Cleanroom Solutions

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Cleanroom

Controlled aera for manufacturing of components and goods that are sensitive to contamination.

Usual suspects

- Electronics
- Pharmacy

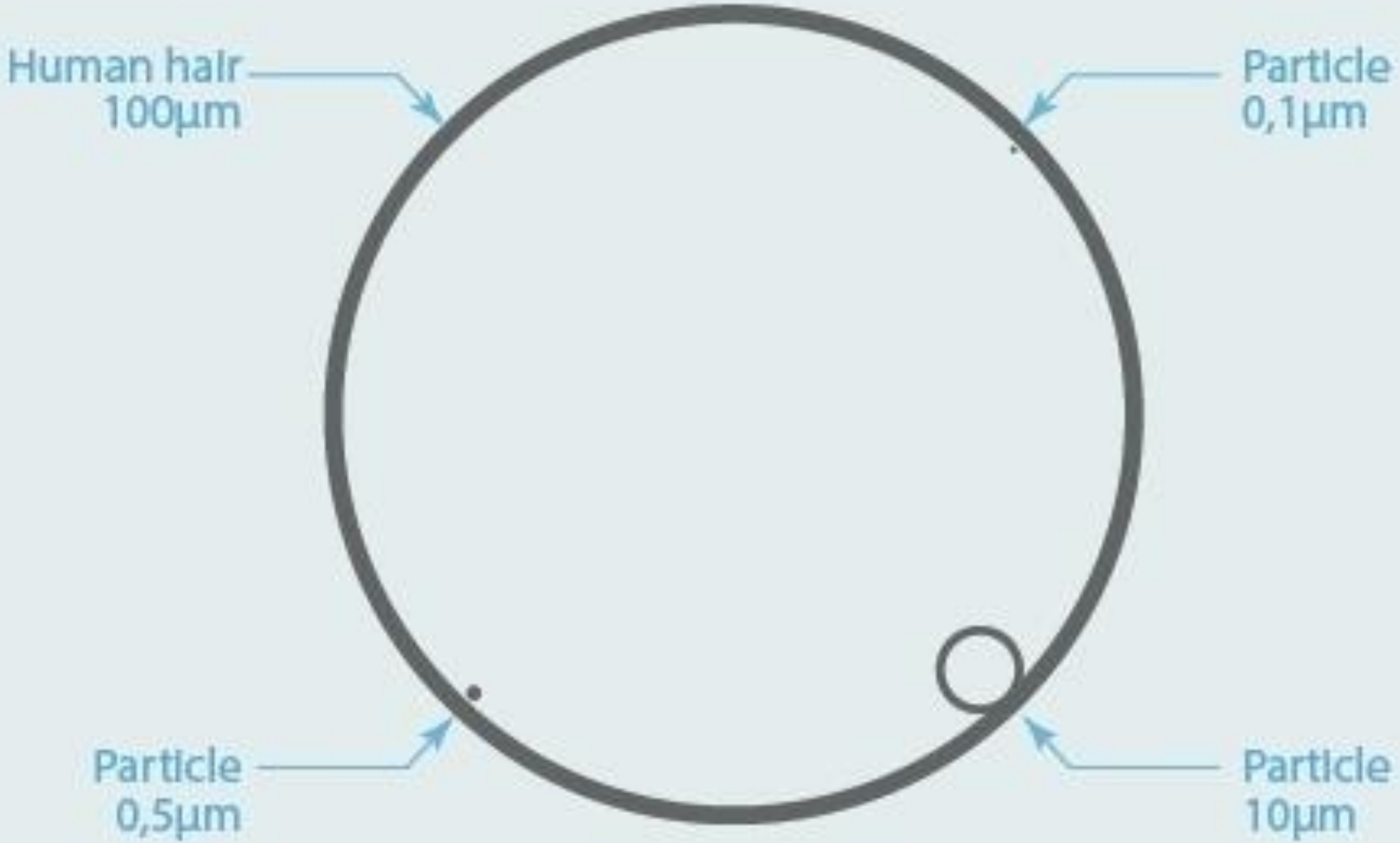
New industries using cleanroom units

- Food& Beverage
- Automotive
- Cosmetics

ISO 14644-1

Cleanrooms are subdivided in classes, in function of industry and sensitivity to particle contamination.
Criteria : # of particles of different sizes per m^3 of air

Class	Number of particles per Cubic Meter by Micrometer Size					
	0.1 micron	0.2 micron	0.3 micron	0.5 micron	1 micron	5 microns
ISO1	10					
ISO2	100	24	10			
ISO3	1.000	237	102	35		
ISO4	10.000	2.370	1.020	352	83	
ISO5	100.000	23.700	10.200	3.520	832	
ISO6	1.000.000	237.000	102.000	35.200	8.320	293
ISO7				352.000	83.200	2.930
ISO8				3.520.000	832.000	29.300
ISO9				35.200.000	8.320.000	293.000

