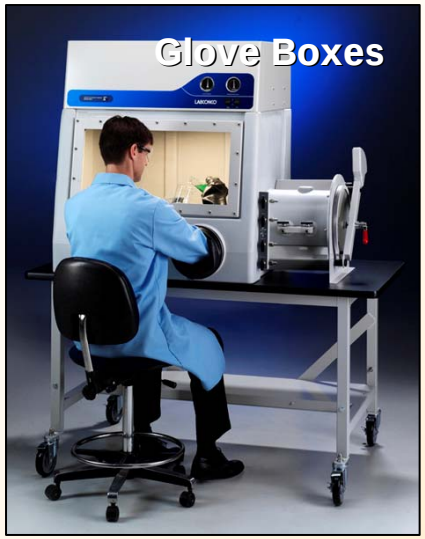
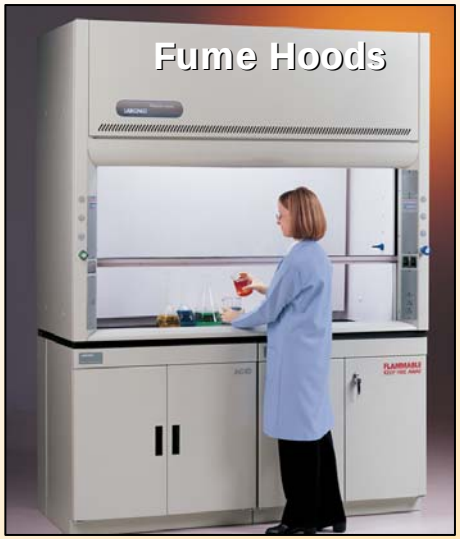
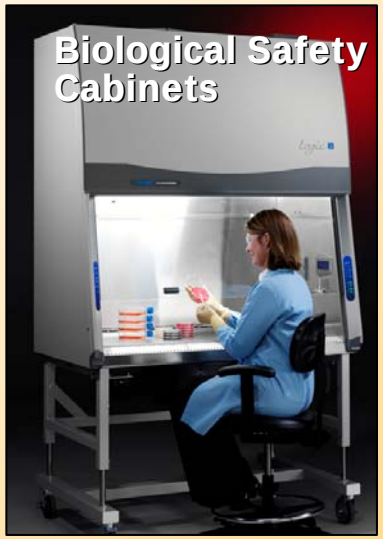
XPert® Balance and Bulk Powder Enclosures

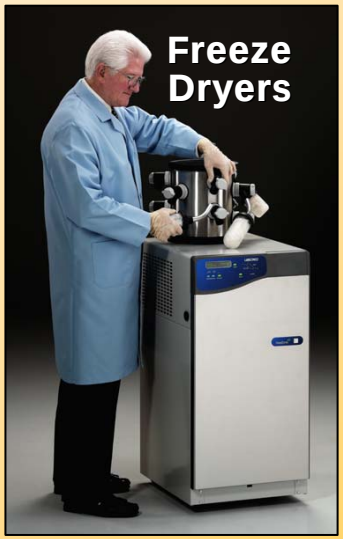
LABCONCO

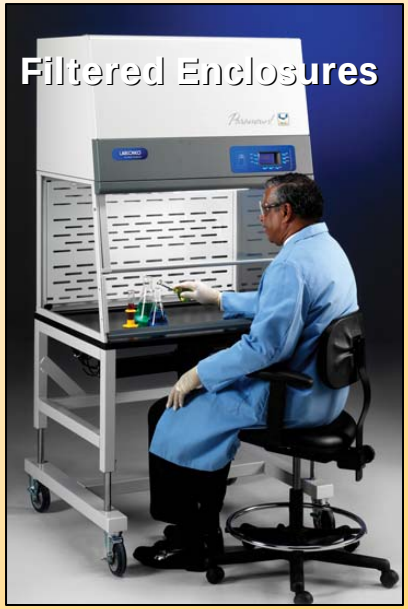
Labconco Product Diversity



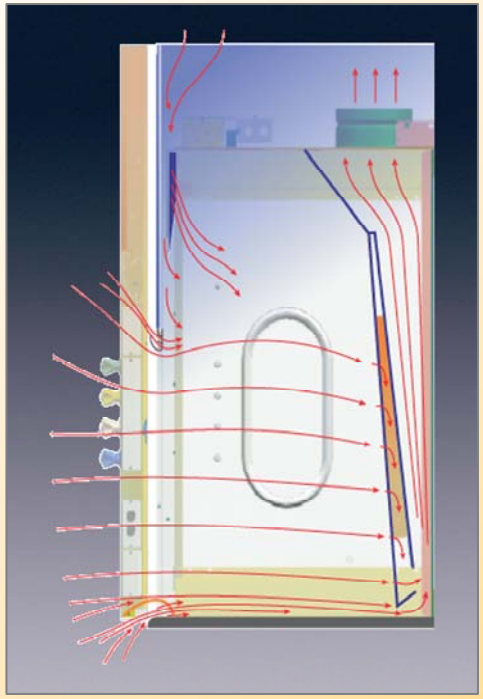




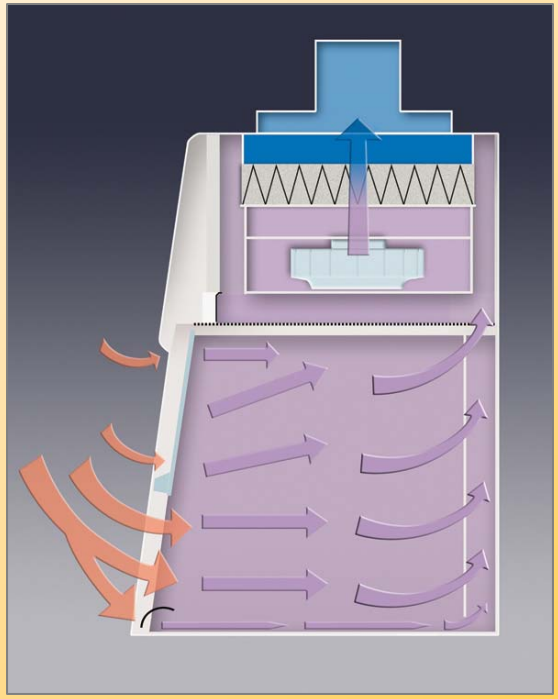




Fume Hood or Enclosure?



Chemical Fume Hood

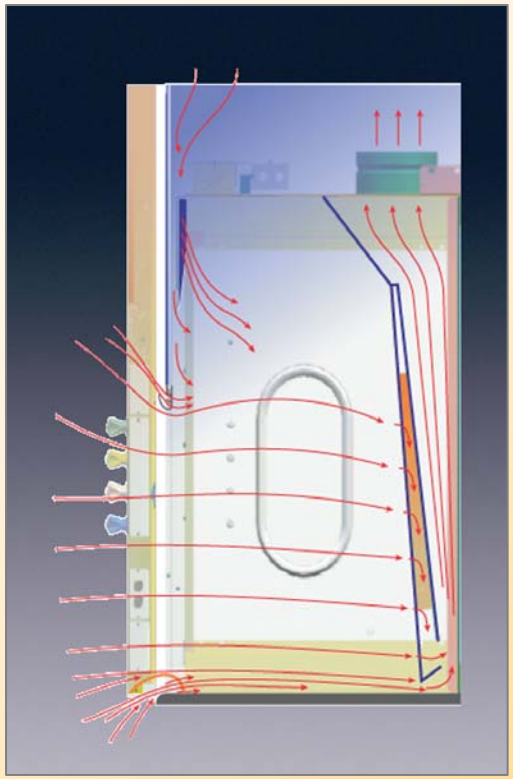


Balance Enclosure

LABCONCO

Fume Hood or Enclosure?

Chemical Fume Hoods



- Capture, contain and remove airborne contaminants
- Large energy consumption
- Low duct velocity, 2000-2500 fpm
- High installation cost

LABCONCO

Fume Hood or Enclosure?

