

Biological safety cabinets

QA

Question: What is the difference between SmartFlow and SmartFlow Plus Technologies?**Answer:**

Both are auto compensation features used in biological safety cabinets (BSCs) that help maintain the balance of inflow and downflow velocity.

- Thermo Scientific™ SmartFlow™ Technology prioritizes personal protection via the inflow fan.
- Thermo Scientific™ SmartFlow™ Plus Technology takes it one stage further and compensates both inflow and downflow fans independently and in real time, facilitating outstanding personal and product protection.

The SmartFlow technology (used in the following models: Thermo Scientific™ 1300 Series A2 BSC, Thermo Scientific™ MSC-Advantage™ BSC) prioritizes personal protection with an emphasis on maintaining inflow. This maintains the balance of inflow and downflow better than traditional biological safety cabinet designs. Better balance enables outstanding sample protection.

The SmartFlow Plus technology (used in the following models: Thermo Scientific™ Herasafe™ 2025 BSC, Thermo Scientific™ Herasafe™ /Maxisafe™ 2030i BSC, Thermo Scientific™ 1500 Series A2 BSC) utilizes fully independent and real-time compensation for both inflow and downflow with a coordinated combination of smart fans and flow sensors. This maintains both airflows with improved balance, so the already excellent sample and personal protection is even better (**Figure 1: Balanced airflow**).

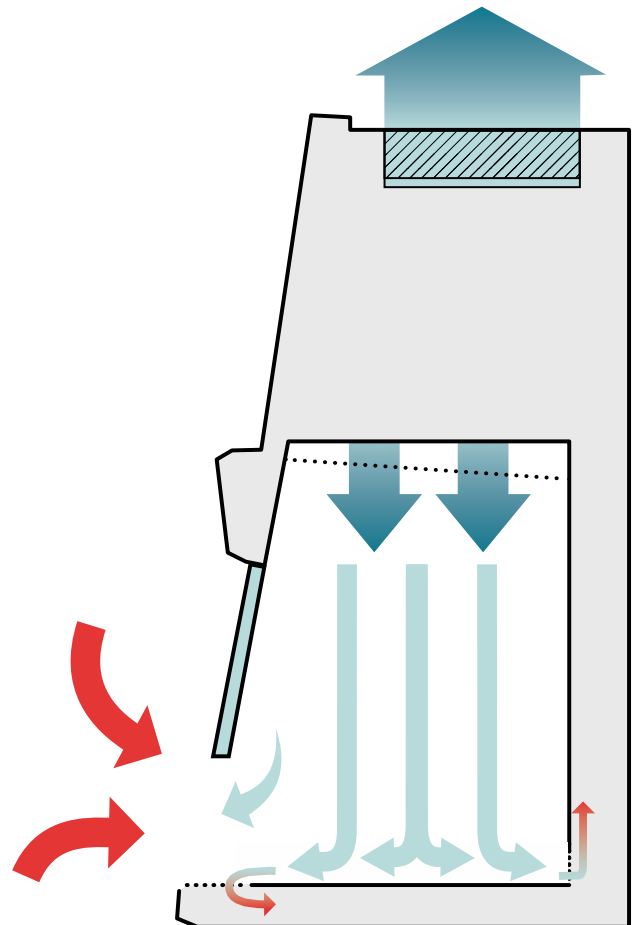


Fig. 1: Balanced airflow
Personal and product protection

Airflow compensation in detail

Total compensation is no compensation

Traditional Class II BSC designs use single fan systems that, are generally able to maintain total airflow but not the balance of inflow and downflow. Should the downflow and exhaust filters load at different rates, the inflow could steadily increase while the downflow steadily decreases (**Figure 2: High inflow / low downflow**). Uneven loading could also go the other way should the exhaust filter load more quickly, the inflow could steadily decrease while the downflow steadily increases leading to loss of containment (**Figure 3: Low inflow / high downflow**).

The compensating single fan unit does not maintain the **balance** of inflow and downflow necessary for both personal and product protection. All Thermo Scientific biological safety cabinets use a dual fan system with separate downflow and exhaust fans. Downflow fans provide downflow, and exhaust fans provide inflow.

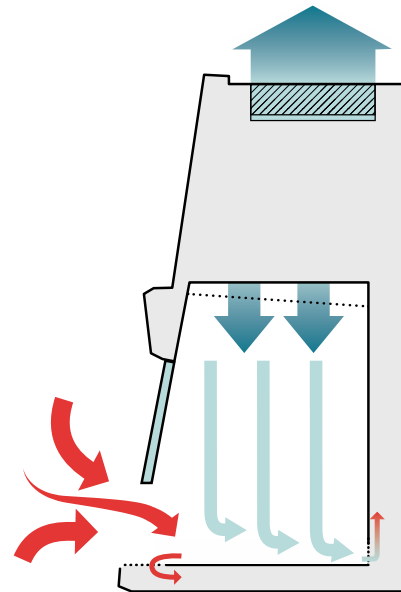


Fig. 2: High inflow / low downflow
Reduced product protection

Independent compensation requires independent monitoring

Even designs with separate downflow and exhaust fans may not maintain the balance if only one flow is monitored and controls real time adjustment. In systems where the fans are designed to maintain only downflow or inflow but not both with no consideration for the balance, they may not provide the improved containment and protection that is the purpose for compensation.

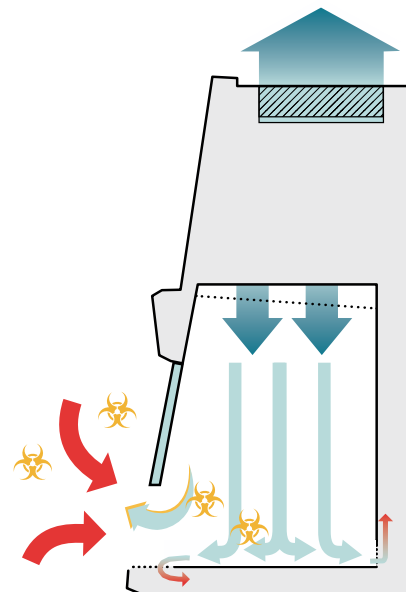


Fig. 3: Low inflow / high downflow
Reduced personal protection

Summary

Independent and real time control of inflow and downflow is an excellent way to support continued protection of you and your work. SmartFlow technology compensates via the inflow fan and maintains personal protection by helping preserve the balance of inflow and downflow as filters load.

SmartFlow Plus technology compensates both inflow and downflow fan. It actively maintains personal and product protection through real time compensation to maintain inflow and downflow.

Find out more at thermofisher.com/bsc