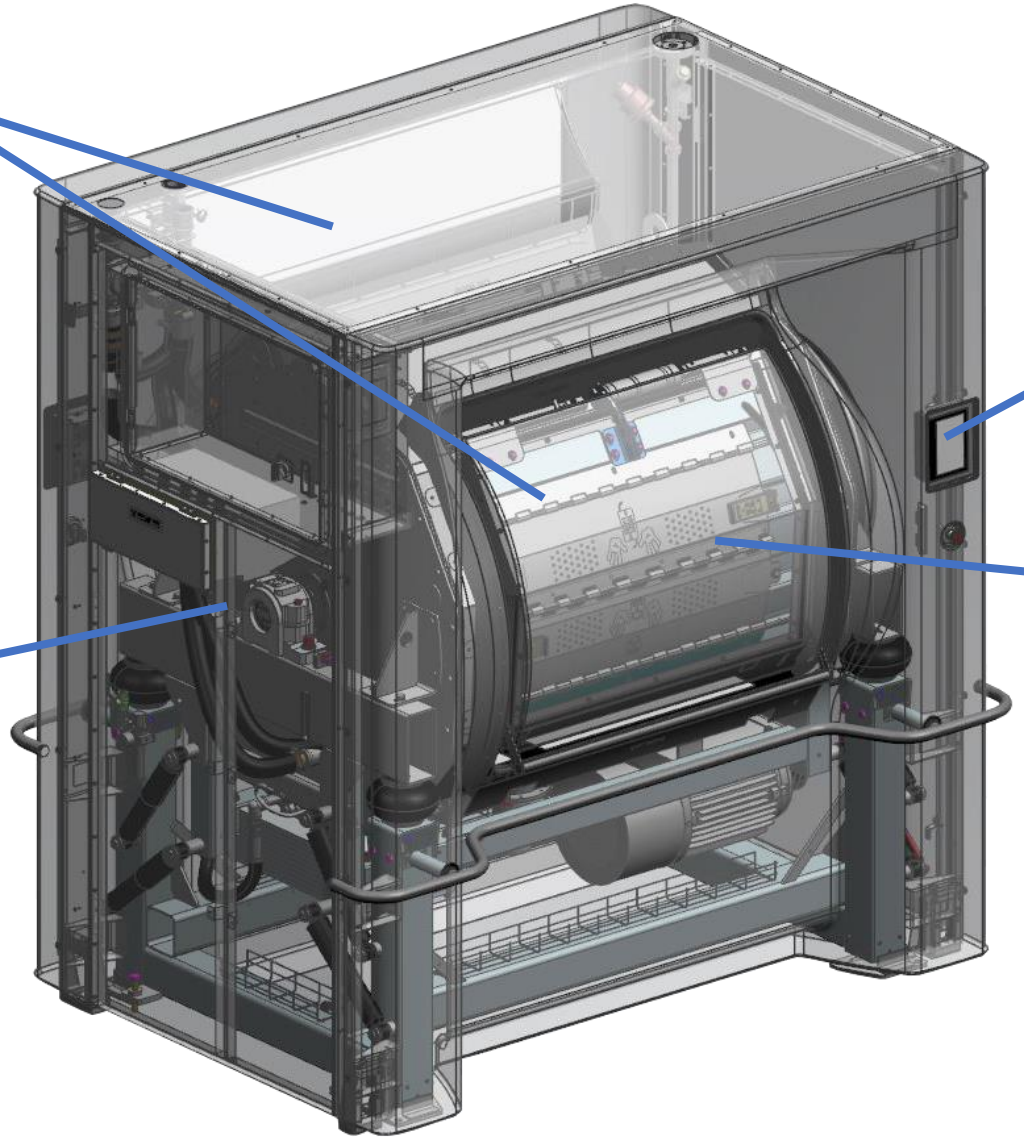

Human hair
100µm
Particle
0,1µm
Particle
0,5µm
Particle
10µm

Cleanroom contamination – human factor

A Cleanroom laundry is NOT a hospital laundry.

Cleanroom laundries must also apply to standards set forth in ISO14644-1

The standard cleanroom washer



Mediwave – Glass Reinforced Polymer

Front- and back cover in **G**lass **R**einforced **P**olymer
Glass Reinforced Polymer is used in cleanroom construction

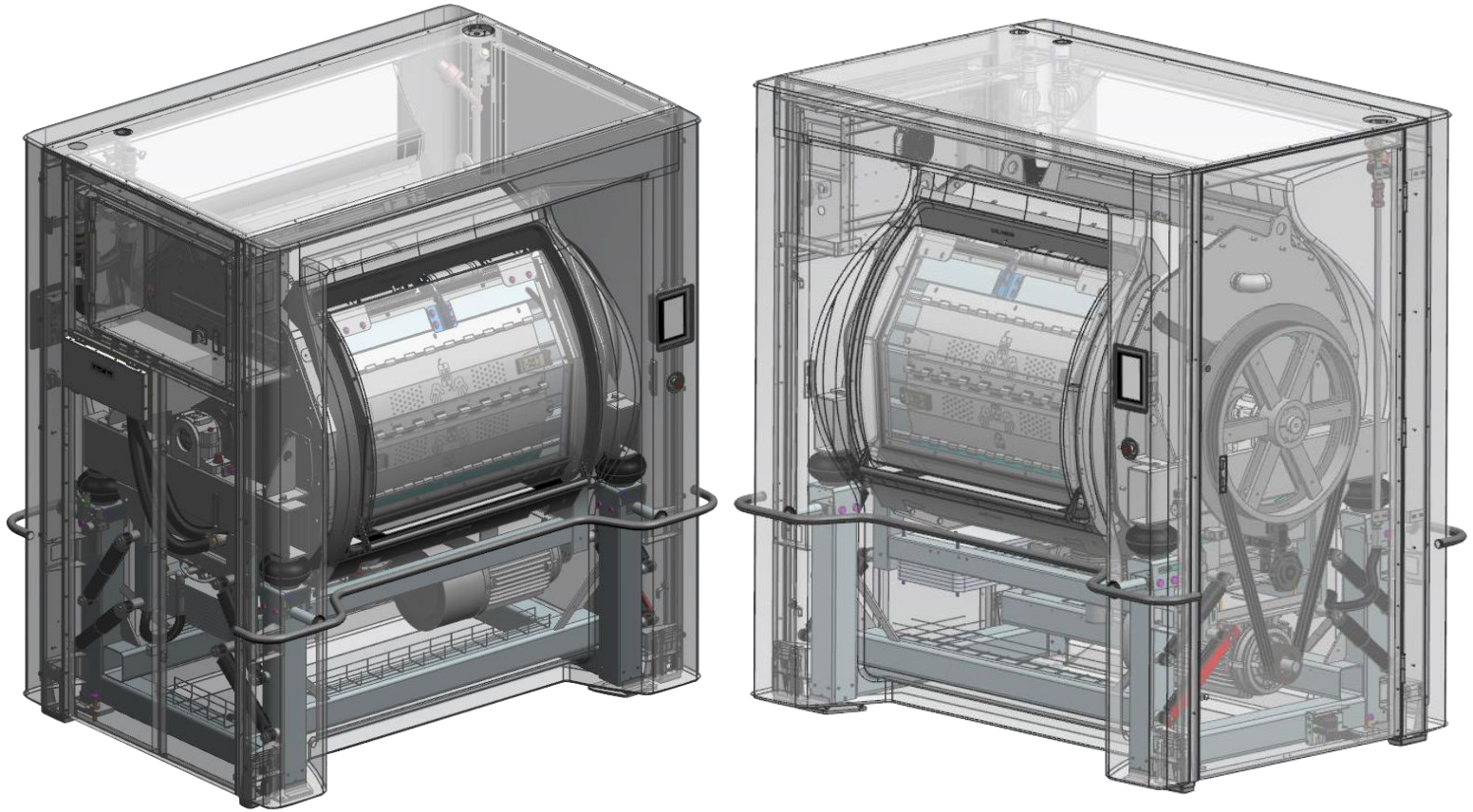
→ **Chemically inert**
Does not oxydise.
Can be cleaned with any chemical or detergent