Balance Enclosure

- Capture, contain and remove airborne particulate contaminants
- Small energy consumption
- High duct velocity, 3500-4000 fpm
- HEPA filter required
- Low installation cost

LABCONCO

XPert® Balance Enclosures and Systems

Markets

- Pharmaceutical
- Industrial Hygiene
- Chemistry Labs
- Life Sciences
- University
- Hospital/Clinical

LABCONCO

XPert® Filtered Balance Systems

- Provide user protection
- Patented rear baffle with zones of perforation
- Built-in blower – need no ducting to outside
- Exhaust HEPA filter
- Isolation supports minimize blower vibration
- Low installation costs
- Available in 2', 3', 4', 5',and 6' widths
- Optional left-side mounted waste chute

LABCONCO

XPert® Filtered Balance Systems

Features & Benefits

Space-saving design

True bag-in/bag-out HEPA filter disposal system

Optional HEPA filter location permits leak detection scan of entire surface

Front mounted pressure gauge

Tempered safety glass sash and sides

Side-entry air foils

Deep 23.4” interior

Built-in impeller has vibration-isolation supports

Built-in airflow monitor

Quiet operation as low as 48 decibels

Static-dissipative epoxy-coated aluminum frame and steel rear plenum and baffle

Upper dilution air supply

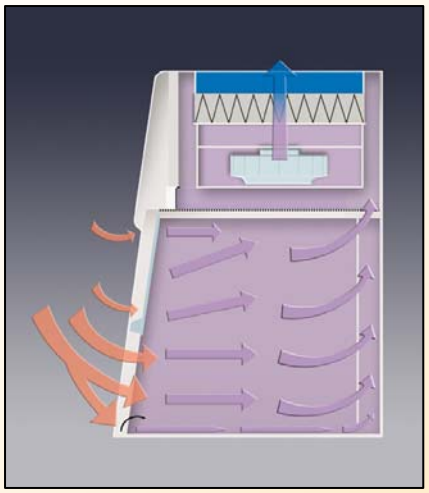
Ergonomic angled sash

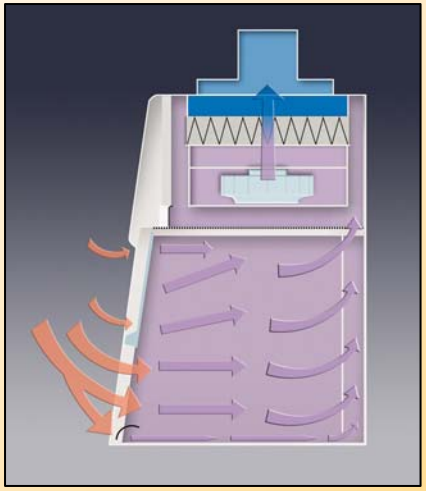
Upper containment sash foil

Patented Clean Sweep™ air foil

LABCONCO

XPert® Filtered Balance Systems





- Complete “system”—self contained
  - ✓ Internal fan w/vibration isolation supports
  - ✓ Filter mounted above integral fan
  - ✓ Fits on existing bench
- Exhaust options
  - ✓ Recirculate into room
  - ✓ Exhaust to house via canopy

LABCONCO®

XPert® Filtered Balance Stations

- Protect the user
- Built-in HEPA filter removes particulates
- Must be ducted to the outside using a remote blower
- Patented rear baffle
- Powder weighing applications in pharmaceutical research are typical
- Deep interior accommodates large micro and analytical balances
- Optional left-mounted waste chute

LABCONCO

XPert® Filtered Balance Stations

Features & Benefits

Front-mounted pressure gauge

Exhaust collar allows connection to ductwork and remote blower

Static-dissipative epoxy-coated aluminum frame and steel rear plenum and baffle

Deep interior easily accommodates large analytical balances

Built-in airflow monitor

Upper dilution air supply

True bag-in/bag-out HEPA filter disposal system

Ergonomic angled sash

Tempered safety glass sides and sash

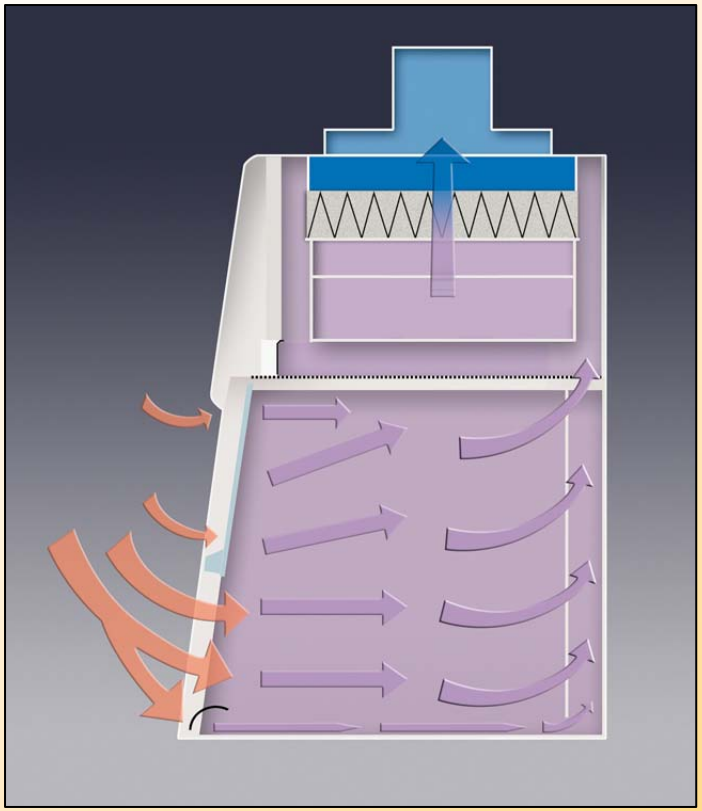
Side-entry air foils

Upper containment sash foil

Patented Clean-Sweep™ air foil

LABCONCO

XPert® Filtered Balance Stations



- No internal fan
- Filter mounted above enclosure
- Tie into house exhaust system
- Minimized vibration

LABCONCO

XPert® Balance Enclosures

- Provide user protection
- Must be ducted to the outside or connected to a FilterMate Portable Exhauster
- Deep interior accommodates large micro and analytical balances
- Patented rear baffle
- Exhaust less tempered room air than fume hoods — conserving energy
- No switches, wiring or service fixtures that can add costs

LABCONCO

XPert® Balance Enclosures

- 2', 3', 4', 5', 6', & 8' models
- 22.3" or 31.5" exterior height
- 23.4" or 30.0" interior depth
- Top or bottom exhaust connection
- Airflow monitor standard
- Optional left-side mounted waste chute

LABCONCO

XPert® Balance Enclosures

Features & Benefits

LABCONCO

XPert® Balance Enclosures

Easy-Order

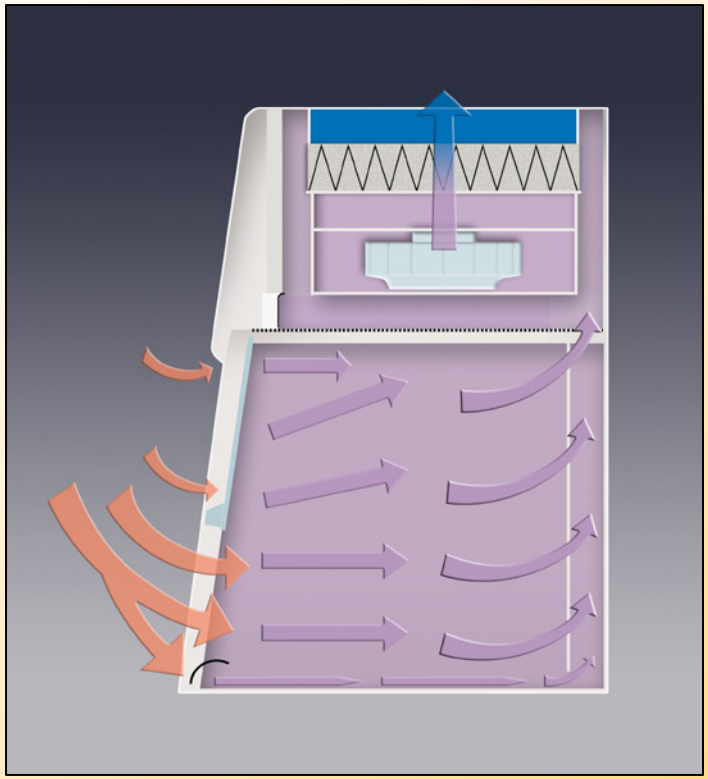
One part number includes:

