Cleanroom Applications and Products

A cleanroom is a room in which the concentration of airborne particles is controlled to specified limits set by the Federal Standards. Cleanrooms are found in critical environments such as:

- Hospital Surgical Room
- Biotech
- Pharmaceutical
- Medical device
- Semiconductor
- Automotive Paint Booths
- Electronics

The cleanroom industry is growing as many manufactures have found that by controlling the environment quality control gets better. Cleanrooms have been around a long time for healthcare, but the tech industry redefined cleanroom applications. Now a cleanroom is standard practice for most critical component manufactures.

Cleanroom Classes

Cleanrooms are rated by 'Class', with 'Class 1' being the best and 'Class 100,000' being the worst. The table below shows the classes of cleanrooms and the rating criteria.

Cleanroom Class	Allowable # of particles (micrometers) @:			
	0.1M	**0.2M**	**0.3M**	**0.5M**
1	35	7.5	3	1
10	350	75	30	10
100	N/A	750	300	100
1,000	N/A	N/A	N/A	1,000
10,000	N/A	N/A	N/A	10,000
100,000	N/A	N/A	N/A	100,000

The above table shows the statistically allowable number of particles per cubic foot of air according to Federal Standards 209E. For example, in a Class 1 cleanroom, only 35 particles the size of 0.1 micrometers is allowable. To achieve these filtration rates, specialized filters and filtration system are designed for each cleanroom.

Filtration System

Cleanrooms operate with tightly controlled HVAC systems that operate continuously. The HVAC systems typically have open grid floors, which directs the air floor through the floor grates and up through filters in the ceiling grids.

High Efficiency Particulate Air (HEPA) filters are typically used in cleanroom HVAC systems. These filters have a minimum particle collective efficiency of 99.97% for a 0.3 micron particle, and a maximum clean filter pressure drop of 2.54 cm (1") water gauge when tested at rated airflow capacity.

In some cases Ultra Low Penetration Air (ULPA) are used for a higher filtration rate. ULPA filters are 99.999% for particles greater than or equal to 0.12 microns.

In addition to the specialized ventilation systems, cleanroom clothing is required to assure no particles are present on the workers inside the cleanroom.
A typical cleanroom garment is shown to the right. All of the extremities are covered with lint-free material. For the lower class cleanrooms, such as 1 and 10, air showers are required. These chambers located between the cleanroom and an outside environment remove particulate contamination from clean room garments as personnel pass through.

Autoclave

Products that go into cleanrooms are typically autoclaved prior to bringing them into the controlled environment. Basically, an autoclave is like a sealed oven. The item to be autoclaved is put inside of the large oven type structure and heated to a minimum of 275 degrees Fahrenheit for a minimum of 5 minutes, then cooled down for the next 25 minutes. A typical cycle for autoclaving is 30 minutes. Many autoclaves are not too big, therefore, a lot of the products are designed in several pieces, and so they may be taken apart and placed in the autoclave. A small autoclave is shown below.

The purpose of autoclave is to burn off any particles from the item. This assures the item being brought into the cleanroom to be free of any particulates. The autoclave also kills bacteria and other germs

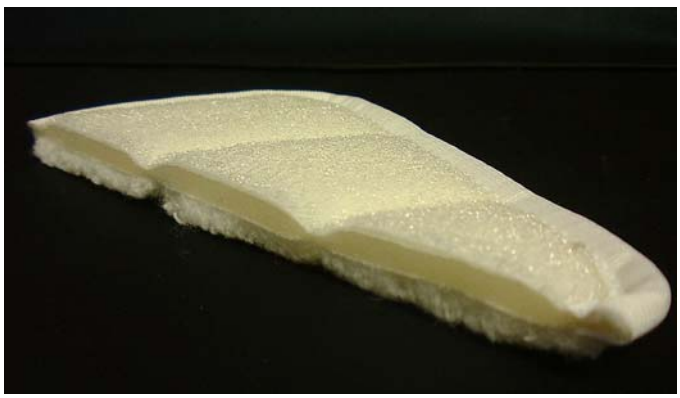
Geerpres Cleanroom Product Offering

Geerpres is a world-class provider of cleanroom products, with a continued commitment to superior quality.

Microfiber Cleaning Systems - GPS 2000

The GPS 2000 microfiber cleaning system holds 2 patents and has revolutionized the way cleaning is performed. The system is all self contained by having the cleaning solution inside the handle. A microfiber pad is used to pick up dirt and spread the cleaning solution.

The microfiber pad is a unique design that utilizes a sponge inside to increase the productivity of applying the cleaning solution.