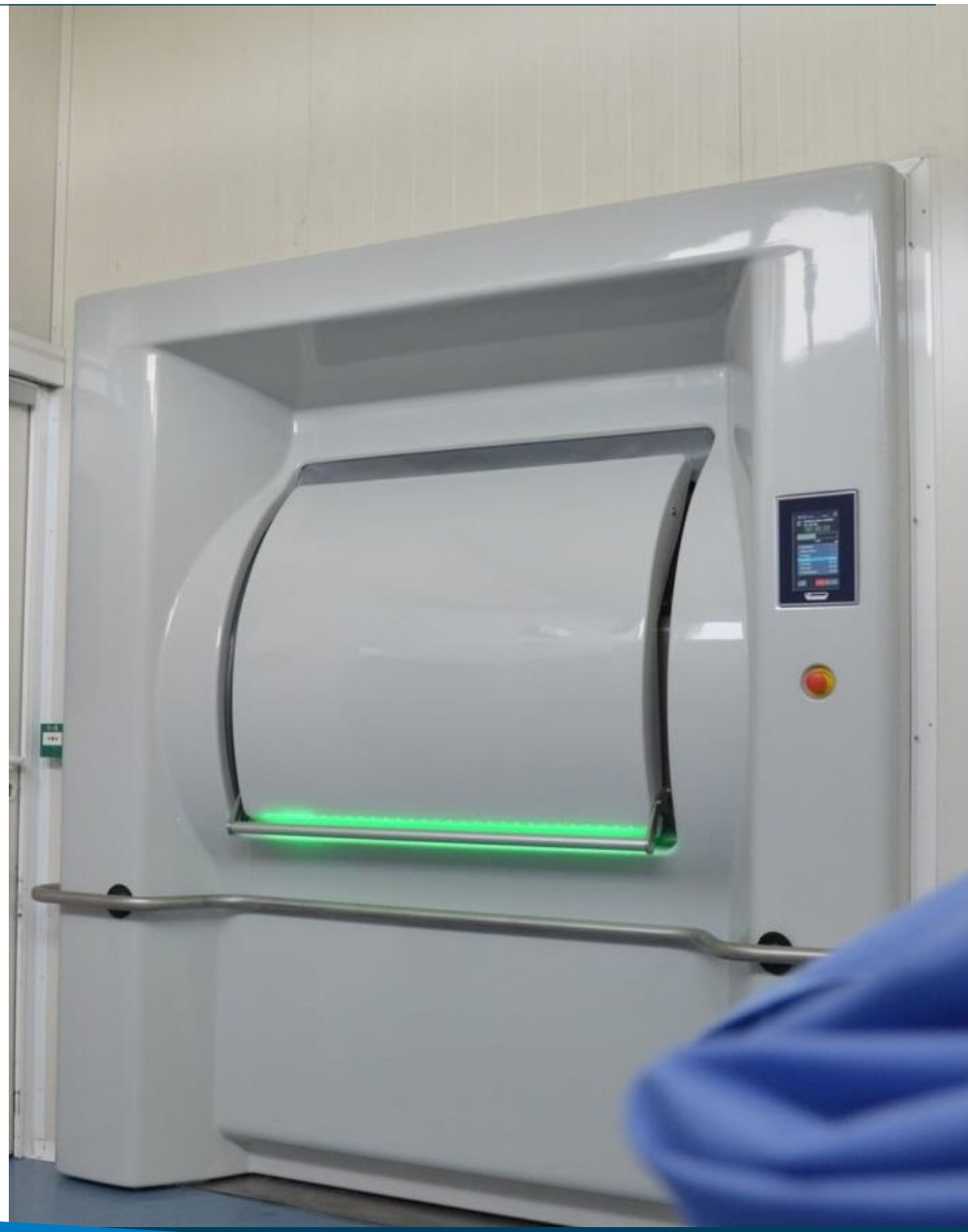
→ **Smooth**
No joints or pits where soil or bacteria can build up into.

→ **Anti-Bacterial**
The white paint has Titanium Dioxide
This components kills bacteria