- 2', 3' or 4' Balance Enclosure
- FilterMate Portable Exhauster
- Bag-In/Bag-Out HEPA Filter
- Vent Connection Kit with adapters and hose connectors
- Guardian Jr. or 1000 Digital Airflow Monitor
- Dished Epoxy Work Surface

LABCONCO

XPert® Balance Enclosures

Performance-Enhancing Features



- Enhanced Containment
  - ✓ Horizontal slotted baffle
  - ✓ Clean-Sweep™ air foil
  - ✓ Bypass air
  - ✓ Sash foil
  - ✓ Side-entry air foils

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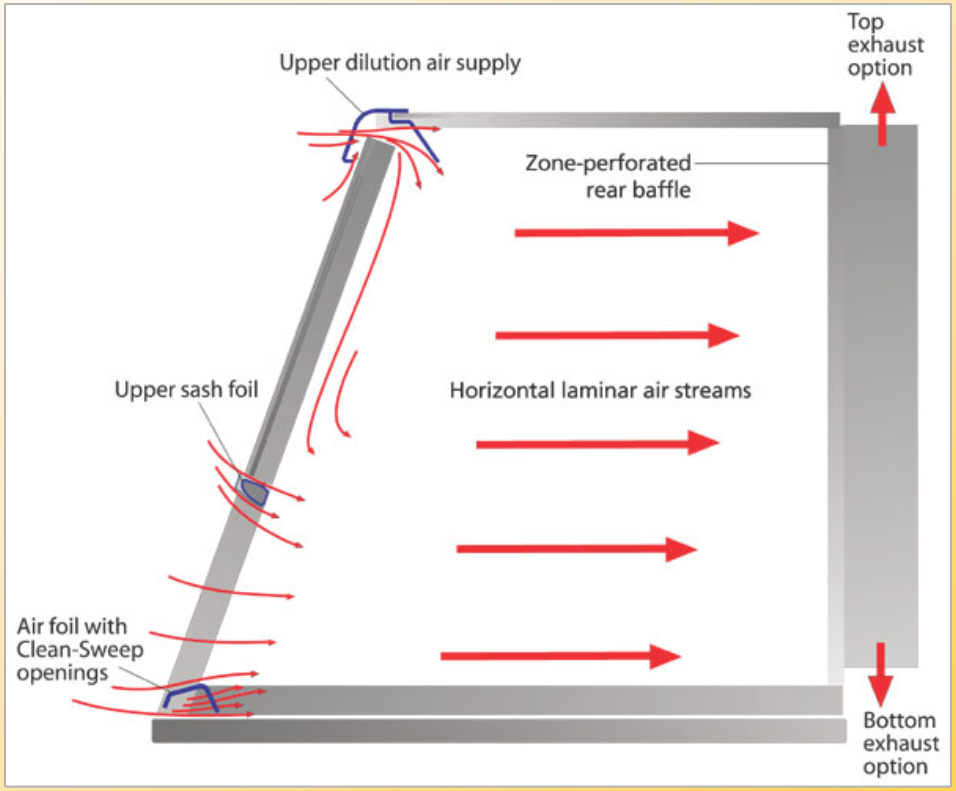
XPert® Balance Enclosures

Containment-Enhancing Features



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XPert® Balance Enclosures

Containment-Enhancing Features

Clean-Sweep™ Air Foil allows air to sweep the work surface for maximum containment.

Side-Entry Air Foils are located on either side of the sash opening and direct clean airflow into the chamber.

Upper Dilution Air Supply introduces air from above the work area and bathes the back of the sash with clean air and directs concentrations away from the sash opening.

LABCONCO

XPert® Balance Enclosures

Containment-Enhancing Features

Aerodynamic Air Foil

- Clean-Sweep™ openings
- Directs airflow into hood and across work surface
- Minimizes turbulence
- Patented feature

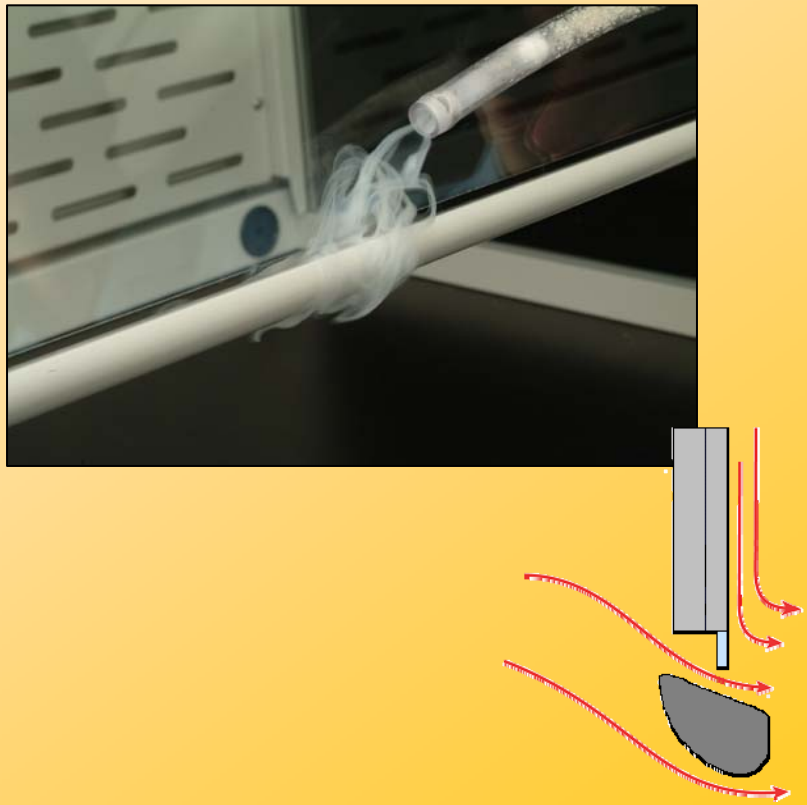
LABCONCO

XPert® Balance Enclosures

Containment-Enhancing Features

Upper Containment Sash Foil

- Aerodynamic shape directs airflow
- Air gap bleeds high velocity air into enclosure
- Reduces contaminants behind sash
- Patented feature



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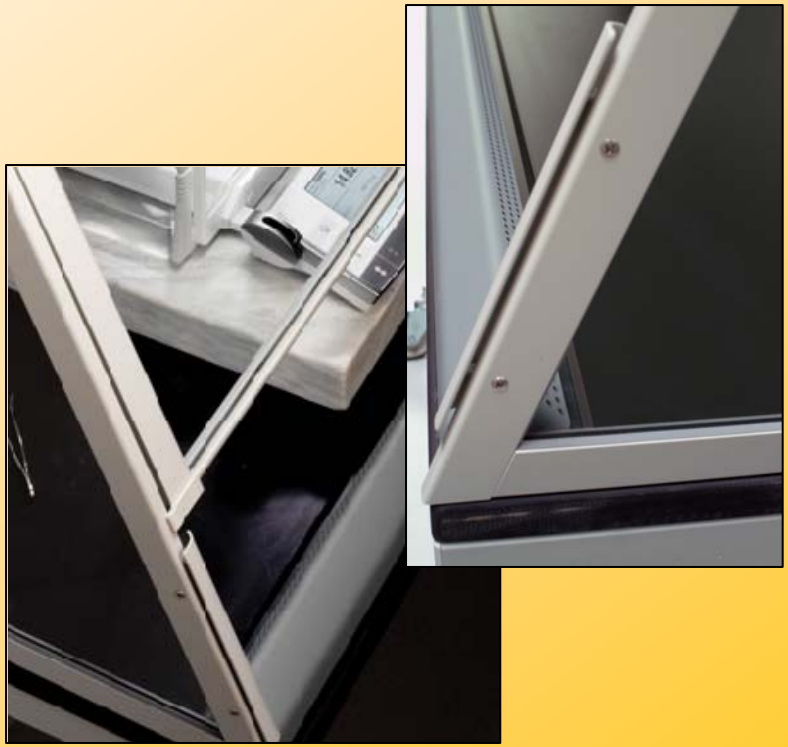
XPert® Balance Enclosures

