lower than 65 degree Celsius.

27~~29~~. Method of making an industrial dishwasher ~~(30, 160)~~ comprising

- providing a detergent station ~~(36)~~ for washing serviceware ~~(142)~~ with cleaning agent ~~(148)~~;
- offering a sanitising station ~~(38, 40)~~ for disinfecting the serviceware ~~(142)~~ with sterilising agent ~~(152)~~;
- presenting a neutralisation station ~~(32, 34)~~ connected to the detergent station ~~(36)~~, the sanitising station ~~(38, 40)~~ or both for deactivating the cleaning agent, the sterilising agent ~~(152)~~ or both at the neutralisation station ~~(32, 34)~~, and
- giving at least one conveyor chain ~~(140)~~ connected to the detergent station ~~(36)~~, the sanitising station ~~(38, 40)~~ or both stations ~~(36, 38, 40)~~ for carrying the serviceware ~~(142)~~ to the detergent station ~~(36)~~ and the sanitising station ~~(38, 40)~~.

~~30~~28. Method of Claim ~~29~~27 further comprising
connecting an electrolyzer ~~(88)~~ to the detergent station ~~(36)~~ and the sanitising station ~~(38, 40)~~.

~~31~~29. Method of Claim ~~29~~27 or ~~30~~28 further comprising
joining a cavitation generator ~~(60, 74, 120)~~ to the detergent station ~~(36)~~, the sanitising station ~~(38, 40)~~, the neutralisation station ~~(32, 34)~~, the electrolyzer ~~(88)~~ or a combination of any of these stations.