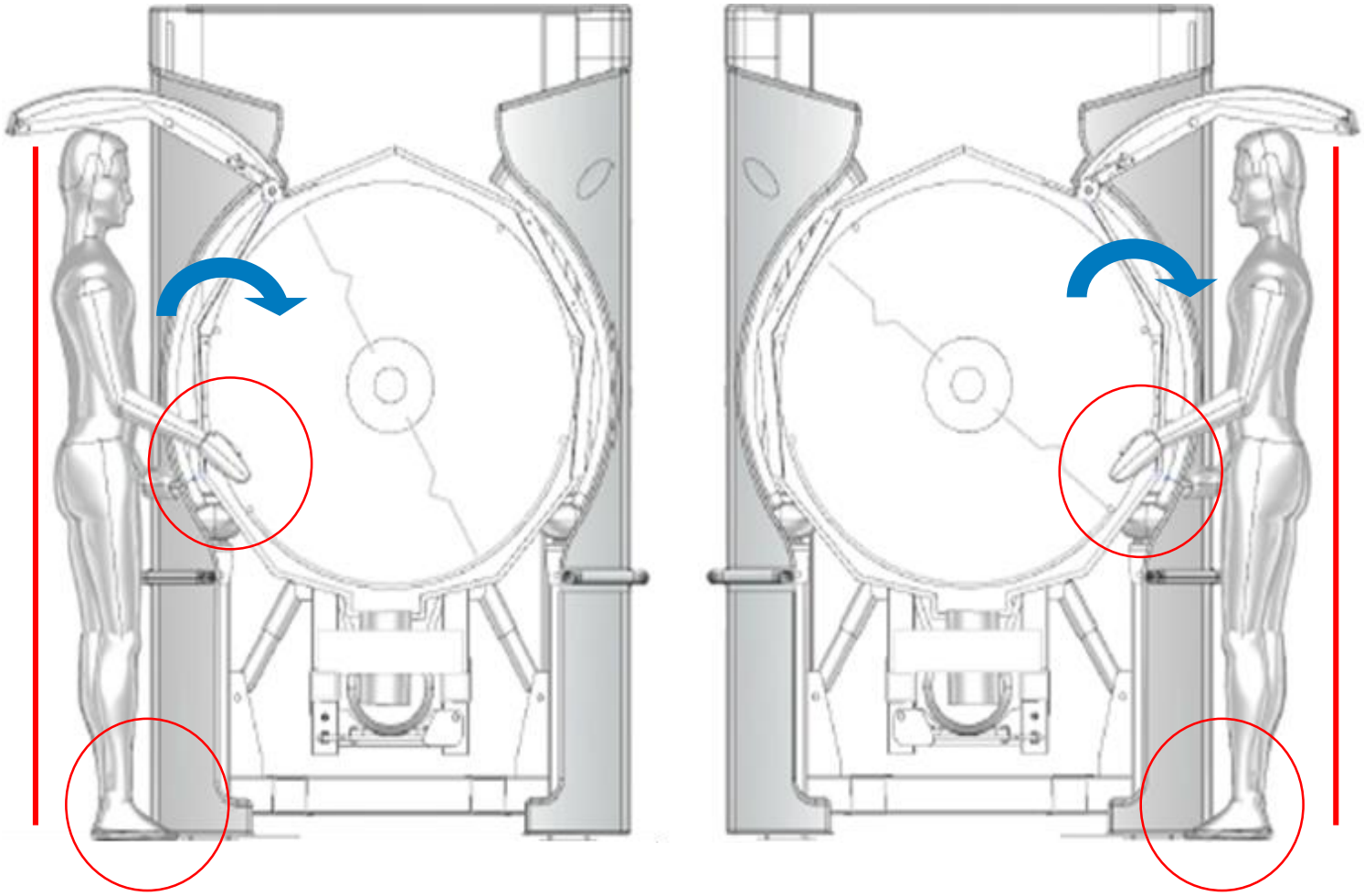
Important for Pharmaceutics, Food&Beverage and biomedics