Containment-Enhancing Features

Side-Entry Air Foils

- Provides horizontal flow
- Eliminates dead-air zone around sash area
- Exclusive feature



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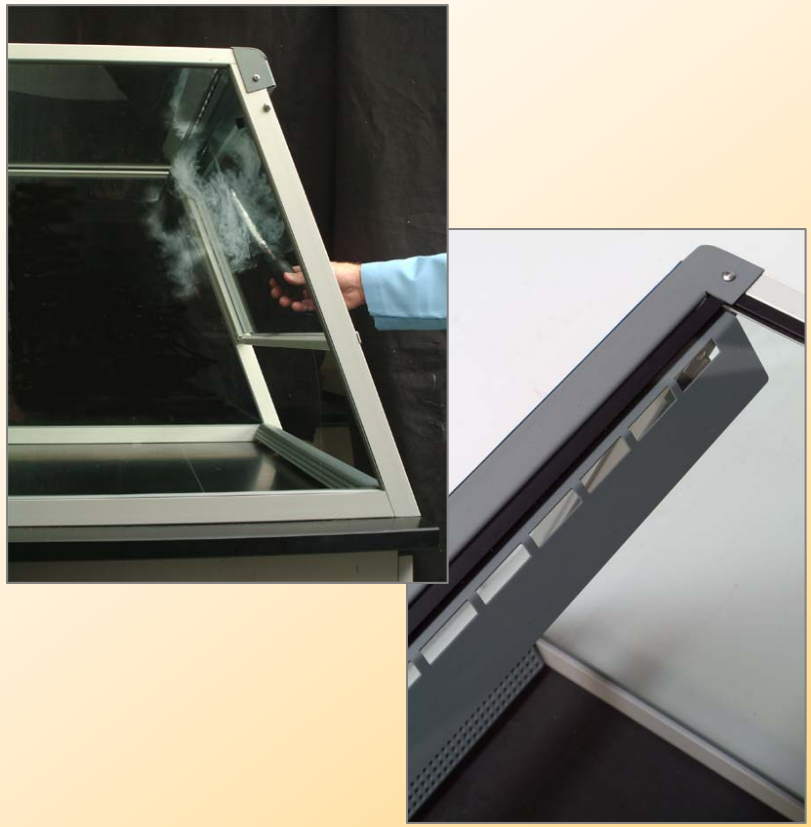
XPert® Balance Enclosures

Containment-Enhancing Features



Upper Dilution Air Supply

- Bypass Air (5 – 10%)
- Purges top of enclosure
- Bathes area behind sash
  - ✓ Reduces chemical concentrations
  - ✓ Introduces clean air near user's breathing zone
- Exclusive feature

LABCONCO

XPert® Balance Enclosures

Containment-Enhancing Features

Slotted Horizontal Baffle

- Greatly reduces vortex (roll)
- Provides horizontal “laminar” flow
- Patented feature

LABCONCO®

XPert® Balance Enclosures

Vibration Isolation

Vibration:

- Affects weighing operations
- Greater effect in taller buildings
- Placement near outside wall is better
- Corners are more rigid
- Work surface needs to be stable and level

LABCONCO

XPert® Balance Enclosures

Validation Documentation

- Validation package included with each enclosure:
  - ✓ Independent test data:
    - SafeBridge Consultants: Powders Containment Test
    - Exposure Control Technologies: ASHRAE 110-1995 Test
  - ✓ IQ/OQ Protocol
  - ✓ Manufacturer's quality assurance inspection form

LABCONCO

XPert® Balance Enclosures

Factors Affecting Performance

- Electrostatics
- Temperature
- Humidity
- Vibration
- Lab air currents
- Exhaust system
- Installation
- User technique

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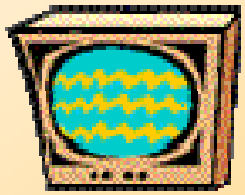
XPert® Balance Enclosures

Electrostatics



- Electrostatic Problems:
  - ✓ Lightweight powders float
  - ✓ Static attraction can be greater than air currents
  - ✓ Balance performance can be adversely impacted
- Electrostatic problems are compounded by:
  - ✓ Enclosure materials of construction
  - ✓ Low humidity—dry air holds static charge
  - ✓ Temperature—heat sources affect air currents

LABCONCO

XPert® Balance Enclosures

Electrostatics

- Tempered safety glass is static dissipative – releases static more readily
- Acrylic has insulative properties – static charge clings to material
  - Recommend the use of ionizers – aligns charges

Material	Surface Resistivity	Example
Conductive	$0 \rightarrow 10^5\ \Omega$ per square CM	Skin, Metals
Static dissipative	$10^5 \rightarrow 10^9\ \Omega$ per square CM	Glass
Antistatic	$10^9 \rightarrow 10^{12}\ \Omega$ per square CM	Polyethylene bag
Insulative	$10^{12}\ \Omega$ per square CM$\rightarrow$	Acrylic box, Packing foam, Styrofoam

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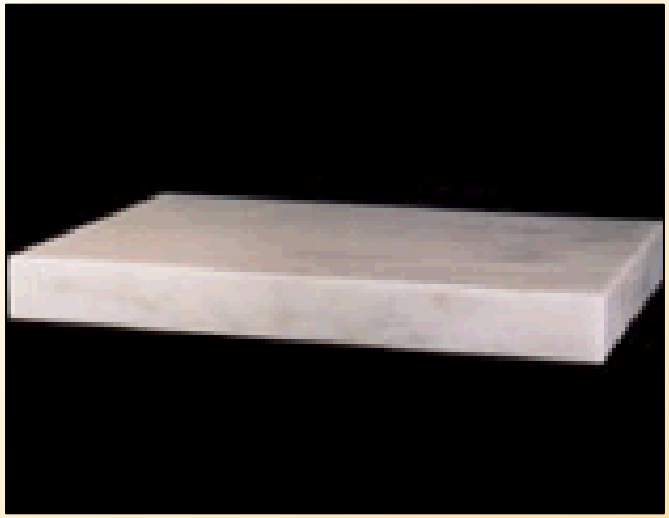
XPert® Balance Enclosures

Vibration Isolation



Marble Slab

- 3" Marble Slab
  - ✓ Economical
  - ✓ Fits comfortably
  - ✓ Does not affect containment
- Rubber/Vinyl Isolator Pads
  - ✓ Inexpensive
  - ✓ Effective vibration dampening

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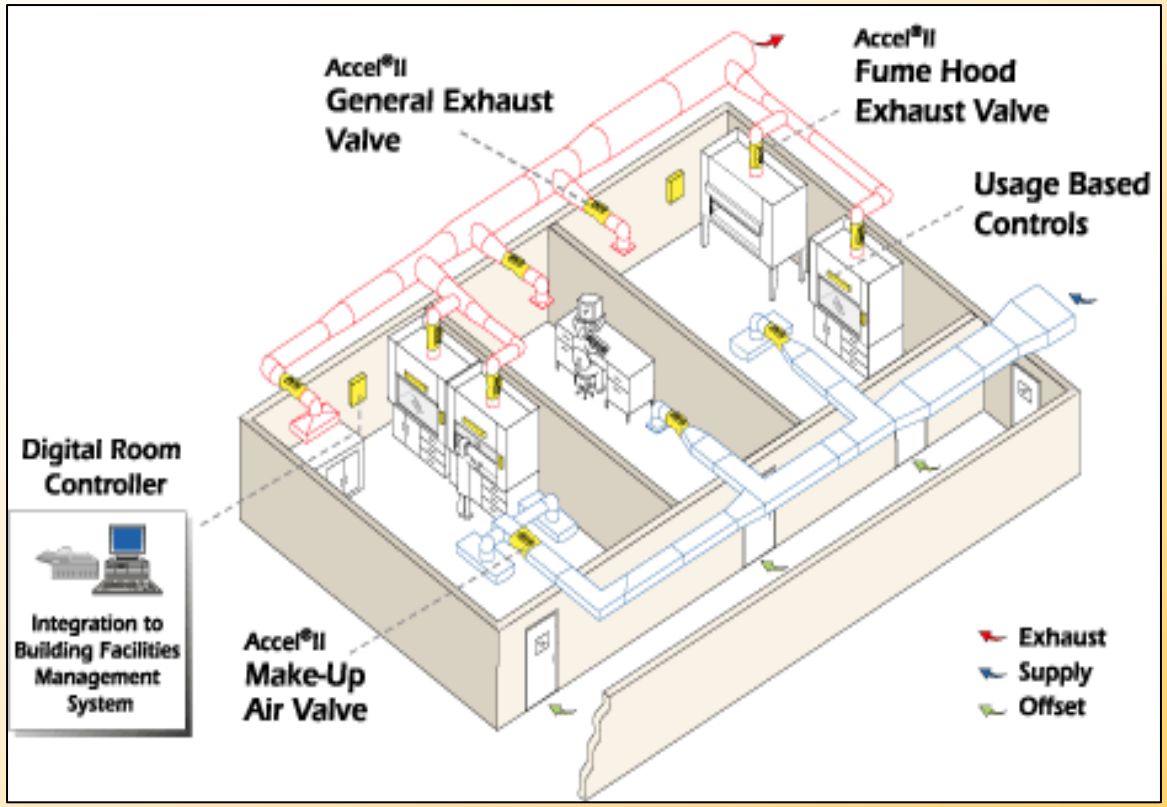
XPert® Balance Enclosures

