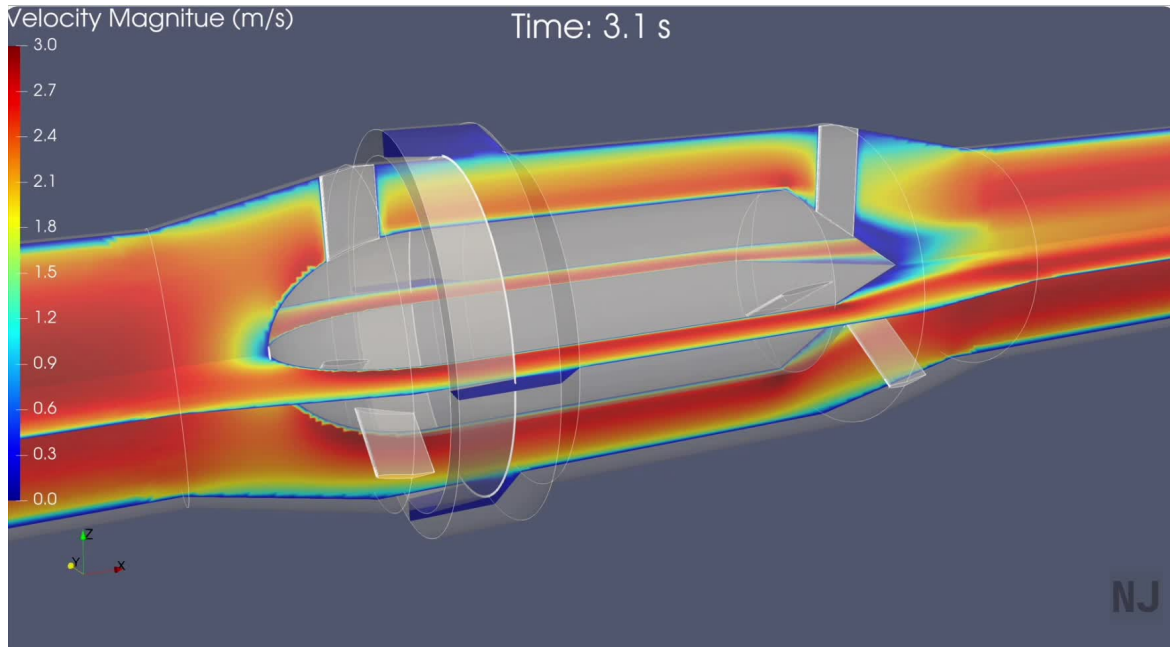


THE HVAC BULLET DEVELOPMENT PROGRAMME

Low resistance. Real potential.



CFD airflow visualisation from the supplied simulation video. Colour indicates air speed (m/s), not particle capture.

0.55

Pa

Module pressure drop

48.9

%

PM1 capture

36.8

%

50 nm combined capture

Single air pass at 30 litres per second (108 m³/h). Powered capture model. PM1 and ultrafine figures use different charge assumptions.

Pressure target surpassed

The aim: meaningful fine and ultrafine particle capture with less than 1 Pa of additional airflow resistance. The modelled module achieved 0.55 Pa, 45% below that threshold.