Cleanroom : total separation



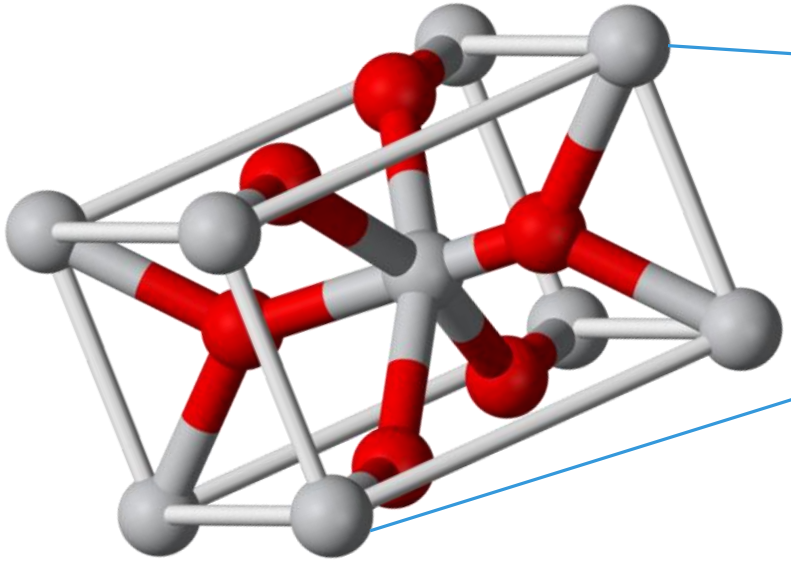


Mediwave - Working comfort



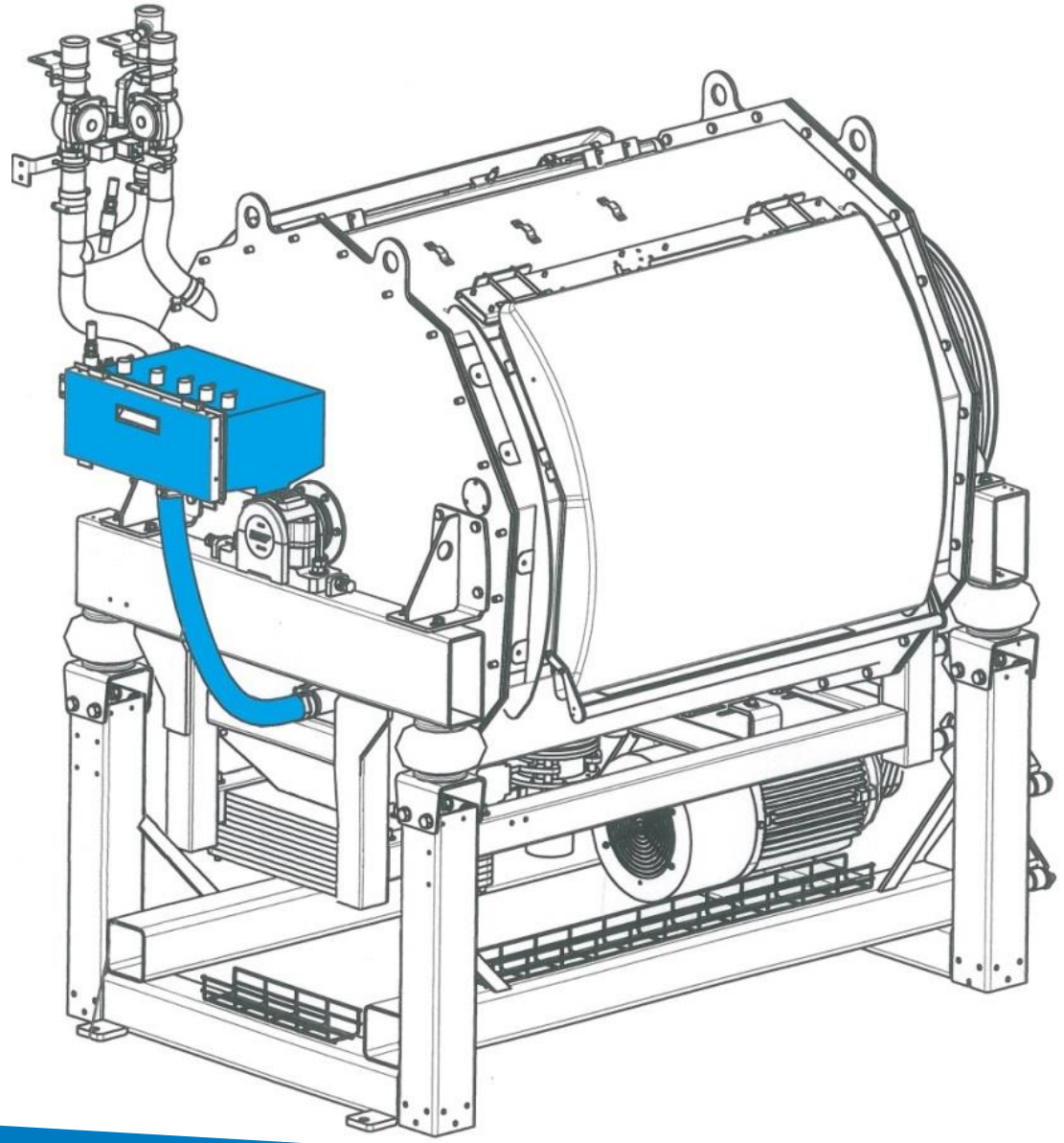
Glass Reinforced Polymer cover – Titanium Dioxide

TiO_2



Mediwave : Optimal washing

Detergents enter under water line.

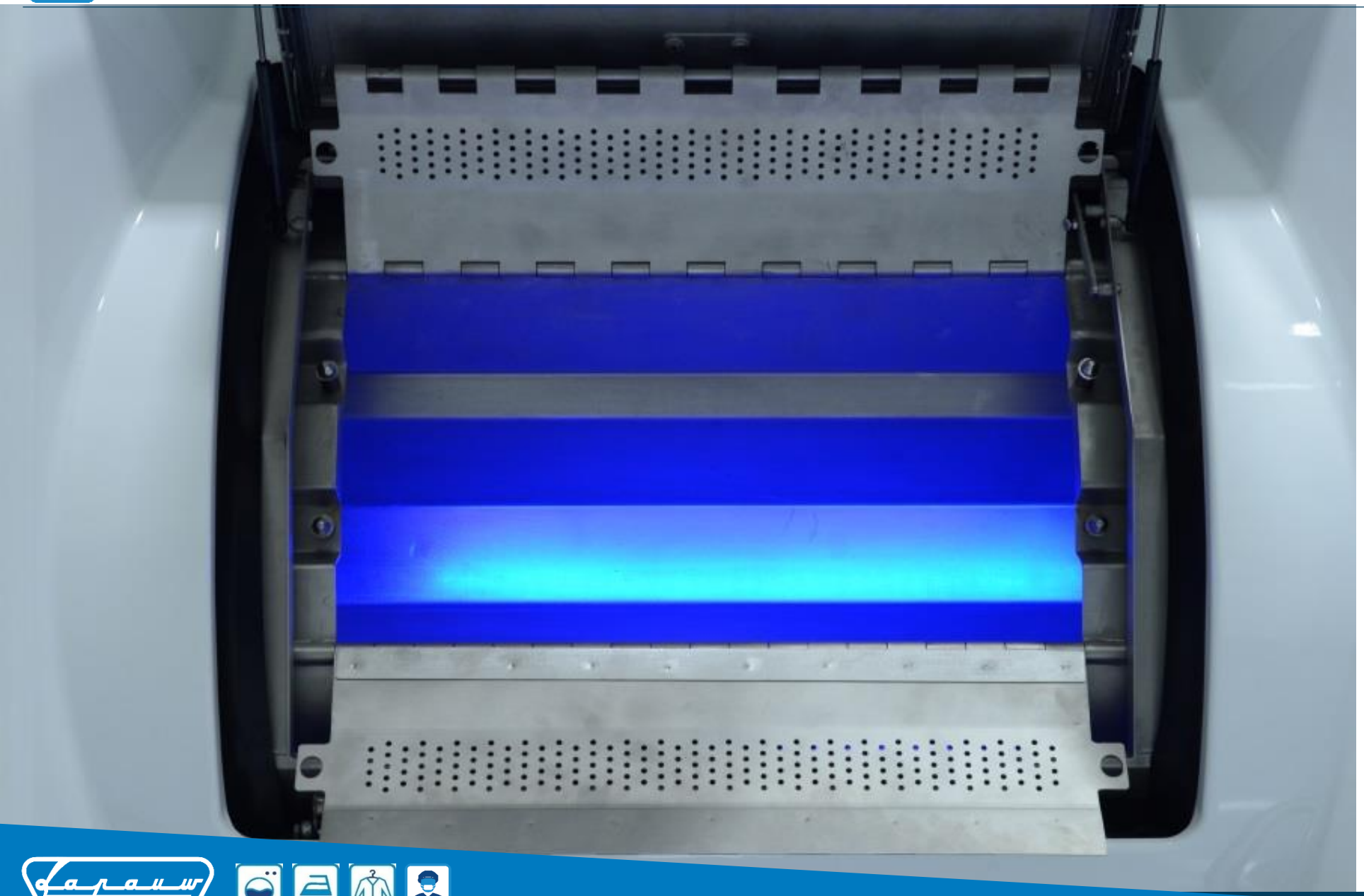


Mediwave : Cleanroom seal

The Cleanroomseal is an optional seal and placed between the machine and the GRP cover.

