AIR HANDLING™ SOLUTIONS

- **Flexibility**
- **Reliability**
- **Simplicity**
- **Engineering Expertise**

"We had a complex, large-scale project which entailed fitting a set of unique requirements into one building: Tecniplast was able to become a partner, and a member of the design team".

HOUSING

TECNIPLAST®
innovation through passion℠

1/ Easy & Smart Flow: the latest generation of Air Handling Units

Easy Flow and Smart Flow are the latest generation of air handling units: heat emission is 10% and power consumption 50% less than the old generation of AHUs. Microprocessor driven (Automatic constant flow rate and filter load compensation) they guarantee safety for animals, operators and the environment: Every single air handling unit manufactured is tested for filter integrity and HEPA filtration efficiency through the DOP test. The Easy flow is optimal in terms of simplicity of use. The Smart Flow features a new generation of touch screen control panels offering advanced setting features and enhanced flexibility.

2/Sky Flow & Sky Pad

It appears the main reason for wanting wall/ceiling mounted blowers has been that many IVC systems on the market put the blowers on the top of the rack where they can cause vibration and need to be removed from the rack when taking the rack out of the room. It should be noted that the TP IVC system has already solved those issues with Easy&Smart Flow, that are floor mounted for ease of use and to eliminate vibrations. However, should there be a need to wall/ceiling mount blowers in rooms, Tecniplast can offer the maximum flexibility of choice adding Sky Flow to its Air Handling Solution range of products. With the same features of Easy and Smart Flow, upon the facility layout Sky Flow can be either:

- Wall mounted
- Ceiling Mounted
- Ceiling Integrated (placed in the mezzanine)

Sky Pad is a Wireless Remote Control that allows to manage multiple Sky Flows and gives the advantage of a remote control panel for improved ergonomics and ease of use. Supply and/or Exhaust blowers can be provided. In the case of a supply only blower, the exhaust can be directly connected to the building HVAC using a CAR valve integration system.

3/IVC rack integration into HVAC system

Tecniplast is in a position to provide the best solution to connect the racks directly to the building ventilation system ensuring top quality standards. The flow control device adopted to connect the racks to the building system is the **CAR Valve** (Constant Airflow Regulator), which automatically regulates airflow in IVC Racks connected to an HVAC supply or exhaust system and in ductworks to constant levels. The operation is completely passive: no electric or pneumatic sensors or controls are needed. The Car Valve is featured in both Tecniplast main solutions, multi rack supply fan with direct exhaust connection and direct supply and exhaust connection.

4/Multi-rack supply fan and direct exhaust configuration

This solution provides an external AHU (Air Handling Unit) that is typically mounted in the interstitial space. It draws air from the holding room, passes it through a pre-filter and HEPA filter and then distributes it to the supply side of each IVC via a CAR valves to ensure proper flow. The exhaust side of the IVC is connected to the building HVAC system using a CAR valve, similar to the supply. Using conditioned room air has the advantage of separating the supply source from the building supply in the event of a building supply failure and it takes advantage of the room acting as a mixing chamber to reduce the need for additional or separate temperature and humidity conditioning. The AHU can be fitted with outputs for monitoring by the building automation system and can have a remote user interface for local monitoring. Additional options to allow the racks to operate under positive or negative pressure are also available.

5/Direct supply and exhaust configuration

The option of direct supply and exhaust is identical to configuration #4 where the Multi-rack Supply Fan is replaced by a direct connection to the building HVAC supply air system. In this situation, it is suggested for reasons of redundancy and reliability that the IVC HVAC system be independent from the main Vivarium system.

6/Testing and validation

Tecniplast invests heavily into the research and development of all its solutions including HVAC integration which is why we built an Air Flow Testing Facility to ensure that all the solutions offered to our customers have been tested and validated to perform to the rigorous standards of the lab animal industry.