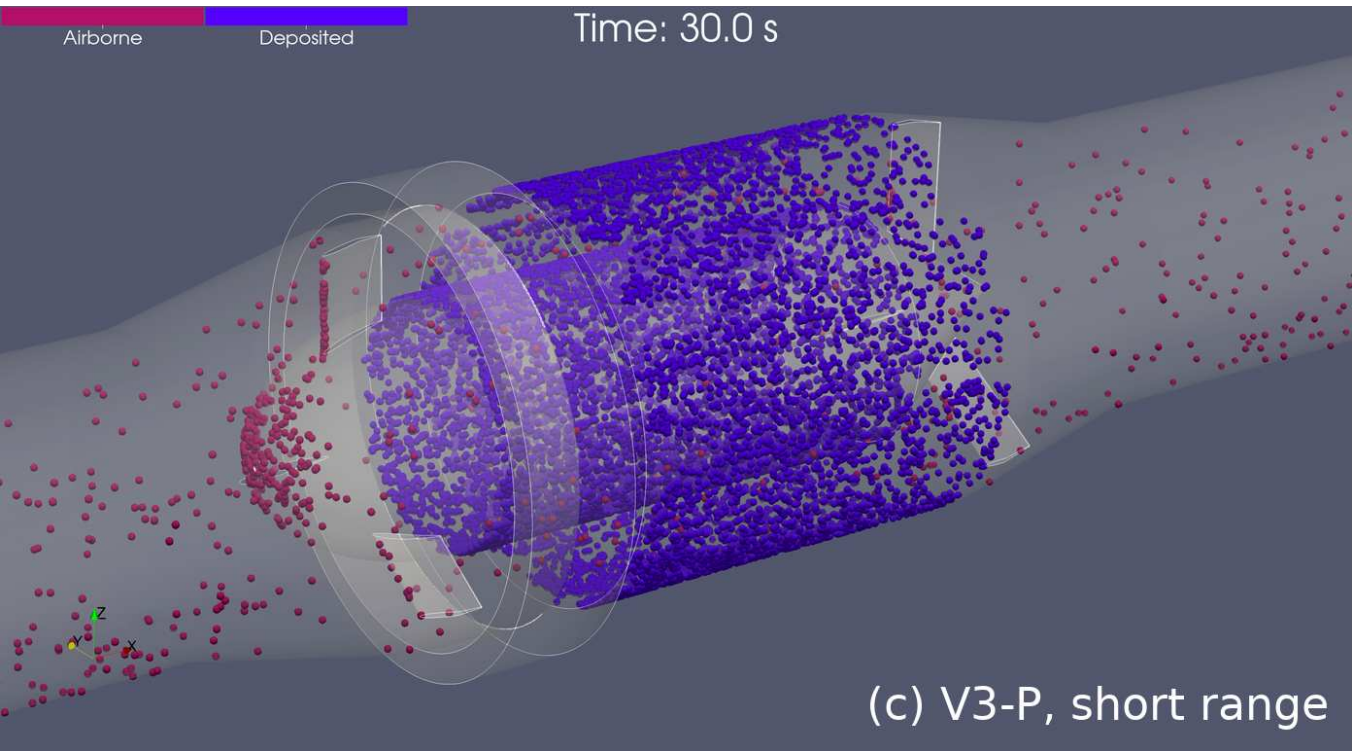
Low added resistance creates an opportunity for air cleaning within suitable ducted systems. This is a CFD development result; physical product testing is the next step.

POWERED PARTICLE-CAPTURE SIMULATION

See where particles collect.

Capture across the active surfaces

The powered short-range case shows deposited particles on the central collector and the outer liner. Purple marks deposited particles; pink marks particles still airborne.



Original simulation image: v45, Figure 4(c), at 30 seconds. Selected panel from the powered short-range case; the image is not a size-specific PM1 plot.

48.9% **PM1 capture**

25.6% on the outer liner + 23.3% on the central sleeve.

PM2.5 / 2.5 micrometres

26.2%

PM10 / 10 micrometres

5.9%

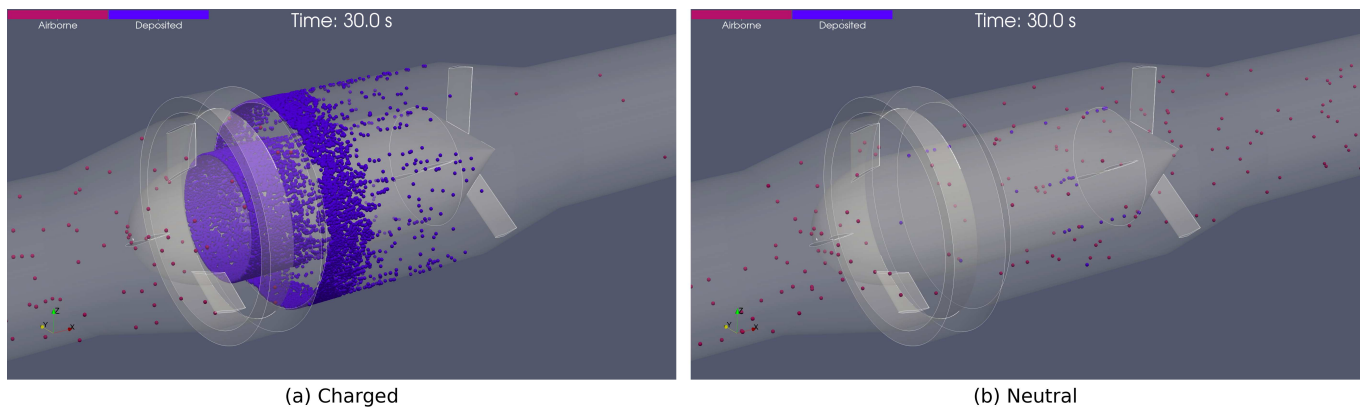
Single-pass powered model at 30 L/s. Capture means contact with an active surface. PM labels refer to the individual sizes modelled.