Closes all gaps that still exists on barrier washers

Mediwave – stainless steel option



Standard : **AISI-304**

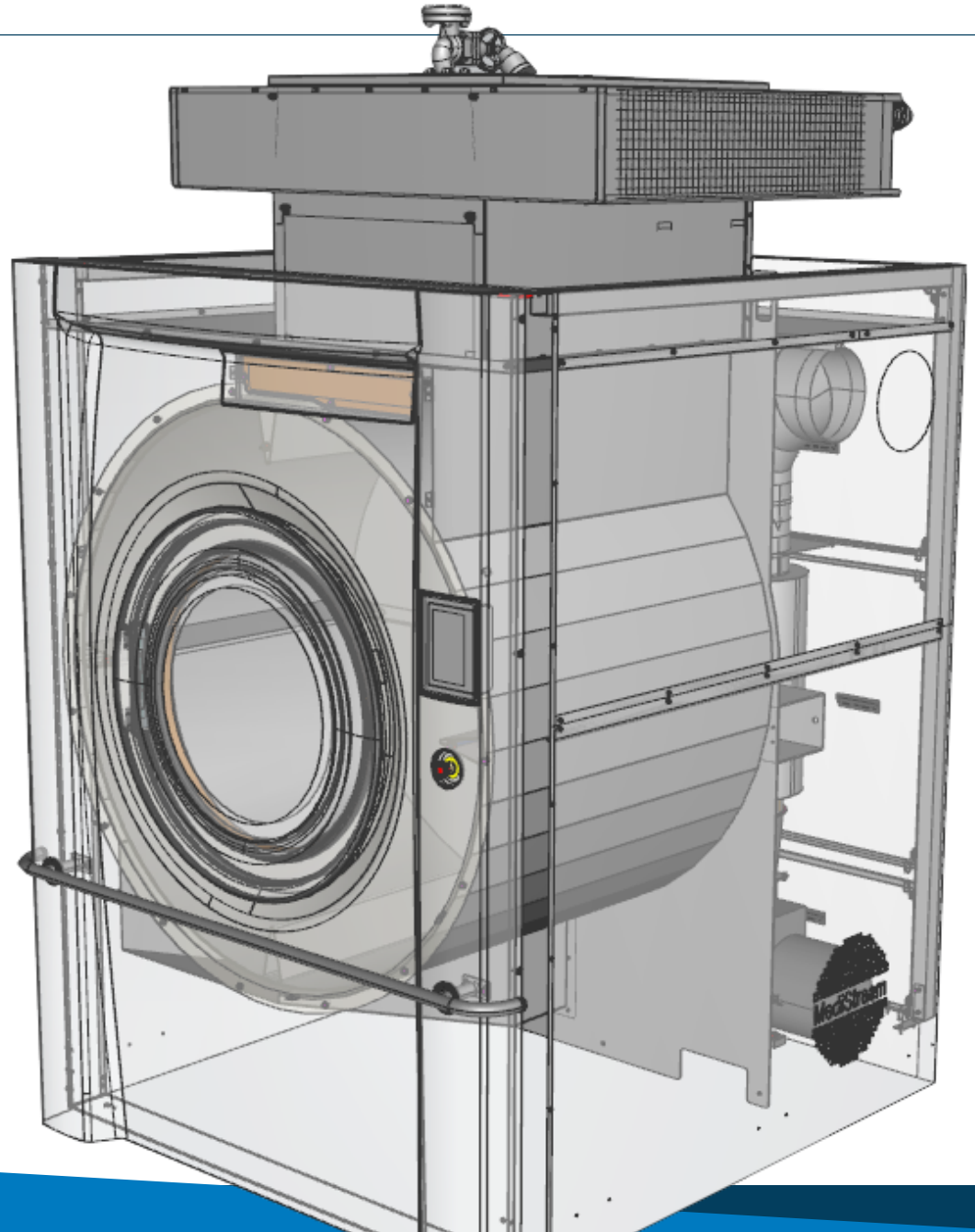
Optional : **AISI-316**

From ISO class 4 on

Dryer : Cleanroom in the cleanroom

Medistream– fully enclosed drum

The drum of the Medistream dryer is fully welded and kitted to the metal front and back covers, so that the drum is air-tight.



Medistream – GRP cover is second skin

The Medistream also has a GRP cover.
The cover is mounted on top of the stainles steel cover.

