BBS Sterile Stainless Steel Quick Connect in comparison with the stainless steel clamp aseptic connection according to DIN 11864-3.

Concerned with total dead space, cleanliness and sterilization for stainless steel components in biotechnology and pharmaceutical plants.

BBS Quick Connect - No crevice!

- No contamination of the medium
- Short rinse time
- Lower water consumption
- Less wastewater meaning effluent treatment costs
- Short sterilization Times / low energy requirements
  - Large product yield and larger return
- Small Seal
  - Minimum particle adhesion/trapping giving small risk
- Less material needed
  - No extra material duress
  - Lower overall material needed
  - Shorter cool and heat up times
  - Optimized production cycles
  - Large Yield

Form A DIN 11864 - Large crevice!

- Larger risk of media contamination
- Longer rinse time
- More water consumption
- Large quantity of wastewater meaning higher wastewater treatment expenses
- Longer periods of sterilization is higher energy
  - Less product yield and lower return
- Larger Seal
  - Higher particle adhesion/trapping giving higher risk
- More Material
  - Higher material duress
  - More material needed
  - Longer cooling and heat up
  - Less production time
  - Less Yield

In the bio-pharmaceutical and-purification plant you will find many different stainless steel connections. Many applications put high demands on the cleanliness, cleaning, sterilization and the overall construction has to cope with these demands. BBS Systems, as a manufacturer of various sterile connections attaches great importance to the fact that these requirements are met. In collaboration with reputable customers and users of such equipment we have developed such a sterile connection system which is quick to assemble and simple to use.

The Sterile the Quick Connect.

This union design meets all necessary requirements being modern, safe, maintenance-free and economically attractive. Through the defined dead space free sealing design and our clamp is far superior to the aseptic DIN 11864 Form A clamp. It is mainly a gap free seal and thus without a great expense to clean. In order to substantiate these statements then you see further information about the sterilization process, herewith and an excerpt from the encyclopedia Wikipedia.

Sterilization

Sterilization refers to any process that effectively kills or eliminates transmissible agents (such as fungi, bacteria, viruses, spore forms, etc.) from a surface, equipment, article of food or medication, or biological culture medium. Sterilization does not, however, remove prions. Sterilization can be achieved through application of heat, chemicals, irradiation, high pressure or filtration.

Foods

The first application of sterilization was thorough cooking to effect the partial heat sterilization of foods and water. Cultures that practice heat sterilization of food and water have longer life expectancy and lower rates of disability. Canning of foods by heat sterilization was an extension of the same principle. Ingestion of contaminated food and water remains a leading cause of illness and death in the developing world, particularly for children.

Food sterilization is usually considered a harsher form of Pasteurization, and is carried out through heating, though other methods are available. Food sterilization is commonly a part of canning and is used in combination with or instead of preservatives, refrigeration, and other ways to preserve food.

Steam sterilization

A widely-used method for heat sterilization is the autoclave. Autoclaves commonly use steam heated to 121 °C or 134 °C. To achieve sterility, a holding time of at least 15 minutes at 121 °C or 3 minutes at 134 °C is required. Additional sterilizing time is usually required for liquids and instruments packed in layers of cloth, as they may take longer to reach the required temperature. After sterilization, autoclaved liquids must be cooled slowly to avoid boiling over when the pressure is released.

Proper autoclave treatment will inactivate all fungi, bacteria, viruses and also bacterial spores, which can be quite resistant. It will not necessarily eliminate all prions.

For prion elimination, various recommendations state 121–132 °C (270 °F) for 60 minutes or 134 °C (273 °F) for at least 18 minutes. The prion that causes the disease scrapie (strain 263K) is inactivated relatively quickly by such sterilization procedures; however, other strains of scrapie, as well as strains of CJD and BSE are more resistant. Using mice as test animals, one experiment showed that heating BSE positive brain tissue at 134-138 °C (273-280 °F) for 18 minutes resulted in only a 2.5 log decrease in prion infectivity. (The initial BSE concentration in the tissue was relatively low). For a significant margin of safety, cleaning should reduce infectivity by 4 logs, and the sterilization method should reduce it a further 5 logs.

To ensure the autoclaving process was able to cause sterilization, most autoclaves have meters and charts that record or display pertinent information such as temperature and pressure as a function of time. Indicator tape is often placed on packages of products prior to autoclaving. A chemical in the tape will change color when the appropriate conditions have been met. Some types of packaging have built-in indicators on them.

Biological indicators ("bioindicators") can also be used to independently confirm autoclave performance. Simple bioindicator devices are commercially available based on microbial spores. Most contain spores of the heat resistant microbe *Bacillus stearothermophilus*, among the toughest organisms for an autoclave to destroy. Typically these devices have a self-contained liquid growth medium and a growth indicator. After autoclaving an internal glass ampule is shattered, releasing the spores into the growth medium. The vial is then incubated (typically at 56 °C (132 °F)) for 48 hours. If the autoclave destroyed the spores, the medium will remain its original color. If autoclaving was unsuccessful the *B. sterothermophilus* will metabolize during incubation, causing a color change during the incubation.

For effective sterilization, steam needs to penetrate the autoclave load uniformly, so an autoclave must not be overcrowded, and the lids of bottles and containers must be left ajar. During the initial heating of the chamber, residual air must be removed. Indicators should be placed in the most difficult places for the steam to reach to ensure that steam actually penetrates there.

For autoclaving, as for all disinfection of sterilization methods, cleaning is critical. Extraneous biological matter or grime may shield organisms from the property intended to kill them, whether it physical or chemical. Cleaning can also remove a large number of organisms. Proper cleaning can be achieved by physical scrubbing. This should be done with detergent and warm water to get the best results. Cleaning instruments or utensils with organic matter, cool water must be used because warm or hot water may cause organic debris to coagulate. Treatment with ultrasound or pulsed air can also be used to remove debris.

Source: Wikipedia.