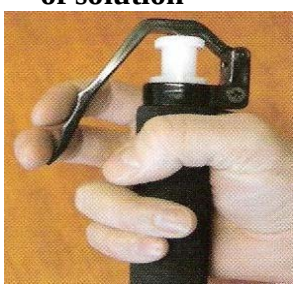
Microfiber Pad with Sponge inside

GPS 2000 Microfiber System

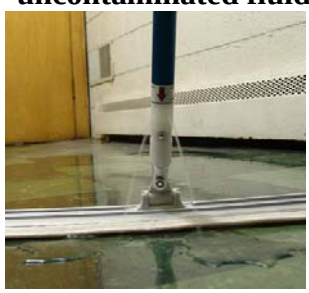
One of the best features of having the solution inside the handle is that the cleaning solution does not get contaminated. With a bucket and wringer method, the cleaning solution continues to get weaker and weaker every time the dirt mop is put into the bucket. The operation of the GPS 2000 Microfiber Cleaning System is as easy as 1-2-3.

1 Quick fill handle
Holds 16oz. of liquid

2 Easy release
of solution

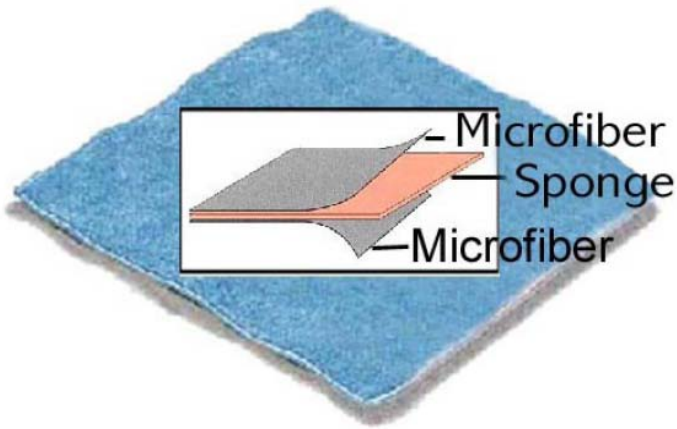


3 Dual outlet dispenses
uncontaminated fluid



In addition to the GPS 2000 Microfiber Cleaning System, Geerpres offering a Microfiber cloth with absorbent sponge inside. This cloth works on the same principle as the pad for the floor.

The microfiber does the cleaning while the sponge holds the cleaning solution to provide the best cleaning results.

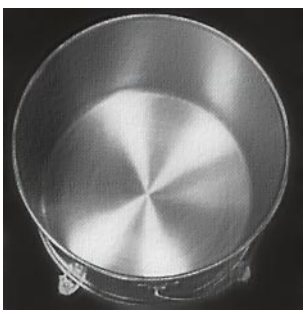


#5016 – Microfiber Cloth with absorbent sponge

The Geerpres Microfiber Cloth has a sponge sandwiched between two layers of microfiber material. The microfiber material is laminated to the sponge, which prevents the sponge from breaking down. The cloth are fully launderable.

Stainless Steel Buckets

Geerpres Stainless Steel Buckets are constructed from a single piece of top quality 304 stainless steel. The buckets are seamless in construction, which allows for easy sanitation.



There are no cracks, crevices, or holes to harbor bacteria and dirt. The bail ears are located well below the rim to allow easy placement of a wringer. In addition the outside of the bucket is electro-polished to give a better appearance and make clean up easier. The buckets have 3" stainless steel casters for ease of movement and sanitation. The entire bucket is autoclavable. Geerpres stainless steel buckets will provide a lifetime of use without corrosion while maintaining their clean, attractive appearance.

In addition to the single bucket, there is a double bucket system, which is also manufactured with 304 stainless steel. The double bucket system extends the life of the chemical. One bucket is filled with the chemical, while the second bucket is used for a rinse. The rinse bucket takes off most of the heavy soil from the mop and keeps the chemical cleaner, longer.

#2600 – 5 gallon (19 lt.) SS bucket w/ 3" casters
#2601 – 8 gallon (30 lit.) SS bucket w/ 3" casters
#2250 – 5 gallon (19 lit.) SS double buckets

Stainless Steel Mop Wringers

The Geerpres Royal Prince Stainless Steel wringers utilize a downward pressure design, which wrings the mop up to three times faster than other wringers. This provides more productivity and saves costs. Stainless Steel construction allows autoclaving and will not rust, discolor or deteriorate with proper care.

The wringers have welded construction that helps extend the life. The stainless steel wringer is electro-plated, making the surface very smooth; therefore, bacteria and foreign particles have nothing to attach themselves to.

The ergonomic wringer, shown to the right, gives an added advantage to wringing out a mop. It has a curved handle that raises the point of operations and utilizes a longer handle that provides more leverage. These two things allow for much easier wringing of wet mops and enhance the performance of mopping. With more leverage, the wet mop can get much drier, thus having a dry floor quicker.

#72621 – Ergo SS Prince Downpress Wringer
#72622 – Ergo SS Prince Downpress Wringer w/ flat Band*
#2621 – SS Prince Wringer
#2622 – SS Prince Wringer w/ flat band*
#2680 – SS flat insert for Prince Wringer

* = Flat Band is required for the (#2250) double buckets

Edgeless Mop

The edgeless mop gives efficient performance in sterile environments. It is constructed of continuous filament polyester formed into a single knitted tube. Edgeless lint-free mops provide high performance in clean room use. Unlike other mops designed for clean rooms, the Edgeless mops are both absorbent and cost effective. This is due to a unique design that allows individual polyester tubes to be sewn into the binding that attaches to the mp head.

