

Blood & Urine Filtration Devices – Technical & Feasibility Overview



Advanced Blood Separation Filter

Plasma Collection Layer
WBC & Buffy Coat Filter
RBC Separation Membrane
Prefilter Screen

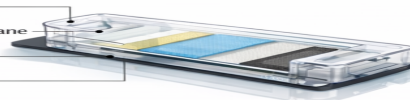


Device Specifications:

- > Diameter: 30 mm
- > Height: 15 mm
- > Plasma Output: < 30 sec
- > Volume Capacity: 200-400 μ L

Innovative Urine Analysis Filter

Top Lid
Microfluidic Membrane
Absorbent Pad
Waste Reservoir



Device Specifications:

- > Dimensions: 50 x 20 x 10 mm
- > Filtration Time: < 1 min
- > Volume Capacity: 5-10 mL

Blood Filtration Device – Layer Structure

1. Prefilter (Glass Fiber) – 20–30 μ m – removes large particles and clots
2. RBC Separation Membrane (PES) – 3–5 μ m – retains red blood cells
3. WBC Filtration Layer (PES/Leukosorb) – 8–10 μ m – captures white blood cells
4. Final Plasma Layer (PES) – 0.8–1 μ m – produces clear plasma/serum

Device Size: Diameter ~30 mm | Height ~15 mm

Output: 200–400 μ L plasma in <30 seconds

Urine Filtration Device – Layer Structure

1. Prefilter (Glass Fiber) – 20 μ m – removes debris
2. Particle Filter (PES) – 5 μ m – captures crystals and cells
3. Fine Filter (PES) – 1 μ m – removes fine particles

4. Final Membrane (0.45 μm) – captures bacteria

Device Size: 50 × 20 × 10 mm

Capacity: 5–10 mL | Filtration time <1 minute

Manufacturing Feasibility

Compatible with OEM manufacturing using membrane sheets and injection-molded plastic housing.

Business Model

Disposable, low-cost device (target $\leq \$1$), high-volume demand across hospitals and labs.