HVAC/Installation

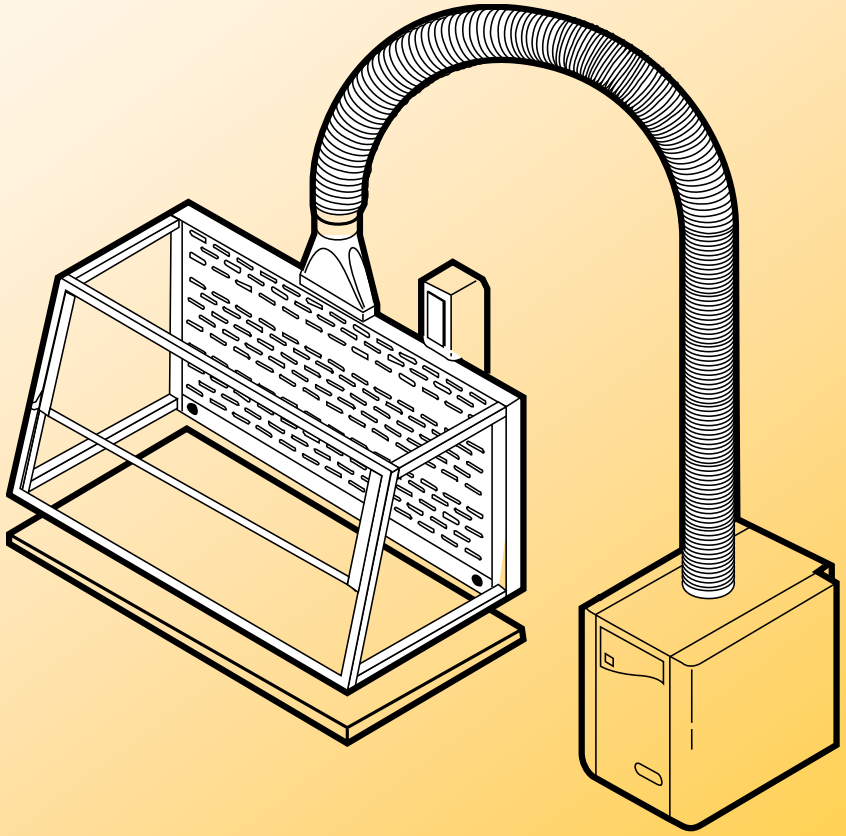


- Installation Location:
  - ✓ Low traffic areas
  - ✓ Away from open doors
  - ✓ No cross-drafts
  - ✓ Avoid supply air diffuser
  - ✓ Lab location
  - ✓ Low “throw velocity”
- Balanced HVAC system
  - ✓ Adequate supply air

LABCONCO

XPert® Balance Enclosures

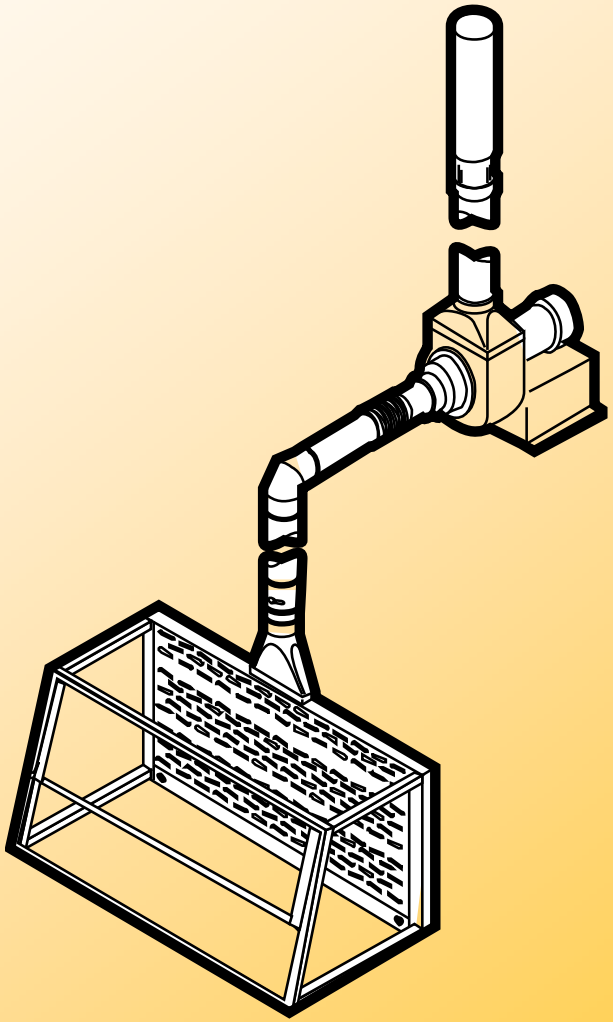
Typical venting with FilterMate Portable Exhauster



LABCONCO

XPert® Balance Enclosures

Typical venting from top with remote blower



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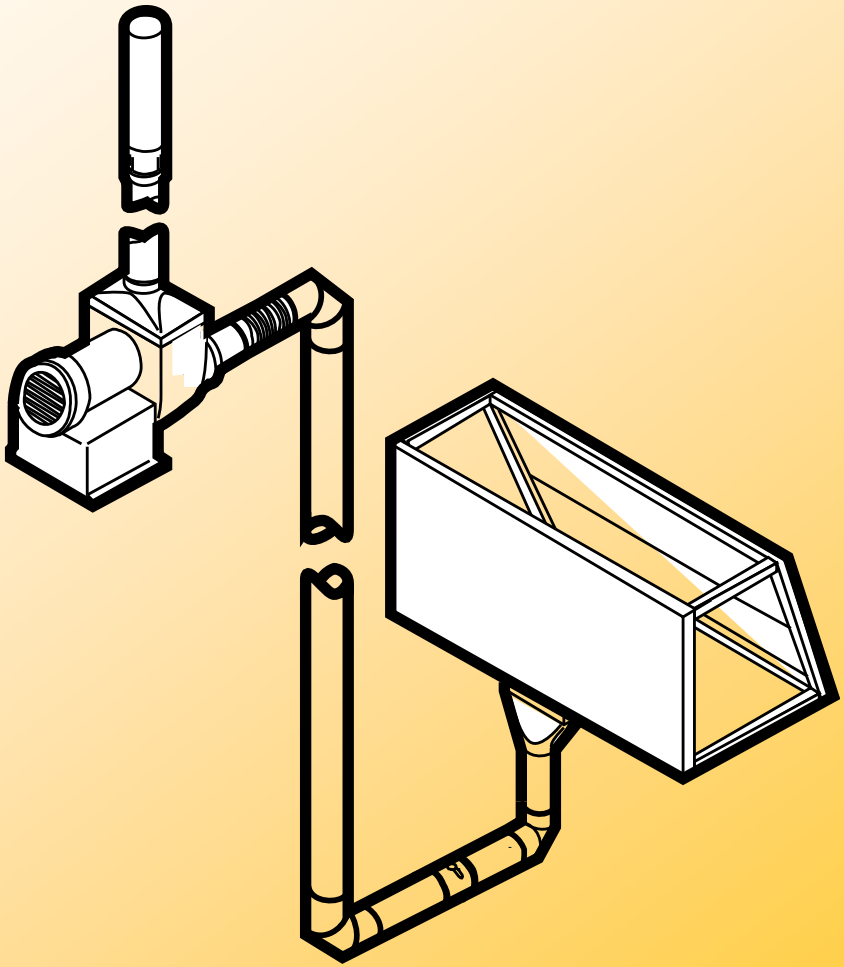
XPert® Balance Enclosures