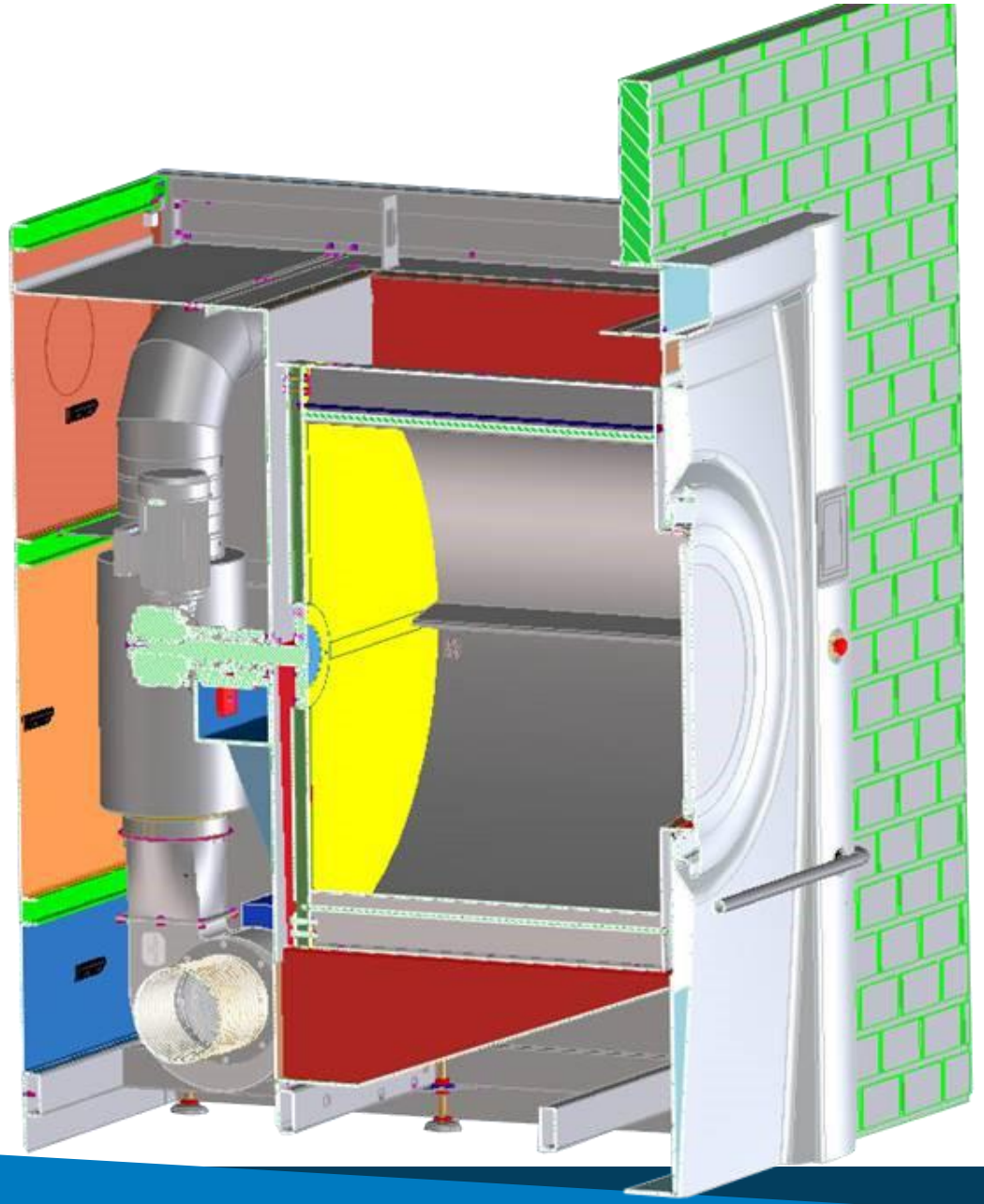
Additional cover to shield from dust.

Interface with the cleanroom wall : GRP goes on the cleanroom wall. The dryer behind it.

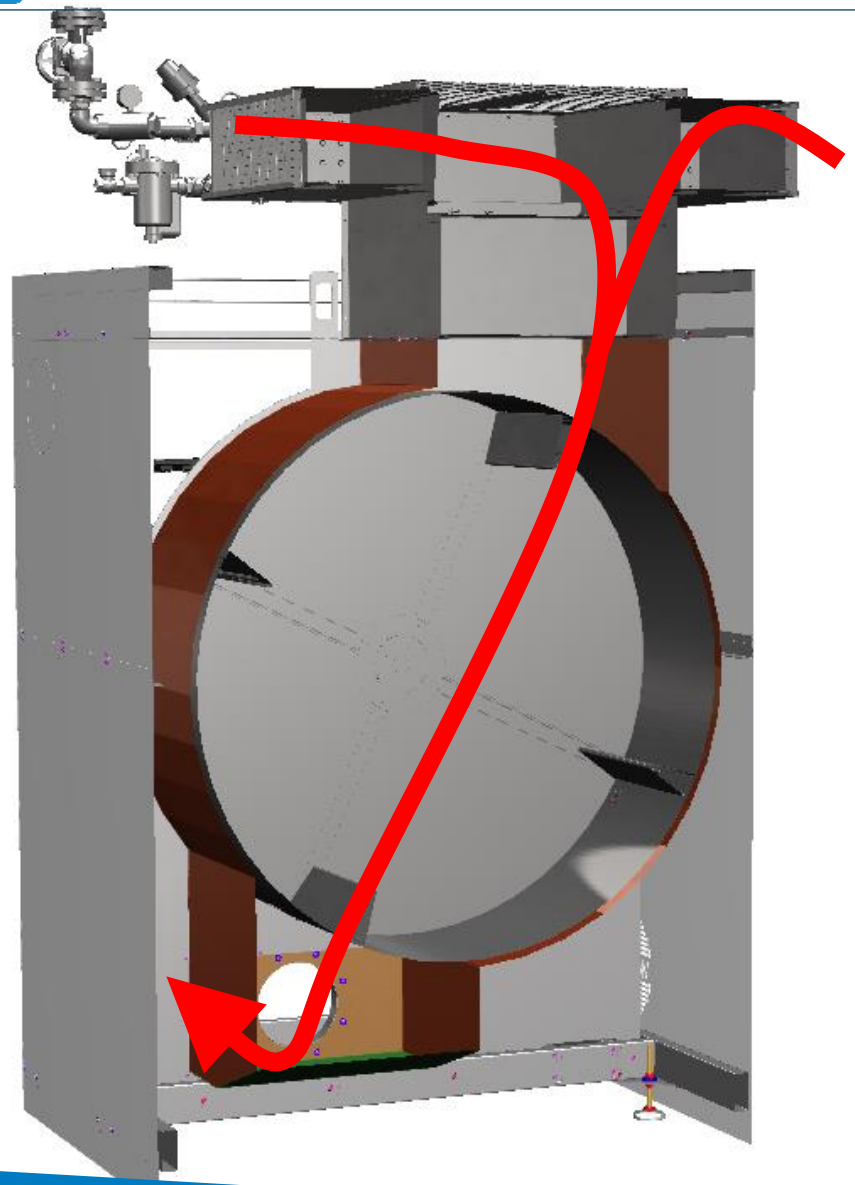
Medistream – cantilevered drum

Standard dryers have a drive system with drive wheels under the drum.
But wheels shed particles

Lapauw Medistream has fortified drum and a cantilevered drive system.