50 NANOMETRE PARTICLES

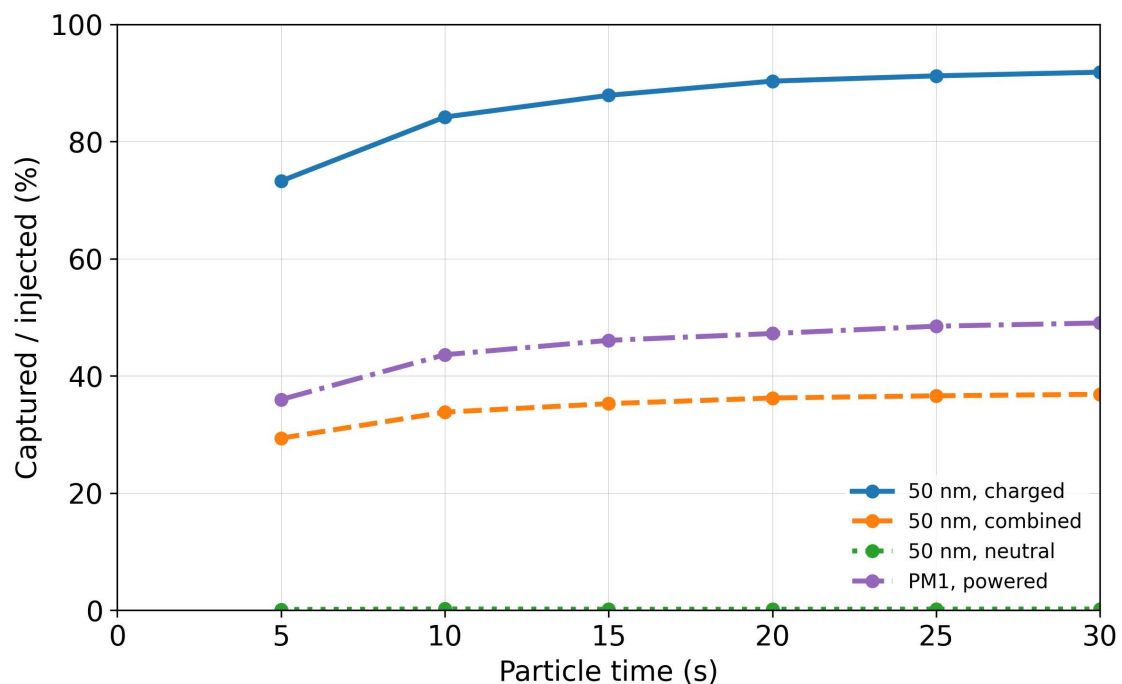
Ultrafines, in focus.

36.8% combined capture

Assumed incoming mix: 40% charged and 60% neutral particles. The images below show the separate runs at 30 seconds.



Left: charged particles, 91.7% capture. Right: neutral particles, 0.21% capture. Purple indicates deposited particles; pink indicates airborne particles. Original v47, Figure 3.

How capture develops during the simulation

Original v47, Figure 2. The orange line is the combined ultrafine prediction. The blue line applies only to charged particles. Neutral particles have no electrical attraction in this model; the combined result depends on the assumed charge mix.

THE NEXT CHAPTER

From simulation to collaboration.

A foundation for product development

A defined product concept, design, branding and CFD programme are in place. Patent applications are pending and filter media development has started.

01 Prototyping & physical testing

Build the module and measure particle capture, airflow resistance and practical operation.

02 Academia & institutions

Advance aerosol understanding and connect the simulations to independent testing.

03 Filter media development

Develop effective collector surfaces, charge behaviour and durable particle retention.

04 Go-to-market partners

Shape manufacture, integration and distribution for suitable HVAC applications.

Join the HVAC BULLET programme

info@passair.tech

About these simulations

CFD predicts behaviour under defined conditions. These studies used an assumed surface-attraction force with a 15 mm reach and permanent retention on contact. Force and reach have not yet been calibrated to physical hardware. Near-wall ultrafine deposition is not fully resolved. Pressure-drop mesh uncertainty is approximately 10%. Physical testing will establish actual capture, retention, safety, energy use and sound levels.

Source: Nishan Jain, PASSAIR V3 particle capture report v45 (14 October 2026) and combined 50 nm report v47 (21 October 2026). Prepared by PASSAIR. Results are simulation predictions, not certified product performance.