HOUSING

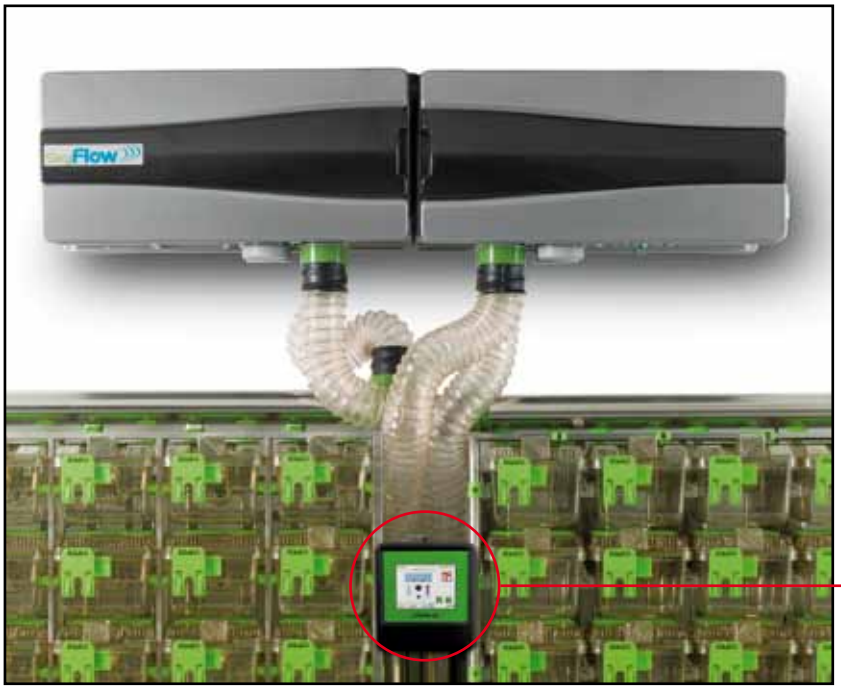
Air Handling Solutions

The primary objective of any cage ventilation solution is to provide and maintain a stable environment for the animals while producing a safe and comfortable environment for staff and researchers. The decision regarding the type of ventilation to use should be made only after evaluating the risk-cost benefit of each solution with respect to redundancy, filtration, total construction costs, ergonomics, flexibility and reliability taking into account that each IVC manufacturer has their own advantages and disadvantages at each type of integration. Preferences can often vary from site to site and region to region and Tecniplast is ready and willing to help you make an informed decision and provide the right solution for a professional outcome.

Easy & Smart Flow 1

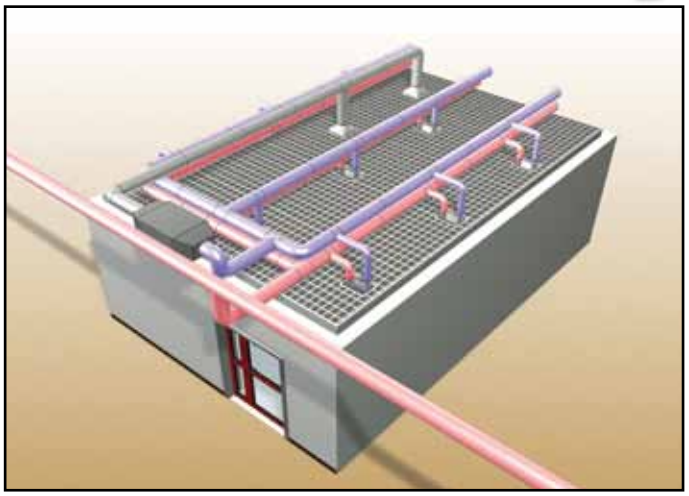
- Energy-saving and Eco-compatible.
- Light and ergonomic.
- Safe for animals/operators/ environment.
- User firendly.
- Multilinking: one AHU serves up to four racks.
- High monitoring and security: Remote Alarm System (RAS) and Wireless Data Management (WDM).

Sky Flow & Sky Pad 2

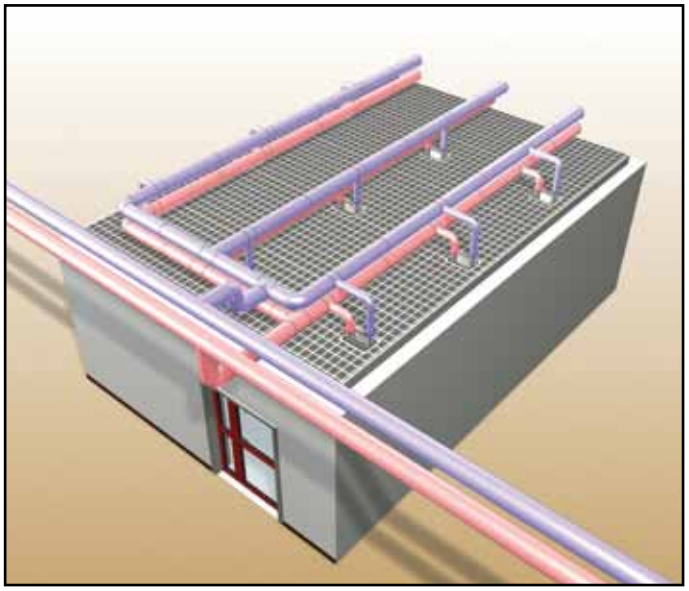


IVC rack integration into HVAC System 3

Multi-rack supply fan and direct exhaust configuration 4



Direct supply and exhaust configuration 6



Options

• Air Handling Unit with pressure test.

Accessories

• Monitor Cage.

• Thimble.

ENGINEERING SUPPORT

When developing HVAC integration solutions for your project you want to make sure you have it right. That's why Tecniplast's Air Flow Division has engineers ready to assist you with the selection and design of your systems including utility, performance and design specifications for each of their solutions. Tecniplast can also provide AutoCAD layout support for your project to ensure systems are properly integrated into your building designs.

PROJECT MANAGEMENT

HVAC integration of IVC racks involves a high degree of coordination between lighting, electrical, HVAC, structural and plumbing disciplines during the design phase as well as with general contractors in the field during construction, air balancing and commissioning. Tecniplast has Certified Project Managers available to assist your project during the implementation phase to facilitate coordination and integration of these systems in your project. Even the best designed systems can go wrong if not properly managed during construction so let Tecniplast help bring your designs to reality.

TECNIPLAST

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Related Products

To maximise operational efficiency and learn more about these products contact your local representative.

Sealsafe Next:
The IVC standard for safety, practicality of use, cage visibility and housing flexibility.

Sealsafe Plus: high containment, certified protection from allergens, high density and practicality of use. The IVC (r)evolution.

WDM
Wireless Data Management:
a software that allows you to monitor and remote-control your equipment.