Mediwave : Optimal air flow



The diagonal air flow assures that the garments come in full contact with the drying air.

The fan displaces **4000 m³/hr** of air.

With a 1,4 m³ drum volume this means about 3000 refreshments of air and optimal pârticle removal.

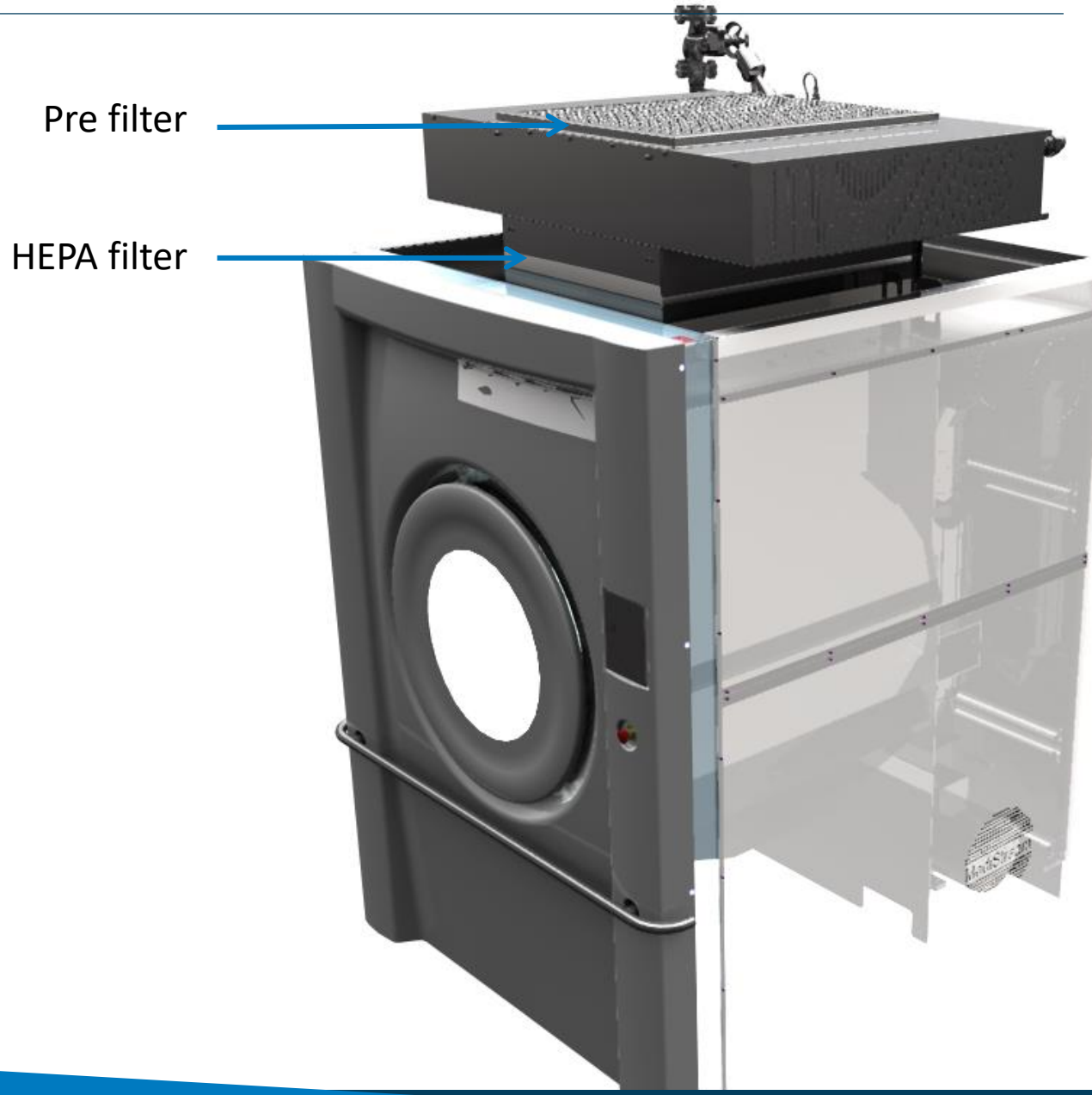
Filter position

The Medistream has 2 filters :

- The pré-filter is placed on top of the “mushroom” and on both sides of the top of the “mushroom”, before the heating unit.

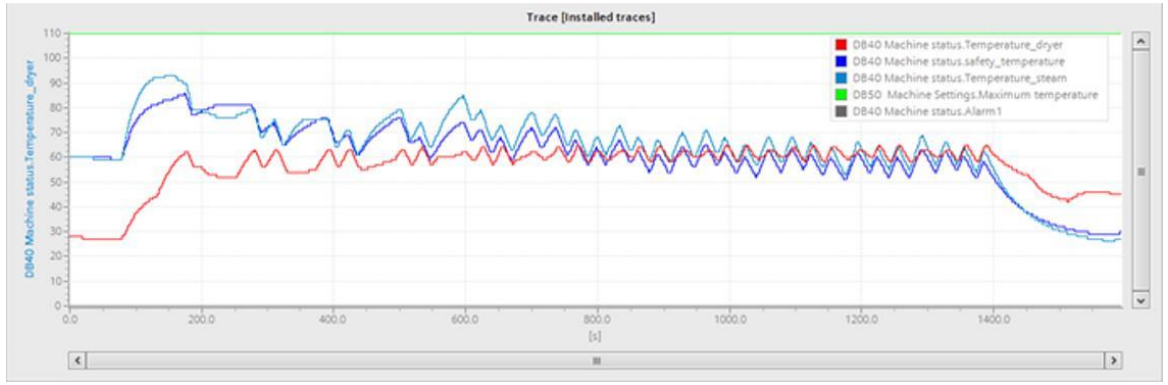
- The HEPA filter is located behind the heating unit.

This assures maximal filtration and even is a barrier against particles that are shed by the heating element.



Cleanroom – maximal traceability

The Siemens control system assures maximal traceability and connectivity to other systems.




Lapaw
BeMicron