Typical venting from back with remote blower



LABCONCO

XPert® Balance Enclosures

FilterMate™ Portable Exhauster

- Point-of-use exhauster
- Internal spark-proof impeller
  - Houses filter to purify air
  - Provides airflow to XPert

LABCONCO

XPert® Balance Enclosures

FilterMate™ Portable Exhauster

- Narrow design fits comfortably on bench or on the floor
- Comes standard with 8' polypropylene hose, clamps and Exhaust Transition Adapter

LABCONCO

XPert® Balance Enclosures

FilterMate™ Portable Exhauster

- Large capacity – 280 CFM
  - ✓ Provides up to 100 fpm face velocity for 2', 3' or 4' Enclosure**
  - ✓ HEPA Filter, Carbon Filter or BOTH with one FilterMate
  - ✓ Carbon filter types:
    - Organic
    - Ammonia
    - Formaldehyde
- Quiet operation
  - ✓ 54 dbA at 150 CFM operation

** Contact Labconco for technical assistance regarding using multiple FilterMates for 5', 6' and 8' wide enclosures

LABCONCO®

XPert® Balance Enclosures

FilterMate™ Portable Exhauster

- Three ways to exhaust:
  - ✓ Through FilterMate to house exhaust system
  - ✓ Through FilterMate back into the room
  - ✓ Directly from enclosure to house exhaust system

LABCONCO®

XPert® Balance Enclosures

FilterMate™ Portable Exhauster

- Intrinsically safe design
  - ✓ Filter is in a negative pressure plenum
- Bag-In/Bag-Out HEPA filter replacement
  - ✓ Minimizes servicer contact
- HEPA filter can be scanned for leaks from outside FilterMate

LABCONCO

XPert® Balance Enclosures

Convenience Features

- Adjustable speed control (qualified personnel only)
- Additional grounded outlet
  - ✓ Can power airflow monitor
- Circuit breaker – 5 amp

LABCONCO

XPert® Balance Enclosures

User Technique

- Use glass or metal weigh dishes and tools – static dissipative
- Work slowly, methodically
- Be cognizant of surroundings
- Work in a bright environment; rest eyes often

LABCONCO

XPert® Balance Enclosures

User Technique

- No enclosure can compensate for poor technique.
  - Labconco's Enclosure has been proven to provide a safe work environment even with less proficient technique.

"The Labconco XPert Balance Enclosure is capable of providing excellent containment where the operator uses proficiency in technique…"

"Where operators exercise less than excellent technique and/or have minor spillage good containment performance is achieved."

Edward J. Haggerty, CIH
SafeBridge Consultants, Inc.

LABCONCO®

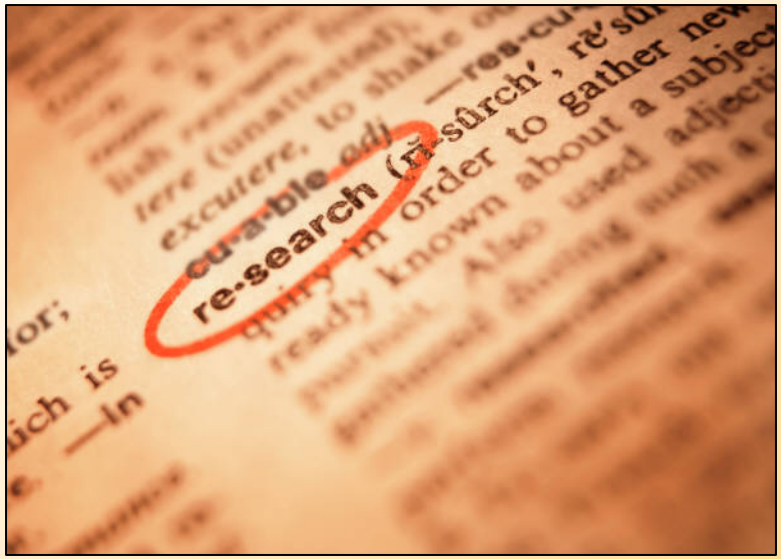
XPert® Balance Enclosures

Safety Features

- Spring-loaded sash latch
  - ✓ Exclusive feature
  - ✓ Allows for easy loading of equipment
- Airflow monitor standard
  - ✓ Guardian Jr. (low flow)
  - ✓ Guardian 1000 (high/low flow)
  - ✓ Easy to install
  - ✓ Calibrated in house

LABCONCO®

XPert® Bulk Powder Transfer System



- Definitions & Terms
- Features
- Planning & Start Up
- Loading
- Technique
- Procedure
- Clean Up

LABCONCO

XPert® Bulk Powder Enclosures

Definitions

Source Container: Bulk container or fiber drum containing powder

Transfer Cart: Transport device for source container

Transfer Plate: Platform of Transport Cart that connects to the lift

Electric Lift: Raises the source container for access through enclosure

Transfer Cart Latch: Secures Transport Cart to electric lift

LABCONCO®

XPert® Bulk Powder Enclosures

Definitions

Safety Sleeve: Bag placed around outside of source container for additional protection

Retaining Band: Secures the Safety Sleeve to the Source Container and secures the source container bags to the retaining ring

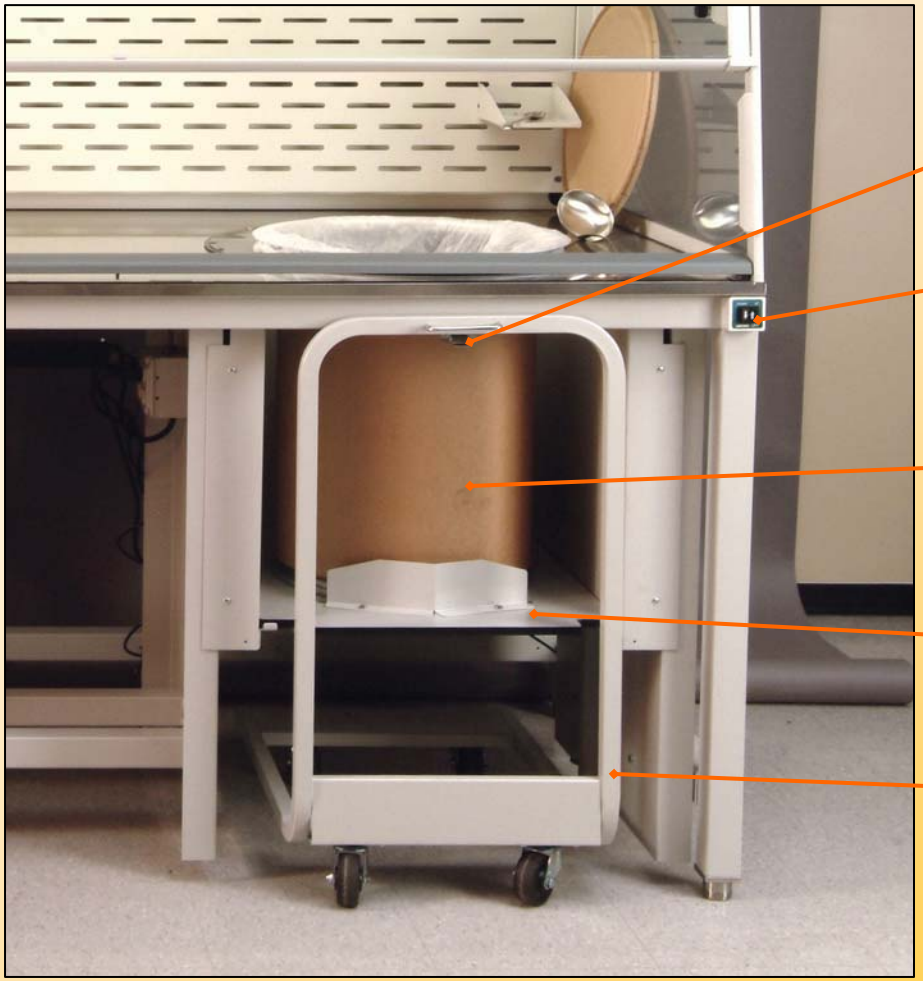
Retaining Ring: Ring on work surface used to secure source container bags in place

