What is a HEPA Filter?

A high-efficiency particulate air (HEPA) filter is a type of mechanical air filter designed to capture fine particles, allergens, and pollutants from the air. It is widely used in residential, commercial, and industrial settings to improve indoor air quality (IAQ). A HEPA filter is a pleated mechanical air filter that can remove at least 99.97% of airborne particles with a size of 0.3 microns or larger, including dust, pollen, mould spores, pet dander, and other allergens.

HEPA filters are constructed from a dense mat of randomly arranged fibres, typically made of fibreglass. The fibres create a labyrinthine path that traps particles through a combination of interception, impaction, and diffusion mechanisms. In the UK, HEPA filters are increasingly used in residential retrofits, home renovations, and extensions to comply with Part F of the Building Regulations, which focuses on ventilation and indoor air quality.

Synonyms: High-Efficiency Particulate Arrestance Filter

Related Terms:

1. **MVHR (Mechanical Ventilation with Heat Recovery)**: A system that provides fresh air while retaining heat from outgoing stale air, often incorporating HEPA filters for improved air quality.
2. **Indoor Air Quality (IAQ)**: The quality of air within and around buildings, particularly as it relates to the health and comfort of occupants.
3. **Part F of the Building Regulations**: UK regulations that set standards for ventilation in buildings to ensure adequate air quality.
4. **Particulate Matter (PM)**: Tiny particles in the air, such as dust, soot, and smoke, which HEPA filters are designed to capture.
5. **Air Changes per Hour (ACH)**: A measure of how many times the air within a space is replaced per hour, often influenced by ventilation systems using HEPA filters.
6. **Allergen**: A substance that can cause an allergic reaction, often removed by HEPA filters.
7. **Fibreglass**: A common material used in the construction of HEPA filters due to its ability to trap fine particles effectively.