Telstar

Life Science solutions

Downflow Booths

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Highest operator protection

The Telstar downflow booth provides the highest levels of operator protection from potentially harmful airborne contaminants generated during manual powder handling operations such as sampling, charging and dispensing.

Achieving Operator Exposure Levels (OEL) typically between 50 and 100µg/m3 TWA the booth also provides product protection (Class ISO 5) from surrounding area contamination by creating a clean processing zone minimizing cross contamination risk from other products/processes. Lower levels of containment (10µg/m3) can be achieved by utilizing purpose designed workstations and containment screens.

Telstar booths are available in powder coated carbon steel, 304L/316L stainless steel or a combination of both. With a variety of standard dimensions (height, width and safe working depths) our booths can also be custom engineered to any size.

The downflow booth operates on a recirculatory push-pull airflow principle providing containment by air movement. A clean, constant, turbulence free, unidirectional downflow of air is supplied from the ceiling, suppressing any dust clouds generated during open powder processing, removing and capturing airborne particles from the operator's breathing zone.

Exhaust air grilles at the base of the rear wall capture the generated airborne contaminants. The exhaust airflow then passes through a series of filtration stages before returning through the booth ceiling plenum. A small percentage of air is discharged from the booth through the bleed exhaust port to maintain the working space under negative pressure, minimizing airborne contamination breakout.

Downflow booth working principle

The common advantages of containment by airflow systems are:

- Unrestricted operator access to the target operation (i.e. no physical impediment offered by the containment equipment).
- Flexibility to handle a large range of container types (i.e. fibre kegs, bags, IBC's, etc.).
- Capability to integrate additional process equipment.

Modular and compact design

The integration of the modular and compact design offers the advantage of both solutions, allowing either full integration of the equipment to the facility architecture or a stand alone installation as required when installing within existing locations.

The booths are available in a series of standard widths and depths however the design of these systems enables them to be customized to suit almost any footprint.

The units could be delivered completely disassembly or partially preassembly according to customer requirements.

Our systems can be powered by a single point connection or XP environments, can be set up with full/partial explosion proof electrics.

Operating conditions:

·Laminar flow velocity: 0,35 - 0,5 m/s (70 - 98 fpm)
·Bleed air: 10 - 20%
·Light intensity: > 600 lux
·Voltages:
- 230V Iph + E / 50Hz
- 400V IIIph + E + N / 50Hz
- 208V IIIph + E / 60 Hz
- 480V IIIph + E / 60Hz
- Other voltages available on request

Standard SS 304L Downflow Booth

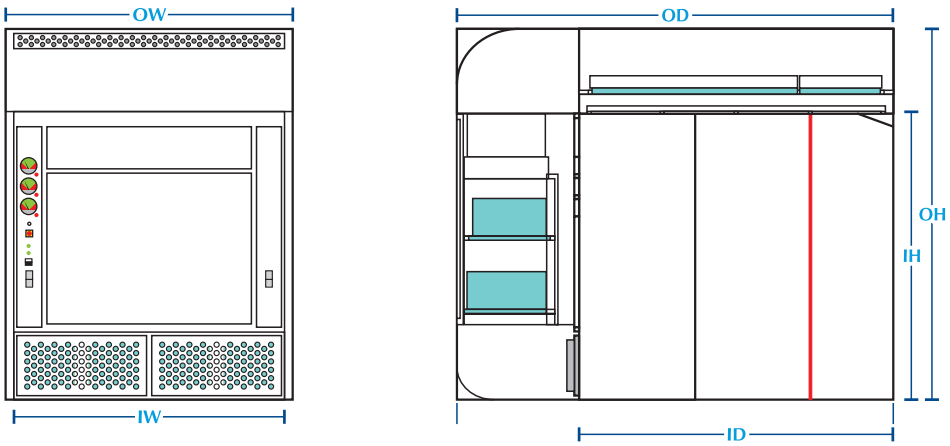
Standard Feature:

·Available in epoxy coated mild steel, 304L / 316L stainless steel or a combination of both.
·Side panels or strip curtains.
·With or without front strip curtains and transition area indication (containment zone).
·Triple Stage filtration: Pre-filter, Fine dust pre-filter, HEPA filter.
·Air distribution screens after Terminal HEPA filter.
·HEPA filter and Pre-filter pressure gauge.
·Control board with general switch.
·User friendly Touch screen HMI and PLC.
·Several working languages (Spanish, English and French).
·Standby function for energy saving when the unit is not in use.
·On board lighting concealed or teardrop types available.

Customized SS 304L Downflow Booth

Leaders in customizing fully integrated systems

Technical details



MDFB: Downflow booth without safe filter change

Dim.(mm)	1000	1600	2000	2600	3000	3200	3600	4000	4200	4600	4800	5200	5800	6400
OW	1000	1600	2000	2600	3000	3200	3600	4000	4200	4600	4800	5200	5800	6400
OD*	2750													
OH	2600													
IW	920	1520	1920	2520	2920	3120	3520	3920	4120	4520	4720	5120	5720	6320
ID*	2000													
IH	2100													

MDFBSC: Downflow booth with filter safe change

Dim.(mm)	1000	1600	2000	2600	3000	3200	3600	4000	4200	4600	4800	5200	5800	6400
OW	1000	1600	2000	2600	3000	3200	3600	4000	4200	4600	4800	5200	5800	6400
OD*	3000													
OH	3000													
IW	920	1520	1920	2520	2920	3120	3520	3920	4120	4520	4720	5120	5720	6320
ID*	2000													
IH	2500													