Waste Chute: Hole on side of enclosure that allows attachment of bag for waste disposal

LABCONCO

XPert® Bulk Powder Enclosures

Terms



LABCONCO

XPert® Bulk Powder Enclosures

Markets

Pharmaceutical Research

Chemical Manufacturing

LABCONCO

XPert® Bulk Powder Filtered Systems, Filtered Stations and Enclosures

- Designed to protect user during powder transfer operations
- Filtered Systems and Stations include a built-in HEPA filter to remove particulates in the exhaust air
- Patented rear baffle with zones of perforations promotes horizontal airflow

LABCONCO®

XPert® Bulk Powder Filtered Systems, Filtered Stations and Enclosures

Guardian 1000 digital air monitor

Front-mounted pressure gauge

Upper dilution air supply

Patented rear baffle

Tempered safety glass

Optimal HEPA filter location

Optional left-side mounted waste chute

Side-entry air foils

Push button-controlled electric hydraulic lift mechanism

Base stand included

Transfer caddy included

True bag-in/bag-out HEPA filter disposal system

Stainless steel work surface with front trough

LABCONCO

XPert® Bulk Powder Filtered Systems

- Built-in HEPA filter to remove particulates in the exhaust air
- Built-in blower — no ducting to the outside required
- Push-button operated electric hydraulic lift mechanism
- Electronic beam automatically stops lift mechanism at optimal access height
- Available in 5- and 6-foot widths

LABCONCO

XPert® Bulk Powder Filtered Systems

- Required accessories include
  - ✓ Retaining Ring
  - ✓ Safety Sleeves
  - ✓ Retaining Bands
  - ✓ Access Opening Cover

LABCONCO®

XPert® Bulk Powder Filtered Stations

- Have an exhaust collar and require ducting to house exhaust or a remote blower
- Available in 5' and 6' widths
- Require Remote Blower
- Ductwork
- Retaining ring and bands
- Access Opening Cover

LABCONCO

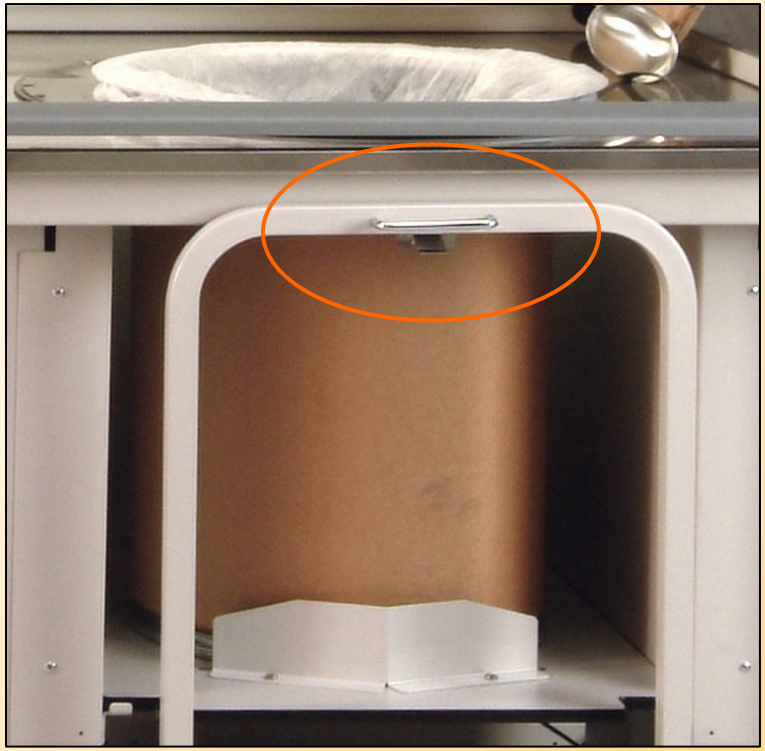
XPert® Bulk Powder Enclosures

- Requires venting by connection to a remote blower or house exhaust to the outside
- Available in 5', 6', and 8' widths
- Require Retaining Ring and Bands
- Require Safety Sleeves
- Require Access Opening Cover

LABCONCO

XPert® Bulk Powder Enclosures

Exclusive Features



- Transfer Cart is latched in place to keep it from moving
- Transfer Cart handle is out of the way during the weigh procedure

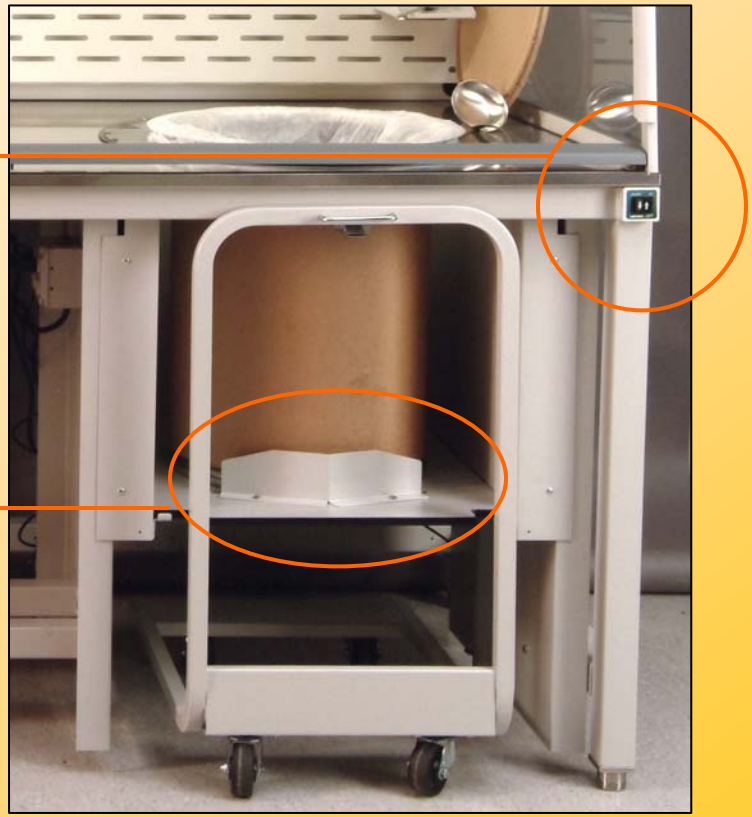
LABCONCO

XPert® Bulk Powder Enclosures

Exclusive Features

- Lift is electric and automatically stops at access height.

- Transfer Plate locates source container in correct position for access opening.



LABCONCO®

XPert® Bulk Powder Enclosures

Exclusive Features

- Retaining Ring provides a way to secure the source container liner bag.
  - Retaining Band secures the source container liner bag to the retaining ring to seal the bag to the work surface.

LABCONCO

XPert® Bulk Powder Enclosures

Exclusive Features

- Baffle pivots downward for easy cleaning.