#2685 – Edgeless lint-free Mop

The result is a truly edgeless design that is free from exposed, cut or unsealed borders. The Edgeless mops are lower in aqueous extractable matter than mops produced with other materials. This allows fewer particles to bleed onto the surfaces being cleaned.

The edgeless mop has been validated through the independent agency of Northview Atlantic Laboratories (South Carolina, USA). The NVA Report # D9E079 verified that the mop is lint free and passed all AMI testing criteria.

The Geerpres Stainless Steel Mop Handles are specifically designed for us in clean rooms. Special precautions have been taken to prevent moisture, bacteria and corrosion from entering the handles.

#2640 – 1-Piece 60”(152 cm) Stainless Steel Mop Handle

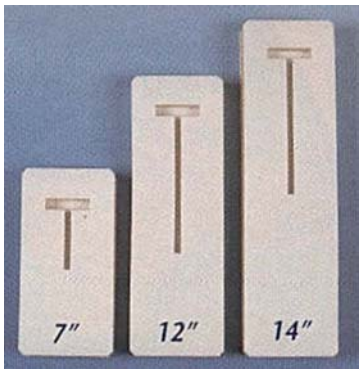
#2641 – 2-Piece 60” (152 cm) Stainless Steel Mop Handle

Geerpres mop handles are designed to be used with Edgeless mops. A quick-change mop replacement system allows hands-free mop changes to avoid contact with soiled mops. The stainless steel mop handles may be autoclaved and are available in a one or two-piece design. The one-piece model is designed with a sealed stainless steel end.

VertiKlean Wall Washing System

VertiKlean disposable wall washing mop heads are constructed of lint-free polynit polyester wiping material which is laminated to an inner core of highly absorbent foam. The mop heads slide easily onto stainless steel wire frames, which attach to Geerpres stainless steel wall washing handles. Wringing is provided by using the Geerpres stainless steel basket insert.

The VertiKlean disposable mop heads are low in particles and extractables and have excellent absorbency. They are available in sizes of 7", 12" & 14" (18, 30 & 35 cm). The VertiKlean heads may be use in class 100 or higher.



#2686 - 7" (18cm) VertiKlean disposable mop head

#2688 - 12" (30cm) VertiKlean disposable mop head

#2687 - 14" (35cm) VertiKlean disposable mop head

Geerpres Stainless Steel Wall Washing Handles are constructed of electroplated 304-stainless steel. The wall washing handles provide ease of use and protection from moisture, bacteria, and corrosion. They are used with the VertiKlean disposable mop heads. The specially designed one-piece handles are sealed at the end and welded where the mop attaches. Weight reduction and maneuverability are provided through the use of a small diameter, stainless steel 7", 12" or 14" (18, 30 & 35 cm) frame. The handles are also available in two-piece models for ease of autoclaving.

#2665 – 1-Piece 60" SS handle w/ 7" (18cm) frame
#2677 – 1-Piece 60" SS handle w/ 12" (30cm) frame
#2667 – 1-Piece 60" SS handle w/ 14" (35cm) frame
#2666 – 2-Piece 58" SS handle w/ 7" (18cm) frame
#2678 – 2-Piece 58" SS handle w/ 12" (30cm) frame
#2668 – 2-Piece 58" SS handle w/ 14" (35cm) frame

#2625 – 14” (35cm) stainless steel downpress wringer
#2679– Stainless Steel flat insert for #2625
#2606 – 35 qt. (33 lit.) SS Bucket w/ 3” casters
#2607– 35 qt. (33 lit.) Stainless steel bucket w/o caster

Chassis/Trolley Systems

The stainless steel cleanroom trolley is made with 304 stainless steel and is ideal for holding the double bucket system or 2 single round buckets. The base has re-enforced channels for extra support. The four swivel casters make this trolley extremely maneuverable in tight spaces. The trolley, casters and removable handle are fully autoclavable.

#2610 – Stainless Steel Trolley, 3” casters, and SS handle w/ tool holder (double buckets, wringer, mop handle and bottle carrier sold separately)

Double & Triple Bucket Systems

The wide wringer accommodates up to an 18 inch head and is ideal for the VertiKlean system. The trolley will hold either two or tree stainless steel buckets. The buckets are extra wide for rinsing the flat mops. Multiple buckets allows the solution to stay clean longer. The four swivel casters make this trolley extremely maneuverable in tight spaces. The trolley, casters, buckets and wringer are all fully autoclavable.

Double Bucket System

#2700 – Double bucket system
(2-29 Qt. buckets, 1-18" wringer, 1-trolley) *shown on the left*

#2703 – Triple bucket system
(3-29 Qt. buckets, 1-18" wringer, 1-trolley)

#2710 – 18" wide wringer, downpress

#2617 – 29 Qt. SS rectangular bucket