MDFB2D: Downflow booth dust explosion proof

Dim.(mm)	1000	1600	2000	2600	3000	3200	3600	4000	4200	4600	4800	5200	5800	6400
OW	1000	1600	2000	2600	3000	3200	3600	4000	4200	4600	4800	5200	5800	6400
OD*	3000													
OH	3000													
IW	920	1520	1920	2520	2920	3120	3520	3920	4120	4520	4720	5120	5720	6320
ID*	2000													
IH	2500													

MDFB2G: Downflow booth gas explosion proof

Dim.(mm)	1000	1600	2000	2600	3000	3200	3600	4000	4200	4600	4800	5200	5800	6400
OW	1000	1600	2000	2600	3000	3200	3600	4000	4200	4600	4800	5200	5800	6400
OD*	3350													
OH	3000													
IW	920	1520	1920	2520	2920	3120	3520	3920	4120	4520	4720	5120	5720	6320
ID*	2000													
IH	2500													

* Available depths:

Depth	ID	OD			
		MDFB	MDFBSC	MDF2D	MDFB2G
S	1400	2150	2400	2400	2750
L	2000	2750	3000	3000	3350
XL	2600	3350	3600	3600	3950

High containment screens

Telstar high containment screen provides a second barrier between the operator and the product to achieve operator exposures levels (OEL) bellow 10 µg/m3.

The screens have been ergonomically designed to provide maximum operator comfort and help to prevent bad practices which may impact on an operator's posture.

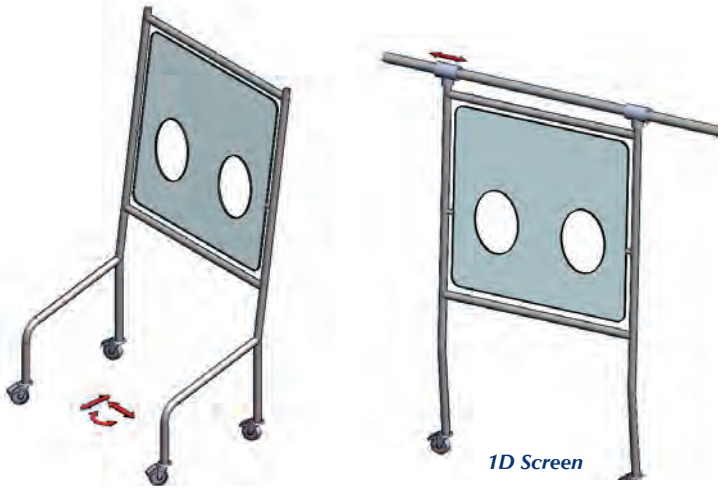
The stainless steel structure and safety glass screen assures protection combined with an easy cleaning process.

Telstar offer different solutions to be installed in the downflow booth depending on the application of the project:

- Independent screen self supported with wheels.
- 1D screen: allows left – right movement
- 5D screen: allows the movement of the screen in 5 directions though articulated arm:
  - Left – right
  - Up – down
  - Turn 180º the arm
  - Slope of the screen
  - Turn 180º the screen
- Customized Solutions

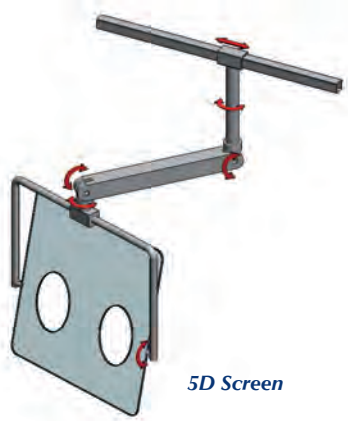
Gauntlets available in various sizes and materials.

1D Screen



Independent Screen

1D Screen



5D Screen

1D Screen

Options and accessories

A complete range of alternatives, accessories, and options allows for a wide range of configurations to suit any containment application.

- Stainless steel AISI 316L frame.
- Double skin side panels with windows.
- Internal flexible continuous curtain.
- Front PVC strip curtains (for warehouse applications).
- Low static PVC curtains.
- Front legs supports.
- Front doors (hinged/sliding/rapid roller).
- Front mounted pressurized airlocks.
- Disposable EU4 prefilters (High dust loading applications).
- Terminal Hepa H13/H14 filter with knife gel seal.
- Stainless steel or aluminium micro-perforated grille.
- Safe change Bag in/Bag out for return.
- Once-through airflow systems.
- Filter blocked alarms (audible and visible).
- Velocity sensor with automatic compensation of fans for progressive filter blockage (closed loop control).
- Noise attenuation systems.
- Cooling fan or chiller coil system for temperature regulation.
- Explosion proof electrics.
- Rigid containment screen with glove ports for improved operator protection.
- Various fixed or mobile bench options mounted on rear booth wall.
- Utility services such as network connections, compressed air fittings, Nitrogen, water hose etc.
- Base plinth/curb allowing a clean and level floor interface.
- Pallet guides.
- Supply & integration of drum handling equipment.
- FAT documentation.
- IQ/OQ protocols.

Safe change bag in / bag out

Fixed bench

Auxiliary fittings

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