LABCONCO®

XPert® Bulk Powder Enclosures

- Digital airflow alarm for continual display of airflow velocity
- Hydraulic lift holds sash up while loading and unloading

LABCONCO

XPert® Bulk Powder Enclosures

Access Opening

- Variable location
  - ✓ Right side
  - ✓ Center
  - ✓ Left side (not shown)

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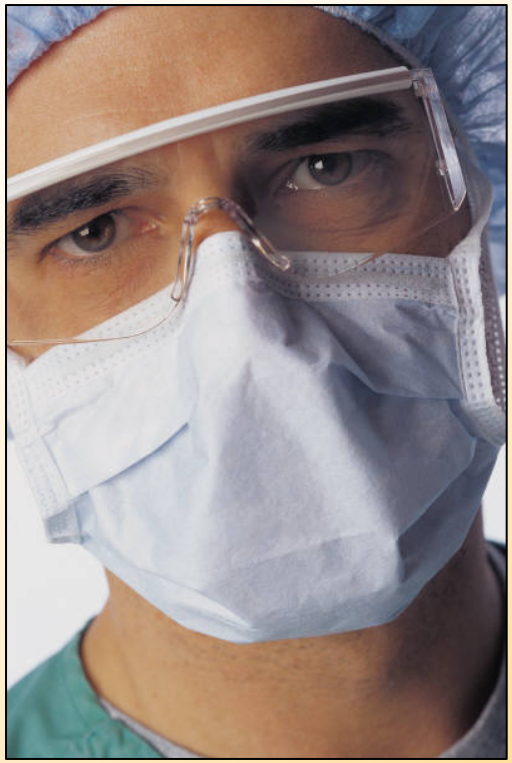
XPert® Bulk Powder Enclosures

Planning



- Understand procedures and equipment
- Arrange for minimal disruptions
- Consult your Safety Officer for protective equipment recommendations
- Transport containers to Bulk Powder Enclosure

LABCONCO

XPert® Bulk Powder Enclosures

Start Up

- Turn on blower and purge system for several minutes before beginning procedure.
  - Check the baffle air slots for obstructions.

LABCONCO®

XPert® Bulk Powder Enclosures

Start Up

- Load with necessary equipment and supplies.
- Decontamination products may be useful.
- Ensure that sash is fully closed when working in enclosure.
- Position equipment so air flow is not obstructed.

LABCONCO®

XPert® Bulk Powder Enclosures

Loading

- Attach Safety Sleeve to source container and place on cart.
- Dock cart to Bulk Powder Transfer System.
- Push button to activate Lift System.
- Lift stops automatically when source container is at access height.

LABCONCO

XPert® Bulk Powder Enclosures

Loading

- Pull Safety Sleeve through opening in work surface and secure on Retaining Ring with Retaining Band.
- Allow system to purge airborne contaminants from the work area.

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XPert® Bulk Powder Enclosures

Loading

- Remove lid from source container.
  - ✓ Place inside enclosure, or
  - ✓ Decontaminate thoroughly and remove from enclosure
- Secure inner bags from source container to the Retaining Ring with Retaining Bands.

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XPert® Bulk Powder Enclosures

Work Technique

- Keep all materials inside the lower air foil and perform all contaminated operations as far to the rear of the work area as possible.
- Segregate all clean and contaminated materials in the work area.
- Avoid using techniques or procedures that disrupt airflow patterns of the enclosure.

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Work Technique

- Keep all materials and hands inside enclosure until the end of the procedure and all materials have been wiped down.
- At end of wipe down, wipe down arm covers and gloves.
- Remove arm covers and gloves inside enclosure.
- Place waste materials in waste chute.

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Work Procedure

- Remove lid of source container and place to the side. Secure both outer and inner bags of source container to retaining ring with retaining band.
- Scoop powder into container.

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Work Procedure

When weighing procedure is completed, close container and place to the side. The user may either wipe container and lid after each weigh out or when all weigh outs are completed.

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Clean Up

- When procedure is completed, remove retaining band and place in disinfecting solution or discard in waste chute.
- Place inner bag in source container. Repeat for outer bag and place lid back on source container.
- Vacuum if necessary. With a decontamination solution such as IPE, wipe down source container lid, inside of safety sleeve, work surface and any other materials inside the enclosure.

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Clean Up

- Remove retaining band on safety sleeve.
- Pull safety sleeve up through opening in work surface and discard.
- With a decontamination solution, wipe down arm covers and gloves before removing and discarding in waste chute.

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Clean Up

- Lower source container until it comes to a stop.
- Unlatch Transfer Cart and return source container.
- Remove materials from inside enclosure and properly dispose of materials.
- Allow unit to purge for 2 minutes before turning off exhaust system.

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XPert® Balance Enclosures

Accessories

- Two exhaust configurations
  - ✓ Top exhaust transition
  - ✓ Bottom exhaust transition
- Two ductwork options
  - ✓ 5" diameter flexible hose
  - ✓ 6" diameter PVC Duct

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XPert® Balance Enclosures

Accessories

Remote Blowers

- TEFC-type direct drive motor blower
- Corrosion-resistant phenolic-coated steel housing and impeller

- Belt drive motor blower
- Corrosion-resistant phenolic-coated steel housing and impeller
- Dry powder epoxy-coated base and weather cover

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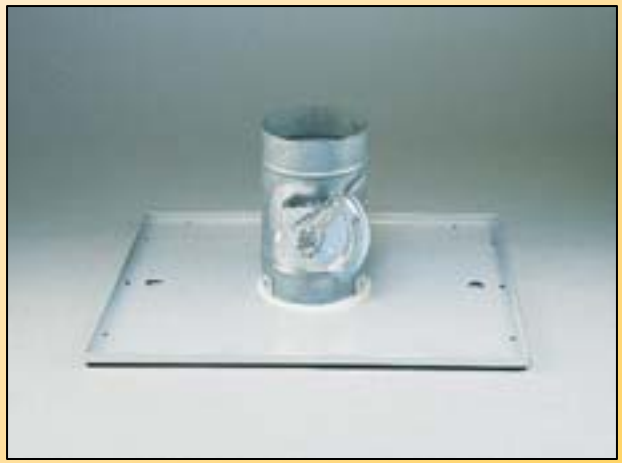
XPert® Balance Enclosures

Accessories

- Canopy Connection Kit
- Remote Exhaust Fan
- Ductwork
- Dampers



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XPert® Balance Enclosures

Accessories

- Kim wipe holder
- Spray bottle holder
- Ergonomic chair
- Ergonomic footrest

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XPert® Balance Enclosures

Accessories

- 3-Shelf accessory kit
  - ✓ Reduces interior clutter
  - ✓ Shelves can rest on back wall
  - ✓ Does not affect airflow
- Printer shelf—inside or out
  - ✓ Utensil shelf
  - ✓ Utility shelf—disposables or calibration weight

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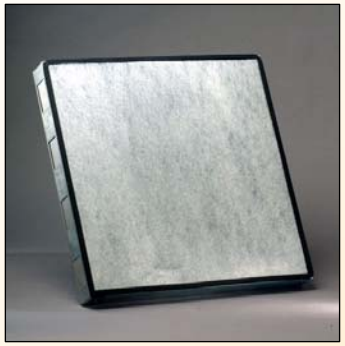
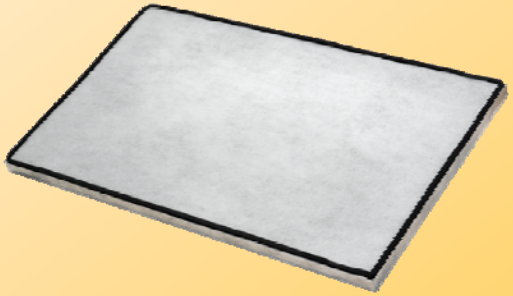
XPert® Balance Enclosures

Accessories





- Trace Odor Carbon Filters for XPert System
- Carbon Filters
- Fluorescent Light
- HEPA Filters

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XPert® Balance Enclosures

Accessories

- Solid Epoxy Work Surfaces
- Stainless Steel Work Surfaces

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Accessories

- Telescoping Base Stand
- Transfer Caddy
- Protector® Standard Storage Cabinets
- Telescoping Base Stands with Casters

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Conformity

- SEFA 1-2005
- ANSI Z9.5-1993
- Modified ASHRAE 110-1995
- UL 3101-1/61010-1 (115v models)
- CAN / CSA C22.2 No. 1010.1 (115v models)
- CE Conformity Marking (230v models)
- Safebridge Tested

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XPert® Balance Enclosures

Additional Information

- Product literature
- Lunch-and-Learn sessions
- XPert video
- Trade shows
- 3-part specifications
- CAD drawings

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